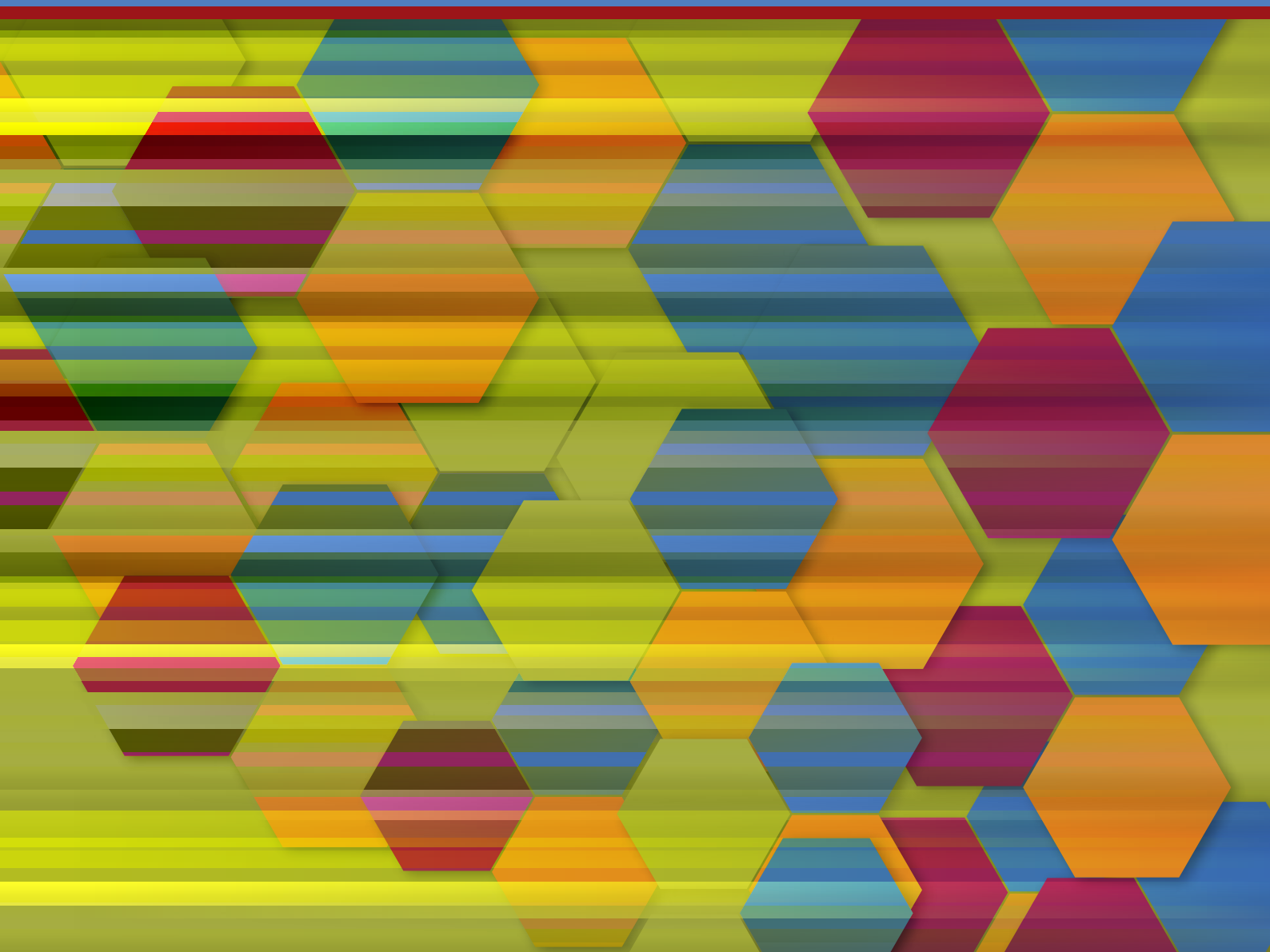




Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

AGRICULTURE AND FORESTRY SECTOR



Developed under the Khammouane Development Project (KDP),
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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC).



Government Agencies Responsible for the Agriculture and Forestry Sector in Khammouane

This Guidance Note is based on the GFDRR guidelines and the Lao National Guidelines and should be used by the Department of Agriculture and Forestry (DAF) of the Khammouane province in undertaking damage, loss and needs assessment of the **Agriculture Sector** after a disaster. This sector is normally composed of the sub-sectors of crops, livestock, fisheries and forestry.

The DAF, in close coordination with the local district offices as well as with other agencies and development partners involved in agriculture sector, should be guided by this document in conducting post-disaster damage, loss and needs assessment in the province.

Since the DaLNA makes estimations of the value of affected physical assets and of changes in the economic flows (income and expenditures), the assessment team should include agriculturists/agronomists, fisheries experts, foresters and economists. It should also include other professionals that are well acquainted with the assessment methodology and with the socio-economic conditions of the affected areas. For a DaLNA initiated by the province of Khammouane, a suggested assessment team composition is found below:

Personnel	Role in the Agriculture Sector DaLNA
Staff from DAF of the Khammouane Province (agriculturists/agronomists, fisheries experts, agricultural economist and finance personnel)	Lead and coordinate

Staff from national Ministry of Agriculture and Forestry (agriculturists/agronomists, fisheries experts, agricultural economist and finance personnel)	Participate and provide technical advice
Staff from the affected district/s Department of Agriculture and Forestry (agriculturists/agronomists, fisheries experts, agricultural economist and finance personnel) personnel)	Provide damage and loss information and facilitate assessment
Development partners (if active in the Agriculture Sector in Khammouane)	Participate and provide technical advice



Concepts and Definitions

Agriculture and Forestry sector

The agriculture sector is composed of the following sub-sectors: a) seasonal crops like rice, vegetables, root crops, etc.; b) permanent crops like plantations of coffee, coconuts, fruit trees, etc.; c) livestock and poultry; d) fisheries which may be river fishing or inland aquaculture; e) forestry which will include timber and other forest products; f) other primary agricultural products like honey and unprocessed milk; and g) agriculture-related assets like irrigation, storage, agricultural inputs, etc.

Damages

Damages are total or partial destruction of capital assets, infrastructure such as animal sheds, storage, ice plants, irrigation, inventory of goods like agricultural inputs; equipment, machinery; and raw materials for production, among others. Damages are valued as:

1. The replacement cost of totally destroyed assets; and/or
2. The cost of repair of partially damaged physical assets and infrastructure.

Damages in this sector will occur at the time of, or shortly after the disaster although some damages may become obvious only after a longer period. Damages are measured in physical terms (such as kilometers of irrigation canals, number of livestock lost, damaged equipment) for which the monetary repair or replacement value is subsequently estimated.

Losses

Losses are the values due to the change in economic flows (income and expenditures) during the period of recovery and reconstruction following the disaster. They are the current value of goods and services that were not and/or will not be produced over a time span due to the disaster until full recovery is attained. Losses in the agriculture sector will include:

- ✿ Foregone income from planted crops, livestock, fisheries, forestry, etc. after they were destroyed by disasters.
- ✿ Future income from harvests due to the degradation of land by floods, landslides, prolonged droughts, etc.

- ✿ Future income from harvests due to the destruction of permanent crops and trees.
- ✿ Additional expenses to clean up the debris of destruction, retrieval of buried assets, etc.

Losses will take place during the entire period of recovery and reconstruction of the sector and may stretch even beyond the year that the disaster occurred. It is expressed in monetary value at current prices.

In agriculture, an important type of loss is the investment loss of farmers when the standing crops or livestock or fish stocks are totally destroyed by a disaster. If these happen and the farmers (or growers) are not able to replant (or replace the stocks), the value of investment put into the destroyed crops (or livestock or fish stock) will be considered as loss.

On the other hand, if the farmers (or growers) replant (or replace the stocks) in time to harvest within the year, it will be as if the farmers (or growers) incurred a higher production cost to produce the same volume of harvest within the year. The total cost of production for the same output within the year will be the normal production cost plus the investment losses they incurred due to the disaster.



General Steps in Conducting a Post-disaster Damage, Loss and Needs Assessment (DaLNA)

The following steps are to be undertaken for DaLNA in the Agriculture Sector:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |
| Step 5 | Estimate recovery and reconstruction needs |
| Step 6 | Draft the implementation plan of the identified programs and projects |
| Step 7 | Draft the post-disaster damages, losses and needs (DaLNA) of the sector |

The procedures for each Step are provided in the following sections.



Detailed Steps in Undertaking Post-Disaster DaLNA in the Agriculture and Forestry Sector

In conducting a DaLNA in the agriculture sector, the following steps should be followed. Each template table should be completed for every disaster-affected district in Khammouane. It is assumed that the assets and production in the agriculture sector are private in ownership.

Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for each of the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

A. Crops, Permanent Crops, Livestock and Forestry

Table 1 Baseline information on agricultural products							
Name of District:							
Sub-sectors	Area planted	Average yield for the year	Farm gate price	Production cost	Number of farmers or growers or fishers		
	(Hectares)	(Kg/Hectare/Yr)	(Kips/unit)	(Kips/Hectare)	Families	M	F
Crops							
a. Rice							
b. Corn							
c. Vegetables							
d. Others							
Permanent Crops							
a. Coconut							

b. Coffee							
c. Fruit trees							
d. Others							
Forestry							
a. Timber							
b. Others							
Fisheries	Area						
a. Fishery 1							
b. Fishery n							
c. Others							
Livestock	Heads	(Kg/Yr)	(Kips/Kg)	(Kips/Unit)	Families	M	F
a. Cattle							
b. Pig							
c. Goat							
d. Buffalo							
e. Others							
Poultry	Heads	(Kg/Yr)	(Kips/Kg)	(Kips/Unit)	Families	M	F
a. Chicken							
b. Ducks							
c. Others							
Others Products	Units	(Units/Yr)	(Kips/Kg)	(Kips/Unit)	Families	M	F
a. Eggs							
b. Milk							
c. Honey							
d. Others							

Notes in filling out Table 1

- Major vegetables or other cash crops grown should be enumerated.
- The major types of fishes caught in the Mekong River should be enumerated.
- Estimated average yield per hectare per year should be based on past established productivity and farm gate prices.

B. Agricultural production and their seasons

Table 2 Agricultural products and their seasons

[illegible]

Crops												
a. Rice												
b. Corn												
c. Vegetables												
d. Others												
Permanent Crops							Harvest Season (Months)					
a. Coconut												
b. Coffee												
c. Fruit trees												
d. Others												
Forestry												
a. Timber												
b. Others												
Fisheries							Fishing Season (Months)					
a. Fishery 1												
b. Fishery n												
c. Others												
Poultry							Harvest Season (Months)					
a. Chicken												
b. Ducks												
b. Others												
Other products							Harvest Season (Months)					
a. Eggs												
b. Milk												
c. Honey												
d. Others												

Notes in filling out Table 2.

- ✿ Disasters will only affect the existing types of crops, permanent crops and other agricultural activities when disasters occur. By knowing the month of the occurrence of a disaster, it will be easier to identify the existing crops that can be affected.
- ✿ Tick the appropriate boxes under the month for the harvest of specific crops, permanent crops and other activities. This will indicate how many months in a year specific crops agricultural outputs are harvested.
- ✿ The above information may not drastically vary or change since the agricultural activities within the districts remains fairly the same.

c. Irrigation Assets

Irrigation is one of the major components in agriculture that is vital for the sector's performance which must be accounted for before a disaster to facilitate a post-disaster assessment in the future. The quantity, total construction costs as well as cost per unit should be included as in the following table.

Table 3 Irrigation Facilities							
Name of District:							
Name of District	Areas Irrigated	Length	Cost Per Meter	Monthly Income From Fees	Ownership		Number of beneficiaries
	Hectares	Meters	(Kips/ m)	(Kips)	Public	Private	Farmers
a.							
b.							
c.							

D. Other agricultural assets

On the other hand, the information on equipment and machineries used in agriculture can assist in assessment and the recovery of the sector should a disaster occur.

Table 4 Agricultural Assets						
Name of District:						
Assets	Quantity	Average Replacement Value	Ownership		Number of Private Owners	
		Kips	Public	Private	Male	Female
Physical Assets						
a. Agriculture land						
b. Storage buildings						
c. Animal pen						
d. Others						
Equipment and machinery						
a. Tractor						
b. Hand tractor						
c. Thresher						
d. Weeder						
e. Plow						
f. Others						

Stocks and raw materials						
a. Rice						
b. Corn						
c. Seeds						
d. Fertilizer						
e. Pesticides						
f. Veterinary supplies						
g. Others						
Forestry and Plantations						
a. Trees (enumerate)						
b. Others						
Other Equipment						
a. Honey production						
b. Milk production						
c. Egg production						
d. Others						
Fisheries						
a. Boats						
b. Engines						
c. Nets						
d. Traps and Cages						
e. Gears						
f. Others						

Note for filling in Table 4.

- ✿ The first column of the table includes the type of agricultural and fisheries assets in the area.
- ✿ The average replacement value refers to the average pre-disaster market price in Kips of the concerned asset.

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses in the sector/sub-sector are accurate to the extent possible.* Both public and private damages and losses must be included in the assessment.

Step 2.1. Estimate the damages in the year the disaster occurred

A. Agricultural Assets

The post disaster assessments can be done per District. The assessment team can use the following table in assessing the damages in a given District.

Table 5 Damages to Agricultural Assets					
Name of City or District:					
Assets	Number of Totally Destroyed	Average Replacement Cost per Unit (Kips)	Number of Partially Damaged	Average Repair Cost per Unit (Kips)	Total Value of Damages (Kips)
	A	B	C	D	E
Physical Assets					
a. Agriculture land					
b. Storage buildings					
c. Animal pen					
d. Others					
Equipment and machinery					
a. Tractor					
b. Hand tractor					
c. Thresher					
d. Weeder					
e. Plow					
f. Others					
Stocks and raw materials					
a. Rice					
b. Corn					
c. Seeds					
d. Fertilizer					
e. Pesticides					
f. Veterinary supplies					
g. Others					
Forestry and Plantations					
a. Trees (enumerate)					
b. Pasture					
c. Others					

Other Equipment					
a. Honey production					
b. Milk production					
c. Egg production					
d. Others					
Fisheries					
a. Boats					
b. Engines					
c. Nets					
d. Traps and Cages					
e. Ponds					
f. Gears					
g. Others					
TOTAL	N/A				

Notes for filling out Table 5.

- ✿ Agricultural lands can be totally damaged like when they become permanently submerged in water after a disaster making them unavailable for farming.
- ✿ Column A is for the number or quantity of totally destroyed assets.
- ✿ Column B refers to the estimated average cost of replacement of each of the totally destroyed assets.
- ✿ Column C is for the number or quantity of partially damaged assets.
- ✿ Column D refers to the estimated average cost of repair of each the partially damaged assets.
- ✿ The total value of damages in Column E will be the quantity of totally destroyed assets multiplied by their average cost of replacement plus the quantity of partially damaged assets multiplied by their average cost of repair.
- ✿ In formula, Column E = (Column A x Column B) + (Column C x Column D)
- ✿ The table can be expanded if there are other important assets that were damaged, as may be determined by the assessment team.
- ✿ The above concept will be applied to the succeeding tables.

B. Damages to Permanent Crops and Forest Products

The assessment must be able to account for all the permanent crops that have been destroyed or uprooted.

Table 6 Damages to Permanent Crops and Forest Products

Name of City or District:

Permanent Crops	Quantity of Affected Areas	Number of Totally Destroyed Trees	Average Replacement Cost	Total Value of Damages
	(Hectares)		(Kips)	(Kips)
	A	B	C	D
1. Coconut				
2. Coffee				
3. Fruit trees				
a.				
b.				
c.				
d.				
4. Timber trees				
a.				
b.				
c.				
d.				
Others				
TOTAL				

Notes in filling out Table 6.

- ✿ The “total value of damages” (Column D) is the “number of trees” (column B) multiplied by the “average replacement cost” (Column C). Column D = Column B x Column C.
- ✿ The average replacement cost will be the amount required to replant each of the totally destroyed or uprooted permanent crops and trees due to the disaster.
- ✿ The number of trees can also be estimated by the average number of trees per hectare.

C. Damages to Irrigation

The damages to irrigation systems can be estimated using the following table.

Table 7 Damages to Irrigation Systems

Name of City or District:					
Name of the Irrigation Facility	Partially damaged	Totally destroyed	Repair Cost	Replacement Cost	Value of Damages
	Meters	Meters	(Kips)	(Kips)	(Kips)
	A	B	C	D	E
a.					
b.					
c.					
TOTAL					

Notes in filling out Table 7.

- ✦ An irrigation facility can either be partially damaged or totally destroyed, to be indicated in the number of meters.
- ✦ The value of damage is equal to the repair cost if partially damaged or the replacement cost of the asset if totally destroyed. The repair cost can be estimated by visiting the irrigation system after the disaster. In formula, the value of damages is either Column E = Column A x Column C or Column E = Column B x Column D.

D. Damages to Livestock and Poultry

The damages to livestock and poultry can be estimated using the following table.

Table 8 Damages to Livestock and Related Products

Name of City or District:			
Livestock and Others	Quantity of Dead Animals	Average Replacement Cost	Total Value of Damages
	Heads	(Kips)	(Kips)
	A	B	C
1. Livestock			
a. Cattle			
b. Pig			
c. Goat			
d. Buffalo			
e. Others			
2. Poultry			
a. Chicken			
b. Ducks			
3. Others			
TOTAL			

Notes in filling out Table 8.

- ✿ The value of damages will be the quantity of animals multiplied by the average replacement costs at current prices. In formula, Column C = Column A x Column B

Step 2.2. Estimate the losses for the year that the disaster occurred

A. Production Losses

The estimated losses in agriculture are the differences between the expected pre-disaster and post-disaster production levels of various agricultural products within the year that the disaster occurred. The following table below can show the estimated reduction in production and/or income levels for agricultural products.

Table 9 Production Losses							
Name of City or District:							
Sub-sector	Number of Hectares Affected	Estimated Production Level				Estimated Losses	
		Pre-disaster		Post-disaster			
		Quantity	Kips	Quantity	Kips	Quantity	Kips
		A	B	C	D	E	F
Crops							
1. Rice							
2. Corn							
3. Vegetables							
4. Others							
Permanent Crops							
1. Coconut							
2. Coffee							
3. Fruit trees							
a.							
b.							
4. Others							
Forestry							
1. Timber							
a.							
b.							
2. Others							
Fisheries							
1. Fishery A							
2. Fishery B							
3. Others							

Livestock							
1. Cattle							
2. Pig							
3. Goat							
4. Buffalo							
5. Others							
Poultry							
1. Chicken							
2. Ducks							
3. Others							
Others Products							
1. Eggs							
2. Milk							
3. Honey							
4. Others							
TOTAL							

Notes in filling out Table 9.

- ✿ The "Estimated Losses" is the difference between the pre- and post-disaster estimated production levels. In formula, Column F = Column B – Column D and Column G = Column C – Column E.

B. Losses from Irrigation Fees

If irrigation facilities charge fees, their destruction will result in the loss of income from fees.

Table 10 Losses From Irrigation Fees

Name of Irrigation	Estimated Production and Income				Losses	
	Pre-disaster		Post-disaster			
	Cubic Meter	(Kips)	Cubic Meter	(Kips)	Cubic Meter	(Kips)
1.						
2.						
3.						
TOTAL						

C. Other Losses

There are other unexpected expenditures that will add to the losses in agriculture like clearing of land, investment losses (higher production costs), etc. As previously mentioned, an important type of loss is the investment loss of farmers when their standing crops or poultry are totally destroyed by a disaster. If this happens, and the farmers (or growers) are not able to replant (or replace the stocks) in time to

harvest within the year, the value of investment put into the destroyed crops or plants (or poultry) will be considered as loss.

On the other hand, if the farmers (or growers) replant (or replace the stocks) in time to harvest within the year, it will be as if the farmers (or growers) incurred a higher production cost to produce the same volume of harvest within the year. The total cost of production for the same volume of output within the year will be the normal production cost plus the investment losses they incurred due to the disaster. The following table will summarize these other losses.

Table 11 Other Losses

Sub-sector	Losses (Kips)			
	Investment Losses	Clearing Operations	Others	Total
1. Crops				
a. Rice				
b. Corn				
c. Vegetables				
d. Others				
2. Poultry				
a. Chicken				
b. Ducks				
3. Others				
TOTAL				

Notes in filling out Table 11.

- Other losses can include the cost of additional veterinary medicines if poultry suffered some forms of injuries, more fertilizer requirement, etc.

Step 2.3. Summarize the Damages and Losses the Year That the Disaster Occurred

Based on the information gathered in the previous tables, the summary table below can show the magnitude and scope of damages and losses due to disasters.

Table 12 Summary of damages and losses in the year the disaster occurred

Name of City or District:			
Agriculture	Damages	Losses	Total
	(Kips)	(Kips)	(Kips)
a. Crops			
b. Permanent Crops			
c. Fisheries			
d. Livestock			

e. Forestry and Timber			
f. Irrigation			
g. Others			
TOTAL			

Estimate Losses Beyond the Year That The Disaster Occurred

One of the devastating impacts of natural disasters in agriculture and fisheries are the long-term damages they can cause to agricultural lands and bodies of water. These damages can result in reduced production, losses of livelihood and the reduction of future supply of agricultural produce. For example, landslides and floods can alter the topography or render lands unsuitable for crops for a long time or can result in the reduction of grazing lands for livestock.

The losses beyond the disaster year can be calculated by comparing the estimated production in future years if the disaster did not occur and the estimated production after the disaster. The following table will show the long-term losses in agriculture.

Table 13 Losses due to long-term damages to production areas

Name of District:						
Types of losses	Foregone Production for the Years After the Disaster Occurred					
	Year 1		Year 2		Total Losses	
	Unit	Kips	Unit	Kips	Unit	Kips
Crops						
a. Rice						
b. Corn						
c. Vegetables						
d. Others						
Total						
Permanent Crops						
a. Coconut						
b. Coffee						
c. Fruit trees						
d. Others						
Total						
Forestry						
a. Timber						
b. Others						

Livestock						
1. For meat						
a. Cattle						
a. Pig						
b. Goat						
c. Buffalo						
d. Others						
Poultry						
a. Chicken						
b. Ducks						
c. Others						
Others Products						
a. Eggs						
b. Milk						
c. Honey						
d. Others						
Fisheries						
a. Fishery A						
b. Fishery B						
c. Others						
TOTAL						

Step 2.5. Summarize the Estimated Damages and Losses in the District

The total estimated effects of the disaster can be summarized by combining the values of damages and losses for the year the disaster occurred and beyond. The following table can be used.

Table 14 Summary of damages and losses in agriculture in the District (in Kips)

Name of District:						
Sub-sector	Disaster Year		Year 1	Year 2	Total	
	Damages	Losses	Losses	Losses	Damages	Losses
a. Crops						
b. Permanent Crops						
c. Fisheries						
d. Livestock						
e. Forestry						
f. Irrigation						

g. Others						
TOTAL						

Step 2.6. Summarize the Estimated Damages and Losses in the Province

The total estimated effects of the disaster in the province can be summarized by combining the values of damages and losses in the municipalities. The following table can be used.

Table 15 Summary of damages and losses in agriculture in the province						
Name of Province: Khammouane						
District	Disaster Year		Year1	Year2	Total	
	Damages	Losses	Losses	Losses	Damages	Losses
a. District:						
b.						
c.						
d.						
TOTAL						

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting across the sub-sectors, a meeting among the assessment team members should be held. This can be organized and facilitated by the team leader of the DAF in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members for all the sub-sectors share their collected data, issues and experiences in the field, among others. Those who assessed the crops must check that the data they have collected are not counted in the irrigation sub-sector, etc. At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below – refer to the document “Standard Operating Procedure (SOP) for DaLNA”, Day 19.

Validation meeting sessions may include:

- ✿ Opening remarks from the DAF Head
- ✿ Each sub-sector (crops, livestock, fisheries and forestry that conducted damage and loss assessment) briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)

- Recommendations from damage and loss assessment results
- ✦ DAF Head / Secretariat presents:
 - Summary of damages and losses based on each sub-sector's reports
 - Recommendations to resolve data validation problems (if any)
 - Next steps in the DaLNA process
 - Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DaLNA from the field to avoid duplication and double counting across sectors.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of each of the sub-sectors must be able to analyze the broad impacts of the damages and losses to the people, local economy and the environment, among others. The impact assessments should be done by the people who undertook field assessment and the overall impacts should be consolidated by the DAF. These impacts should be included in the post-disaster DaLNA report that will be submitted to the PDMC. The assessment team should assess the impacts if no assistance will be provided to agriculture along the following issues:

- ✦ More people are engaged in agriculture and the poorest groups are dependent on this sector. Delays in assisting these groups will exacerbate their socio-economic conditions.
- ✦ Without assistance, a planting season may be missed by the farmers which will result in the scarcity of basic food supply that can cause inflation not only in the disaster-affected areas but also in other districts or even nationwide.
- ✦ Delay of assistance may further put farmers in debt. It must be remembered that poor farmers usually incur debts for their production inputs. Without assistance from the government, they will be unable to meet their financial obligations.
- ✦ There are agricultural products which are major inputs of other industries. For instance, if corn is the basic ingredient of animal feeds, its reduction in supply will also increase the prices of feeds which will eventually inflate the prices of poultry products affecting a greater number of people.
- ✦ There may be some hazards that may have been created by the past disaster such as a landslide threat caused by extensive rains or potential flooding of rice and corn lands brought about by destroyed irrigation systems or dikes.
- ✦ Some environmentally sensitive areas within the sector may have been affected. For instance, some watershed areas may be put at risk by landslides or the destruction of the forest that sustains them. Environmental concerns must be included in the criteria for prioritizing programs and projects for recovery.

- ✿ The condition of women may be severely affected by a disaster event. The impact on women should be looked into in consideration of their possible new roles as breadwinners for their families; double burden or additional work in the farms and on the house; potential abuse; health hazards; etc.
- ✿ **Food supply stabilization.** The destruction of crops, livestock and other agricultural outputs due to the disaster may adversely affect the balance of food supply within and outside the areas affected. The assessment team must be able to assess the gaps in food supply within the disaster year and beyond to enable the government to stabilize the food supply and their prices. The cost of stabilizing food supply will be the value of the supply gaps multiplied by the unit costs of the respective food items over a specified period. It should be noted, however, that in estimating the food requirements, the donations of food aid donors should be factored in including those that are integrated with food-for-work schemes.

The various agencies must be able to estimate the food supply gaps. The DAF must be able to consolidate the overall food requirements needed to stabilize food supply as shown in the following table.

Table 16 Pre- and Post-Disaster Estimated Food Requirements Per Year in the Area, in Kilograms									
Food items	Pre-disaster (Kips)			Disaster Year (Kips)		Year 1 (Kips)		Year 2 (Kips)	
	Output	Consumption	Gap	Output	Gap	Output	Gap	Output	Gap
	A	B	C	D	E	F	G	H	I
a. Rice									
b. Corn									
c. Beef									
d. Poultry									
e. Fish									
f. Vegetables									
g. Root crops									
h. Others									
TOTAL									

Notes in filling out Table 16.

- ✿ Column 1 is for the food items normally consumed in the area under consideration.
- ✿ Columns A, B and C are for the pre-disaster (without disaster scenario) output (production) and consumption of the foods items by the population in the area.
- ✿ “Gap” in column C refers to the food items consumed but not produced in the area. The gap must come outside the area to augment or fill the food requirements of the population. In formula, Column C = Column A – Column B.
- ✿ Columns D and E are for the post-disaster estimated output or production of the food items in the area for the year that the disaster occurred. The ‘Gap’ refers to the difference between the pre- and post-disaster gaps. The post-disaster gap will be the post-disaster output (Column D) less the pre-disaster consumption (Column B). In formula, Column E = Column D - Column B.
- ✿ The same will apply for the years after the disaster. Year 1 gap, Column G = Column F – Column B while year 2 gap, Column I = Column H – Column B.
- ✿ The above table assumes that pre-disaster consumption will not change and that no mass out-migration will occur.
- ✿ The estimated food supply gaps will enable recovery planners to design measures, like food importation, to maintain the food requirements and health conditions of the affected population.
- ✿ The cost of stabilizing food supply will be the value of the supply gaps multiplied by the unit costs of the respective food items over a specified time period.

The potential impacts of the damages and losses in the agriculture can be placed in a matrix. The following example of a matrix can be used in identifying these impacts.

Matrix 1 Broad post-disaster impacts if no assistance will be provided to agriculture				
Broad impacts of damages to the agriculture sector	Assessment of Impact			
	Severe	Low	Possible	No data
a. Increased poverty among farmers and their families				
b. Increase in food prices				
c. Food shortages				
d. Losses of jobs				
e. Loss of raw materials for industries				
f. Others				

Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if no assistance will be provided to the agriculture sector, the aggregate needs of the sector must be estimated. The DAF must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the DAF assessment team must identify the strategies to be followed for recovery and reconstruction for the sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction. Some of the general strategies that could be considered include the following:

1. **Rapid rebuilding of people's livelihoods and accelerate the revitalization of the local economy.** After a disaster, there is a critical need for an early revival of production, trade and the creation of income and employment opportunities in support of people's own initiatives. The immediate restoration of livelihoods will avert food shortage (especially in agricultural province like Khammouane) and lessen the dependency of the people from outside aid.
2. **Community Participation and Use of Local Knowledge and Skills.** The participation of the community in all process (identification, planning, design and implementation) of recovery activities will help ensure the acceptability of projects and optimize the use of local initiatives, resources and capacities.
3. **Focus on the most vulnerable and socially disadvantaged groups such as children, women, and the disabled.** Recovery programming needs to give priority to the most vulnerable groups, including female-headed households, children and orphans, and the poor, and take into account those with special needs, to avoid their being overlooked.
4. **Building Back Better (BBB).** Design recovery activities based on BBB principles will promote longer-term disaster risk reduction and management.
5. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
6. **Coordinated and coherent approaches to recovery.** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.
7. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. It should be clear how assistance to the recovery of the private sector will be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.
8. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected, through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy to all affected areas and sectors as soon as possible and the agriculture sector is one of the very important sectors that will expedite a quick recovery. Considering that a greater number of people, especially the poor, are engaged in agriculture, it is one of the sectors that should be prioritized. Some of the possible recovery related activities are:

- ❖ Food-for-work or a combination of cash-for-work to rehabilitate/reconstruct damaged irrigation systems, town halls, public schools, health centers, and other off-farm sources of income that can provide temporary employment while farmers are waiting to plant and harvest.
- ❖ Additional production credit to enable farmers to buy inputs and enable them to re-plant.
- ❖ Direct subsidy on fertilizers, seeds and pesticides to farmers.
- ❖ Dispersal of livestock and poultry to replace the depleted stocks of growers.
- ❖ Urgent repairs of agriculture-related facilities such as irrigation, storage, markets, etc. and access to such facilities.

Step 5.3. Estimate reconstruction needs

Reconstruction needs are generally long-term in nature (3 years or more) and are intended to 'build back better' from the ruins of a disaster. The possible reconstruction related activities in the agriculture sector could include the following:

- ❖ Reconstruction and repair of irrigation systems, post-harvest facilities, markets and other structures under a building-back-better strategy to ensure future disaster resilience through the adoption and enforcement of improved construction standards.
- ❖ Structural retro-fitting of undamaged or partially damaged farm facilities so that they are not affected by disaster event in the future.
- ❖ Relocation of vital agricultural facilities to safe areas, as necessary. In this case, the additional costs land acquisition, and basic services provision (water, sanitation, electricity, etc) should be included.
- ❖ Soft-term credit for reconstruction and repair of private businesses. Such schemes can be accompanied by technical assistance for improved disaster resilient standards of construction.
- ❖ Other mitigation measures such as construction of support infrastructure to prevent serious landslides and floods to farms; common storage facilities where farmers can stock safely their produce; etc.

Step 5.4. Prioritize identified projects for recovery

Among the projects identified, relative priorities can be set in order to determine which among them are the more important. Based on the broad strategies for recovery, the DAF assessment team should select the priority projects/activities among the total identified needs. The prioritization can be made by using a set of impact indicators and the level by which the projects can achieve said impacts. The following criteria as indicated in the guidelines for the PDRF, can be used among others, to prioritize or rank the proposed post-disaster projects:

1. The greatest social and economic impact, which is to be evaluated in terms of the relative cost of not undertaking reconstruction or rehabilitation.
2. The biggest pro-poor impact, such that sub-projects in poorer Kumbans will be given a higher priority than sub-projects located in better-off Kumbans.
3. Whether there is a strong likelihood that an adequate budget and appropriate provisions will be made to cover the operations and maintenance (O&M) of the reconstructed infrastructure item.

The criteria above can be placed in a matrix like the one below where the impacts are ranked according to low, medium or high. This matrix can show the relative benefits of proposed projects to the people in the affected areas which, in turn, will inform and assist the government of Khammouane (or the PDMC) in determining the priority projects within the sector.

Matrix 2 Impacts of identified post-disaster projects									
Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Provision of seedlings									
Provision of livestock									
Others									

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the DAF assessment team identifying the post-disaster projects for the recovery and reconstruction. It should be noted that assistance to vital agriculture assets and facilities owned by the private sector, which is normally extended as credit, is purely based on the decision of the government. The following table can be used.

Table 17 Summary of recovery and reconstruction needs in the agriculture sector	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Food-for-work	
b. Cash-for-work	
c. Food stabilization	
d. Production credit	
e. Direct subsidy	
f. Dispersal of livestock and poultry	

g. Urgent repairs (specify)	
h. Others (Specify)	
Total	
Reconstruction Needs	
a. Reconstruction of structures (specify)	
b. Structural retro-fitting	
c. Soft-term credit for reconstruction	
d. Mitigation measures (specify)	
e. Others (Specify)	
Total	
GRAND TOTAL	

Step 5.6. Provide all the districts a copy of the list of projects identified as priorities by the DAF

The Head of the DAF assessment team should inform all the districts covered by the DaLNA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.
2. Plot the timeline of activities of all the projects, with the urgent ones on top, in a Gantt chart with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.
4. To the extent possible, a logical framework (logframe) should be created for each of the project proposed for inclusion in the recovery plan. Logframes are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 18 Summary of recovery and reconstruction needs in the agriculture sector

Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Food-for-work				
b. Cash-for-work				
c. Production credit				
d. Food stabilization				
e. Dispersal of livestock and poultry				
f. Re-stocking of fingerlings				
g. Direct subsidy (specify)				
h. Urgent repairs (specify)				
i. Others (Specify)				
Total				
Reconstruction Needs				
a. Reconstruction of structures (specify)				
b. Structural retro-fitting				
c. Soft-term credit for reconstruction				
d. Mitigation measures (specify)				
e. Others (Specify)				
Total				
GRAND TOTAL				

Notes in filling out Table 18

- ✿ Project titles can be inserted under the column on recovery and reconstruction needs.
- ✿ Columns can be added to accommodate any additional reconstruction needs beyond Year 2.

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) report of the sector

With all the information gathered using the previous steps, a report for the agriculture sector can be drafted by the DAF and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the sector in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the sector in the disaster-affected areas.
2. Damages in the sector by areas and by types of facilities affected.
3. Losses in the sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the sector of Khammouane.
12. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report of the DAF should be submitted to the PDMC for integration into the overall post-disaster DaLNA report for the province which should contain the other similar DaLNA reports of the other sectors. The final DaLNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DaLNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.

ANNEX
PHOTOCOPY TEMPLATE

Table 1 Baseline information on agricultural products

Name of District:

Sub-sectors	Area planted	Average yield for the year	Farm gate price	Production cost	Number of farmers or growers or fishers		
	(Hectares)	(Kg/Hectare/Yr)	(Kips/unit)	(Kips/Hectare)	Families	M	F
Crops							
a. Rice							
b. Corn							
c. Vegetables							
d. Others							
Permanent Crops							
a. Coconut							
b. Coffee							
c. Fruit trees							
d. Others							
Forestry							
a. Timber							
b. Others							
Fisheries	Area						
a. Fishery 1							
b. Fishery n							
c. Others							
Livestock	Heads	(Kg/Yr)	(Kips/Kg)	(Kips/Unit)	Families	M	F
a. Cattle							
b. Pig							
c. Goat							
d. Buffalo							
e. Others							
Poultry	Heads	(Kg/Yr)	(Kips/Kg)	(Kips/Unit)	Families	M	F
a. Chicken							
b. Ducks							
c. Others							
Others Products	Units	(Units/Yr)	(Kips/Kg)	(Kips/Unit)	Families	M	F
a. Eggs							
b. Milk							
c. Honey							
d. Others							



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Table 2 Agricultural products and their seasons

Name of District:																		
Sub-sector	Estimated Production for Next Years						Planting to Harvest Season (Months)											
	Year 1		Year 2		Year 3		J	F	M	A	M	J	J	A	S	O	N	D
	Units	Kips	Units	Kips	Units	Kips												
Crops																		
a. Rice																		
b. Corn																		
c. Vegetables																		
d. Others																		
Permanent Crops																Harvest Season (Months)		
a. Coconut																		
b. Coffee																		
c. Fruit trees																		
d. Others																		
Forestry																		
a. Timber																		
b. Others																		
Fisheries																Fishing Season (Months)		
a. Fishery 1																		
b. Fishery n																		
c. Others																		
Poultry																Harvest Season (Months)		
a. Chicken																		
b. Ducks																		
b. Others																		
Other products																Harvest Season (Months)		
a. Eggs																		
b. Milk																		
c. Honey																		
d. Others																		

Table 3 Irrigation Facilities

Name of District:							
Name of District	Areas Irrigated	Length	Cost Per Meter	Monthly Income From Fees	Ownership		Number of beneficiaries
	Hectares	Meters	(Kips/ m)	(Kips)	Public	Private	Farmers
a.							
b.							
c.							



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Table 4 Agricultural Assets

Name of District:

Assets	Quantity	Average Replacement Value	Ownership		Number of Private Owners	
		Kips	Public	Private	Male	Female
Physical Assets						
a. Agriculture land						
b. Storage buildings						
c. Animal pen						
d. Others						
Equipment and machinery						
a. Tractor						
b. Hand tractor						
c. Thresher						
d. Weeder						
e. Plow						
f. Others						
Stocks and raw materials						
a. Rice						
b. Corn						
c. Seeds						
d. Fertilizer						
e. Pesticides						
f. Veterinary supplies						
g. Others						
Forestry and Plantations						
a. Trees (enumerate)						
b. Others						
Other Equipment						
a. Honey production						
b. Milk production						
c. Egg production						
d. Others						
Fisheries						
a. Boats						
b. Engines						
c. Nets						
d. Traps and Cages						
e. Gears						
f. Others						



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Table 5 Damages to Agricultural Assets

Name of City or District:

Assets	Number of Totally Destroyed	Average Replacement Cost per Unit (Kips)	Number of Partially Damaged	Average Repair Cost per Unit (Kips)	Total Value of Damages (Kips)
	A	B	C	D	E
Physical Assets					
a. Agriculture land					
b. Storage buildings					
c. Animal pen					
d. Others					
Equipment and machinery					
a. Tractor					
b. Hand tractor					
c. Thresher					
d. Weeder					
e. Plow					
f. Others					
Stocks and raw materials					
a. Rice					
b. Corn					
c. Seeds					
d. Fertilizer					
e. Pesticides					
f. Veterinary supplies					
g. Others					
Forestry and Plantations					
a. Trees (enumerate)					
b. Pasture					
c. Others					
Other Equipment					
a. Honey production					
b. Milk production					
c. Egg production					
d. Others					



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Fisheries					
a. Boats					
b. Engines					
c. Nets					
d. Traps and Cages					
e. Ponds					
f. Gears					
g. Others					
TOTAL	N/A				

Table 6 Damages to Permanent Crops and Forest Products

Name of City or District:

Permanent Crops	Quantity of Affected Areas	Number of Totally Destroyed Trees	Average Replacement Cost	Total Value of Damages
	(Hectares)		(Kips)	(Kips)
	A		C	D
1. Coconut				
2. Coffee				
3. Fruit trees				
a.				
b.				
c.				
d.				
4. Timber trees				
a.				
b.				
c.				
d.				
Others				
TOTAL				



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Table 7 Damages to Irrigation Systems

Name of City or District:					
Name of the Irrigation Facility	Partially damaged	Totally destroyed	Repair Cost	Replacement Cost	Value of Damages
	Meters	Meters	(Kips)	(Kips)	(Kips)
	A	B	C	D	E
a.					
b.					
c.					
TOTAL					

Table 8 Damages to Livestock and Related Products

Name of City or District:			
Livestock and Others	Quantity of Dead Animals	Average Replacement Cost	Total Value of Damages
	Heads	(Kips)	(Kips)
	A	B	C
1. Livestock			
a. Cattle			
b. Pig			
c. Goat			
d. Buffalo			
e. Others			
2. Poultry			
a. Chicken			
b. Ducks			
3. Others			
TOTAL			



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Table 9 Production Losses

Name of City or District:

Sub-sector	Number of Hectares Affected	Estimated Production Level				Estimated Losses	
		Pre-disaster		Post-disaster			
		Quantity	Kips	Quantity	Kips	Quantity	Kips
	A	B	C	D	E	F	G
Crops							
1. Rice							
2. Corn							
3. Vegetables							
4. Others							
Permanent Crops							
1. Coconut							
2. Coffee							
3. Fruit trees							
a.							
b.							
4. Others							
Forestry							
1. Timber							
a.							
b.							
2. Others							
Fisheries							
1. Fishery A							
2. Fishery B							
3. Others							
Livestock							
1. Cattle							
2. Pig							
3. Goat							
4. Buffalo							
5. Others							
Poultry							
1. Chicken							
2. Ducks							
3. Others							



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Others Products							
1. Eggs							
2. Milk							
3. Honey							
4. Others							
TOTAL							

Table 10 Losses From Irrigation Fees

Name of Irrigation	Estimated Production and Income				Losses	
	Pre-disaster		Post-disaster			
	Cubic Meter	(Kips)	Cubic Meter	(Kips)	Cubic Meter	(Kips)
1.						
2.						
3.						
TOTAL						

Table 11 Other Losses

Sub-sector	Losses (Kips)			
	Investment Losses	Clearing Operations	Others	Total
1. Crops				
a. Rice				
b. Corn				
c. Vegetables				
d. Others				
2. Poultry				
a. Chicken				
b. Ducks				
3. Others				
TOTAL				



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Table 12 Summary of damages and losses in the year the disaster occurred

Name of City or District:

Agriculture	Damages	Losses	Total
	(Kips)	(Kips)	(Kips)
a. Crops			
b. Permanent Crops			
c. Fisheries			
d. Livestock			
e. Forestry and Timber			
f. Irrigation			
g. Others			
TOTAL			

Table 13 Losses due to long-term damages to production areas

Name of District:

Types of losses	Foregone Production for the Years After the Disaster Occurred					
	Year 1		Year 2		Total Losses	
	Unit	Kips	Unit	Kips	Unit	Kips
Crops						
a. Rice						
b. Corn						
c. Vegetables						
d. Others						
Total						
Permanent Crops						
a. Coconut						
b. Coffee						
c. Fruit trees						
d. Others						
Total						
Forestry						
a. Timber						
b. Others						
Livestock						
1. For meat						
a. Cattle						
a. Pig						



b. Goat						
c. Buffalo						
d. Others						
Poultry						
a. Chicken						
b. Ducks						
c. Others						
Others Products						
a. Eggs						
b. Milk						
c. Honey						
d. Others						
Fisheries						
a. Fishery A						
b. Fishery B						
c. Others						
TOTAL						

Table 14 Summary of damages and losses in agriculture in the District (in Kips)

Name of District:

Sub-sector	Disaster Year		Year 1	Year 2	Total	
	Damages	Losses	Losses	Losses	Damages	Losses
a. Crops						
b. Permanent Crops						
c. Fisheries						
d. Livestock						
e. Forestry						
f. Irrigation						
g. Others						
TOTAL						



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AGRICULTURE AND FORESTRY SECTOR

Table 15 Summary of damages and losses in agriculture in the province

Name of Province: Khammouane

District	Disaster Year		Year1	Year2	Total	
	Damages	Losses	Losses	Losses	Damages	Losses
a. District:						
b.						
c.						
d.						
TOTAL						

Table 16 Pre- and Post-Disaster Estimated Food Requirements Per Year in the Area, in Kilograms

Food items	Pre-disaster (Kips)			Disaster Year (Kips)		Year 1 (Kips)		Year 2 (Kips)	
	Output	Consumption	Gap	Output	Gap	Output	Gap	Output	Gap
	A	B	C	D	E	F	G	H	I
a. Rice									
b. Corn									
c. Beef									
d. Poultry									
e. Fish									
f. Vegetables									
g. Root crops									
h. Others									
TOTAL									

Matrix 1 Broad post-disaster impacts if no assistance will be provided to agriculture

Broad impacts of damages to the agriculture sector	Assessment of Impact			
	Severe	Low	Possible	No data
a. Increased poverty among farmers and their families				
b. Increase in food prices				
c. Food shortages				
d. Losses of jobs				
e. Loss of raw materials for industries				
f. Others				



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Matrix 2 Impacts of identified post-disaster projects									
Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Provision of seedlings									
Provision of livestock									
Others									

Table 17 Summary of recovery and reconstruction needs in the agriculture sector

Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Food-for-work	
b. Cash-for-work	
c. Food stabilization	
d. Production credit	
e. Direct subsidy	
f. Dispersal of livestock and poultry	
g. Urgent repairs (specify)	
h. Others (Specify)	
Total	
Reconstruction Needs	
a. Reconstruction of structures (specify)	
b. Structural retro-fitting	
c. Soft-term credit for reconstruction	
d. Mitigation measures (specify)	
e. Others (Specify)	
Total	
GRAND TOTAL	



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Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

COMMERCE & INDUSTRY SECTOR



Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC). The following are the key persons in conducting a DaLNA in the sector.

Personnel	Role in the DaLNA
Staff from Department of Commerce and Industry (DCI) of the Khammouane Province (trade experts, industry specialists, engineers and finance personnel)	Lead and coordinate
Staff from the Ministry of Commerce and Industry (MCI)	Participate and provide technical advice
Staff from the affected district/s	Provide damage and loss information and facilitate assessment
Development partners (if active in the commerce and trade sector in Khammouane)	Participate and provide technical advice



Concepts and Definitions

Commerce and Industry Sector

The Commerce and Industry Sector (CI) sector will include manufacturers, traders and those whose businesses are in the provision of services. Examples of manufacturers are those that produce cement, beverages, motorcycles, clothing, food and other similar consumer products. Traders are those engaged in selling consumers products including those who are engaged in providing services like computer shops, repair shops, etc. In terms of scale, manufacturers and traders are generally micro, small, medium and large. This sector should include including those who are in the informal sector who are mostly microbusinesses in scale.

Damages

Damages are generally the cost of repair of partially destroyed assets or the cost of replacement of totally destroyed assets like structures, equipment, machineries, supplies, etc. Damage occurs at the time of the disaster or shortly after the disaster and is to be measured in physical terms for which monetary replacement value is subsequently estimated. The unit costs to be adopted for repair or replacement should be the costs prevailing just before the disaster.

Losses

Losses are generally the foregone revenues and additional expenses due to the disaster expressed in current (pre-disaster) prices. Among them are:

- ✦ Foregone income after the structures, equipment and machineries of businesses and factories were destroyed by disasters.
- ✦ Additional expenses to clean and rehabilitate the factory or business site after destruction.
- ✦ Possible higher cost of operation that may arise after the disaster, such as payment of higher rates of electricity from alternative sources, or acquiring raw materials from alternative sources, or renting temporary premises while repairing or rebuilding the original premises

These losses would continue during the entire period of reconstruction and recovery and are expressed in monetary values at current prices.



General Steps in Conducting a Post-disaster Damage, Loss and Needs Assessment (DaLNA)

The following steps are to be undertaken for DaLNA:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |
| Step 5 | Estimate recovery and reconstruction needs |
| Step 6 | Draft the implementation plan of the identified programs and projects |
| Step 7 | Draft the post-disaster damages, losses and needs (DaLNA) of the sector |

These procedures for each Step are provided in the following sections.





Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Table 1 Baseline information of commerce and industry facilities in a district

Name of District:

Type of firm	Number							
	Micro		Small		Medium		Large	
	Public	Private	Public	Private	Public	Private	Public	Private
A. Manufacturing								
Construction materials								
a. Cement								
b. Tiles								
c. Others								
Beverages								
a. Beer								
b. Soft drinks								
c. Others								
Chemicals								
a. Pharmaceutical								
b. Paints								
c. Others								
Agro-industry								
a. Food processing								
b. Paper								
c. Others								
Others								
a. Garments								
b. Tobacco								
c. Others								
B. Trading								
a. Vehicles								
b. Gasoline								
c. Computers								
d. Other retail shops								

C. Services								
a. Finance								
b. Repair shops								
c. Construction								
d. Restaurants								
e. Other services								
TOTAL								

Note in filling out Table 1.

- ✦ The businesses included in the above table are those that are not included in the assessment of the other sectors. For example, airlines, busses, taxis etc. should not be included here since they are subsumed in the assessment of the transport sector. To avoid double counting, the assessment team must have knowledge of the coverage of the other sectors.
- ✦ In the CI sector, most of the firms are private in nature.

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses are accurate to the extent possible.* Direct interviews with the private firms and contractors or government officials involved in the construction and repair of facilities can also be conducted during the field trip in order to validate unit costs of repair and reconstruction.

Step 2.1. Estimate the damages and losses to manufacturers and traders

Repair and replacement costs should be estimated for the damages of the sector. The time needed to reconstruct the damages should also be estimated. During the field visits to the disaster sites, the assessment team should interview the officers of the firm/s to ascertain the extent and value of the damages and the estimated period before operations can be fully restored to the pre-disaster level.

To get the value of damages and losses, the following can be done:

- a. The assessment team can arrange a meeting with the owners of manufacturing firms and traders and require them to fill out the questionnaire below.
- b. For the numerous small traders and vendors in the informal sector, the assessment team can interview with the head of their association to get the estimate of the number of vendors affected and the aggregate value of their damages and losses

The following table which should be used as a questionnaire in interviewing key informants.

Table 2 Questionnaire on the value of damages and losses of a firm in the CI sector in a district						
Name of District:						
Name of Firm						
Category	Micro () Small () Medium () Large ()					
Ownership	Public () Private ()					
Estimated Damages						
Damage to Structures and Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost (Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D		
a. Structures						
b. Equipment						
c. Stocks/ inventories						
d. Others (specify)						
TOTAL		N.A.		N.A.		N.A.
Estimated Losses						
Types of Losses			Disaster Year	Year 1	Year 2	Total (Kips)
Foregone income						
Cleaning up of debris						
Higher operating costs						
ther unexpected expenses						
TOTAL						

Note in filling out Table 2.

- ✿ Average Replacement Cost' will be the average pre-disaster value of the structures and assets that were totally destroyed while 'average repair cost' will be the estimated cost of repair of the partially damaged assets.
- ✿ In formula, the total damages of the firms surveyed will be (Column E) = (Column A) x (Column B) + (Column C) x (Column D).
- ✿ Years 1 to 2 are the years after the disaster.

Step 2.2. Consolidate the damages and losses in the sector in a district

Based on survey of the businesses, the damages and losses can be consolidated in the following table.

Table 3 Summary of damages and losses in a district																
Name of District:																
Firms	Within the Disaster Year (Kips)								Losses Beyond Disaster Year (Kips)							
	Damages				Losses				Year 1				Year 2			
	Mi	S	Me	L	Mi	S	Me	L	Mi	S	Me	L	Mi	S	Me	L
Manufacturer 1																
Manufacturer n																
Trader 1																
Trader n																
Services 1																
Services n																
Informal sector																
TOTAL																

Note in filling out Table 3.

✿ The number of those in the informal sector and the estimated total value of their damages and losses are derived from the interview of the head of their associations.

✿ Mi refers to micro enterprises

✿ S for small enterprises

✿ Me for medium enterprises

✿ L for large enterprises

Step 2.3. Summarize the damages and losses in the sector in a district

Based on survey of the selected firms, damages and losses can be summarized in the following table.

Table 4 Summary of damages and losses in a district^a

Name of District:													
Type of firms	Damages and Losses of Surveyed Firms by Category (in Kips)												
	Within Disaster Year				Year 1 After				Year 2 After				Total
	Mi	S	Me	L	Mi	S	Me	L	Mi	S	Me	L	L
Manufacturing													
a. Damages													
b. Losses													
Trade													
a. Damages													
b. Losses													
Informal sector													
a. Damages													
b. Losses													
TOTAL													

Note in filling out Table 4.

- ❖ Damages may only happen on the year that the disaster occurred while losses can continue up to the years after the disaster.
- ❖ The firms in the CI sector are generally private in ownership.

Step 2.4. Summarize the losses in the sector in the province

Based on the summary for the areas affected, a similar summary can show the magnitude and scope of damages and losses province-wide, as shown in the following table.

Table 5 Summary of damages and losses in the province

[illegible]

Informal sector												
a. Damages												
b. Losses												
TOTAL												

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting, a meeting among the assessment team members should be held. This can be organized and facilitated by the team leader of the DCI in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members share their collected data, issues and experiences in the field, among others. At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below.

Validation meeting sessions may include:

- ✦ Opening remarks from the DCI Head
- ✦ Each sub-team which assessed various districts or kumbans will briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)
 - Recommendations from damage and loss assessment results
- ✦ DCI Head / Secretariat presents:
 - Summary of damages and losses based on the reports
 - Recommendations to resolve data validation problems (if any)
 - Next steps in the DaLNA process
 - Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DaLNA from the field to avoid duplication and double counting across sectors.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of the sector should analyze all potential impacts of the loss of industry and trade in relation to, among others:

- ✦ Possible losses of employment if the firms will have to lay off workers.

- ✦ Loss of livelihoods for those in the informal trading sector.
- ✦ Reduction in foreign currency earnings if there the industry affected is exporting its products like cement.

Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if no assistance will be provided to the sector, the aggregate needs of the sector must be estimated. The DCI must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the DCI assessment team must identify the strategies to be followed for recovery and reconstruction for the sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction. Some of the general strategies that could be considered for the sector include the following:

1. **Building Back Better (BBB).** Design recovery activities based on BBB principles that will promote longer-term disaster risk reduction and management. BBB principle should also look at the how to make facilities safer from future disasters, etc.
2. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
3. **Coordinated and coherent approaches to recovery.** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.
4. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. It should be clear how assistance to the recovery of the private sector will be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.
5. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected,

through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy in the sector as quick as possible. In this sector, quick recovery efforts must be undertaken especially if it employs a lot of people. Recovery activities should include those that will enable firms to resume their normal operations. To assist the sector, the DCI can identify policy measures that will enable the firms to recover without necessarily using direct government budget to cover the costs required. There are certain options that can be implemented through policy measures to expedite recovery and reconstruction of the private sector. Among them are:

1. Income tax breaks for private firms such as:
 - a. Temporary reduction or freeze or deferment in the collection of tax;
 - b. Temporary freeze on basic service charges in the utilization of certain services over the time of the recovery phase;
 - c. Non-collection of property taxes for the duration of the recovery period;
 - d. Exemption from registration fees for replacements of the destroyed equipment and machinery over a certain period of time.
2. Subsidizing construction materials and equipment to be imported by private firms during the recovery and reconstruction phase through an exemption from paying customs duties and other levies.

Some of the possible recovery-related activities in the sector can include:

- ✿ Repairs of the damages to structures which are normally affected by strong winds and floods.
- ✿ Emergency procurement of vital equipment necessary to normalize operations.
- ✿ Clearing of debris that may have affected the sector.

Step 5.3. Estimate reconstruction needs

Reconstruction needs are generally long-term in nature (3 years and more) and are intended to 'build back better' from the ruins of a disaster. It is to be noted that reconstruction activities should include both public as well as private facilities and may require different types of financing strategies. It is to be noted that since the firms in this sector are revenue-generating enterprises, financing their needs can come through soft-term credit schemes for the reconstruction and repair of their damaged assets. Such schemes can be accompanied by technical assistance for improved disaster resilient standards of construction. Some possible reconstruction related activities in the sector can include the following:

- ✿ Soft-term credit for the replacement or reconstruction of affected structures under a 'Building Back Better' strategy to ensure future disaster resilience through the adoption and enforcement of improved construction standards;
- ✿ Procurement of equipment and machinery;
- ✿ Cost of replacing furniture and equipment that were destroyed may be included within the needs for reconstruction, unless they have been covered under the recovery needs to provide temporary services for the affected area;

- ✿ Structural retro-fitting of undamaged or partially damaged structures so that they are not affected by disaster event in the future; and/or
- ✿ Relocation to safe areas.

Step 5.4. Prioritize identified projects for recovery

Among the projects identified, relative priorities can be set in order to determine which among them are the more important. Based on the broad strategies for recovery, the assessment team should select the priority projects/activities among the total identified needs. The prioritization can be made by using a set of impact indicators and the level by which the projects can achieve said impacts. The following criteria, as indicated in the guidelines for the post disaster reconstruction fund (PDRF), can be used among others, to prioritize or rank the proposed post-disaster projects:

1. The greatest social and economic impact, which is to be evaluated in terms of the relative cost of not undertaking reconstruction or rehabilitation.
2. The biggest pro-poor impact, such that assistance in poorer Districts or Kumbans will be given a higher priority than projects located in better-off Districts or Kumbans.
3. Whether there is a strong likelihood that an adequate budget and appropriate provisions will be made to cover the operations and maintenance (O&M) of the reconstructed infrastructure item.

The criteria above can be placed in a matrix like the one below where the impacts are ranked according to low, medium or high. This matrix can show the relative benefits of proposed projects to the people in the affected areas which, in turn, will inform and assist the government of Khammouane (or the PDMC) in determining the priority projects within the sector.

Matrix 1 Impacts of identified post-disaster project									
Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Urgent repair or replacement of structures, equipment and machinery									
Procurement of vital supplies									
Cleaning operations									
Others									

The projects identified by the assessment team must be analyzed in accordance with the above matrix.

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the assessment team identifying the post-disaster projects for recovery and reconstruction. It should be noted that assistance to the businesses owned by the private sector, which can be extended as direct assistance or through credit, is purely based on the decision of the government. The following table can be used.

Table 6 Summary of recovery and reconstruction needs in the CI sector	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Urgent repair or replacement of equipment and machine	
b. Procurement of vital supplies	
c. Cleaning operations	
d. Others (Specify)	
TOTAL	
Reconstruction Needs	
a. Replacement or reconstruction of affected structures	
b. Procurement of equipment and machinery	
c. Technical assistance	
d. Relocation	
e. Mitigation measures	
f. Others	
TOTAL	
GRAND TOTAL	

Step 5.6. Provide all the districts a copy of the list of projects identified as priorities

The Head of the assessment team should inform all the districts covered by the DaLNA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.
2. Plot the timeline of activities of all the projects, with the urgent ones on top, in a Gantt chart with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.
4. To the extent possible, a logical framework (logframe) should be created for each of the project proposed for inclusion in the recovery plan. Logframes are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 7 Summary of recovery and reconstruction needs

Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Others				
TOTAL				
Reconstruction Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Others				
TOTAL				
GRAND TOTAL				

Notes in filling out Table 7.

- ✿ Project titles can be inserted under the column on recovery and reconstruction needs.
- ✿ Columns can be added to accommodate any additional reconstruction needs beyond Year 2.

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) report of the sector

With all the information gathered using the previous steps, a report for the sector should be drafted by the assessment team and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the sector in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the sector in the disaster-affected areas.
2. Damages in the sector by areas and by types of businesses affected.
3. Losses in the sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the sector in Khammouane.
6. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report should be submitted to the PDMC for integration into the overall post-disaster DaLNA report for the province which should contain the other similar DaLNA reports of the other sectors. The final DaLNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DaLNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.

ANNEX
PHOTOCOPY TEMPLATE



Table 1 Baseline information of commerce and industry facilities in a district

Name of District:

Type of firm	Number							
	Micro		Small		Medium		Large	
	Public	Private	Public	Private	Public	Private	Public	Private
A. Manufacturing								
Construction materials								
a. Cement								
b. Tiles								
c. Others								
Beverages								
a. Beer								
b. Soft drinks								
c. Others								
Chemicals								
a. Pharmaceutical								
b. Paints								
c. Others								
Agro-industry								
a. Food processing								
b. Paper								
c. Others								
Others								
a. Garments								
b. Tobacco								
c. Others								
B. Trading								
a. Vehicles								
b. Gasoline								
c. Computers								
d. Other retail shops								
C. Services								
a. Finance								
b. Repair shops								
c. Construction								
d. Restaurants								
e. Other services								
TOTAL								



TO PHOTOCOPY

Table 2 Questionnaire on the value of damages and losses of a firm in the CI sector in a district

Name of District:						
Name of Firm						
Category	Micro () Small () Medium () Large ()					
Ownership	Public () Private ()					
Estimated Damages						
Damage to Structures and Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost (Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D	E	F
a. Structures						
b. Equipment						
c. Stocks/ inventories						
d. Others (specify)						
TOTAL		N.A.		N.A.		N.A.
Estimated Losses						
Types of Losses			Disaster Year	Year 1	Year 2	Total (Kips)
Foregone income						
Cleaning up of debris						
Higher operating costs						
Other unexpected expenses						
TOTAL						



TO PHOTOCOPY

COMMERCE AND INDUSTRY SECTOR

Table 3 Summary of damages and losses in a district

Name of District:

Firms	Within the Disaster Year (Kips)								Losses Beyond Disaster Year (Kips)							
	Damages				Losses				Year 1				Year 2			
	Mi	S	Me	L	Mi	S	Me	L	Mi	S	Me	L	Mi	S	Me	L
Manufacturer 1																
Manufacturer n																
Trader 1																
Trader n																
Services 1																
Services n																
Informal sector																
TOTAL																

Table 4 Summary of damages and losses in a districtf

Name of District:

Type of firms	Damages and Losses of Surveyed Firms by Category (in Kips)													
	Within Disaster Year				Year 1 After				Year 2 After				Total	
	Mi	S	Me	L	Mi	S	Me	L	Mi	S	Me	L	L	
Manufacturing														
a. Damages														
b. Losses														
Trade														
a. Damages														
b. Losses														
Informal sector														
a. Damages														
b. Losses														
TOTAL														



TO PHOTOCOPY

Table 5 Summary of damages and losses in the province

Name of Province: Khammouane

Name of District	Damages and Losses of Surveyed Firms by Category (in Kips)													
	Within Disaster Year				Year 1 After				Year 2 After				Total	
	Mi	S	Me	L	Mi	S	Me	L	Mi	S	Me	L	L	
Manufacturing														
a. Damages														
b. Losses														
Trade														
a. Damages														
b. Losses														
Informal sector														
a. Damages														
b. Losses														
TOTAL														

Matrix 1 Impacts of identified post-disaster project

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Urgent repair or replacement of structures, equipment and machinery									
Procurement of vital supplies									
Cleaning operations									
Others									



TO PHOTOCOPY

Table 6 Summary of recovery and reconstruction needs in the CI sector

Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Urgent repair or replacement of equipment and machine	
b. Procurement of vital supplies	
c. Cleaning operations	
d. Others (Specify)	
TOTAL	
Reconstruction Needs	
a. Replacement or reconstruction of affected structures	
b. Procurement of equipment and machinery	
c. Technical assistance	
d. Relocation	
e. Mitigation measures	
f. Others	
TOTAL	
GRAND TOTAL	

Table 7 Summary of recovery and reconstruction needs

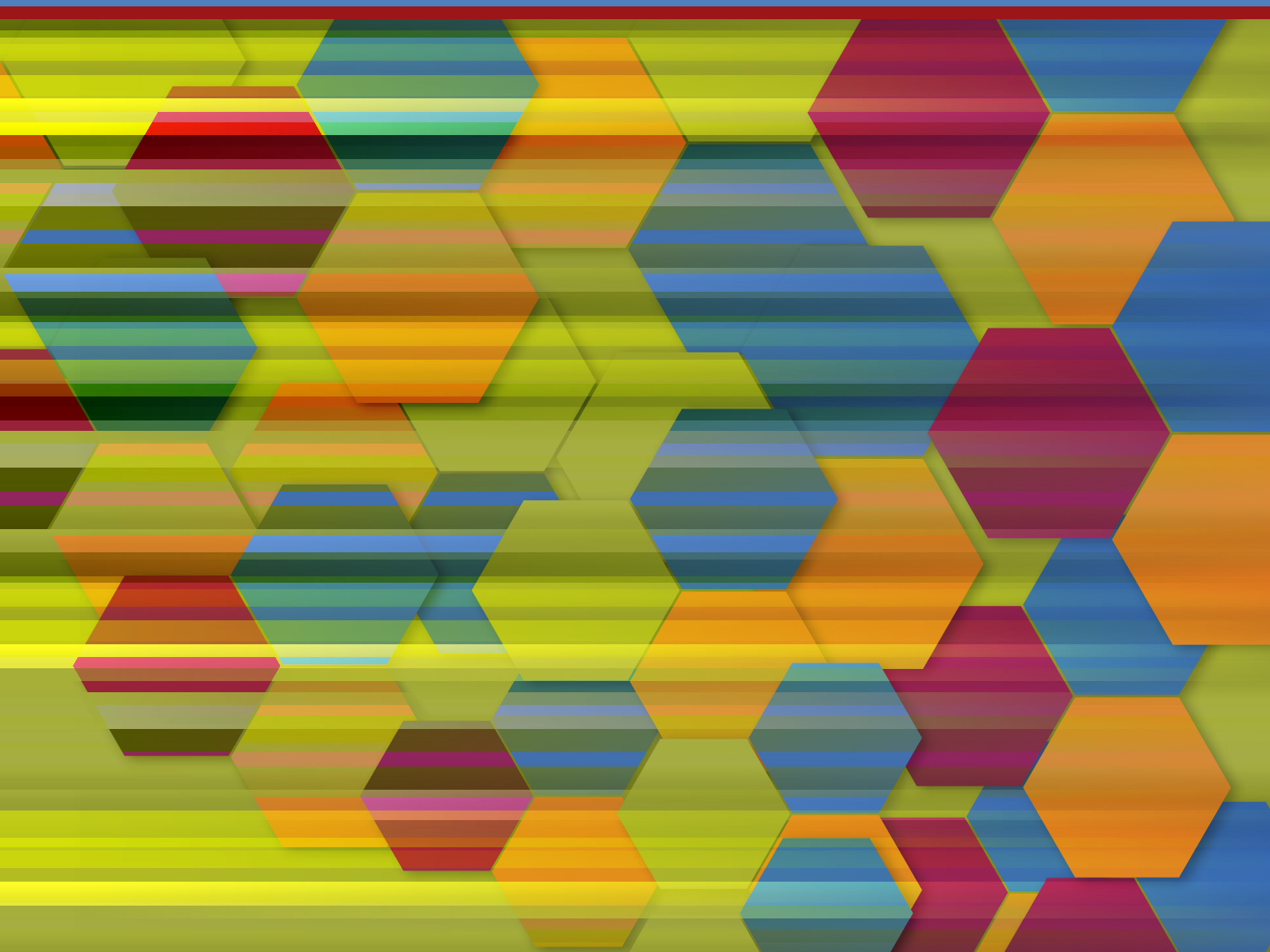
Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Others				
TOTAL				
Reconstruction Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Others				
TOTAL				
GRAND TOTAL				





Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

EDUCATION AND SPORTS SECTOR



Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC). The following are the key persons in conducting a DaLNA.

Personnel	Role in the Education and Sport Sector DaLNA
Staff from Department of Education and Sports (DES) of the Khammouane Province (education experts, procurement specialists, engineers and finance personnel)	Lead and coordinate
Staff from national Ministry of Education and Sports	Participate and provide technical advice
Staff from the affected district/s Department of Education and Sports	Provide damage and loss information and facilitate assessment
Development partners (if active in the Education Sector in Khammouane)	Participate and provide technical advice



Concepts and Definitions

Education sector

The education sector is composed of the different types of educational facilities like primary and secondary schools, universities, training institutes and other facilities used by students like gymnasiums and laboratories including the structures, books, desks, equipment and school supplies, etc. They may be owned by the government or by private individuals or corporations.

Damages

In education, damages are cost of: a) repair of partially destroyed assets and/or b) replacement of totally destroyed assets and infrastructure such as:

- ✦ **Structures or buildings.** School buildings, research laboratories, gymnasiums and other structures which are part of a school or university can be damaged by a disaster. They should be assessed in coordination with the school authorities.

- ✿ **Equipment, furniture and other machinery.** There are various instruments used for educational purposes like laboratory and workshop equipment, computers, etc. On the hand, there are equipment like installations that are part of the building itself, such as elevators, security equipment, air conditioning, internal communication systems, vehicles, and others. Depending on the level of the facilities, the types of equipment and other assets may also vary from facility to facility, which may have direct implication in estimating the cost of damage in the sector. Therefore, the types of equipment, machinery, furniture and other important assets possessed and damaged in each facility should be considered.
- ✿ **Educational materials and supplies.** Buildings used for education normally have stocks such as paper, books, chemicals, etc. Their value can be sufficiently high to warrant individual assessment. Inventories of research, art works and other collections deposited in a given institution must also be included under this heading.

Damages in this sector will occur at the time of, or shortly after the disaster although some damages may become obvious only after a longer period. Damages are measured in physical terms for which the monetary repair or replacement value is subsequently estimated.

Losses

Losses are the values due to the change in economic flows (income and expenditures) during the period of recovery and reconstruction following the disaster. They are the current value of goods and services that were not and/or will not be produced over a time span due to the disaster until full recovery is attained. Losses in the education sector will include the following:

- ✿ **Cost of temporary school buildings.** The cost of temporary school buildings is a loss that must be estimated. When temporary schools are built, it will be necessary to estimate the cost of construction and related services, such as the provision of water, latrines and electric power and the duration for which these temporary schools would function. When using rented buildings as temporary schools, the total value of rent will be part of the loss.
- ✿ **Cost of urgent repairs of schools to be used as emergency shelter.** Some schools may need urgent repair, water installations, latrines, etc. if they were used as temporary shelters. This should be included in the loss since this will require unexpected expenses on the part of the government.
- ✿ **Higher costs of education.** Government facilities may incur additional expenses (over and above the regular budget of the sector) to assist the population for any of the following reasons:
 - Extension of classes over a period of time to compensate for the delays due to the disaster which will require additional expenses like cost of training if new teachers will be hired, overtime payment, etc.
 - Supplemental feeding and subsidy on transportation costs of students and teachers, if applicable.
 - Higher electricity costs from the use of generator sets; higher cost of water supply; etc.

- ✦ **Losses due to lower revenues.** Revenue losses may arise from interruption of classes while school buildings are being repaired or reconstructed. The values of losses in revenues will be the pre-disaster revenues minus the estimated post-disaster revenues.
- ✦ Other losses such as demolition and cleanup costs. Aside from repair or reconstruction, a school building may require partial or total demolition and the resulting debris removed.

Losses can extend beyond the year that the disaster occurred and these should be reflected in the loss assessment for the coming year/s. The results of the damage assessment in relation to the available financial resources and the capacity of the construction sector to undertake reconstruction works will estimate of duration where losses will be incurred.



General Steps in Conducting a Post-disaster Damage, Loss and Needs Assessment (DaLNA)

The following steps are to be undertaken for DaLNA:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |
| Step 5 | Estimate recovery and reconstruction needs |
| Step 6 | Draft the implementation plan of the identified programs and projects |
| Step 7 | Draft the post-disaster damages, losses and needs (DaLNA) of the sector |

The procedures for each Step are provided in the following sections.



Detailed Steps in Undertaking Post-Disaster DaLNA in the Education and Sport Sector

In conducting a DaLNA in the education sector, the following steps should be followed. Each template table should be completed for every disaster-affected district in Khammouane.

Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Table 1 Baseline information of educational facilities in districts							
Name of District:							
Type of facilities	Number		Total	Average number of students			
Educational facilities	Public	Private		Public	Private	Public	Private
				Male	Female	Male	Female
Kindergarten/ pre-school							
Primary School							
Secondary School							
University							
Training institutes							
Others							
TOTAL							

The average replacement and repair costs of the assets in education can be enumerated in the following table.

Table 2 Baseline information of unit cost of educational facilities in a district						
Name of District:						
Particulars	Values (in Kips)					
	Pre-school	Primary School	Secondary School	University	Technical Institutes	Others
Average replacement cost of:						
a. Structures						
b. Roof per square meter						
c. Wall per square meter						
d. Floor per square meter						
e. Desks						
f. Computers						
g. Books						
h. Chalk boards						

i. Other educational materials, equipment and furnishings						
Average repair cost of:						
a. Structures						
b. Roof per square meter						
c. Wall per square meter						
d. Floor per square meter						
e. Desks						
f. Computers						
g. Books						
h. Chalk boards						
i. Other educational materials, equipment and furnishings						
Average fees/ revenue:						
a. Average fee/s per student per month						
b. Average revenue per day or month						
Construction/ repair period			In days			
a. Average construction period						
b. Average repair period						

Notes in filling out Table 1 & 2.

- ✦ Other types of educational facilities like public libraries should be included.
- ✦ The replacement and repair costs of structure/s, values of books, equipment and furnishing/s should be per unit or per type in each educational facility.
- ✦ Replacement costs can be estimated by the considering the acquisition or construction costs less the depreciation of the asset/s.
- ✦ The average construction period refers to the number of days for a new building to be erected.
- ✦ The average repair period refers to the number of days required for the repair of the structures/buildings. This can be based on past experiences.

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses in the sector are accurate to the extent possible.* Direct interviews with private contractors or government officials involved in the construction and

repair of facilities can also be conducted during the field trip in order to validate unit costs of repair and reconstruction (which is already contained in the baseline data).

Step 2.1. Estimate the damages and losses to government education facilities

The post disaster assessments of government-owned education facilities are the primary concerns of the DES. Assessment should be done on a per district basis which can be totaled to create a provincial assessment. The following table can be used in assessing the damages and losses

Table 3 Damage and loss assessment of a government education facility						
Name of District:						
Type of educational facility:						
Estimated Damages						
Damaged Assets	Totally Destroyed		Partially Damaged		Total (Kips)	Average Time to Repair (Days)
	Quantity	Total (Kips)	Quantity	Total (Kips)		
	A	B	C	D	E	F
a. Buildings/ structures						
b. Desks						
c. Books						
d. Boards						
e. Computers						
f. Furniture						
g. Appliances						
h. Others						
TOTAL						N.A.
Estimated Losses						
Type of Losses	Disaster Year		Year 1	Year 2	Total(Kips)	
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL						

Notes in filling out Table 3.

- ✿ The values in the baseline information should be used in estimating damages. For example, if 20 square meters of the roof are damaged, the repair cost will be the cost of roofing per square meter multiplied by 20 square meters. On the other hand, if the whole classroom is totally destroyed, the value of damage will be its replacement cost at post-disaster prices.
- ✿ The total for the totally destroyed (or partially damaged) assets will be the total number multiplied by the replacement cost (or average repair cost). The average replacement and repair costs are in the baseline information.
 - Column B = (Column A) x replacement cost
 - Column D = (Column C) x repair cost
- ✿ In formula, 'Total damages' Column E will be: = (Column B) + (Column D)
- ✿ The average time to repair refers to the time to restore the affected structures to their pre-disaster levels. This will give an indication on the number of days before normal services will be restored.

Step 2.2. Estimate the damages and losses to private facility

Since it may be difficult for the government to assess the damages to all private education facilities, a survey questionnaire can be used to interview the private owners. (Private schools may not allow outside people to enter their premises after a disaster).

Table 4 Damage and loss assessment of a private education facility (Questionnaire)

Name of District:

Type of educational facility:

Estimated Damages

Damaged Assets	Totally Destroyed		Partially Damaged		Total (Kips)	Average Time to Repair (Days)
	Quantity	Total Estimated Replacement Cost (Kips)	Quantity	Total Estimated Replacement Cost (Kips)		
	A	B	C	D	E	F
a. Buildings/ structures						
b. Desks						
c. Books						
d. Boards						
e. Computers						
f. Furniture						
g. Appliances						
h. Others						
TOTAL						N.A.

Estimated Losses				
Type of Losses	Disaster Year	Year 1	Year 2	Total (Kips)
a. Foregone income				
b. Cleaning up of debris				
c. Higher operating costs				
d. Other unexpected expenses				
TOTAL				

Each of the questionnaires used to assess private damages can be summarized to create a summary of the damages and losses of the private sector.

Step 2.3. Summarize the damages and losses in the sector in a district

Based on assessment of government assets and survey of private education facilities, the damages and losses can be summarized in the following table.

Table 5 Summary of damages and losses in the education sector in a district							
Name of District:							
Estimated Damages							
Types of Assets	Types of Damages						
	Totally Destroyed			Partially damaged			Total Damages (Kips)
	Public	Private	Total (Kips)	Public	Private	Total (Kips)	
	A	B	C	D	E	F	
1. Structures							
a. Pre-schools							
b. Primary schools							
c. Secondary schools							
d. Training institutes							
e. Universities							
f. Others (enumerate)							
Total							
2. Equipment							
a. Desks							
b. Books							
c. Computers							
d. Furniture							
e. Supplies							

f. Others (enumerate)							
TOTAL DAMAGES							
Estimated Losses							
Type of Losses	Losses (in Kips)						
	Within disaster year		Year 1		Year 2		Total
	Public	Private	Public	Private	Public	Private	
Foregone income							
Cleaning up of debris							
Higher operating costs							
Other unexpected expenses							
TOTAL LOSSES							

The damages and losses in the above table are the summary of those that were assessed and interviewed.

Step 2.4. Summarize damages and losses in the education sector in the province

Once the summary table for each affected district has been filled out, the information should be used to summarize the damages and losses at the provincial level. The summary table below can be used.

Table 6 Summary of damage and losses in the education sector in a province								
Name of Province: Khammouane								
Districts	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
a. District								
b. District								
c. District								
d. District								
TOTAL								

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting, a meeting among the assessment team members should be held. This

can be organized and facilitated by the team leader of the DE in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members share their collected data, issues and experiences in the field, among others. At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below.

Validation meeting sessions may include:

- ✿ Opening remarks from the DAF Head
- ✿ Each sub-sector (crops, livestock, fisheries and forestry that conducted damage and loss assessment) briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)
 - Recommendations from damage and loss assessment results
- ✿ DAF Head / Secretariat presents:
 - Summary of damages and losses based on each sub-sector's reports
 - Recommendations to resolve data validation problems (if any)
 - Next steps in the DaLNA process
 - Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DaLNA from the field to avoid duplication and double counting across sectors.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of the education sector must be able to analyze potential impacts of the damages and losses to education facilities in relation to, among others:

- ✿ The future education of the youth especially the girls. This will provide an indication on the potential vulnerability of the youth, especially girls, who may end up uneducated and/or be forced to seek lower levels of employment outside their own villages.
- ✿ The additional costs to families if classes will be extended beyond the normal school year.
- ✿ The potential increase in school drop outs.
- ✿ Possible losses of teaching jobs (in the private sector) if school buildings are totally destroyed.

The national targets on the millennium development goals (MDGs) can be used as indicators for analysis of impacts in the education sector.

Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if no assistance will be provided to the education sector, the aggregate needs of the sector must be estimated. The DE must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the DE assessment team must identify the strategies to be followed for recovery and reconstruction for the sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction. Some of the general strategies that could be considered for the education sector include the following:

1. **Building Back Better (BBB).** Design recovery activities based on BBB principles will promote longer-term disaster risk reduction and management. BBB principle should also look at the how to make education facilities safer from future disasters, the advantages of resettlement in disaster-safe areas instead of rebuilding in the same disaster-prone areas, etc.
2. **Focus on the most vulnerable and socially disadvantaged groups such as children, women, and the disabled.** Recovery programming needs to give priority to the most vulnerable groups, including women-children, the poor and those with special needs.
3. **Community Participation and Use of Local Knowledge and Skills.** The participation of the community in all process (identification, planning, design and implementation) of recovery activities will help ensure the acceptability of projects and optimize the use of local initiatives, resources and capacities.
4. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
5. **Coordinated and coherent approaches to recovery.** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.
6. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. It should be clear how assistance to the recovery of the private sector will

be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.

7. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected, through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy in the sector as quick as possible. In the education sector, quick recovery efforts must be undertaken to prevent the delay of classes of the affected students. The government must ensure that its education services will be normalized as soon as possible. Some of the possible recovery related activities are:

- ✿ Reactivation of education activities under special conditions such as:
 - More intensive utilization of undamaged education facilities, by establishing several daily “shifts” instead of normal ones;
 - Rental of alternative premises which can be used as school buildings; and
 - Setting up temporary classrooms, by using tents, containers or other similar facilities.
- ✿ Repair of schools used as temporary shelter and that may have sustained damage due to overuse.
- ✿ Replacement of education materials and minimum vital equipment which cannot wait until reconstruction begins.
- ✿ Accelerated training of teachers if a large number of teachers died in the disaster.

The cost of each of the above mentioned activities would have been estimated as part of loss assessment.

Step 5.3. Estimate reconstruction need

Reconstruction needs are generally long-term in nature (3 years or more) and are intended to ‘build back better’ from the ruins of a disaster. The possible reconstruction related activities in the education sector could include the following:

- ✿ Reconstruction of public schools under a building-back-better strategy to ensure future disaster resilience through the adoption and enforcement of improved construction standards;
- ✿ Relocation of schools to safe areas, as necessary. In this case, the additional costs land acquisition, and basic services provision (water, sanitation, electricity, etc) should be included.
- ✿ Soft-term credit for reconstruction of private schools. Such schemes can be accompanied by technical assistance for improved disaster resilient standards of construction;
- ✿ Cost of replacing furniture and equipment that were destroyed may be included within the needs for reconstruction, unless they have been covered under the recovery needs to provide temporary education services for the affected area;

- ✿ Structural retro-fitting of undamaged or partially damaged schools so that they are not affected by disaster event in the future; and
- ✿ Other mitigation measures such as construction of support infrastructure to prevent serious landslides and floods to education facilities.

Step 5.4. Prioritize identified projects for recovery

Among the projects identified, relative priorities can be set in order to determine which among them are the more important. Based on the broad strategies for recovery, the DE assessment team should select the priority projects/activities among the total identified needs. The prioritization can be made by using a set of impact indicators and the level by which the projects can achieve said impacts. The following criteria, as indicated in the guidelines for the post disaster reconstruction fund (PDRF), can be used among others, to prioritize or rank the proposed post-disaster projects:

- 1 The greatest social and economic impact, which is to be evaluated in terms of the relative cost of not undertaking reconstruction or rehabilitation.
2. The biggest pro-poor impact, such that assistance in poorer Districts or Kumbans will be given a higher priority than projects located in better-off Districts or Kumbans.
3. Whether there is a strong likelihood that an adequate budget and appropriate provisions will be made to cover the operations and maintenance (O&M) of the reconstructed infrastructure item.

The criteria above can be placed in a matrix like the one below where the impacts are ranked according to low, medium or high. This matrix can show the relative benefits of proposed projects to the people in the affected areas which, in turn, will inform and assist the government of Khammouane (or the PDMC) in determining the priority projects within the sector.

Matrix 1 Impacts of identified post-disaster projec									
Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Temporary schools									
Educational supplies									
Others									

The projects identified by the assessment team must be included in the above matrix.

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the DE assessment team identifying the post-disaster projects for recovery and reconstruction. It should be noted that assistance to education facilities owned by the private sector, which can be extended as direct assistance or through credit, is purely based on the decision of the government. The following table can be used.

Table 7 Summary of recovery and reconstruction needs in the education sector.	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Setting up of temporary schools	
b. Provision of educational supplies	
c. Others	
TOTAL	
Reconstruction Needs	
a. Resettlement of education facilities	
b. Structural retro-fitting of education facilities	
c. Mitigation measures (specify)	
TOTAL	
GRAND TOTAL	

Step 5.6. Provide all the districts a copy of the list of projects identified as priorities by the DES

The Head of the DE assessment team should inform all the districts covered by the DaLNA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.

2. Plot the timeline of activities of all the projects, with the urgent ones on top, in a Gantt chart with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.
4. To the extent possible, a logical framework (logframe) should be created for each of the project proposed for inclusion in the recovery plan. Logframes are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 8 Summary of recovery and reconstruction needs in the education sector

Needs	Annual Needed Amount of Assistance (Kips)				Total Needs
	Disaster Year	Year 1	Year 2		(Kips)
Recovery Needs					
a. Setting up of temporary schools					
b. Provision of educational supplies					
c. Others					
Total					
Reconstruction Needs					
a. Resettlement of education facilities					
b. Structural retro-fitting of education facilities					
c. Mitigation measures (specify)					
c. Others (specify)					
TOTAL					
GRAND TOTAL					

Notes in filling out Table 8.

- ✿ Project titles can be inserted under the column on recovery and reconstruction needs.
- ✿ Columns can be added to accommodate any additional reconstruction needs beyond Year 2.

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) report of the sector

With all the information gathered using the previous steps, a report for the education sector can be drafted by the DES and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the sector in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the sector in the disaster-affected areas.
2. Damages in the sector by areas and by types of education facilities affected.
3. Losses in the sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the sector in Khammouane.
6. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report of the DES should be submitted to the PDMC for integration into the overall post-disaster DaLNA report for the province which should contain the other similar DaLNA reports of the other sectors. The final DaLNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DaLNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.



ANNEX
PHOTOCOPY TEMPLATE

Table 1 Baseline information of educational facilities in districts

Name of District:

Type of facilities	Number		Total	Average number of students			
Educational facilities	Public	Private		Public	Private	Public	Private
				Male	Female	Male	Female
Kindergarten/ pre-school							
Primary School							
Secondary School							
University							
Training institutes							
Others							
TOTAL							



Table 2 Baseline information of unit cost of educational facilities in a district

Name of District:

Particulars	Values (in Kips)					
	Pre-school	Primary School	Secondary School	University	Technical Institutes	Others
Average replacement cost of:						
a. Structures						
b. Roof per square meter						
c. Wall per square meter						
d. Floor per square meter						
e. Desks						
f. Computers						
g. Books						
h. Chalk boards						
i. Other educational materials, equipment and furnishings						
Average repair cost of:						
a. Structures						
b. Roof per square meter						
c. Wall per square meter						
d. Floor per square meter						
e. Desks						
f. Computers						
g. Books						
h. Chalk boards						
i. Other educational materials, equipment and furnishings						
Average fees/ revenue:						
a. Average fee/s per student per month						
b. Average revenue per day or month						
Construction/ repair period			In days			
a. Average construction period						
b. Average repair period						



TO PHOTOCOPY

Table 3 Damage and loss assessment of a government education facility

Name of District:

Type of educational facility:

Estimated Damages

Damaged Assets	Totally Destroyed		Partially Damaged		Total	Average Time to Repair (Days)
	Quantity	Total (Kips)	Quantity	Total (Kips)	(Kips)	
	A	B	C	D	E	
a. Buildings/structures						
b. Desks						
c. Books						
d. Boards						
e. Computers						
f. Furniture						
g. Appliances						
h. Others						
TOTAL						N.A.

Estimated Losses

Type of Losses	Disaster Year	Year 1	Year 2	Total (Kips)
a. Foregone income				
b. Cleaning up of debris				
c. Higher operating costs				
d. Other unexpected expenses				
TOTAL				



Table 4 Damage and loss assessment of a private education facility (Questionnaire)

Name of District:

Type of educational facility:

Estimated Damages

Damaged Assets	Totally Destroyed		Partially Damaged		Total	Average Time to Repair (Days)
	Quantity	Total Estimated Replacement Cost (Kips)	Quantity	Total Estimated Replacement Cost (Kips)	(Kips)	
	A	B	C	D	E	
a. Buildings/ structures						
b. Desks						
c. Books						
d. Boards						
e. Computers						
f. Furniture						
g. Appliances						
h. Others						
TOTAL						N.A.

Estimated Losses

Type of Losses	Disaster Year	Year 1	Year 2	Total (Kips)
a. Foregone income				
b. Cleaning up of debris				
c. Higher operating costs				
d. Other unexpected expenses				
TOTAL				



TO PHOTOCOPY

Table 5 Summary of damages and losses in the education sector in a district

Name of District:

Estimated Damages

Types of Assets	Types of Damages						
	Totally Destroyed			Partially damaged			Total Damages (Kips)
	Public	Private	Total (Kips)	Public	Private	Total (Kips)	
	A	B	C	D	E	F	G
1. Structures							
a. Pre-schools							
b. Primary schools							
c. Secondary schools							
d. Training institutes							
e. Universities							
f. Others (enumerate)							
Total							
2. Equipment							
a. Desks							
b. Books							
c. Computers							
d. Furniture							
e. Supplies							
f. Others (enumerate)							
TOTAL DAMAGES							
Estimated Losses							
Type of Losses	Losses (in Kips)						
	Within disaster year		Year 1		Year 2		Total
	Public	Private	Public	Private	Public	Private	
Foregone income							
Cleaning up of debris							
Higher operating costs							
Other unexpected expenses							
TOTAL LOSSES							



TO PHOTOCOPY

Table 6 Summary of damage and losses in the education sector in a provi

Name of Province: Khammouane

Districts	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
a. District								
b. District								
c. District								
d. District								
TOTAL								

Matrix 1 Impacts of identified post-disaster projec

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Temporary schools									
Educational supplies									
Others									



TO PHOTOCOPY

Table 7 Summary of recovery and reconstruction needs in the education sector.

Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Setting up of temporary schools	
b. Provision of educational supplies	
c. Others	
TOTAL	
Reconstruction Needs	
a. Resettlement of education facilities	
b. Structural retro-fitting of education facilities	
c. Mitigation measures (specify)	
TOTAL	
GRAND TOTAL	

Table 8 Summary of recovery and reconstruction needs in the education sector

Needs	Annual Needed Amount of Assistance (Kips)				Total Needs
	Disaster Year	Year 1	Year 2		(Kips)
Recovery Needs					
a. Setting up of temporary schools					
b. Provision of educational supplies					
c. Others					
Total					
Reconstruction Needs					
a. Resettlement of education facilities					
b. Structural retro-fitting of education facilities					
c. Mitigation measures (specify)					
c. Others (specify)					
TOTAL					
GRAND TOTAL					





Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

ENERGY SECTOR

Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC). The following are the key persons in conducting a DaLNA.

Personnel	Role in the DaLNA
Staff from Department of Energy and Mines (DEM) of the Khammouane Province (energy experts, procurement specialists, electrical engineers and finance personnel)	Lead and coordinate
Staff from national Ministry of Energy and Mines	Participate and provide technical advice
Staff from the affected district/s Department of Energy and Mines	Provide damage and loss information and facilitate assessment
Development partners (if active in the Energy Sector in Khammouane)	Participate and provide technical advice



Concepts and Definitions

Energy / Power Supply Sector

The energy sector is composed of the different types of power-generating and distribution systems like dams, power lines, equipment and other facilities used to generate energy or electricity. They may be owned by the government or by private individuals or corporations.

Damages

In power supply, damages are cost of: a) repair of partially destroyed assets and/or b) replacement of totally destroyed assets and infrastructure under each of the components of the power sector such as:

- ✿ Power generation plants like dams, turbines, generator sets, control systems, etc.
- ✿ Transmission subsystems, including high-voltage power lines and transformers
- ✿ Distribution grids

The following are the other types of assets in the power sector:

- ✿ Structures such as office buildings, storage buildings, etc.
- ✿ Office equipment and machinery like computers, air conditioners, etc.
- ✿ Vehicles, tools, and stock materials and supplies like cables, etc.

Damages occur at the time of, or shortly after the disaster and are to be measured in physical terms (such as kilometers of power lines) for which monetary replacement values are subsequently estimated.

Losses

Losses are the values due to the change in economic flows (income and expenditures) during the period of recovery and reconstruction following the disaster. They are the current value of goods and services that were not and/or will not be produced over a time span due to the disaster until full recovery is attained. Losses in the energy sector will include the following:

- ✿ Sales in electricity not made due to the shut-down of the power system while the system is under repair or reconstructed after a disaster. This can include both short-term shut-down for repairs and longer-term shut-down due to reconstruction.
- ✿ Foregone sales in electricity due to the decline in DEMand from consumers that have been affected by the disaster.
- ✿ Higher cost of operation which occurs when damaged power units are substituted by alternative stand-by plants that have a higher unit cost of production or when electricity has to be imported from a different system that has higher unit operating costs than the affected system.
- ✿ Additional expenses to clean up the debris.

In the power sector losses occur until full capacity and supply have been re-established in all system components and user DEMand (in all sectors) has been restored to pre-disaster levels. Losses are expressed in monetary value at current values.



General Steps in Conducting a Post-disaster Damage, Loss and Needs Assessment (DaLNA)

The following steps are to be undertaken for DaLNA:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |



- Step 5 Estimate recovery and reconstruction needs
- Step 6 Draft the implementation plan of the identified programs and projects
- Step 7 Draft the post-disaster damages, losses and needs (DaLNA) of the sector

These procedures for each Step are provided in the following sections.



Detailed Steps in Undertaking Post-Disaster DaLNA in the Energy Sector

In conducting a DaLNA in the energy sector, the following steps should be followed. Each template table should be completed for every disaster-affected district in Khammouane.

Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Table 1 Power companies in a district								
Name of District:								
Name of Power Company by Activity	Power Source				Ownership		Capacity	Unit cost of operation
	Hydro	Coal	Diesel	Others	Public	Private	(KW)	(Kips/KW-hr)
Power Generation								
a. Company 1								
b. Company n								
c.								
d.								
Power Distribution								
a. Company 1								
b. Company n								
c.								
d.								

Note in filling out Table 1.

- ✿ If a power company is a joint venture between the government and a private corporation, it can be considered a public for the purpose of DaLNA.

Table 2 Baseline information on power costs and Demand

Name of District:

Name of Power Company	Power DEMand Forecast (Kw-Hr)				Rate
	Current Year	Year 1	Year 2	Year 3	Kips/ KW-Hr
Company 1					
a. Residential					
b. Commercial					
c. Industrial					
d. Others					
Company 2					
a. Residential					
b. Commercial					
c. Industrial					
d. Others					
Company 2					
a. Residential					
b. Commercial					
c. Industrial					
d. Others					

Note in filling out Table 2.

- ✿ The names of the companies operating in the area should all be included.
- ✿ If the power companies cover more than one district, they should only be assessed once as part of the district where their main offices are located.
- ✿ Years 1 to 3 are the forecast power DEMand after the disaster.

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses in the sector are accurate to the extent possible.* Direct interviews with the private firms and contractors or government officials involved in the construction and repair of facilities can also be conducted during the field trip in order to validate unit costs of repair and reconstruction (which is already contained in the baseline data).

It should be noted that since there is a possibility that only one power firm supplies electricity to a number of districts, caution should be exercised to avoid double counting. It is recommended that the assessment of damages and losses of the power firm should be accounted for in the district where the main office of the power firm is located. However, if the main office is located outside the disaster area, the assessment team must account for the damages and losses of the firm with an indication as to where such damages and losses occurred.

Step 2.1. Estimate the damages and losses to energy/power facilities

Repair and replacement costs should be estimated for the damaged components of power firms. The time needed to reconstruct the damages should also be estimated. Aside from field visits to the disaster sites, the assessment team should interview the officers of the power firm/s to ascertain the extent and value of the damages and the estimated period before the power can be fully restored to the pre-disaster level. The officials and experts in the power firm/s can estimate the damages of their respective firms more accurately. Moreover, considering that some of the damages may cover a wide area that may be inaccessible to the assessment team, the people in the power firm/s can get the data quicker from their colleagues in the field.

The value of totally damaged assets can be summarized in the following table which should be used in interviewing the officials of the power firm/s as a questionnaire.

Table 3 Damages and losses of power firms

Name of Power Firm						
Location	Name of District:					
Type of Power Firm	Power Generation: Hydropower () Coal () Diesel () Others ()					
Ownership	Public () Private ()					
Estimated Damages						
Damage to Structures and Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost(Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D	E	F
1. Power Generation						
a. Structures						
b. Equipment						
c. Others						

2. Transmission system						
a. Structures						
b. Equipment						
c. Vehicles						
d. Others						
3. Distribution grids						
a. Structures						
b. Equipment						
c. Others						
4. Main Office						
a. Structures						
b. Equipment						
c. Inventories						
d. Others						
TOTAL						N.A.
Estimated Losses						
Types of Losses	Current Year	Year 1	Year 2	Total (Kips)		
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL						

Note in filling out Table 3.

- ✿ The power firm/s should fill out information appropriate to their assets. Structures will include dams, field offices, etc.
- ✿ There are various machineries and equipment in the power systems like turbines, computers, vehicles, etc. Inventories will include power lines, posts, spare parts, etc. They should all be assessed especially those that are vital to the operation.
- ✿ 'Average Replacement Cost' will be the average pre-disaster value of the structures and assets that were totally destroyed.
- ✿ 'Average Repair Cost' will be the average cost of repair of the structures and assets that were partially damaged.
- ✿ In formula, the total damages will be (Column E) = (Column A) x (Column B) + (Column C) x (Column D).

Step 2.2. Summarize the damages and losses in the sector in a district

Based on the survey of energy companies, the damages and losses can be summarized in the following table.

Table 4 Summary of damages and losses in the district

Name of District:

Name of power firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		1 Year		2 Year	
	Public	Private	Public	Private	Public	Private	Public	Private
Firm 1								
Firm n								
TOTAL								

Note in filling out Table 4.

✿ 'Public' and 'private' refers to the ownership of the power firm.

✿ The damages and losses should be accounted for under the type of ownership of the firm.

Step 2.3. Summarize damages and losses in the energy sector in the province

Once the summary table for each affected district has been filled out, the information should be used to summarize the damages and losses at the provincial level. The summary table below can be used.

Table 5 Summary of damages and losses in the province

Name of Province: Khammouane

Name of power firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		1 Year		2 Year	
	Public	Private	Public	Private	Public	Private	Public	Private
District:								
a. Firm 1								
b. Firm n								
c.								
d.								
District:								
a. Firm 1								
b. Firm n								
c.								
d.								

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting, a meeting among the assessment team members should be held. This can be organized and facilitated by the team leader of the DEM in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members share their collected data, issues and experiences in the field, among others. At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below.

Validation meeting sessions may include:

- ✿ Opening remarks from the DEM Head
- ✿ Each sub-team which assessed various districts or kumbans will briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)
 - Recommendations from damage and loss assessment results
- ✿ DEM Head / Secretariat presents:
 - Summary of damages and losses based on the reports
 - Recommendations to resolve data validation problems (if any)
 - Next steps in the DaLNA process
 - Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DaLNA from the field to avoid duplication and double counting across sectors.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of the power sector should analyze all potential impacts of the shut-down of electricity supply in relation to, among others:

- ✿ The possible effects on hospital operations, productivity, government services, etc, if power supply is not restored immediately.
- ✿ The additional costs to families if they will have to procure other sources of power.
- ✿ Possible losses of employment if the power sector will have to lay off workers.
- ✿ Potential adverse environmental impacts like if and when fuel leaks to ecologically sensitive areas.



Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if no assistance will be provided to the energy sector, the aggregate needs of the sector must be estimated. The DEM must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the DEM assessment team must identify the strategies to be followed for recovery and reconstruction for the sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction. Some of the general strategies that could be considered for the energy sector include the following:

1. **1. Building Back Better (BBB).** Design recovery activities based on BBB principles will promote longer-term disaster risk reduction and management. BBB principle should also look at the how to make energy facilities safer from future disasters, the advantages of resettlement in disaster-safe areas instead of rebuilding in the same disaster-prone areas, etc.
2. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
3. **Coordinated and coherent approaches to recovery.** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.
4. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. It should be clear how assistance to the recovery of the private sector will be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.
5. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected, through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy in the sector as quick as possible. In the power sector, quick recovery efforts must be undertaken especially as a great number of people and businesses depend on it for their activities. Recovery activities should include those that will enable firms to resume their normal operations. To assist the sector, the DEM can identify policy measures that will enable power companies to recover without necessarily using direct government budget to cover the costs required. There are certain options that can be implemented through policy measures to expedite recovery and reconstruction of the private power sector. Among them are:

1. Income tax breaks for private firms such as:
 - a. Temporary reduction or freeze or deferment in the collection of tax;
 - b. Temporary freeze on basic service charges in the utilization of certain services over the time of the recovery phase;
 - c. Non-collection of property taxes for the duration of the recovery period;
 - d. Exemption from registration fees for replacements of the destroyed equipment and machinery over a certain period of time.
2. Subsidizing construction materials and equipment to be imported by private power firms during the recovery and reconstruction phase through an exemption from paying customs duties and other levies.

Some of the possible recovery-related activities in the power sector can include:

- ✦ Urgent repairs of the damages to the generation, transmission and distribution system which are normally affected by strong winds and floods. Among the repairs that may be required are cable wires, transformers and others.
- ✦ Emergency procurement of alternate generators or connecting to other existing power grids to supply the needs of basic lifelines like hospitals, police and military needs, transportation, etc.
- ✦ Clearing of debris that may have affected the various sub-systems of the power sector. In some cases, this may be part of repairs like the clearing of trees that fell off the power lines.
- ✦ Assistance to electricity users in checking or repairing their individual electrical installations to assure safety after the disaster.
- ✦ Freezing of electricity billings can be adopted as a recovery measure at least in those cases where no metering exists and where a fixed rate is charged to users, until full recovery of the service is achieved.

Step 5.3. Estimate reconstruction needs

Reconstruction needs are generally long-term in nature (3 years and more) and are intended to 'build back better' from the ruins of a disaster. It is to be noted that reconstruction activities should include both public as well as private facilities and may require different types of financing strategies. It is to be noted that since the power firms are revenue-generating enterprises, financing their needs can come through soft-term credit schemes for the reconstruction and repair of their damaged assets. Such schemes can be accompanied by technical assistance for improved disaster resilient standards of construction. Some possible reconstruction related activities in the sector can include the following:

The criteria above can be placed in a matrix like the one below where the impacts are ranked according to low, medium or high. This matrix can show the relative benefits of proposed projects to the people in the affected areas which, in turn, will inform and assist the government of Khammouane (or the PDMC) in determining the priority projects within the sector.

Interconnection									
Procurement of vital supplies									
Cleaning operations									
Others									

The projects identified by the assessment team must be included in the above matrix.

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the DEM assessment team identifying the post-disaster projects for recovery and reconstruction. It should be noted that assistance to energy facilities owned by the private sector, which can be extended as direct assistance or through credit, is purely based on the decision of the government. The following table can be used.

Table 6 Summary of recovery and reconstruction needs in the energy sector	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Urgent repairs	
b. Procurement of vital supplies	
c. Interconnection with other grids	
d. Cleaning up of debris	
e. Others	
TOTAL	
Reconstruction Needs	
a. Replacement or reconstruction of affected structures	
b. Procurement of equipment and machinery	
c. Technical assistance	
d. Relocation	
e. Structural retro-fitting of energy facilities	
f. Mitigation measures (specify)	
g. Others (Specify)	
TOTAL	
GRAND TOTAL	

Step 5.6. Provide all the districts a copy of the list of projects identified as priorities by the DEM

The Head of the DEM assessment team should inform all the districts covered by the DaINA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.
2. Plot the timeline of activities of all the projects, with the urgent ones on top, in a Gantt chart with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.
4. To the extent possible, a logical framework (logframe) should be created for each of the project proposed for inclusion in the recovery plan. Logframes are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 7 Summary of recovery and reconstruction needs in the energy sector

Needs	Annual Needed Amount of Assistance (Kips)					Total Needs
	Disaster Year	Year 1		Year 2		(Kips)
Recovery Needs						
a. Urgent repairs						
b. Procurement of vital supplies						
c. Interconnection with other grids						
d. Cleaning up of debris						
e. Others						
TOTAL						
Reconstruction Needs						
a. Replacement or reconstruction of affected structures						
b. Procurement of equipment and machinery						
c. Technical assistance						
d. Relocation						
e. Structural retro-fitting of energy facilities						
f. Mitigation measures (specify)						
g. Others (Specify)						
TOTAL						
GRAND TOTAL						

Note in filling out Table 7.

- ✿ Project titles can be inserted under the column on recovery and reconstruction needs.
- ✿ Columns can be added to accommodate any additional reconstruction needs beyond Year 2

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) report of the sector

With all the information gathered using the previous steps, a report for the energy sector can be drafted by the DEM and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the sector in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the sector in the disaster-affected areas.
2. Damages in the sector by areas and by types of energy facilities affected.
3. Losses in the sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the sector in Khammouane.
6. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report of the DEM should be submitted to the PDMC for integration into the overall post-disaster DaLNA report for the province which should contain the other similar DaLNA reports of the other sectors. The final DaLNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DaLNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.

ANNEX
PHOTOCOPY TEMPLATE



Table 1 Power companies in a district

Name of District:								
Name of Power Company by Activity	Power Source				Ownership		Capacity	Unit cost of operation
	Hydro	Coal	Diesel	Others	Public	Private	(KW)	(Kips/KW-hr)
Power Generation								
a. Company 1								
b. Company n								
c.								
d.								
Power Distribution								
a. Company 1								
b. Company n								
c.								
d.								

Table 2 Baseline information on power costs and Demand

Name of District:					
Name of Power Company	Power DEMand Forecast (Kw-Hr)				Rate
	Current Year	Year 1	Year 2	Year 3	Kips/ KW-Hr
Company1					
a. Residential					
b. Commercial					
c. Industrial					
d. Others					
Company 2					
a. Residential					
b. Commercial					
c. Industrial					
d. Others					
Company 2					
a. Residential					
b. Commercial					
c. Industrial					
d. Others					



Table 3 Damages and losses of power firms

Name of Power Firm						
Location	Name of District:					
Type of Power Firm	Power Generation: Hydropower () Coal () Diesel () Others ()					
Ownership	Public () Private ()					
Estimated Damages						
Damage to Structures and Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost(Kips)	Number of partially damaged	Average Repair Cost (Kips)		
		A	B	C	D	E
1. Power Generation						
a. Structures						
b. Equipment						
c. Others						
2. Transmission system						
a. Structures						
b. Equipment						
c. Vehicles						
d. Others						
3. Distribution grids						
a. Structures						
b. Equipment						
c. Others						
4. Main Office						
a. Structures						
b. Equipment						
c. Inventories						
d. Others						
TOTAL						N.A.
Estimated Losses						
Types of Losses	Current Year	Year 1	Year 2	Total (Kips)		
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL						



TO PHOTOCOPY

Table 4 Summary of damages and losses in the district

Name of District:

Name of power firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		1 Year		2 Year	
	Public	Private	Public	Private	Public	Private	Public	Private
Firm 1								
Firm n								
TOTAL								

Table 5 Summary of damages and losses in the province

Name of Province: Khammouane

Name of power firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		1 Year		2 Year	
	Public	Private	Public	Private	Public	Private	Public	Private
District:								
a. Firm 1								
b. Firm n								
c.								
d.								
District:								
a. Firm 1								
b. Firm n								
c.								
d.								



TO PHOTOCOPY

Matrix 1 Impacts of identified post-disaster projects

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Urgent repair or replacement of equipment and machinery									
Interconnection									
Procurement of vital supplies									
Cleaning operations									
Others									

Table 6 Summary of recovery and reconstruction needs in the energy sector

Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Urgent repairs	
b. Procurement of vital supplies	
c. Interconnection with other grids	
d. Cleaning up of debris	
e. Others	
TOTAL	
Reconstruction Needs	
a. Replacement or reconstruction of affected structures	
b. Procurement of equipment and machinery	
c. Technical assistance	
d. Relocation	
e. Structural retro-fitting of energy facilities	
f. Mitigation measures (specify)	
g. Others (Specify)	
TOTAL	
GRAND TOTAL	



TO PHOTOCOPY

Table 7 Summary of recovery and reconstruction needs in the energy sector

Needs	Annual Needed Amount of Assistance (Kips)					Total Needs
	Disaster Year	Year 1	Year 2	Year 3	Year 4	(Kips)
Recovery Needs						
a. Urgent repairs						
b. Procurement of vital supplies						
c. Interconnection with other grids						
d. Cleaning up of debris						
e. Others						
TOTAL						
Reconstruction Needs						
a. Replacement or reconstruction of affected structures						
b. Procurement of equipment and machinery						
c. Technical assistance						
d. Relocation						
e. Structural retro-fitting of energy facilities						
f. Mitigation measures (specify)						
g. Others (Specify)						
TOTAL						
GRAND TOTAL						



TO PHOTOCOPY



Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

HEALTH SECTOR

Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC). The following are the key persons in conducting a DaLNA.

Personnel	Role in the DaLNA
Staff from Department of Public Health (DPH) of the Khammouane Province (medical experts, procurement specialists, health economist and finance personnel)	Lead and coordinate
Staff from national Ministry of Health	Participate and provide technical advice
Staff from the affected district/s Department of Health	Provide damage and loss information and facilitate assessment
Development partners (if active in the Health Sector in Khammouane)	Participate and provide technical advice



Concepts and Definitions

Health sector

The health sector is composed of the different types of hospitals, health clinics and other facilities used by the people for treatment of illnesses or health maintenance including the structures, equipment and supplies, etc. Included also here are medical related services like medical laboratories. They may be owned by the government or by private individuals or corporations. It should be noted that drug manufacturers are not included in the health sector but rather in the manufacturing sector. However, if there is extensive damage to drug manufacturing companies, the health sector should include in their analysis the potential impacts to the supply of medicines in the province or even the country.

Damages

In the health sector, damages are cost of: a) repair of partially destroyed assets and/or b) replacement of totally destroyed assets and infrastructure such as:

- ✦ Total or partial destruction of physical structures related to all types of health facilities like hospitals, clinics, medical laboratories, etc.

- ✿ Total or partial destruction of medical equipment, medicines, medical supplies and others such as elevators and power generators, computers, furniture, appliances and other supplies.

Damages in this sector will occur at the time of, or shortly after the disaster although some damages may become obvious only after a longer period. Damages are measured in physical terms for which the monetary repair or replacement value is subsequently estimated.

Losses

Losses are the values due to the change in economic flows (income and expenditures) during the period of recovery and reconstruction following the disaster. They are the current value of goods and services that were not and/or will not be produced over a time span due to the disaster until full recovery is attained. Losses in the health sector will include the following:

- ✿ Higher costs of health care. Government health facilities may incur additional expenses to assist the disaster-affected population (over and above the regular budget of the sector). This higher cost can be for any of the following reasons:
 - Treatment of physically and psychologically injured persons over a period of time which will require additional expenses for medicine and supplies
 - Transportation costs of injured persons to alternative, unaffected health facilities
 - Additional home visits to women and children needing more attention since they are more vulnerable and at risk
 - Rent of additional equipment, transportation to make more out of facility service provision
 - Overtime payment of health sector personnel, or cost of employing temporary additional staff if needed.
- ✿ Cost of setting up and operating temporary health care facilities, if necessary. If permanent structures of health facilities are destroyed or significantly damaged, temporary medical facilities may be need to be established. When temporary health care facilities are built, it will be necessary to estimate the cost of construction and related services, such as the provision of water, latrines and electric power and duration for which these temporary facilities will function. When using rented buildings as temporary health care facilities, the total value of rent will be part of the loss.
- ✿ Losses due to lower revenues. Closure of private and public health care facilities due to physical damages would result in the loss of revenues. On the other hand, even if the facilities are not affected, there may be a reduction in demand/patients if the facility has become inaccessible or if the people lost their source of income to pay for health services. Revenue losses will be: Pre-disaster revenues minus the estimated post-disaster revenues.
- ✿ Other unexpected expenditures like:
 - Direct costs of monitoring and control of outbreak of diseases. After a disaster, there is a possibility of breakout of epidemics which may require direct interventions like health surveillance and other disease control

like fumigation, control of water-borne diseases, vaccination, public information and education, etc.

- Demolition and clean-up costs. The costs of demolition, removal of debris in the affected health facilities, disposal of bio-hazardous materials, among others are considered losses in health sector. Demolition costs vary widely in relation to the type of building materials involved. The health sector specialist should consult with an engineer or architect at this point. Typically the cost of removal of debris up to the roadside is incurred by the health facilities while the disposal of debris from the road to the disposal site may be incurred by other mandated agencies.

Losses can extend beyond the year that the disaster occurred and these should be reflected in the loss assessment for the coming year/s. The duration will also include the time required for controlling and monitoring the possible outbreak of disease that may change the morbidity levels arising from the disaster. Losses are expressed in monetary value at current prices.



General Steps in Conducting a Post-disaster Damage, Loss and Needs Assessment (DaLNA)

The following steps are to be undertaken for DaLNA:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |
| Step 5 | Estimate recovery and reconstruction needs |
| Step 6 | Draft the implementation plan of the identified programs and projects |
| Step 7 | Draft the post-disaster damages, losses and needs (DaLNA) of the sector |

These procedures for each Step are provided in the following sections.



Detailed Steps in Undertaking Post-Disaster DaLNA in the Health Sector

In conducting a DaLNA in the health sector, the following steps should be followed. Each template table should be completed for every disaster-affected district in Khammouane.

Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Table 1 Baseline information of medical facilities in a district or city

Name of District:							
Type of facilities	Number		TOTAL	Average number of clients per day			
Medical facilities	Public	Private		Public		Private	
				Male	Female	Male	Female
Health clinics							
Hospitals							
Medical laboratories							
Others							
TOTAL							

Table 2 Baseline information of unit cost of medical facilities in a district

Name of District:						
Particulars	Values (in Kips)					
	Clinics		Hospitals		Medical laboratories	Others (Specify)
	Single Floor	Multi-floor	Single Floor	Multi-floor		
Average replacement cost of:						
a. Structure						
b. Roofing per square meter						

c. Wall per square meter						
d. Flooring per square meter						
e. Electrical installation						
f. Plumbing						
Average repair cost of:						
a. Structure						
b. Roofing per square meter						
c. Wall per square meter						
d. Flooring per square meter						
e. Electrical installation						
f. Plumbing						
Average fees / revenue:						
a. Average fee/s per client per visit						
b. Average revenue per day or month						
Construction/ repair period			In Days			
a. Average construction period						
b. Average repair period						

Table 3 Baseline information of unit cost of medical equipment and supplies in a district or city

Medical Equipment and Supplies	Unit Costs (Kips)		
	Average acquisition value per unit	Average replacement cost per unit	Average repair cost per unit
a. CT Scan			
b. X-ray machine			
c. MRI machine			
d. Other equipment (Specify)			
e. Medicines			
f. Other medical supplies			
g. Furniture			
h. Others			

Notes in filling out Table 1, 2 and 3.

- Other types of medical facilities like mobile clinics should be included.
- The construction cost of structure/s, values of equipment, supplies and furnishing/s should be per unit or per type in each facility.
- The average construction period refers to the number of days for a new building to be erected.
- The average repair period refers to the number of days required for the repair of the structures/buildings. This can be based on past experiences.
- Types of equipment and supplies, especially those are important and expensive, should be enumerated.

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses in the sector are accurate to the extent possible.* Direct interviews with private contractors or government officials involved in the construction and repair of facilities can also be conducted during the field trip in order to validate unit costs of repair and reconstruction (which is already contained in the baseline data).

Step 2.1. Estimate the damages and losses to government health facilities

The post disaster assessments of government-owned health facilities are the primary concerns of the DPH. Assessment should be done on a per district basis which can be totaled to create a provincial assessment. The following table can be used in assessing the damages and losses.

Table 4 Damage and loss assessment of a government health facilities

Name of District:

Name of health facility:

Type of health facility: () Clinics () Hospitals () Medical laboratory () Other medical-related facility () Specify:

Estimated Damages						
Damaged Assets	Totally Destroyed		Partially Damaged		Total (Kips)	Average Time to Repair
	Quantity	Total (Kips)	Quantity	Total (Kips)		
	A	B	C	D	E	F
1. Structure						
2. Equipment						
a. CT Scan						
b. X-ray machine						
c. MRI machine						
d. Other equipment (Specify)						
e. Medicines						
f. Other medical supplies						
3. Others						
TOTAL						N.A.

Estimated Losses				
Type of Losses	Disaster Year	Year 1	Year 2	Total (Kips)
a. Foregone income				
b. Cleaning up of debris				
c. Higher operating costs				
d. Other unexpected expenses				
TOTAL				

Notes in filling out Table 4.

- ✿ There is a possibility that totally destroyed and partially damaged structures may occur for a certain health facility. For instance, one hospital building may be totally destroyed while some of its building are only partially damaged.
- ✿ The values in the baseline information should be used in estimating damages. For example, if 20 square meters of the roof are damaged, the repair cost will be the cost of roofing per square meter multiplied by 20 square meters. On the other hand, if the whole structure is totally destroyed, the value of damage will be its replacement cost at post-disaster prices.
- ✿ The total for the totally destroyed (or partially damaged) assets will be the total number multiplied by the replacement cost (or average repair cost). The average replacement and repair costs are in the baseline information.
 - Column B = (Column A) x replacement cost
 - Column D = (Column C) x repair cost
- ✿ In formula, 'Total damages' Column E will be: = (Column B) + (Column D)
- ✿ The average time to repair refers to the time to restore the affected structures to their pre-disaster levels. This will give an indication on the number of days before normal services will be restored.

Step 2.2. Estimate the damages and losses to private facilities

Since it may be difficult for the government to assess the damages to all private medical facilities, a survey questionnaire can be used to interview the private owners. (Private clinics and hospitals may not allow outside people to enter their premises after a disaster).

Table 5 Damage and loss assessment of a private health facility in a district

Name of District:

Name of health facility:

Type of health facility: () Clinics () Hospitals () Medical laboratory () Other medical-related facility () Specify:

Estimated Damages						
Damaged Assets	Totally Destroyed		Partially Damaged		Total (Kips)	Average Time to Repair
	Quantity	Total (Kips)	Quantity	Total (Kips)		
	A	B	C	D		
1. Structure						
2. Equipment						
a. CT Scan						
b. X-ray machine						
c. MRI machine						
d. Other equipment (Specify)						
e. Medicines						
f. Other medical supplies						
3. Others						
3. Others						
TOTAL						N.A.
Estimated Losses						
Type of Losses	Disaster Year	Year 1	Year 2	TOTAL (Kips)		
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL						

Each of the questionnaires used to assess private damages can be summarized to create a summary of the damages and losses of the private sector.

Step 2.3. Summarize the damages and losses in the sector in a district

Based on assessment of government assets and survey of private health facilities, the damages and losses can be summarized in the following table.

Table 6 Summary of damages and losses in the health sector in a district

Name of District:

Types of Assets	Estimated Damages						
	Types of Damages						Total Damages (Kips)
	Totally Destroyed			Partially Damaged			
	Public	Private	TOTAL (Kips)	Public	Private	TOTAL (Kips)	
	A	B	C	D	E	F	G
1. Structure							
a. Health clinics							
b. Hospitals							
c. Medical laboratory							
d. Others							
TOTAL							
2. Equipment							
a. CT Scan							
b. X-ray machine							
c. MRI machine							
d. Other equipment (Specify)							
e. Medicines							
f. Other medical supplies							
g. Furniture							
3. Others							
Estimated Losses							
Type of Losses	Losses (Kips)						
	Disaster Year		Year 1		Year 2		
	Public	Private	Public	Private	Public	Private	
a. Foregone income							
b. Cleaning up of debris							
c. Higher operating costs							
d. Other unexpected expenses							
TOTAL							

The damages and losses in the above table are the summary of those that were assessed and interviewed.

Step 2.4. Summarize damages and losses in the health sector in the province

Once the summary table for each affected district has been filled out, the information should be used to summarize the damages and losses at the provincial level. The summary table below can be used.

Table 7 Summary of damage and losses in the health sector in a province								
Name of Province: Khammouane								
Districts	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
District:								
a. District								
b. District								
c. District								
d.								
TOTAL								

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting, a meeting among the assessment team members should be held. This can be organized and facilitated by the team leader of the DPH in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members share their collected data, issues and experiences in the field, among others. At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below.

Validation meeting sessions may include:

- ✿ Opening remarks from the DPH Head
- ✿ Each sub-team which assessed various districts or kumbans will briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)
 - Recommendations from damage and loss assessment results
- ✿ DPH Head / Secretariat presents:
 - Summary of damages and losses based on the reports
 - Recommendations to resolve data validation problems (if any)

- Next steps in the DaLNA process
- Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DaLNA from the field to avoid duplication and double counting across sectors.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of the health sector must be able to analyze potential impacts of the damages and losses to health facilities and medical supplies in relation to, among others.

- ✦ The future health of the population especially the vulnerable groups like pregnant women, lactating mothers, children, the elderly, etc.
- ✦ The additional costs to families if they have to travel to medical facilities outside their areas.
- ✦ The potential increase in drop outs from medical services like vaccination and regular check ups.
- ✦ Possible losses of jobs (in the private sector) if medical buildings are totally destroyed

The indicators in the millennium development goals (MDGs) can also be used in the impact analysis of the health sector.

Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if no assistance will be provided to the health sector, the aggregate needs of the sector must be estimated. The DPH must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the DPH assessment team must identify the strategies to be followed for recovery and reconstruction for the sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction.

Some of the general strategies that could be considered for the health sector include the following:

1. **Building Back Better (BBB).** Design recovery activities based on BBB principles will promote longer-term disaster risk reduction and management. BBB principle should also look at the how to make health facilities safer from future disasters, the advantages of resettlement in disaster-safe areas instead of rebuilding in the same disaster-prone areas, etc.
2. **Focus on the most vulnerable and socially disadvantaged groups such as children, women, and the disabled.** Recovery programming needs to give priority to the most vulnerable groups, including women, female-headed households, children, the poor, and take into account those with special needs, to avoid their being overlooked.
3. **Community Participation and Use of Local Knowledge and Skills.** The participation of the community in all process (identification, planning, design and implementation) of recovery activities will help ensure the acceptability of projects and optimize the use of local initiatives, resources and capacities.
4. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
5. **Coordinated and coherent approaches to recovery.** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.
6. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. It should be clear how assistance to the recovery of the private sector will be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.
7. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected, through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy in the sector as quick as possible. In the health sector, quick recovery efforts must be undertaken to prevent the deterioration of the health of the affected population. The government must ensure that its health services will be normalized as soon as possible. Some of the possible recovery related activities are:

- ✦ Setting up of temporary hospitals in either alternative suitable building facilities or in tents, until the destroyed facilities are rebuilt.
- ✦ Additional budget over and above the regular government appropriations to finance additional personnel or to pay overtime to existing personnel

- ✦ Replenishing stocks of medical supplies and medicines that may have been destroyed during the disaster,
- ✦ Preventing and controlling the possible occurrence of disease outbreaks or epidemics, whose cost is not normally included in the regular budget. Under this heading, the cost of public information campaigns, vaccinations, vector control schemes and monitoring of morbidity levels are to be included
- ✦ If food insecurity has arisen due to the disaster, a temporary nutrition scheme for mothers and children may be designed and implemented

The cost of each of the above mentioned activities would have been estimated as part of loss assessment.

Step 5.3. Estimate reconstruction needs

Reconstruction needs are generally long-term in nature (3 years or more) and are intended to 'build back better' from the ruins of a disaster. The possible reconstruction related activities in the health sector could include the following:

- ✦ Relocation of health areas to safe areas, as necessary. In this case, the additional costs land acquisition, and basic services provision (water, sanitation, electricity, etc) should be included.
- ✦ Assistance in the reconstruction and repair of health structures under a building-back-better strategy to ensure future disaster resilience through the adoption and enforcement of improved construction standards.
- ✦ Structural retro-fitting of undamaged or partially damaged structures so that they are not affected by disaster event in the future.
- ✦ Soft-term credit for reconstruction and repair of private health facilities. Such schemes can be accompanied by technical assistance for improved disaster resilient standards of construction.
- ✦ Medium- to long-term medical treatment to injured persons as well as psychological attention to the affected population
- ✦ Other mitigation measures such as construction of support infrastructure to prevent serious landslides and floods to health facilities.

Step 5.4. Prioritize identified projects for recovery

Among the projects identified, relative priorities can be set in order to determine which among them are the more important. Based on the broad strategies for recovery, the DPH assessment team should select the priority projects/activities among the total identified needs. The prioritization can be made by using a set of impact indicators and the level by which the projects can achieve said impacts. The following criteria as indicated in the guidelines for the post disaster reconstruction fund (PDRF), can be used among others, to prioritize or rank the proposed post-disaster projects:

1. The greatest social and economic impact, which is to be evaluated in terms of the relative cost of not undertaking reconstruction or rehabilitation.
2. The biggest pro-poor impact, such that assistance in poorer Districts or Kumbans will be given a higher priority than projects located in better-off Districts or Kumbans.

3. Whether there is a strong likelihood that an adequate budget and appropriate provisions will be made to cover the operations and maintenance (O&M) of the reconstructed infrastructure item.

The criteria above can be placed in a matrix like the one below where the impacts are ranked according to low, medium or high. This matrix can show the relative benefits of proposed projects to the people in the affected areas which, in turn, will inform and assist the government of Khammouane (or the PDMC) in determining the priority projects within the sector.

Matrix 1 Impacts of identified post-disaster projects									
Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Temporary clinics									
Medical supplies									
Others									

The projects identified by the assessment team must be included in the above matrix.

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the DPH assessment team identifying the post-disaster projects for recovery and reconstruction. It should be noted that assistance to health facilities owned by the private sector, which can be extended as direct assistance or through credit, is purely based on the decision of the government. The following table can be used.

Table 8 Summary of recovery and reconstruction needs in the health sector	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Setting up of temporary clinics and hospitals	
b. Provision of medical supplies and medicines	
c. Disease control	
d. Others	
TOTAL	
Reconstruction Needs	
a. Resettlement of health facilities	
b. Structural retro-fitting of health facilities	

c. Mitigation measures (Specify)	
d. Others (Specify)	
TOTAL	
GRAND TOTAL	

Step5.6. Provide all the districts a copy of the list of projects identified as priorities by the DPH

The Head of the DPH assessment team should inform all the districts covered by the DaLNA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.
2. Plot the timeline of activities of all the projects, with the urgent ones on top, in a Gantt chart with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.
4. To the extent possible, a logical framework (logframe) should be created for each of the project proposed for inclusion in the recovery plan. Logframes are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 9 Summary of recovery and reconstruction needs in the health sector

Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Setting up of temporary clinics and hospitals				
b. Provision of medical supplies and medicines				
c. Disease control				
d. Others				
TOTAL				
Reconstruction Needs				
a. Resettlement of health facilities				
b. Structural retro-fitting of health facilities				
c. Mitigation measures (Specify)				
d. Others (Specify)				
TOTAL				
GRAND TOTAL				

Notes in filling out Table 9.

- ✿ Project titles can be inserted under the column on recovery and reconstruction needs.
- ✿ Columns can be added to accommodate any additional reconstruction needs beyond Year 2

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) report of the sector

With all the information gathered using the previous steps, a report for the health sector can be drafted by the DPH and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the sector in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the sector in the disaster-affected areas.
2. Damages in the sector by areas and by types of health facilities affected.
3. Losses in the sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the sector in Khammouane.
6. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report of the DPH should be submitted to the PDMC for integration into the overall post-disaster DaLNA report for the province which should contain the other similar DaLNA reports of the other sectors. The final DaLNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DaLNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.

ANNEX
PHOTOCOPY TEMPLATE



Table 1 Baseline information of medical facilities in a district or city

Name of District:

Type of facilities	Number		TOTAL	Average number of clients per day			
Medical facilities	Public	Private		Public		Private	
				Male	Female	Male	Female
Health clinics							
Hospitals							
Medical laboratories							
Others							
TOTAL							

Table 2 Baseline information of unit cost of medical facilities in a district

Name of District:

Particulars	Values (in Kips)					
	Clinics		Hospitals		Medical laboratories	Others (Specify)
	Single Floor	Multi-floor	Single Floor	Multi-floor		
Average replacement cost of:						
a. Structure						
b. Roofing per square meter						
c. Wall per square meter						
d. Flooring per square meter						
e. Electrical installation						
f. Plumbing						
Average repair cost of:						
a. Structure						
b. Roofing per square meter						
c. Wall per square meter						
d. Flooring per square meter						
e. Electrical installation						
f. Plumbing						
Average fees / revenue:						
a. Average fee/s per client per visit						
b. Average revenue per day or month						
Construction/ repair period				In Days		
a. Average construction period						
b. Average repair period						



Table 3 Baseline information of unit cost of medical equipment and supplies in a district or city

Medical Equipment and Supplies	Unit Costs (Kips)		
	Average acquisition value per unit	Average replacement cost per unit	Average repair cost per unit
a. CT Scan			
b. X-ray machine			
c. MRI machine			
d. Other equipment (Specify)			
e. Medicines			
f. Other medical supplies			
g. Furniture			
h. Others			

Table 4 Damage and loss assessment of a government health facilities

Name of District:

Name of health facility:

Type of health facility: () Clinics () Hospitals () Medical laboratory () Other medical-related facility ()
Specify:

Estimated Damages						
Damaged Assets	Totally Destroyed		Partially Damaged		Total (Kips)	Average Time to Repair
	Quantity	Total (Kips)	Quantity	Total (Kips)		
	A	B	C	D	E	F
1. Structure						
2. Equipment						
a. CT Scan						
b. X-ray machine						
c. MRI machine						
d. Other equipment (Specify)						
e. Medicines						
f. Other medical supplies						
3. Others						
TOTAL						N.A.
Estimated Losses						
Type of Losses	Disaster Year	Year 1	Year 2	Total (Kips)		
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL						



TO PHOTOCOPY

Table 5 Damage and loss assessment of a private health facility in a district

Name of District:

Name of health facility:

Type of health facility: () Clinics () Hospitals () Medical laboratory () Other medical-related facility ()

Specify:

Estimated Damages						
Damaged Assets	Totally Destroyed		Partially Damaged		Total (Kips)	Average Time to Repair
	Quantity	Total (Kips)	Quantity	Total (Kips)		
	A	B	C	D		
1. Structure						
2. Equipment						
a. CT Scan						
b. X-ray machine						
c. MRI machine						
d. Other equipment (Specify)						
e. Medicines						
f. Other medical supplies						
3. Others						
3. Others						
TOTAL						N.A.
Estimated Losses						
Type of Losses	Disaster Year		Year 1	Year 2	TOTAL (Kips)	
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL						



TO PHOTOCOPY

Table 6 Summary of damages and losses in the health sector in a district

Name of District:

Types of Assets	Estimated Damages						
	Types of Damages						Total Damages (Kips)
	Totally Destroyed			Partially Damaged			
	Public	Private	Total (Kips)	Public	Private	Total (Kips)	
	A	B	C	D	E	F	G
1. Structure							
a. Health clinics							
b. Hospitals							
c. Medical laboratory							
d. Others							
TOTAL							
2. Equipment							
a. CT Scan							
b. X-ray machine							
c. MRI machine							
d. Other equipment (Specify)							
e. Medicines							
f. Other medical supplies							
g. Furniture							
3. Others							
Estimated Losses							
Type of Losses	Losses (Kips)						
	Disaster Year		Year 1		Year 2		
	Public	Private	Public	Private	Public	Private	
a. Foregone income							
b. Cleaning up of debris							
c. Higher operating costs							
d. Other unexpected expenses							
TOTAL							



TO PHOTOCOPY

Table 7 Summary of damage and losses in the health sector in a province

Name of Province: Khammouane

Districts	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
District:								
a. District								
b. District								
c. District								
d.								
TOTAL								

Matrix 1 Impacts of identified post-disaster projects

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Temporary clinics									
Medical supplies									
Others									

Table 8 Summary of recovery and reconstruction needs in the health sector

Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Setting up of temporary clinics and hospitals	
b. Provision of medical supplies and medicines	
c. Disease control	
d. Others	
TOTAL	
Reconstruction Needs	
a. Resettlement of health facilities	
b. Structural retro-fitting of health facilities	
c. Mitigation measures (Specify)	
d. Others (Specify)	
TOTAL	
GRAND TOTAL	



Table 9 Summary of recovery and reconstruction needs in the health sector				
Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Setting up of temporary clinics and hospitals				
b. Provision of medical supplies and medicines				
c. Disease control				
d. Others				
TOTAL				
Reconstruction Needs				
a. Resettlement of health facilities				
b. Structural retro-fitting of health facilities				
c. Mitigation measures (Specify)				
d. Others (Specify)				
TOTAL				
GRAND TOTAL				

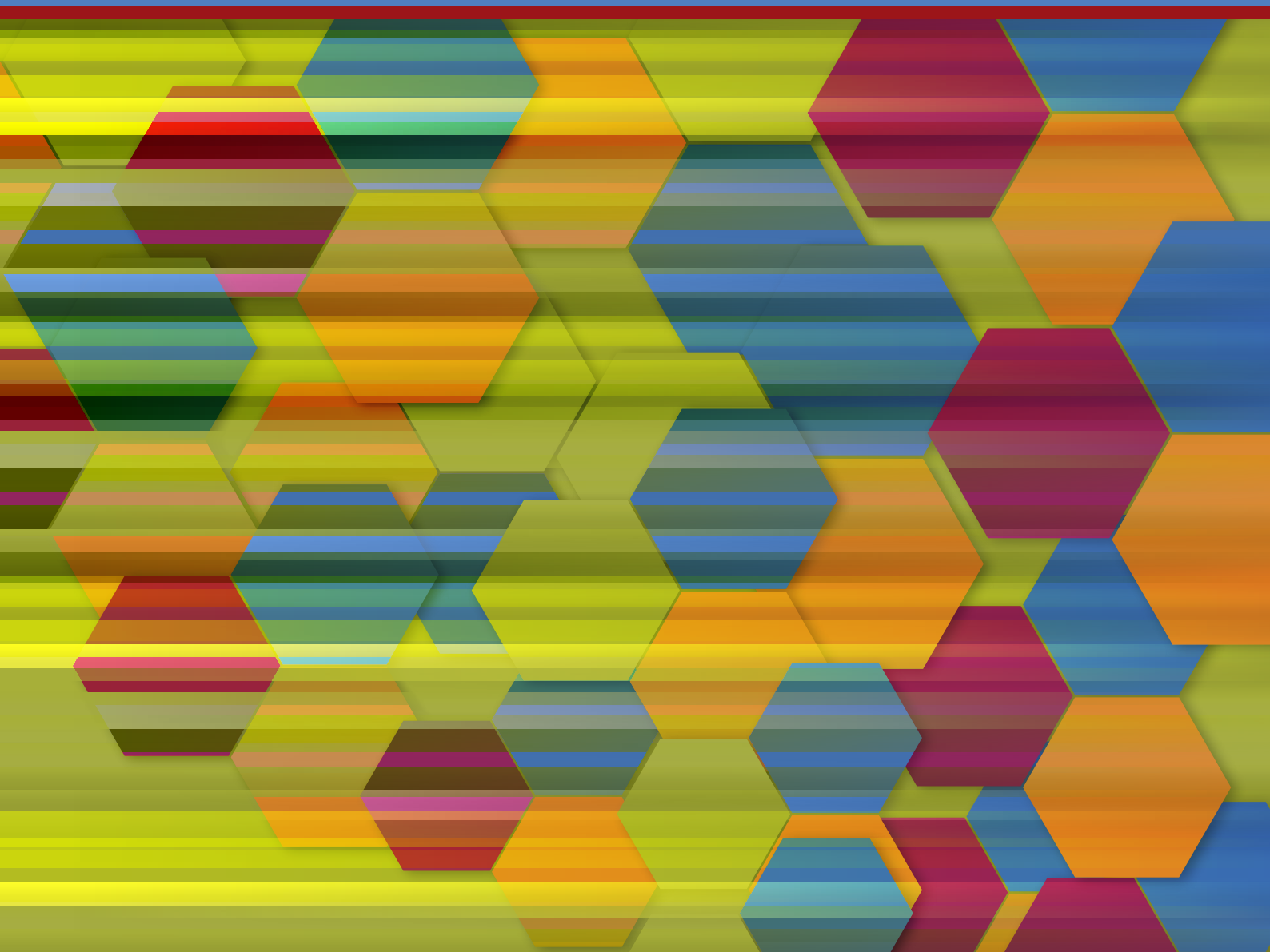


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Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

HOUSING SECTOR



Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC). The following are the key persons in conducting a DaLNA.

Personnel	Role in the DaLNA
Staff from Housing Division (HD) of the DPWT of Khammouane Province (engineers, land-use planning experts, economist and finance personnel)	Lead and coordinate
Staff from national Ministry of Public Work and Transportation	Participate and provide technical advice
Staff from the affected district/s Sector of Housing	Provide damage and loss information and facilitate assessment
Development partners (if active in the Housing Sector in Khammouane)	Participate and provide technical advice



Concepts and Definitions

Housing Sector

The housing sector is composed of the different types of dwellings or houses used by the people as their permanent residence including the structures premises outside of the houses like fences, garages, swimming pools, etc. They may be owned or rented by the resident of the house. *Hotels and guest houses which provide temporary housing for tourists and other visitors are not included in this sector. They should be assessed separately under the tourism sector.*

Damages

In housing, damages are cost of: a) repair of partially destroyed assets and/or b) replacement of totally destroyed assets and infrastructure such as:

- ✦ Total or partial destruction of physical structures related to all types of dwellings or housing facilities including the premises like common areas and other facilities.
- ✦ Total or partial destruction of the contents inside the dwellings or individual houses such as elevators and power generators, and housing contents furniture, appliances and other supplies.

Damages in this sector will occur at the time of, or shortly after the disaster although some damages may become obvious only after a longer period. Damages are measured in physical terms for which the monetary repair or replacement value is subsequently estimated.

Losses

Losses are the values due to the change in economic flows (income and expenditures) during the period of recovery and reconstruction following the disaster. They are the current value of goods and services that were not and/or will not be produced over a time span due to the disaster until full recovery is attained. Losses in the housing sector will include:

- ✿ Cost of unforeseen expenditures like temporary shelters, equipment, etc. to be used while the housing units are under repair or reconstruction.
- ✿ Foregone income from housing rents, fees and other related sources of income which will last until the housing units are repaired.
- ✿ Costs involved for the demolition or removal of debris, retrieval of documents, etc.

Losses will take place during the entire period of recovery and reconstruction of the sector and may stretch even beyond the year that the disaster occurred. It is expressed in monetary value at current prices.



General Steps in Conducting a Post-disaster Damage, Loss and Needs Assessment (DaLNA)

The following steps are to be undertaken for DaLNA:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |
| Step 5 | Estimate recovery and reconstruction needs |
| Step 6 | Draft the implementation plan of the identified programs and projects |
| Step 7 | Draft the post-disaster damages, losses and needs (DaLNA) of the sector |

These procedures for each Step are provided in the following sections.



Detailed Steps in Undertaking Post-Disaster DaLNA in the Housing Sector

In conducting a DaLNA in the housing sector, the following steps should be followed. Each template table should be completed for every disaster-affected district in Khammouane. It is assumed that the assets in the housing sector are private in ownership.

Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The types of housing units existing in Khammouane can be grouped according to the types of materials used in construction and number of floors. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for each of the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Table 1 Baseline information of housing in a district

Name of district or city:					
Housing typology		Number of houses	Number of houses for rent	Average number of occupants	
Types	Description			Female	Male
Types 1	Shanties (wood, grass, cardboard)				
Types 2	Mainly Wooden single floor				
Types 3	Mainly Wooden two floors and above				
Types 4	Mainly Concrete and Wood single floor				
Types 5	Mainly Concrete and Wood two floors and above				
Types 6	Concrete mid-rise housing units				
Types 7	Others				
TOTAL					

Notes in filling out Table 1.

- ✿ The 'Houses for rent' refers to the number of houses (as part of the total number) that are rented out.
- ✿ The 'Average number of occupants' refers to the number of people who live in each type of housing unit by sex.
- ✿ Others will refer to any type of using unit in a district which is not included in the list.

Table 2 Baseline information for the related costs of various types of housing units

Name of district:

Particulars	Values (in Kips) of Various Types of Housing							
	Types 1	Types 2	Types 3	Types 4	Types 5	Types 6	Types 7	Others
Average replacement cost of:								
a. Structure								
b. Roofing per square meter								
c. Wall per square meter								
d. Flooring per square meter								
e. Electrical installation								
f. Plumbing								
Average repair cost of:								
a. Structure								
b. Roofing per square meter								
c. Wall per square meter								
d. Flooring per square meter								
e. Electrical installation								
f. Plumbing								
Average contents / rent								
a. Average Value of Contents								
b. Average rent per month								
Construction / repair time				In Days				
a. Average construction period								
b. Average repair period								

Notes in filling out Table 2.

- ✦ The 'average repair cost' refers the value in Kips normally spent to repair the various parts of the housing units. 'Others' may include the average repair cost of latrines (if separate from the house), electrical and plumbing, etc. which should be based on previous costs.
- ✦ The 'Average Value of Contents' is a rough estimation of the value of the assets inside each type of the housing unit.
- ✦ All costs should be based on the pre-disaster existing values.

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses in the sector are accurate to the extent possible.*

Step 2.1. Estimate the damages and losses to housing units in a district

The post disaster assessment of housing units should be done on a per district basis which can be totaled to create a provincial assessment. This can be done by undertaking the following:

- a. Counting broadly the number of houses damages according to type; and
- b. General assessment of the parts of the houses which were damaged like the roof, walls, fences, electrical installations, plumbing, etc.

With the baseline information, the assessment team can use the following table in assessing the damages and losses of the housing sector in a given district.

Table 3 Damage and loss assessment of the housing sector

Name of district:

Estimated Damages

Housing Types	Totally destroyed			Partially damaged			Total (Kips)
	Quantity	Average Value of House Contents Destroyed (Kips)	Total (Kips)	Quantity	Average Value of House Contents Destroyed (Kips)	Total (Kips)	
	A	B	C	D	F	G	H
Types 1							
Types 2							
Types 3							
Types 4							
Types 5							

Types 6							
Types 7							
Others							
TOTAL		N.A.			N.A.		
Estimated Losses							
Types of losses							Total (Kips)
a. Foregone income							
b. Cleaning up of debris							
c. Other unexpected expenses							
TOTAL							

Notes in filling out Table 3.

- ✿ The values in the baseline information should be used in estimating damages. For example, if 20 square meters of the roof are damaged, the repair cost will be the cost of roofing per square meter multiplied by 20 square meters. On the other hand, if the whole structure is totally destroyed, the value of damage will be its replacement cost at post-disaster prices.
- ✿ The total value of damages from totally destroyed (or partially destroyed) houses will be the quantity of totally destroyed (or partially destroyed) houses multiplied by the average replacement cost (or average repair cost) plus the value of the destroyed (or damaged) house contents. The values for the average replacement and repair costs are in the baseline information.
- ✿ The total damages (Column G) will be: = Column C + Column F, where:
 - Column C = (Column A x average replacement cost) + (Column A x Column B) and
 - Column F = (Column D x average repair costs) + (Column D x Column E)
- ✿ Foregone income will be losses from the non-payment of rent for the houses that were destroyed. These can be derived by estimating the average rent of houses multiplied by the number of houses for rent that were damaged or unusable after the disaster multiplied by the number of months before they can be used and rented out again.
- ✿ The cleaning up of debris is usually done by household owners especially after flooding.

Generally, housing units are privately owned. However, if there are housing units in the affected district owned by the government, they should be assessed in the same manner. They should be segregated later in the summary of damages and losses.

Step 2.2. Summarize damages and losses in the housing sector

Once the table for each affected district or city has been filled out, the information should be used to summarize the damages and losses at the provincial level like the table below.

Table 4 Summary of damage and losses in the housing sector in Khammouane						
Name of Province: Khammouane						
Districts	Types of Damages to Houses				Total Damages (Kips)	Total Losses (Kips)
	Totally destroyed		Partially damaged			
	Quantity	Total Value (Kips)	Quantity	Total Value (Kips)		
a . Districts:						
b. Districts:						
c. Districts:						
d.						
TOTAL						

Notes in filling out Table 4.

- ✿ The total values should include both the cost of replacement (or repair) of the houses and their contents which are from Table 3.

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting, a meeting among the assessment team members should be held. This can be organized and facilitated by the team leader of the DH in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members share their collected data, issues and experiences in the field, among others. At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below.

Validation meeting sessions may include:

- ✿ Opening remarks from the DH Head
- ✿ Each sub-team which assessed various districts or kumbans will briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)
 - Recommendations from damage and loss assessment results
- ✿ DH Head / Secretariat presents:
 - Summary of damages and losses based on the reports
 - Recommendations to resolve data validation problems (if any)
 - Next steps in the DaLNA process
 - Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DaLNA from the field to avoid duplication and double counting across sectors.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of the housing sector must be able to analyze potential impacts of the damages and losses to housing units in relation to, among others.

- ❖ The future safety and health of the population who lost their houses especially the vulnerable groups like pregnant women, lactating mothers, children, the elderly, etc.
- ❖ The additional costs to families if they have to stay in temporary shelters or rent temporary houses.

Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if no assistance will be provided to the housing sector, the aggregate needs of the sector must be estimated. The DH must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the DH assessment team must identify the strategies to be followed for recovery and reconstruction for the sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction. Some of the general strategies that could be considered for the housing sector include the following:

1. **Building Back Better (BBB).** Design recovery activities based on BBB principles will promote longer-term disaster risk reduction and management. BBB principle should also look at the advantages of resettlement in disaster-safe areas instead of rebuilding in the same disaster-prone areas.
2. **Focus on the most vulnerable and socially disadvantaged groups such as children, women, and the disabled.** Recovery programming needs to give priority to the most vulnerable groups, including female-headed households, children and orphans, and the poor, and take into account those with special needs, to avoid their being overlooked.

3. **Community Participation and Use of Local Knowledge and Skills.** The participation of the community in all process (identification, planning, design and implementation) of recovery activities will help ensure the acceptability of projects and optimize the use of local initiatives, resources and capacities.
4. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
5. **Coordinated and coherent approaches to recovery.** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.
6. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. It should be clear how assistance to the recovery of the private sector will be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.
7. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected, through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy to all affected areas and sectors as soon as possible. Some of the possible recovery related activities are:

- ✿ Food-for-work or a combination of cash-for-work to rehabilitate/reconstruct damaged houses.
- ✿ Direct subsidy on housing materials especially to those who are the poorest.
- ✿ Credit programs for housing repairs.

Step 5.3. Estimate reconstruction needs

Reconstruction needs are generally long-term in nature (3 years or more) and are intended to 'build back better' from the ruins of a disaster. The possible reconstruction related activities in the housing sector could include the following:

- ✿ Relocation of housing areas to safe areas, as necessary. In this case, the additional costs land acquisition, and basic services provision (water, sanitation, electricity, etc) should be included.
- ✿ Assistance in the reconstruction and repair of housing structures under a building-back-better strategy to ensure future disaster resilience through the adoption and enforcement of improved construction standards.
- ✿ Structural retro-fitting of undamaged or partially damaged houses so that they are not affected by disaster event in the future.

- ✿ Soft-term credit for reconstruction and repair of housing units. Such schemes can be accompanied by technical assistance for improved disaster resilient standards of construction.
- ✿ Other mitigation measures such as construction of support infrastructure to prevent serious landslides and floods to housing units.

Step 5.4. Prioritize identified projects for recovery

Among the projects identified, relative priorities can be set in order to determine which among them are the more important. Based on the broad strategies for recovery, the DH assessment team should select the priority projects/activities among the total identified needs. The prioritization can be made by using a set of impact indicators and the level by which the projects can achieve said impacts. The following criteria as indicated in the guidelines for the PDRF, can be used among others, to prioritize or rank the proposed post-disaster projects:

1. The greatest social and economic impact, which is to be evaluated in terms of the relative cost of not undertaking reconstruction or rehabilitation.
2. The biggest pro-poor impact, such that assistance in poorer Kumbans will be given a higher priority than projects located in better-off Kumbans.
3. Whether there is a strong likelihood that an adequate budget and appropriate provisions will be made to cover the operations and maintenance (O&M) of the reconstructed infrastructure item.

The criteria above can be placed in a matrix like the one below where the impacts are ranked according to low, medium or high. This matrix can show the relative benefits of proposed projects to the people in the affected areas which, in turn, will inform and assist the government of Khammouane (or the PDMC) in determining the priority projects within the sector.

Matrix 1 Impacts of identified post-disaster projects									
Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Provision of housing materials									
Resettlement									
Others									

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the DH assessment team identifying the post-disaster projects for the recovery and reconstruction. It should be noted that assistance to housing units owned by the private sector, which can be extended as direct assistance or through credit, is purely based on the decision of the government. The following table can be used.

Table 8 Summary of recovery and reconstruction needs in the health sector	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Food-for-work or cash-for-work in housing repairs	
b. Credit program for housing repairs	
d. Others (Specify)	
TOTAL	
Reconstruction Needs	
a. Resettlement of housing areas	
b. Structural retro-fitting of houses	
c. Mitigation measures (Specify)	
d. Others (Specify)	
TOTAL	
GRAND TOTAL	

Step 5.6. Provide all the districts a copy of the list of projects identified as priorities by the HD/DPWT

The Head of the HD assessment team should inform all the districts covered by the DaLNA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.
2. Plot the timeline of activities of all the projects, with the urgent ones on top, in a Gantt chart with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.

4. To the extent possible, a logical framework (logframe) should be created for each of the project proposed for inclusion in the recovery plan. Logframes are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 6 Summary of recovery and reconstruction needs in the housing sector

Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Food-for-work or cash-for-work in housing repairs				
b. Credit program for housing repairs				
d. Others (Specify)				
TOTAL				
Reconstruction Needs				
a. Resettlement of housing areas				
b. Structural retro-fitting of houses				
c. Mitigation measures (Specify)				
d. Others (Specify)				
TOTAL				
GRAND TOTAL				

Notes in filling out Table 6.

- ✿ Project titles can be inserted under the column on recovery and reconstruction needs.
- ✿ Columns can be added to accommodate any additional reconstruction needs beyond Year 2.

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) report of the sector

With all the information gathered using the previous steps, a report for the housing sector can be drafted by the HD/DPWT and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the sector in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the sector in the disaster-affected areas.
2. Damages in the sector by areas and by types of housing affected.
3. Losses in the sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the sector in Khammouane.
6. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report of the HD/DPWT should be submitted to the PDMC for integration into the overall post-disaster DaLNA report for the province which should contain the other similar DaLNA reports of the other sectors. The final DaLNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DaLNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.

ANNEX
PHOTOCOPY TEMPLATE



Table 1 Baseline information of housing in a district

Name of district or city:

Housing typology		Number of houses	Number of houses for rent	Average number of occupants	
Types	Description			Female	Male
Types 1	Shanties (wood, grass, cardboard)				
Types 2	Mainly Wooden single floor				
Types 3	Mainly Wooden two floors and above				
Types 4	Mainly Concrete and Wood single floor				
Types 5	Mainly Concrete and Wood two floors and above				
Types 6	Concrete mid-rise housing units				
Types 7	Others				
TOTAL					

Table 2 Baseline information for the related costs of various types of housing units

Name of district:

Particulars	Values (in Kips) of Various Types of Housing							
	Types 1	Types 2	Types 3	Types 4	Types 5	Types 6	Types 7	Others
Average replacement cost of:								
a. Structure								
b. Roofing per square meter								
c. Wall per square meter								
d. Flooring per square meter								
e. Electrical installation								
f. Plumbing								
Average repair cost of:								
a. Structure								
b. Roofing per square meter								
c. Wall per square meter								
d. Flooring per square meter								
e. Electrical installation								
f. Plumbing								
Average contents / rent								
a. Average Value of Contents								
b. Average rent per month								
Construction / repair time				In Days				
a. Average construction period								
b. Average repair period								



Table 3 Damage and loss assessment of the housing sector

Name of district:

Estimated Damages

Housing Types	Totally destroyed			Partially damaged			Total (Kips)
	Quantity	Average Value of House Contents Destroyed (Kips)	Total (Kips)	Quantity	Average Value of House Contents Destroyed (Kips)	Total (Kips)	
	A	B	C	D	F	G	H
Types 1							
Types 2							
Types 3							
Types 4							
Types 5							
Types 6							
Types 7							
Others							
TOTAL		N.A.			N.A.		

Estimated Losses

Types of losses	Total (Kips)
a. Foregone income	
b. Cleaning up of debris	
c. Other unexpected expenses	
TOTAL	

Table 4 Summary of damage and losses in the housing sector in Khammouane

Name of Province: Khammouane

Districts	Types of Damages to Houses				Total Damages (Kips)	Total Losses (Kips)
	Totally destroyed		Partially damaged			
	Quantity	Total Value (Kips)	Quantity	Total Value (Kips)		
a . Districts:						
b. Districts:						
c. Districts:						
d.						
TOTAL						



TO PHOTOCOPY

Matrix 1 Impacts of identified post-disaster projects

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Provision of housing materials									
Resettlement									
Others									

Table 8 Summary of recovery and reconstruction needs in the health sector

Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Food-for-work or cash-for-work in housing repairs	
b. Credit program for housing repairs	
d. Others (Specify)	
TOTAL	
Reconstruction Needs	
a. Resettlement of housing areas	
b. Structural retro-fitting of houses	
c. Mitigation measures (Specify)	
d. Others (Specify)	
TOTAL	
GRAND TOTAL	

Table 6 Summary of recovery and reconstruction needs in the housing sector

Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Food-for-work or cash-for-work in housing repairs				
b. Credit program for housing repairs				
d. Others (Specify)				
TOTAL				
Reconstruction Needs				
a. Resettlement of housing areas				
b. Structural retro-fitting of houses				
c. Mitigation measures (Specify)				
d. Others (Specify)				
TOTAL				
GRAND TOTAL				





Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

MINING SECTOR

Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC). The following are the key persons in conducting a DaLNA.

Personnel	Role in the DaLNA
Staff from Department of Energy and Mines (DEM) of the Khammouane Province (mining experts, procurement specialists, mining engineers and finance personnel)	Lead and coordinate
Staff from national Ministry of Energy and Mines	Participate and provide technical advice
Staff from the affected district/s Department of Energy and Mines	Provide damage and loss information and facilitate assessment
Development partners (if active in the Mining Sector in Khammouane)	Participate and provide technical advice



Concepts and Definitions

Mining sector

The Mining sector is composed of the different types of mining activities of various minerals including their equipment and other facilities. They may be owned by the government or by private individuals or corporations.

Damages

In mining, damages are cost of: a) repair of partially destroyed assets and/or b) replacement of totally destroyed assets and infrastructure such as:

- ✦ Ore processing facilities
- ✦ Tunnels systems
- ✦ Buildings
- ✦ Office equipment and machinery like computers, air conditioners, etc
- ✦ Vehicles, tools, and stock materials and supplies
- ✦ Stocks like mineral ores and raw materials

Damages occur at the time of, or shortly after the disaster and are to be measured in physical terms for which monetary replacement values are subsequently estimated.

Losses

Losses are the values due to the change in economic flows (income and expenditures) during the period of recovery and reconstruction following the disaster. They are the current value of goods and services that were not and/or will not be produced over a time span due to the disaster until full recovery is attained. Losses in the mining sector will include the following:

- ❖ Foregone income or lower revenues from mining operations after the infrastructure in the sites (tunnels, etc.) and assets (equipment and machineries) were destroyed by disasters reducing the productive capacity of the firm.
- ❖ Possible higher cost of operation that may arise after the disaster, such as higher rates of electricity from alternative sources, or acquiring goods and services from alternative sources, or renting temporary premises while repairing or rebuilding the original premises
- ❖ Other unexpected expenditure such as DEMolition and removal of debris and other rehabilitation works for the site after destruction.

Losses can continue during the entire period of recovery and reconstruction. It is expressed in monetary values at current prices.



General Steps in Conducting a Post-disaster Damage, Loss and Needs Assessment (DaLNA)

The following steps are to be undertaken for DaLNA:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |
| Step 5 | Estimate recovery and reconstruction needs |
| Step 6 | Draft the implementation plan of the identified programs and projects |
| Step 7 | Draft the post-disaster damages, losses and needs (DaLNA) of the sector |

The procedures for each Step are provided in the following sections.





Detailed Steps in Undertaking Post-Disaster DaLNA in the Mining Sector

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Table 1 Baseline information for mining firms/companies

Name of City or Municipality:

Firm	Mineral/s Mined				Ownership		Employees		Average Output/ Year (Tons)
	Nickel	Copper	Gold	Others	Public	Private	Male	Female	
Firm 1									
Firm 2									
Firm 3									

Note in filling out Table 1.

- ✦ Other minerals mined should be specified.
- ✦ If a mining company is a joint venture between the government and a private corporation, it can be considered public for the purpose of DaLNA.

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses in the sector are accurate to the extent possible.* Direct interviews with the private firms and contractors or government officials involved in the construction and repair of facilities can also be conducted during the field trip in order to validate unit costs of repair and reconstruction (which is already contained in the baseline data).

It should be noted that since there is a possibility that a single mining firm operates in several districts, caution should be exercised to avoid double counting. It is recommended that the assessment of damages and losses of the mining firm should be accounted for in the district where the main office of the mining firm is located. However, if the main office is located outside the disaster area, the assessment team must account for the damages and losses of the firm with an indication as to where such damages and losses occurred.

Step 2.1. Estimate the damages and losses to mining firms

Repair and replacement costs should be estimated for the damaged components of mining firms. The time needed to reconstruct the damages should also be estimated. Aside from field visits to the disaster sites, the assessment team should interview the officers of the mining firm/s to ascertain the extent and value of the damages and the estimated period before mining can be fully restored to the pre-disaster level. The officials and experts in the mining firm/s can estimate the damages of their respective firms more accurately. Moreover, considering that some of the damages may cover a wide area that may be inaccessible to the assessment team, the people in the mining firm/s can get the data quicker from their colleagues in the field.

The value of totally damaged assets can be summarized in the following table which should be used in interviewing the officials of the mining firm/s as a questionnaire.



Table 2 Damages and losses of mining firms

Name of Mining Firm						
Location	Name of District:					
Minerals Mined	Nickel () Copper () Gold () Others (Specify) _____					
Ownership	Public () Private ()					
Estimated Damages						
Damage to Structures and Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost (Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D	F	G
1. Structures						
a. Tunnels						
b. Office buildings						
c. Others (Enumerate)						
2. Equipment						
a. Trucks						
b. Computers						
c. Others (Enumerate)						
3. Machinery						
a. Generators						
b. Others (Enumerate)						
4. Vehicles						
5. Others						
TOTAL						N.A.
Estimated Losses						
Types of Losses	Disaster Year	Year 1	Year 2	TOTAL (Kips)		
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL						

Note in filling out Table 2.

- ✿ The firm/s should fill out information appropriate to their assets. There are various machineries and equipment in the sector which should be assessed especially those that are vital to the operation.
- ✿ 'Average Replacement Cost' will be the average pre-disaster value of the structures and assets that were totally destroyed.
- ✿ 'Average Repair Cost' will be the average cost of repair of the structures and assets that were partially damaged.
- ✿ In formula, the total damages will be (Column E) = (Column A) x (Column B) + (Column C) x (Column D).

Step 2.2. Summarize the damages and losses in the sector in a district

Based on the survey of mining companies, the damages and losses can be summarized in the following table.

Table 3 Summary of damages and losses in a district

Name of District:

Name of mining firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
Firm 1								
Firm 2								
Firm n								
TOTAL								

Note in filling out Table 3.

- ✿ 'Public' and 'private' refers to the ownership of the mining firm.
- ✿ The damages and losses should be accounted for under the type of ownership of the firm.

Step 2.3 Summarize damages and losses in the Mining sector in the province

Once the summary table for each affected district has been filled out, the information should be used to summarize the damages and losses at the provincial level. The summary table below can be used.

Table 4 Summary of damages and losses in the province								
Name of District: Khammouane								
Name of mining firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
District:								
a. Firm 1								
b. Firm n								
c.								
d.								
District:								
a. Firm 1								
b. Firm n								
c.								
d.								
TOTAL								

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting, a meeting among the assessment team members should be held. This can be organized and facilitated by the team leader of the DEM in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members share their collected data, issues and experiences in the field, among others. At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below.

Validation meeting sessions may include:

- ✿ Opening remarks from the DEM Head
- ✿ Each sub-team which assessed various districts or kumbans will briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)
 - Recommendations from damage and loss assessment results
- ✿ DEM Head / Secretariat presents:
 - Summary of damages and losses based on the reports
 - Recommendations to resolve data validation problems (if any)

- Next steps in the DaLNA process
- Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DaLNA from the field to avoid duplication and double counting across sectors.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of the mining sector should analyze all potential impacts of the damages and losses in relation to, among others:

- ❖ Possible losses of employment if the sector will have to lay off workers.
- ❖ Potential adverse environmental impacts which may occur if and when dangerous chemical leaks to ecologically sensitive areas.
- ❖ Possible reduction of supply of raw materials to ore processing plants.
- ❖ Possible reduction of exports from ores and minerals.
- ❖ Effects on the people's level of vulnerability to future hazards.

Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if no assistance will be provided to the mining sector, the aggregate needs of the sector must be estimated. The DEM must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the DEM assessment team must identify the strategies to be followed for recovery and reconstruction for the sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction. Some of the general strategies that could be considered for the mining sector include the following:

1. **Building Back Better (BBB).** Design recovery activities based on BBB principles will promote longer-term disaster risk reduction and management. BBB principle should also look at the how to make mining facilities safer from future disasters, etc.



2. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
3. **Coordinated and coherent approaches to recovery .** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.
4. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. It should be clear how assistance to the recovery of the private sector will be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.
5. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected, through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy in the sector as quick as possible. In the mining sector, quick recovery efforts must be undertaken especially if a great number of people and businesses depend on it for their activities. Recovery activities should include those that will enable firms to resume their normal operations. To assist the sector, the DEM can identify policy measures that will enable mining companies to recover without necessarily using direct government budget to cover the costs required. There are certain options that can be implemented through policy measures to expedite recovery and reconstruction of the private mining sector. Among them are:

1. Income tax breaks for private firms such as:
 - a. Temporary reduction or freeze or deferment in the collection of tax;
 - b. Temporary freeze on basic service charges in the utilization of certain services over the time of the recovery phase;
 - c. Non-collection of property taxes for the duration of the recovery period;
 - d. Exemption from registration fees for replacements of the destroyed equipment and machinery over a certain period of time.
2. Subsidizing construction materials and equipment to be imported by private mining firms during the recovery and reconstruction phase through an exemption from paying customs duties and other levies.

Some of the possible recovery-related activities in the mining sector can include:

- ✿ Recapitalization of operating expenses
- ✿ Urgent repairs and replacement of the vital assets that have been damaged

Step 5.3. Estimate reconstruction needs

Reconstruction needs are generally long-term in nature (3 years and more) and are intended to 'build back better' from the ruins of a disaster. It is to be noted that reconstruction activities should include both public as well as private facilities and may require different types of financing strategies. It is to be noted that since the mining firms are revenue-generating enterprises, financing their needs can come through soft-term credit schemes for the reconstruction and repair of their damaged assets. Such schemes can be accompanied by technical assistance for improved disaster resilient standards of construction. Some possible reconstruction related activities in the sector can include the following:

- ✿ Soft-term credit for the replacement or reconstruction of affected structures under a building-back-better strategy to ensure future disaster resilience through the adoption and enforcement of improved construction standards;
- ✿ Procurement of equipment and machinery
- ✿ Cost of replacing furniture and equipment that were destroyed may be included within the needs for reconstruction, unless they have been covered under the recovery needs to provide temporary services for the affected area;
- ✿ Structural retro-fitting of undamaged or partially damaged structures so that they are not affected by disaster event in the future; and
- ✿ Relocation of miners' housing barracks to safer area.
- ✿ Other mitigation measures such as construction of support infrastructure to prevent serious landslides and floods to mining facilities.

Step 5.4. Prioritize identified projects for recovery

Among the projects identified, relative priorities can be set in order to determine which among them are the more important. Based on the broad strategies for recovery, the DEM assessment team should select the priority projects/activities among the total identified needs. The prioritization can be made by using a set of impact indicators and the level by which the projects can achieve said impacts. The following criteria, as indicated in the guidelines for the post disaster reconstruction fund (PDRF), can be used among others, to prioritize or rank the proposed post-disaster projects:

1. The greatest social and economic impact, which is to be evaluated in terms of the relative cost of not undertaking reconstruction or rehabilitation.
2. The biggest pro-poor impact, such that assistance in poorer Districts or Kumbans will be given a higher priority than projects located in better-off Districts or Kumbans.
3. Whether there is a strong likelihood that an adequate budget and appropriate provisions will be made to cover the operations and maintenance (O&M) of the reconstructed infrastructure item.

The criteria above can be placed in a matrix like the one below where the impacts are ranked according to low, medium or high. This matrix can show the relative benefits of proposed projects to the people in the affected areas which, in turn, will inform and assist the government of Khammouane (or the PDMC) in determining the priority projects within the sector.

Matrix 1 Impacts of identified post-disaster projects

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Urgent repair or replacement of equipment and machinery									
Tax breaks									
Procurement of vital supplies									
Others									

The projects identified by the assessment team must be included in the above matrix.

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the DEM assessment team identifying the post-disaster projects for recovery and reconstruction. It should be noted that assistance to mining firms owned by the private sector, which can be extended as direct assistance or through credit, is purely based on the decision of the government. The following table can be used.

Table 5 Summary of recovery and reconstruction needs in the mining sector	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Urgent repairs	
b. Procurement of vital supplies	
c. Soft-term credits	
d. Cleaning up of debris	
e. Others	
TOTAL	
Reconstruction Needs	
a. Replacement or reconstruction of affected structures	
b. Procurement of equipment and machinery	
c. Technical assistance on safety measures	
d. Relocation of barracks	
e. Structural retro-fitting of mining facilities	
f. Mitigation measures (Specify)	
g. Others (Specify)	
TOTAL	
GRAND TOTAL	

Step 5.6. Provide all the districts a copy of the list of projects

identified as priorities by the DEM

The Head of the DEM assessment team should inform all the districts covered by the DaLNA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.
2. Plot the timeline of activities of all the projects, with the urgent ones on top, in a Gantt chart with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.
4. To the extent possible, a logical framework (logframe) should be created for each of the project proposed for inclusion in the recovery plan. Logframes are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 6 Summary of recovery and reconstruction needs in the mining sector				
Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Urgent repairs				
b. Procurement of vital supplies				
c. Soft-term credits				
d. Cleaning up of debris				
e. Others				
TOTAL				

Reconstruction Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance on safety measures				
d. Relocation of barracks				
e. Structural retro-fitting of mining facilities				
f. Mitigation measures (Specify)				
g. Others (Specify)				
TOTAL				
GRAND TOTAL				

Note in filling out Table 6.

- ✦ Project titles can be inserted under the column on recovery and reconstruction needs.
- ✦ Columns can be added to accommodate any additional reconstruction needs beyond Year 2.

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) report of the sector

With all the information gathered using the previous steps, a report for the health sector can be drafted by the DPH and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the sector in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the sector in the disaster-affected areas.
2. Damages in the sector by areas and by types of health facilities affected.
3. Losses in the sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the sector in Khammouane.
6. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report of the DPH should be submitted to the PDMC for integration into the overall post-disaster DaLNA report for the province which should contain

the other similar DaLNA reports of the other sectors. The final DaLNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DaLNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.

Table 1 Baseline information for mining firms/companies



ANNEX
PHOTOCOPY TEMPLATE



Name of City or Municipality:									
Firm	Mineral/s Mined				Ownership		Employees		Average Output/ Year
	Nickel	Copper	Gold	Others	Public	Private	Male	Female	(Tons)
Firm 1									
Firm 2									
Firm 3									



Table 2 Damages and losses of mining firms

Name of Mining Firm						
Location	Name of District:					
Minerals Mined	Nickel () Copper () Gold () Others (Specify) _____					
Ownership	Public () Private ()					
Estimated Damages						
Damage to Structures and Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost (Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D		
1. Structures						
a. Tunnels						
b. Office buildings						
c. Others (Enumerate)						
2. Equipment						
a. Trucks						
b. Computers						
c. Others (Enumerate)						
3. Machinery						
a. Generators						
b. Others (Enumerate)						
4. Vehicles						
5. Others						
TOTAL						N.A.
Estimated Losses						
Types of Losses	Disaster Year	Year 1	Year 2	TOTAL (Kips)		
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL						

Table 3 Summary of damages and losses in a district



TO PHOTOCOPY

Name of District:								
Name of mining firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
Firm 1								
Firm 2								
Firm n								
TOTAL								

Table 4 Summary of damages and losses in the province

Name of District: Khammouane

Name of mining firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
District:								
a. Firm 1								
b. Firm n								
c.								
d.								
District:								
a. Firm 1								
b. Firm n								
c.								
d.								
TOTAL								

Matrix 1 Impacts of identified post-disaster projects



TO PHOTOCOPY

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Urgent repair or replacement of equipment and machinery									
Tax breaks									
Procurement of vital supplies									
Others									

Table 5 Summary of recovery and reconstruction needs in the mining sector

Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Urgent repairs	
b. Procurement of vital supplies	
c. Soft-term credits	
d. Cleaning up of debris	
e. Others	
TOTAL	
Reconstruction Needs	
a. Replacement or reconstruction of affected structures	
b. Procurement of equipment and machinery	
c. Technical assistance on safety measures	
d. Relocation of barracks	
e. Structural retro-fitting of mining facilities	
f. Mitigation measures (Specify)	
g. Others (Specify)	
TOTAL	
GRAND TOTAL	

Table 6 Summary of recovery and reconstruction needs in the mining sector



TO PHOTOCOPY

Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Urgent repairs				
b. Procurement of vital supplies				
c. Short-term credits				
d. Cleaning up of debris				
e. Others				
TOTAL				
Reconstruction Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance on safety measures				
d. Relocation of barracks				
e. Structural retro-fitting of mining facilities				
f. Mitigation measures (Specify)				
g. Others (Specify)				
TOTAL				
GRAND TOTAL				





Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

SOCIAL IMPACT ASSESSMENT

Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Social Impact Assessment (SIA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC). The DaLNA and SIA are related documents. Based on the results of the DaLNA, the SIA is undertaken to determine the impacts on people, families and communities affected in terms of income, livelihood, vulnerabilities, etc.

While the information for the DaLNA focuses on quantifying damages and losses, the SIA focuses on information that cannot or is hard to quantify. The proper choice of instruments or tools in gathering post-disaster information must be determined by the SIA assessment team in consideration of their appropriateness to the prevailing situation and condition. All these issues will be discussed in this guidance notes.



Agency Responsible for Conducting SIA in Khammouane

The Department of Labor and Social Welfare and Development (DLSW) is recommended to coordinate the post-disaster SIA due to its mandate, expertise, experience and exposure. It has also substantive baseline socioeconomic information generated from the various levels of government. The recommended members of the SIA team should be social workers who have experience in social research, demographers, local governance specialists who are knowledgeable of the post-disaster SIA from the government sector, international development partners and NGOs as appropriate.

For a SIA initiated by the province of Khammouane, a suggested assessment team composition is found below:

Personnel	Role in the DaLNA
Staff from Offices of the Khammouane Department of Labor and Social Welfare (sociologists, economists; demographers, etc.)	Lead and coordinate
Staff from national Ministry of Labor and Social Welfare (sociologists, economists, demographers, etc.)	Participate and provide technical advice

Staff from the affected districts' labor and social welfare office	Provide damage and loss information and facilitate assessment
Development partners like the UN agencies and international and local NGOs	Participate and provide technical advice



Concepts and Definitions on Post-Disaster Social Impact Analysis

The concepts contained in this guidance notes are based on the manual entitled "Analyzing Social Impacts of Disasters Tools, Volumes 1 and 2" published by the World Bank Global Facility for Disaster Risk Reduction (WB-GFDRR) in June 2011. The following definitions will be used in accordance with the ones used in the said publication:

- ✿ Post-disaster social impact analysis is the process of monitoring, analyzing and managing the social consequences of disasters and post-disaster aid efforts; contained herein are the social impact assessment and the social impact monitoring:
- ✿ Social impact assessment (SIA) is the assessment of the likely initial social impacts due to the disaster. This assessment should be a part of the wider post-disaster damage, loss and needs assessment (DaLNA) and which can serve as the baseline for the future monitoring of social impacts.
- ✿ Social impact monitoring (SIM) refers to the monitoring activities of the social impacts of disasters and the aid efforts using the post-disaster SIA as baseline

This guidance notes will focus mostly on the concepts necessary in conducting a post-disaster SIA as part of the wider DaLNA, in consideration of the Lao setting and conditions.

Due to time constraints, the SIA to be included in the DaLNA report could be considered a "Rapid" SIA. At a later stage further in-depth study could be performed, if required.



Components of a Post-Disaster Rapid Social Impact Assessment (SIA)

The SIA should focus on the effects of the damages and losses at the family and community levels across various sectors. The following are the areas that should be included in the SIA:

- ❖ Socioeconomic impacts. The analysis will be on how the damages and losses of the household are affecting their income, health, nutrition, indebtedness, education of children and access to social and economic services, among others.
- ❖ Coping mechanisms and their effects. This part can show the actions of those affected to cope with the effects of the disaster like borrowing money, looking for work outside the disaster area, staying in evacuation centers, etc.
- ❖ Impacts on social cohesion. Social cohesion can be affected by the coping mechanisms of the people. For instance, there may be an increase in vulnerabilities of families staying in evacuation centers (abuse of women and children; contracting diseases; criminality, etc.) loss of manpower and necessary skills in the community due to migration or relocation; and power struggles within the family and the community as an aftermath of the disaster.
- ❖ Aid effectiveness. This should analyze the role and effects of aid. An analysis should be made as to the appropriateness of the type of assistance provided, the procedure by which they are extended, targeting of beneficiaries, etc. and how they impact on the community.
- ❖ Governance and participation in decision-making. The perception and experience of the people should be analyzed in terms of the determination of recovery and reconstruction efforts, power structures and the roles of institutions including NGOs.



Tools in Conducting (SIA)

Pre-disaster baseline social data must be collected prior to the SIA. Information from the DaLNA, such as the number of people affected and the values of damages and losses, etc. in each sector, should likewise be used by the assessment team in coming out with the SIA report. For collecting the information required, the following are the possible tools that can be used, as determined appropriate by the team.

- ❖ Focus group discussions (FGD). This method can gather a wide range of information over a short span of time like impacts of disaster and the effect of relief and recovery across sectors and livelihoods, coping mechanisms, etc. FGDs must be structured to ensure that the opinions/voices of all the people in the sectors across all income levels are represented.
- ❖ In-depth interviews. A variety of information especially the sensitive ones like social cohesion, power struggles, corruption, etc. can be generated by this method. In-depth interviews normally cover few issues but delve deeper on these issues.
- ❖ Informal discussions and participant observations. Social relations between groups can be gathered by casual talk and observing how people interact in the disaster area.
- ❖ Simple surveys. Surveys are reliable in gathering simple and concrete data such as wage, prices, debts and interest rates, among others.

It must be noted that the post-disaster information that will be gathered from the field should be over and above the socioeconomic baseline information and the results of the post-disaster assessment of the other sectors.



Steps in Undertaking Social Impact Assessment (SIA)

Step 1

Gather Pre-Disaster Baseline Information

There are certain sets of information that will indicate socioeconomic vulnerabilities of the people to disasters. To analyze the interaction of several factors, the following information should be available at the village level.

1. Demography

The data required here will show the total population, the household size indicating the dependency ratio by sex. It is assumed that those below 5 years old and above 60 years old as well as those who are differently-abled are more vulnerable when disasters strike.

Table 1 Household Information in the Village			
Name of Village:			
Demography	Male	Female	Total
a. Total Population			
b. Total Number of Those Below 5 years old			
c. Total Number of Those Above 60 years old			
d. Total Number of Differently-Abled			
Household Description	Male	Female	Total
a. Average size			
b. Average Number of Children			
c. Average Number of Those Below 5 years old			
d. Average Number of Children in School			
e. Average Number of Those Above 60 years old			
Prevalence of malnutrition (%)			

Moreover, the bigger the family size with high dependency ratio (children, elderly and the differently-abled), the more vulnerable the households in terms of evacuation, search and rescue, food shortage, illnesses, etc. Female household members may require special facilities (like toilets, breastfeeding areas, etc) in evacuation areas. The ethnicity must also be taken into consideration if the village is composed mostly of indigenous or ethnic groups.

2. Presence of Evacuation Centers and Medical Services and Water Supply

The designation of evacuation centers (like school buildings and other buildings) and the presence of hospitals/health centers and their water supply can provide information on the likely situation of the people in times of extreme disasters. The number of toilets and bathrooms will provide an indication of the level of comfort of women and children in the evacuation areas. The following table can summarize this information.

Table 2 Buildings Existing in the Village

Name of Village:							
Public Buildings	Quantity	Capacity	Number of Toilets		Source of Potable Water Supply		
		Persons	Female	Male	Type 1	Type 2	Type 3
a. Elementary School buildings							
b. High School Buildings							
c. Colleges							
d. Health centers							
e. Hospitals							
f. Gymnasiums							
g. Others							

Note in filling out Table 2.

- ✦ Type 1 is sourced from a spring;
- ✦ Type 2 is hand pump;
- ✦ Type 3 is faucet type.

3. Sources of Income

To estimate potential impacts, all the sources of income of the people should be determined to provide a more reliable assessment. People in the community may derive their incomes from various economic activities. It is not uncommon that farmers cultivate different crops and/or engage in non-agricultural activities depending on the season of the year. They may also have livestock and poultry, and engage in fishing every now and then. Their estimated income from these various activities will constitute their total annual income. The possible sources of income per annum of a household are enumerated in the table below.

Table 3 Main Sources of Income of Households

Main Economic Activities or Sources of Income	Average Annual Income (Kip)	Number of Households Working	Average Value of Assets per Household	Number of People	
				Male	Female
a. Farming					
b. Fishing					

c. Livestock Growing					
d. Poultry Growing					
e. Microenterprises					
f. Daily wage labourers					
g. Transport workers					
h. Skilled workers					
i. Trading (shops and stores)					
j. Services					
k. Professionals					
l. Others					

Note in filling out Table 3.

- ✿ The information of the above table can be sourced from the district agriculture office and the business permit division of the district.

There are several factors that can determine the coping capabilities of the people in disaster-affected areas. People with sources of income not solely dependent of agriculture (like permanent employment, pensions, and remittances) may be able to cope easily after a disaster. On the other hand, possession of savings, insurance coverage and the nature and value of assets of a household will be a major determinant in measuring the length of time before disaster victims can return to their livelihood and normal lives.

4. Savings, Insurance and Sources of Credit

The possession of savings and insurance coverage of the people in the area can mitigate disaster impacts and improve coping mechanism. Savings can be disposed of to recover from disasters while those with insurance coverage can easily pass on their losses to their insurer.

Table 4 Possession of Savings and Insurance Coverage of Households

Households and Amount	Type of Insurance				
	Health	Life	Crop	Property	Others
Number of Households					
Amount of Coverage (Kip)					
Savings					
	Number of Households		Average Amount per Household (Kip)		
Possession of savings					

On the other hand, credit and loan facilities in the village are vital sources of capital that can cushion the impacts of shocks like the effects of disasters. This information will assist in determining future channels of assistance.

Table 5 Sources of Credit in the Village by Gender										
Source of Loan/Credit	Type of Loan/Credit by Gender									
	Production		Educational		Appliance		Emergency		Others	
	M	F	M	F	M	F	M	F	M	F
a. Government Institutions										
b. Private Banks										
c. Cooperatives										
d. Microfinance NGOs										
e. Pawnshops										
f. Informal lenders										
g. Others										

Note in filling out Table 5.

- ✦ Informal lenders are those who engage in extending credit or loan to the people in the community. They may be traders, fixed-income earners, etc. who operate without a license as lending investors but nevertheless patronized by the people in the village.

Step 2

Decide which areas will be visited and the tools to be used in the SIA

To cover the social impacts caused by disasters, it is recommended that the assessment team should determine which areas should be visited. It is possible that not all areas can be visited especially in instances where the scope and extent of the disaster are widespread. After determining which areas will be visited, the team must evaluate the most appropriate tools to be used in generating the information required. (Refer to the tools mentioned earlier. For a complete description of these tools, please see "Analyzing Social Impacts of Disasters Tools, Volumes 1 and 2" published by the World Bank Global Facility for Disaster Risk Reduction (WB-GFDRR) in 2011).

Step 3

Conduct Field Visits

With the baseline information in hand, field visits should be undertaken by the assessment team to assess the social impacts on the people affected. The team should conduct field assessment in collaboration with the local officials especially during the direct interviews, FGDs or whatever assessment tools to be used by the team (as enumerated earlier). The following are the issues that should be covered according to economic activities, gender, age, among other factors.

1. The number of people affected by the disaster and their present situation, such as:
 - a. The number of people in evacuation centers and the expected duration of their stay over time;
 - b. Adequacy of food supply and potable water as well as physical security
 - c. Prevalence of diseases and availability of medical care;
 - d. The coping mechanisms of the affected people;
 - e. The situation of women and children; and
 - f. The vulnerabilities of the people due to the disaster.
2. The impacts on families in terms of:
 - a. Health and nutrition especially the vulnerable groups like pregnant women, lactating mothers, children, the elderly, etc;
 - b. Education of children;
 - c. Indebtedness;
 - d. Family cohesion;
 - e. Social institutions including effects on indigenous peoples; and
 - f. Possible effects on the millennium development goals (MDG) targets.
3. People's perceptions on:
 - a. The appropriateness of aid/assistance extended in terms of the goods provided, the process of distribution, etc.
 - b. Post-disaster leadership and governance;
 - c. Post-disaster income, quality of life, poverty and future of children, among others.
4. The people's plans and aspirations on:
 - a. Government's and outsiders' assistance;
 - b. Employment and livelihood;
 - c. Duration before their lives will return to normal.

Step 4

Obtain the inputs of the assessment teams of the other sectors

In order to ensure the integrity of the information collected from the field, the rapid SIA team must attend the meeting/s or workshops of the various sectoral assessment teams which conducted the DaLNA. At the end of this meeting/workshop, the SIA team must have obtained the social analysis of the sectoral DaLNA assessment teams. (It must be noted that the guidance notes for the various sectors include some social assessments of their respective sectors).



Step 5

Analyze the overall social impacts to the affected population

The SIA team must be able to analyze the likely social impacts of the damages and losses of the sectors to the post-disaster lives of the people. The team must combine their field findings with the reports submitted by the sector assessment teams to come up with their analysis. The pre-disaster baseline information should guide the team in assessing the post-disaster social impacts.

In analyzing the qualitative social impacts, the following interrelated issues should be considered.

1. **Income.** Loss of livelihoods and employment is one of the main factors which reduce the capacity to cope of the disaster victims and recover their normal lives after a disaster. The assessment team must be able to estimate the number of people who lost their sources of income and livelihood. This information can be sourced from the sectoral assessments of the other agencies. What will be the impacts on families whose earners have lost their sources of income or worse lost their lives? How will indebtedness affect their recovery? How did the disaster impact on the lives of the rich and poor?
2. **Security.** The conditions of the affected people can be assessed by the adequacy of food supply and potable water as well as physical security in and outside the evacuation centers. Are the supplies of food and water enough to keep the people nourished? On the other hand, criminality may also increase if there is massive food shortage. Are there enough precautions to prevent criminality including violence against women and children, human trafficking, among others?
3. **Health and sanitation.** Did the post-disaster conditions cause the outbreak of diseases? If so, what are these diseases and how are they being addressed? Is there any possibility of long-term effects on the peoples' health? This can happen in cases where toxic wastes are leaked into the natural environment.
4. **Education.** What will be the effects on the education of children in the areas? Some of the possible causes of disrupted education will be the destruction of schools, loss of family, migration and/or students may be forced to quit schooling to look for temporary jobs to augment family income.
5. **Coping mechanisms.** With all the effects of the disaster, what are the activities of the people to adjust to their present situation? Coping mechanisms may vary from family to family. Some may have relatives to assist them through financial remittance. Others may choose to relocate. Among poorer families, some possible options are the reduction of expenditures for food, sending children to find work, living with relatives or extended stay at evacuation centers, incurring debts or the use of savings and insurance if they have any.
6. **Vulnerabilities.** Disasters can cause new vulnerabilities among the members of the community. For instance, houses near the river banks may be exposed to flooding due to erosion. Bridges which have weakened by floods and strong winds may pose a danger to the people using them.

Considering the above circumstances, a more detailed social assessment should discuss the following:

1. The situation of women, children and the elderly. With the damages and losses in the community, what are the obvious impacts on women, children and the elderly? Are women having double burden in terms of work? Do women, children and the elderly receive equal assistance with men? Do girls drop out of school compared to boys?
2. Family cohesion and social institutions. Are there instances where families broke up due to the disaster? What are the main causes? Were traditions and norms respected in post-disaster activities? What are the possible effects on family relations and traditions?
3. People's perceptions. The perceptions of the people affected should include the appropriateness of aid/assistance extended. Are the goods provided acceptable to the norms and traditions of the people? Is the process of distribution equitable? On the other hand, the perception on leadership and post-disaster governance should also be assessed. Is the local leadership capable in handling emergency operations? Were the people consulted on major decisions? How do the people perceive their present status? Do they think they will regain their pre-disaster quality of life and pursue their plans for their children? Are there power struggles between and among the rich and the poor in the community?
4. The people's plans and aspirations. Even in the worst situation, disaster victims have some plans and aspirations for the future. For instance, how do they plan to regain their normal lives? What are their intended actions to recover their sources of income and livelihood? What immediate assistance do they hope from the government and other development partners to help them achieve their plans? Is relocation acceptable?

Step 6

Consolidate the SIA results

The SIA team must consolidate the assessment for each village they have visited (or the selected villages, in case of massive disaster impacts) to come up with the district or city SIA. The consolidated city/district SIA will comprise the provincial SIA. However, since there may be great differences in the social impacts from one area to another, it is recommended that the detailed SIA for each village in each city/municipality should be kept handy by the DLSW.

(The SIA for each area can be used as a one of the monitoring documents in the post-disaster recovery and reconstruction activities).

Step 7

Draft and submit the report to the PDMC

The SIA report should be drafted by DLSW with all the information identified in this guidance notes. Again, the SIA team should consider the DaLNA reports of the health, education and other sectors in coming out with the SIA. The report can have the following general outline:

1. General description of the affected area/s and the people.
2. Summary of effects in terms of lives lost, missing and injured; livelihoods/ employments lost across sectors; and present conditions of the people (housing/shelter, food and water supply, donors and assistance extended, etc).
3. The impact on health, education, gender, family, social institutions and governance, among others.
4. Comparative impacts between the rich and the poor across sectors and sub-sectors and their coping mechanisms.
5. The special needs of the social sector, if any, which are not included in those identified by the other sectors. (An example may be the expansion of targeted social programs for the poor; the provision of extra security in areas where chaos may erupt due to food shortage; or special needs of indigenous peoples in selected areas).
6. The recommended policy framework for recovery and reconstruction.

The DLSW should attach the social effects and impacts on certain areas if there are notable or extreme problems or situations that are specific to said area/s.

ANNEX
PHOTOCOPY TEMPLATE



Table 1 Household Information in the Village

Name of Village:

Demography	Male	Female	Total
a. Total Population			
b. Total Number of Those Below 5 years old			
c. Total Number of Those Above 60 years old			
d. Total Number of Differently-Abled			
Household Description	Male	Female	Total
a. Average size			
b. Average Number of Children			
c. Average Number of Those Below 5 years old			
d. Average Number of Children in School			
e. Average Number of Those Above 60 years old			
Prevalence of malnutrition (%)			

Table 2 Buildings Existing in the Village

Name of Village:

Public Buildings	Quantity	Capacity	Number of Toilets		Source of Potable Water Supply		
		Persons	Female	Male	Type 1	Type 2	Type 3
a. Elementary School buildings							
b. High School Buildings							
c. Colleges							
d. Health centers							
e. Hospitals							
f. Gymnasiums							
g. Others							



Table 3 Main Sources of Income of Households

Main Economic Activities or Sources of Income	Average Annual Income (Kip)	Number of Households Working	Average Value of Assets per Household	Number of People	
				Male	Female
a. Farming					
b. Fishing					
c. Livestock Growing					
d. Poultry Growing					
e. Microenterprises					
f. Daily wage labourers					
g. Transport workers					
h. Skilled workers					
i. Trading (shops and stores)					
j. Services					
k. Professionals					
l. Others					

Table 4 Possession of Savings and Insurance Coverage of Households

Households and Amount	Type of Insurance				
	Health	Life	Crop	Property	Others
Number of Households					
Amount of Coverage (Kip)					
Savings					
	Number of Households		Average Amount per Household (Kip)		
Possession of savings					

Table 5 Sources of Credit in the Village by Gender

Source of Loan/Credit	Type of Loan/Credit by Gender									
	Production		Educational		Appliance		Emergency		Others	
	M	F	M	F	M	F	M	F	M	F
a. Government Institutions										
b. Private Banks										
c. Cooperatives										
d. Microfinance NGOs										
e. Pawnshops										
f. Informal lenders										
g. Others										



TO PHOTOCOPY



Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

POST AND TELECOMMUNICATIONS SECTOR



Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC). The following are the key persons in conducting a DaLNA.

Personnel	Role in the DaLNA
Staff from Department of Post and Telecommunications (DPT) of the Khammouane Province (electronics and communications experts, industry specialists, engineers and finance personnel)	Lead and coordinate
Staff from the Ministry Post and Telecommunications	Participate and provide technical advice
Staff from the affected district/s	Provide damage and loss information and facilitate assessment
Development partners (if active in the sector in Khammouane)	Participate and provide technical advice



Concepts and Definitions

Post and Telecommunications Sector

This sector will include telecommunications service providers like telephones, internet and other similar businesses.

Damages

Damages are generally the cost of repair of partially destroyed assets or the cost of replacement of totally destroyed assets like structures, equipment, machineries, supplies, etc. Damage occurs at the time of the disaster or shortly after the disaster and is to be measured in physical terms for which monetary replacement value is subsequently estimated. The unit costs to be adopted for repair or replacement should be the costs prevailing just before the disaster.

Losses

Losses are generally the foregone revenues and additional expenses due to the disaster expressed in current (pre-disaster) prices. Among them are:

- ✦ Lower revenues or foregone income of telecommunications firms due to reduced capacity after the destruction of assets and/or lower demand from subscribers/clients.
- ✦ Possible higher cost of operation that may arise after the disaster, such as in payment of higher rates of electricity from alternative sources, renting temporary premises while repairing or rebuilding the original premises, etc.
- ✦ Other unexpected expenditure such as demolition and removal of debris, retrieval of important records, etc.



General Steps in Conducting a Post-disaster Damage, Loss and Needs Assessment (DaLNA)

The following steps are to be undertaken for DaLNA:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |
| Step 5 | Estimate recovery and reconstruction needs |
| Step 6 | Draft the implementation plan of the identified programs and projects |
| Step 7 | Draft the post-disaster damages, losses and needs (DaLNA) of the sector |

These procedures for each Step are provided in the following sections.



Detailed Steps in Undertaking Post-Disaster DaLNA in the Post and Telecommunications Sector

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Table 1 Baseline information on telecommunication companies

Name of District:

Name of Firm	Ownership		Services provided					
	Public	Private	Landline	Mobile	Internet	TV	Radio	Others
Firm 1								
Firm 2								
Firm n								
TOTAL								

Note in filling out Table 1.

- ✦ The names of all the firms operating in the area should all be included.
- ✦ If the firms cover more than one municipality or city, they should only be assessed as part of the district where their main offices are located to avoid double counting

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses are accurate to the extent possible.* Direct interviews with the private firms and contractors or government officials involved in the construction and repair of facilities can also be conducted during the field trip in order to validate unit costs of repair and reconstruction. .

Step 2.1. Estimate the damages and losses to telecommunication firms

Repair and replacement costs should be estimated for the damages of the sector. The time needed to reconstruct the damages should also be estimated. During the field visits to the disaster sites, the assessment team should interview the officers of the firm/s to ascertain the extent and value of the damages and the estimated period before operations can be fully restored to the pre-disaster level.

To get the value of damages and losses, the assessment team can arrange a meeting with the owners of the firms and require them to fill out the questionnaire below.

Table 2 Damages and losses of telecommunication firms						
Name of Firm						
Location	Name of District:					
Services provided	Landline () Mobile () Internet () TV () Radio () Others (Specify) _____					
Ownership	Public () Private ()					
Estimated Damages						
Damage to Structures and Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost (Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D		
1. Structures						
a. Towers						
b. Office buildings						
c. Others (Specify)						
2. Equipment						
a. Antennae						
b. Computers						
c. Others (Specify)						
3. Machinery						
a. Generators						
b. Others						
c. Others						
4. Vehicles						
5. Others						
TOTAL						N.A.

Estimated Losses				
Types of Losses	Disaster Year	Year 1	Year 2	TOTAL (Kips)
a. Foregone income				
b. Cleaning up of debris				
c. Higher operating costs				
ther unexpected expenses				
TOTAL				

Note in filling out Table 2.

- ✿ The firm/s should fill out information appropriate to their assets. There are various machineries and equipment in the sector which should be assessed especially those that are vital to the operation.
- ✿ 'Average Replacement Cost' will be the average pre-disaster value of the structures and assets that were totally destroyed.
- ✿ 'Average Repair Cost' will be the average cost of repair of the structures and assets that were partially damaged.
- ✿ In formula, the total damages will be (Column E) = (Column A) x (Column B) + (Column C) x (Column D).

Step 2.2. Summarize the damages and losses in the sector in a district

Based on survey of the businesses, the damages and losses can be summarized in the following table:

Table 3 Summary of damages and losses in a district										
Name of District:										
Name of Firm	Within the Disaster Year				Losses Beyond Disaster Year					
	Damages		Losses		Year 1		Year 2		Year 3	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Firm 1										
Firm 2										
Firm n										
TOTAL										

Note in filling out Table 3.

- ✿ 'Public' and 'private' refers to the ownership of the power firm.
- ✿ The damages and losses should be accounted for under the type of ownership of the firm.

Step 2.3. Summarize the damages in the sector in the province

Based on survey of the firms, damages and losses can be summarized in the following table.

Table 4 Summary of damages and losses in the province										
Name of District:										
Name of Firm	Within the Disaster Year				Losses Beyond Disaster Year					
	Damages		Losses		Year 1		Year 2		Year 3	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
a. District										
b. District										
c. District										
d.										
TOTAL										

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting, a meeting among the assessment team members should be held. This can be organized and facilitated by the team leader of the assessment team in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members share their collected data, issues and experiences in the field, among others. At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below.

Validation meeting sessions may include:

- ✿ Opening remarks from the DPT Head
- ✿ Each sub-team which assessed various districts or kumbans will briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)
 - Recommendations from damage and loss assessment results
- ✿ DPT Head / Secretariat presents:
 - Summary of damages and losses based on the reports
 - Recommendations to resolve data validation problems (if any)
 - Next steps in the DaLNA process
 - Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DaLNA from the field to avoid duplication and double counting across sectors.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of the sector should analyze all potential impacts of the damages and losses in relation to, among others:

- ✦ Possible losses of employment if the firms will have to lay off workers.
- ✦ Impact on other businesses if telecommunications will not be restored soonest.

Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if no assistance will be provided to the sector, the aggregate needs of the sector must be estimated. The DPT must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the assessment team must identify the strategies to be followed for recovery and reconstruction for the sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction. Some of the general strategies that could be considered for the sector include the following:

1. **Building Back Better (BBB).** Design recovery activities based on BBB principles that will promote longer-term disaster risk reduction and management. BBB principle should also look at the how to make facilities safer from future disasters, etc.
2. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
3. **Coordinated and coherent approaches to recovery.** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor

complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.

4. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. It should be clear how assistance to the recovery of the private sector will be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.
5. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected, through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy in the sector as quick as possible. In this sector, quick recovery efforts must be undertaken especially if it employs a lot of people. Recovery activities should include those that will enable firms to resume their normal operations. To assist the sector, the assessment team can identify policy measures that will enable the firms to recover without necessarily using direct government budget to cover the costs required. There are certain options that can be implemented through policy measures to expedite recovery and reconstruction of the private sector. Among them are:

1. Income tax breaks for private firms such as:
 - a. Temporary reduction or freeze or deferment in the collection of tax;
 - b. Temporary freeze on basic service charges in the utilization of certain services over the time of the recovery phase;
 - c. Non-collection of property taxes for the duration of the recovery period;
 - d. Exemption from registration fees for replacements of the destroyed equipment and machinery over a certain period of time.
2. Subsidizing construction materials and equipment to be imported by private firms during the recovery and reconstruction phase through an exemption from paying customs duties and other levies.

Some of the possible recovery-related activities in the sector can include:

- ✿ Repairs of the damages to structures which are normally affected by strong winds and floods.
- ✿ Emergency procurement of vital equipment necessary to normalize operations.
- ✿ Clearing of debris that may have affected the sector.

Step 5.3. Estimate reconstruction needs

Reconstruction needs are generally long-term in nature (3 years and more) and are intended to 'build back better' from the ruins of a disaster. It is to be noted that reconstruction activities should include both public as well as private facilities and may require different types of financing strategies. It is to be noted that since the firms in this sector are revenue-generating enterprises, financing their

needs can come through soft-term credit schemes for the reconstruction and repair of their damaged assets. Such schemes can be accompanied by technical assistance for improved disaster resilient standards of construction. Some possible reconstruction related activities in the sector can include the following:

- ✿ Soft-term credit for the replacement or reconstruction of affected structures under a 'Building Back Better' strategy to ensure future disaster resilience through the adoption and enforcement of improved construction standards;
- ✿ Procurement of equipment and machinery;
- ✿ Cost of replacing furniture and equipment that were destroyed may be included within the needs for reconstruction, unless they have been covered under the recovery needs to provide temporary services for the affected area;
- ✿ Structural retro-fitting of undamaged or partially damaged structures so that they are not affected by disaster event in the future; and/or
- ✿ Relocation to safe areas.

Step 5.4. Prioritize identified projects for recovery

Among the projects identified, relative priorities can be set in order to determine which among them are the more important. Based on the broad strategies for recovery, the assessment team should select the priority projects/activities among the total identified needs. The prioritization can be made by using a set of impact indicators and the level by which the projects can achieve said impacts. The following criteria, as indicated in the guidelines for the post disaster reconstruction fund (PDRF), can be used among others, to prioritize or rank the proposed post-disaster projects:

4. The greatest social and economic impact, which is to be evaluated in terms of the relative cost of not undertaking reconstruction or rehabilitation.
5. The biggest pro-poor impact, such that assistance in poorer Districts or Kumbans will be given a higher priority than projects located in better-off Districts or Kumbans.
6. Whether there is a strong likelihood that an adequate budget and appropriate provisions will be made to cover the operations and maintenance (O&M) of the reconstructed infrastructure item.

The criteria above can be placed in a matrix like the one below where the impacts are ranked according to low, medium or high. This matrix can show the relative benefits of proposed projects to the people in the affected areas which, in turn, will inform and assist the government of Khammouane (or the PDMC) in determining the priority projects within the sector.

Matrix 1 Impacts of identified post-disaster projects									
Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Urgent repair or replacement of structures, equipment and machinery									
Procurement of vital supplies									
Cleaning operations									
Others									

The projects identified by the assessment team must be analyzed in accordance with the above matrix.

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the assessment team identifying the post-disaster projects for recovery and reconstruction. It should be noted that assistance to the businesses owned by the private sector, which can be extended as direct assistance or through credit, is purely based on the decision of the government. The following table can be used.

Table 5 Summary of recovery and reconstruction needs in the telecommunications sector	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Urgent repair or replacement of equipment and machinery	
b. Procurement of vital supplies	
c. Cleaning operations	
d. Others (Specify)	
TOTAL	
Reconstruction Needs	
a. Replacement or reconstruction of affected structures	
b. Procurement of equipment and machinery	
c. Technical assistance	
d. Relocation	

e. Mitigation measures	
f. Others	
TOTAL	
GRAND TOTAL	

Step 5.6. Provide all the districts a copy of the list of projects identified as priorities

The Head of the assessment team should inform all the districts covered by the DaLNA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.
2. Plot the timeline of activities of all the projects, with the urgent ones on top, in a Gantt chart with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.
4. To the extent possible, a logical framework (logframe) should be created for each of the project proposed for inclusion in the recovery plan. Logframes are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 6 Summary of recovery and reconstruction needs

Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Others				
TOTAL				
Reconstruction Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Mitigation measures				
f. Others				
TOTAL				
GRAND TOTAL				

Note in filling out Table 6.

- ✿ Project titles can be inserted under the column on recovery and reconstruction needs.
- ✿ Columns can be added to accommodate any additional reconstruction needs beyond Year 2.

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) report of the sector

With all the information gathered using the previous steps, a report for the housing sector can be drafted by the HD/DPWT and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the sector in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the sector in the disaster-affected areas.
2. Damages in the sector by areas and by types of housing affected.
3. Losses in the sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the sector in Khammouane.
6. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report of the HD/DPWT should be submitted to the PDMC for integration into the overall post-disaster DaLNA report for the province which should contain the other similar DaLNA reports of the other sectors. The final DaLNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DaLNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.

ANNEX
PHOTOCOPY TEMPLATE

POST AND TELECOMMUNICATIONS SECTOR

Table 1 Baseline information on telecommunication companies

Name of District:

Name of Firm	Ownership		Services provided					
	Public	Private	Landline	Mobile	Internet	TV	Radio	Others
Firm 1								
Firm 2								
Firm n								
TOTAL								



TO PHOTOCOPY

Table 2 Damages and losses of telecommunication firms

Name of Firm						
Location	Name of District:					
Services provided	Landline () Mobile () Internet () TV () Radio () Others (Specify) _____					
Ownership	Public () Private ()					
Estimated Damages						
Damage to SStructures and Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost (Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D	E	F
1. Structures						
a. Towers						
b. Office buildings						
c. Others (Specify)						
2. Equipment						
a. Antennae						
b. Computers						
c. Others (Specify)						
3. Machinery						
a. Generators						
B. Others						
c. Others						
4. Vehicles						
5. Others						
TOTAL						N.A.
Estimated Losses						
Types of Losses	Disaster Year	Year 1	Year 2	TOTAL (Kips)		
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
ther unexpected expenses						
TOTAL						



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POST AND TELECOMMUNICATIONS SECTOR

Table 3 Summary of damages and losses in a district

Name of District:

Name of Firm	Within the Disaster Year				Losses Beyond Disaster Year					
	Damages		Losses		Year 1		Year 2		Year 3	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Firm 1										
Firm 2										
Firm n										
TOTAL										

Table 4 Summary of damages and losses in the province

Name of District:

Name of Firm	Within the Disaster Year				Losses Beyond Disaster Year					
	Damages		Losses		Year 1		Year 2		Year 3	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
a. District										
b. District										
c. District										
d.										
TOTAL										

Matrix 1 Impacts of identified post-disaster projects

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Urgent repair or replacement of structures, equipment and machinery									
Procurement of vital supplies									
Cleaning operations									
Others									



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Table 5 Summary of recovery and reconstruction needs in the telecommunications sector

Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
a. Urgent repair or replacement of equipment and machinery	
b. Procurement of vital supplies	
c. Cleaning operations	
d. Others (Specify)	
TOTAL	
Reconstruction Needs	
a. Replacement or reconstruction of affected structures	
b. Procurement of equipment and machinery	
c. Technical assistance	
d. Relocation	
e. Mitigation measures	
f. Others	
TOTAL	
GRAND TOTAL	

Table 6 Summary of recovery and reconstruction needs

Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Others				
TOTAL				
Reconstruction Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Mitigation measures				
f. Others				
TOTAL				
GRAND TOTAL				



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Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

TOURISM SECTOR

Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC). The following are the key persons in conducting a DaLNA.

Personnel	Role in the Transportation Sector DaLNA
Staff from Department of Information, Culture and Tourism (DICT) of the Khammouane Province (tourism experts, hydrologists, procurement specialists, engineers and finance personnel)	Lead and coordinate
Staff from the Ministry of Information, Culture and Tourism (MICT)	Participate and provide technical advice
Staff from the affected district/s	Provide damage and loss information and facilitate assessment
Development partners (if active in the Tourism Sector in Khammouane)	Participate and provide technical advice



Concepts and Definitions

The tourism sector is composed of: a) the commercial tourism sector composed of hotels, guest houses, etc. whose services cater to the tourists in Khammouane; and b) the cultural and natural sites which are tourist destinations. Such sites are maybe owned by private individuals or public property in nature.

Damages

In the tourism sector, damages are cost of: a) repair of partially destroyed assets and/or b) replacement of totally destroyed assets and infrastructure valued at pre-disaster prices, such as:

- ✿ Total or partial destruction of physical structures related to all types of hotels, resorts, lodging houses including the facilities in the premises like restaurants, swimming pools, spas and other amenities.
- ✿ Cultural sites and structures like temples visited by tourists.
- ✿ Natural formations which are tourist attractions like underwater caves, river under a cave, mountains for rock climbing, etc.

- ✿ Total or partial destruction of the contents of the structures such as elevators, power generators, computers, furniture, and other supplies.

Damage occurs at the time of the disaster or shortly after the disaster and is to be measured in physical terms for which monetary replacement value is subsequently estimated. The unit costs to be adopted for repair or replacement should be the costs prevailing just before the disaster.

Losses

Losses are the changes in the values of economic flows (income and expenditures) within the sector during the period of recovery and reconstruction following the disaster. They are the current value of goods and services that were not and/or will not be produced over a time span due to the disaster until full recovery is attained. Losses will occur until pre-disaster levels of income are achieved which can last during the entire period of reconstruction and recovery. Losses in the tourism will include the following:

- ✿ Foregone income from tourists and other related sources of income which will last until the tourism facilities are repaired.
- ✿ Possible higher cost of operation that may arise after the disaster, such as payment of higher rates of electricity from alternative sources, or acquiring raw materials from alternative sources or renting temporary premises while repairing or rebuilding the original premises.
- ✿ Costs involved for the demolition or removal of debris, etc.
- ✿ Additional cost of tourism promotion after the disaster.



General Steps in Conducting a Post-disaster DaLNA in the Transportation Sector

The following steps are to be undertaken for DaLNA in the Transportation Sector:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |
| Step 5 | Estimate recovery and reconstruction needs |
| Step 6 | Draft the implementation plan of the identified programs and projects |
| Step 7 | Draft the post-disaster damages, losses and needs (DaLNA) of the sector |

These procedures for each Step are provided in the following sections.





Detailed Steps in Undertaking Post-Disaster DALNA in the Tourism Sector

In conducting a DALNA in the tourism sector, the following steps should be followed. Each template table should be completed for every disaster-affected district in Khammouane.

Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Table 1 Baseline information of tourism facilities in a district

Name of City or District:

Establishments	Number of Establishments by Ownership		Type of Structure				
			1 to 4 Floors			5 and More Floors	
	Public	Private	All Concrete	Concrete and Wood	Wood and Bamboo	All Concrete	Concrete and Wood
Hotels							
Guest houses							
Resorts/Spas							
Guest Houses							
Natural formations							
Cultural sites							
Others (Specify)							
TOTAL							

Notes in filling out Table 1.

- ✿ The above table will provide the assessment team with an overall picture of the tourism sector in the area – the location where tourists go, the number of accommodations available, the tourist attractions, etc. - which they can use in post-disaster damage and loss assessment.
- ✿ Examples of natural formations are underwater caves, river in caves, mountains, etc.

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses in the sector/sub-sector are accurate to the extent possible.* The assessment of roads should include all of their components like culverts, ditches, dikes, etc. Both public and private damages and losses must be included in the assessment.

Step 2.1. Estimate the damages and losses to tourism facilities

Repair and replacement costs should be estimated for the damages of the tourism sector. The time needed to reconstruct the damages should also be estimated. During the field visits to the disaster sites, the assessment team should interview the officers of the firm/s to ascertain the extent and value of the damages and the estimated period before operations can be fully restored to the pre-disaster level. (The assessment team can arrange a meeting with the owners of tourism firms to get the needed information).

The value of damaged assets can be summarized in the following table which should be used in interviewing the officials of the tourism firm/s as a questionnaire.

Table 2 Value of damages and losses of a firm in the tourism sector in a district						
Name of District:						
Name of Firm:						
Category	Hotel () Guest house () Resort/Spa () Cultural site () Natural Formation () Others (specify) _____					
Ownership	Public () Private ()					
Estimated Damages						
Damage to Structures and Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost (Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D		
a. Structures						
b. Equipment						
c. Stocks/ inventories						
d. Others (specify)						
TOTAL		N.A.		N.A.		N.A.

Estimated Losses				
Types of Losses	Disaster Year	Year 1	Year 2	TOTAL (Kips)
a. Foregone income				
b. Cleaning up of debris				
c. Higher operating costs				
d. Other unexpected expenses				
TOTAL				

Notes in filling out Table 2.

- ✿ There are various types of structures, machineries and equipment which should be assessed, especially those that are vital to the operation.
- ✿ 'Average Replacement Cost' will be the average pre-disaster value of the structures and assets that were totally destroyed while 'average repair cost' will be the estimated cost of repair of the partially damaged assets.
- ✿ In formula, the total damages of the firms surveyed will be (Column E) = (Column A) x (Column B) + (Column C) x (Column D).
- ✿ Years 1 to 2 are the years after the disaster.

Step 2.2. Summarize the damages and losses in the sector in a district

Based on survey of the, the damages and losses can be summarized in the following table.

Table 3 Summary of damage and losses in a district								
Name of District:								
Tourism Firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
Firm 1								
Firm n								
Cultural site 1								
Cultural site n								
Natural formation 1								
Natural formation n								
Others								
TOTAL								

Step 2.3. Summarize damages and losses in the tourism sector in the province

Once the summary table for each affected district has been filled out, the information should be used to summarize the damages and losses at the provincial level. The summary table below can be used.

Table 4 Summary of damage and losses in the province								
Name of Province: Khammouane								
Tourism Firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
District:								
Firm 1								
Firm n								
Cultural site 1								
Cultural site n								
Natural formation 1								
Natural formation n								
Others								
District:								
Firm 1								
Firm n								
Cultural site 1								
Cultural site n								
Natural formation 1								
Natural formation n								
Others								
TOTAL								

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting, a meeting among the assessment team members should be held. This can be organized and facilitated by the team leader of the DICT in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members share their collected data, issues and experiences in the field, among others. At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below.

Validation meeting sessions may include:

- ✿ Opening remarks from the DICT Head
- ✿ Each sub-team which assessed various districts or kumbans will briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)
 - Recommendations from damage and loss assessment results
- ✿ DICT Head / Secretariat presents:
 - Summary of damages and losses based on each sub-sector's reports
 - Recommendations to resolve data validation problems (if any)
 - Next steps in the DaLNA process
 - Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DALNA from the field to avoid duplication and double counting across sectors.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of the power sector should analyze all potential impacts of the loss of tourism in relation to, among others:

- ✿ Possible losses of employment if the firms will have to lay off workers.
- ✿ Potential losses of livelihood for those who depend on the arrival of tourists like microentrepreneurs engaged in handicrafts for souvenirs.
- ✿ Potential adverse environmental impacts.
- ✿ Reduction in foreign currency earnings if there will be a reduction of foreign tourist arrivals.
- ✿ Impact of loss of cultural and historical sites.

Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if no assistance will be provided to the sector, the aggregate needs of the sector must be estimated. The DICT must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify overall recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the DICT assessment team must identify the strategies to be followed for recovery and reconstruction for the sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction. Some of the general strategies that could be considered for the tourism sector include the following:

1. **Building Back Better (BBB).** Design recovery activities based on BBB principles that will promote longer-term disaster risk reduction and management. BBB principle should also look at the how to make facilities safer from future disasters, etc.
2. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
3. **Coordinated and coherent approaches to recovery.** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.
4. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. It should be clear how assistance to the recovery of the private sector will be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.
5. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected, through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy in the sector as quick as possible. In the tourism sector, quick recovery efforts must be undertaken especially if it employs a lot of people. Recovery activities should include those that will enable firms to resume their normal operations. To assist the sector, the DICT can identify policy measures that will enable the firms to recover without necessarily using direct government budget to cover the costs required. There are certain options that can be implemented through policy measures to expedite recovery and reconstruction of the private sector. Among them are:

1. Income tax breaks for private firms such as:
 - a. Temporary reduction or freeze or deferment in the collection of tax;
 - b. Temporary freeze on basic service charges in the utilization of certain services over the time of the recovery phase;
 - c. Non-collection of property taxes for the duration of the recovery period;
 - d. Exemption from registration fees for replacements of the destroyed equipment and machinery over a certain period of time.
2. Subsidizing construction materials and equipment to be imported by private firms during the recovery and reconstruction phase through an exemption from paying customs duties and other levies.

Some of the possible recovery-related activities in the sector can include:

- ✿ Repairs of the damages to structures which are normally affected by strong winds and floods.
- ✿ Emergency procurement of vital equipment necessary to normalize operations.
- ✿ Clearing of debris that may have affected the sector.
- ✿ Aggressive promotion of tourism after the disaster.

Step 5.3. Estimate reconstruction needs

Reconstruction needs are generally long-term in nature (3 years and more) and are intended to 'build back better' from the ruins of a disaster. It is to be noted that reconstruction activities should include both public as well as private facilities and may require different types of financing strategies. It is to be noted that since the tourism firms are revenue-generating enterprises, financing their needs can come through soft-term credit schemes for the reconstruction and repair of their damaged assets. Such schemes can be accompanied by technical assistance for improved disaster resilient standards of construction. Some possible reconstruction related activities in the sector can include the following:

- ✿ Soft-term credit for the replacement or reconstruction of affected structures under a 'Building Back Better' strategy to ensure future disaster resilience through the adoption and enforcement of improved construction standards;
- ✿ Procurement of equipment and machinery;
- ✿ Cost of replacing furniture and equipment that were destroyed may be included within the needs for reconstruction, unless they have been covered under the recovery needs to provide temporary services for the affected area;

- ✿ Structural retro-fitting of undamaged or partially damaged structures so that they are not affected by disaster event in the future; and
- ✿ Relocation to safe areas.

Step 5.4. Prioritize identified projects for recovery

Among the projects identified, relative priorities can be set in order to determine which among them are the more important. Based on the broad strategies for recovery, the DICT assessment team should select the priority projects/activities among the total identified needs. The prioritization can be made by using a set of impact indicators and the level by which the projects can achieve said impacts. The following criteria, as indicated in the guidelines for the post disaster reconstruction fund (PDRF), can be used among others, to prioritize or rank the proposed post-disaster projects:

1. The greatest social and economic impact, which is to be evaluated in terms of the relative cost of not undertaking reconstruction or rehabilitation.
2. The biggest pro-poor impact, such that assistance in poorer Districts or Kumbans will be given a higher priority than projects located in better-off Districts or Kumbans.
3. Whether there is a strong likelihood that an adequate budget and appropriate provisions will be made to cover the operations and maintenance (O&M) of the reconstructed infrastructure item.

The criteria above can be placed in a matrix like the one below where the impacts are ranked according to low, medium or high. This matrix can show the relative benefits of proposed projects to the people in the affected areas which, in turn, will inform and assist the government of Khammouane (or the PDMC) in determining the priority projects within the sector.

Matrix 1 Impacts of identified post-disaster projects									
Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Urgent repair or replacement of structures, equipment and machinery									
Procurement of vital supplies									
Cleaning operations									
Others									

The projects identified by the assessment team must be included in the above matrix.

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the DICT assessment team identifying the post-disaster projects for recovery and reconstruction. It should be noted that assistance to the tourism facilities owned by the private sector, which can be extended as direct assistance or through credit, is purely based on the decision of the government. The following table can be used.

Table 5 Summary of recovery and reconstruction needs in the tourism sector	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed
	(Kips)
Recovery Needs	
a. Urgent repair or replacement of equipment and machinery	
b. Procurement of vital supplies	
c. Cleaning operations	
d. Tourism promotion	
e. Others (Specify)	
Total	
Reconstruction Needs	
a. Replacement or reconstruction of affected structures	
b. Procurement of equipment and machinery	
c. Technical assistance	
d. Relocation	
e. Mitigation measures	
f. Others	
Total	
GRAND TOTAL	

Step 5.6. Provide all the districts a copy of the list of projects identified as priorities by the DICT

The Head of the DICT assessment team should inform all the districts covered by the DALNA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.
2. Plot the timeline of activities of all the projects, with the urgent ones on top, in a Gantt chart with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.
4. To the extent possible, a logical framework (logframe) should be created for each of the project proposed for inclusion in the recovery plan. Logframes are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 6 Summary of recovery and reconstruction needs in the tourism sector

Recovery and Reconstruction Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Others				
TOTAL				
Reconstruction Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				

d. Relocation				
e. Mitigation measures				
f. Others				
Total				
GRAND TOTAL				

Note for filling up Table 6

- ✿ Project titles can be inserted under the column on recovery and reconstruction needs.
- ✿ Columns can be added to accommodate any additional reconstruction needs beyond Year 2.

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) of the sector

With all the information gathered using the previous steps, a report for the sector can be drafted by the DICT and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the sector in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the sector in the disaster-affected areas.
2. Damages in the sector by areas and by types of the tourism facilities affected.
3. Losses in the sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the sector in Khammouane.
6. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report of the DICT should be submitted to the PDMC for integration into the overall post-disaster DALNA report for the province which should contain the other similar DALNA reports of the other sectors. The final DALNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DALNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.

ANNEX
PHOTOCOPY TEMPLATE



Table 1 Baseline information of tourism facilities in a district

Name of City or District:

Establishments	Number of Establishments by Ownership		Type of Structure				
			1 to 4 Floors			5 and More Floors	
	Public	Private	All Concrete	Concrete and Wood	Wood and Bamboo	All Concrete	Concrete and Wood
Hotels							
Guest houses							
Resorts/Spas							
Guest Houses							
Natural formations							
Cultural sites							
Others (Specify)							
TOTAL							



Table 2 Value of damages and losses of a firm in the tourism sector in a district

Name of District:						
Name of Firm:						
Category	Hotel () Guest house () Resort/Spa () Cultural site () Natural Formation () Others (specify) _____					
Ownership	Public () Private ()					
Estimated Damages						
Damage to Structures and Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost (Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D	E	F
a. Structures						
b. Equipment						
c. Stocks/inventories						
d. Others (specify)						
TOTAL		N.A.		N.A.		N.A.
Estimated Losses						
Types of Losses	Disaster Year		Year 1	Year 2	TOTAL (Kips)	
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL						



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Table 3 Summary of damage and losses in a district

Name of District:

Tourism Firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
Firm 1								
Firm n								
Cultural site 1								
Cultural site n								
Natural formation 1								
Natural formation n								
Others								
TOTAL								



Table 4 Summary of damage and losses in the province

Name of Province: Khammouane

Tourism Firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
District:								
Firm 1								
Firm n								
Cultural site 1								
Cultural site n								
Natural formation 1								
Natural formation n								
Others								
District:								
Firm 1								
Firm n								
Cultural site 1								
Cultural site n								
Natural formation 1								
Natural formation n								
Others								
TOTAL								



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Matrix 1 Impacts of identified post-disaster projects

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Urgent repair or replacement of structures, equipment and machinery									
Procurement of vital supplies									
Cleaning operations									
Others									

Table 5 Summary of recovery and reconstruction needs in the tourism sector

Name of Projects Needed for Recovery and Reconstruction	Amount Needed
	(Kips)
Recovery Needs	
a. Urgent repair or replacement of equipment and machinery	
b. Procurement of vital supplies	
c. Cleaning operations	
d. Tourism promotion	
e. Others (Specify)	
Total	
Reconstruction Needs	
a. Replacement or reconstruction of affected structures	
b. Procurement of equipment and machinery	
c. Technical assistance	
d. Relocation	
e. Mitigation measures	
f. Others	
Total	
GRAND TOTAL	



Table 6 Summary of recovery and reconstruction needs in the tourism sector

Recovery and Reconstruction Needs	Annual Needed Amount of Assistance (Kips)			Total Needs
	Disaster Year	Year 1	Year 2	(Kips)
Recovery Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Others				
TOTAL				
Reconstruction Needs				
a. Replacement or reconstruction of affected structures				
b. Procurement of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Mitigation measures				
f. Others				
Total				
GRAND TOTAL				

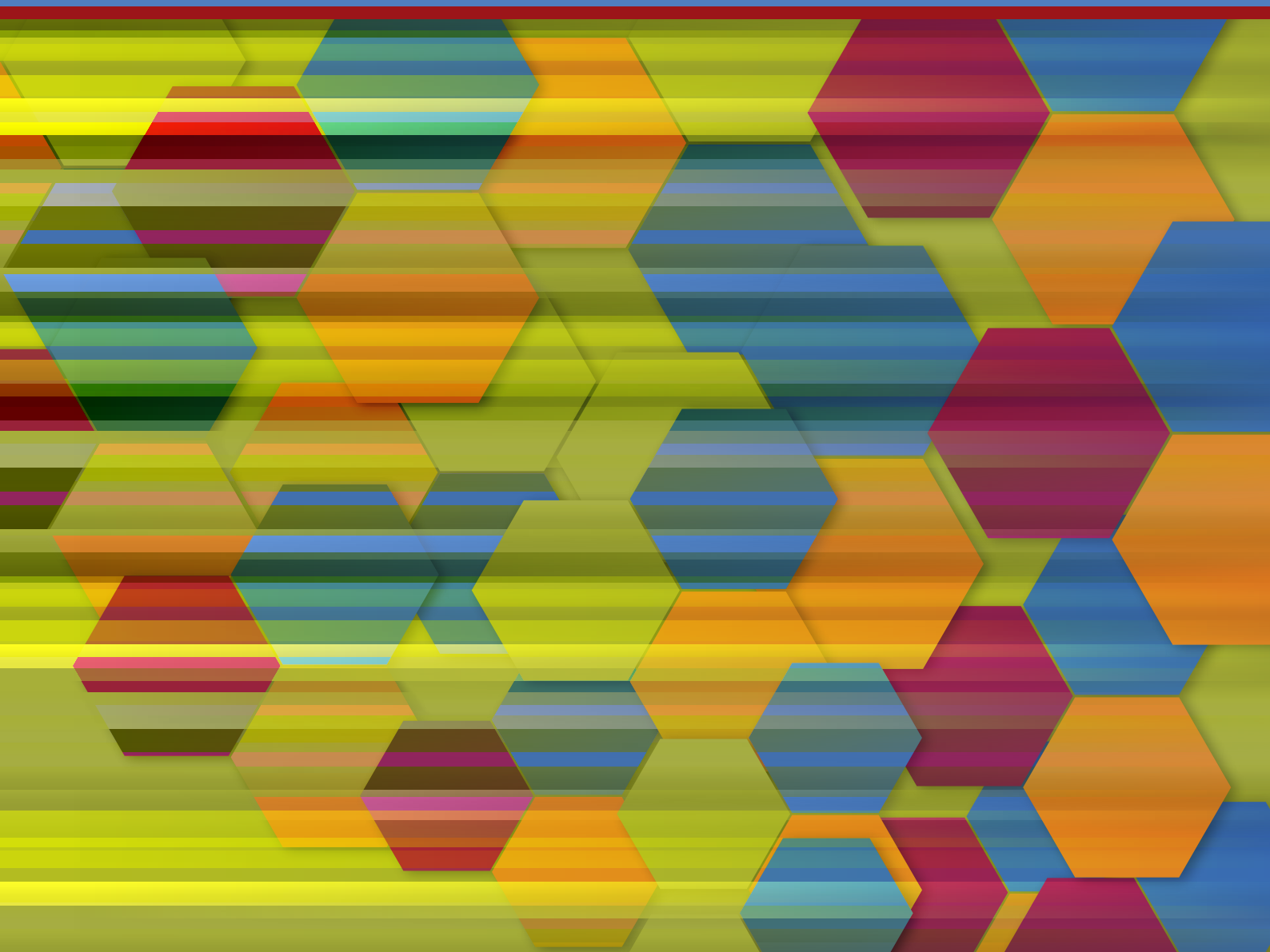


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Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

TRANSPORTATION SECTOR



Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC).



Government Agencies Responsible for the Transportation Sector in Khammouane

This Guidance Note is based on the GFDRR guidelines and the Lao National Guidelines and should be used by the Department of Public Works and Transportation (DPWT) of the Khammouane province in undertaking damage, loss and needs assessment of the Transportation Sector after a disaster. This sector is normally composed of the sub-sectors of land, air and water transport system. However, in the Khammouane province, there is no air or rail transport sub-sector.

The DPWT, in close coordination with the local district engineering offices as well as with other agencies and development partners involved in transportation sector, should be guided by this document in conducting post-disaster damage, loss and needs assessment in the province.

Provincial roads and bridges, and water transport systems, should be directly assessed by the province while roads and bridges, and water transport systems under the ownership and responsibility of the districts should be assessed by the local engineers in coordination and consultation with provincial engineers.

Since the DALNA makes estimations of the value of affected physical assets and of changes in the economic flows (income and expenditures), the team should include architects and engineers, transport professionals and economists. It should also include other professionals that are well acquainted with the assessment methodology and with the socio-economic conditions of the affected areas.

For a DALNA initiated by the province of Khammouane, a suggested assessment team composition is found below:

Personnel	Role in the Transportation Sector DaLNA
Staff from Offices of the Khammouane Department of Public Works and Transport (road and bridge engineers; Transport professionals; transport economist and finance personnel)	Lead and coordinate
Staff from national Department of Public Works and Transport (road and bridge engineers; Transport professionals; transport economist and finance personnel)	Participate and provide technical advice
Staff from affected-district Department of Public Works and Transport (road and bridge engineers; Transport professionals; transport economist and finance personnel)	Provide damage and loss information and facilitate assessment
Development partners (if active in the Transport Sector in Khammouane)	Participate and provide technical advice
Transport professionals in Khammouane (private road and bridge engineers; contractors; etc.)	Participate and provide technical advice



Concepts and Definitions

Damages

Damages are valued as:

1. The replacement cost of totally destroyed assets; and/or
2. The cost of repair of partially damaged physical assets and infrastructure.

Such infrastructure are:

- a. For land transport – all types of roads, bridges and other similar structures like culverts, dikes, which are part of the land transportation system.
- b. For water transport - Ports, inland waterways, ferries and other assets.
- c. Equipment and machineries for both land and water transport like machineries, vehicle stock, boats, etc.
- d. Transportation infrastructures like bus terminals, offices, etc.
- e. Materials and supplies. Construction materials and other stocks such as paper, books, furniture, research works and other collections must also be included under this heading.

Damages in transport sector will occur at the time of, or shortly after the disaster although some damages may become obvious only after a longer period. Damages are measured in physical terms (such as kilometers of roads, number of equipment) for which the monetary repair or replacement value is subsequently estimated.



Losses

Losses are the values due to the change in economic flows (income and expenditures) during the period of recovery and reconstruction following the disaster. In the transport sector, losses will include the following:

1. Urgent expenditures. The amount of money spent to re-establish traffic flows after transport assets have been affected like the cost of temporary Bailey-type bridges, detours, the cost of dredging river channels to enable boats vessels to dock, etc.;
2. Higher cost of transport. The additional expenses of people due to the use of alternative, longer and lower quality roads over the recovery and reconstruction period;
3. Losses in revenue of public and private enterprises. The foregone income when transport services, like buses, tuktuks, ferry/boat lines, are disrupted.
4. Other unexpected expenditures that may arise due to the disaster like clearing of debris.

Losses will take place during the entire period of recovery and reconstruction of the sector and may stretch even beyond the year that the disaster occurred. It is expressed in monetary value at current prices.

It should be noted that:

- ✦ Losses that may be incurred when perishable food supply did not reach the markets on the appropriate time due to damages in the normal routes of transportation should be accounted for in the agriculture sector and not in the transport sector. The same will apply for other sectors who have incurred losses due to the damages of transportation facilities.



Steps in Conducting a Post-disaster DaLNA in the Transportation Sector

The following steps are to be undertaken for DaLNA in the Transportation Sector:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |
| Step 5 | Estimate recovery and reconstruction needs |
| Step 6 | Draft the implementation plan of the identified programs and projects |
| Step 7 | Draft the post-disaster damages, losses and needs (DaLNA) of the sector |

These procedures for each Step are provided in the following sections.

In conducting a DALNA in the transportation sector, the following steps should be followed. Each template table should be completed for every disaster-affected district in Khammouane.

Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for each of the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

A. Roads and Bridges

For the DPWT, the following table can be used as baseline information for roads and bridges.

Table 1 Baseline information for roads and bridges in districts									
Name of City or District:									
Type of Roads	Total Length of Road by classification (in Kilometers)					Average Replacement Cost	Average Repair Cost	Average Number of Users per Month	
	N.R.	P.R.	D.R.	Others	Remark	(Kips/Km)	(Kips/Km)	Persons	Vehicles
a. Concrete									
b. Bitumen									
c. Graveled									
d. Earth									
Type of Bridges	Number of Bridge belong to Road classification					Average Replacement Cost	Average Repair Cost	Average Number of Users per Month	
	N.R.	P.R.	D.R.	Others	Remark	(Kips/Km)	(Kips/Km)	Persons	Vehicles
a. Steel									
b. Concrete									
b. Concrete									
d. Others									

Notes in filling out Table 1.

- ✿ The following are the types of roads/bridges
 - NR/NB means national roads/national bridges
 - PR/PB means provincial roads/provincial bridges
 - DR/DB means municipal roads/municipal bridges
 - Others refer to those unclassified roads and bridges like footpaths
- ✿ Replacement costs are the actual costs if and when a similar road or bridge will be reconstructed while repair costs are the average normal costs of repairs.

B. Physical structures

For all agencies in the transportation sector, the following tables can be used in the baseline information.

Table 2 Baseline information for the related costs of structures

Name of district or city:					
Types of structures	Average Replacement Cost per Square Meter (Kips)	Average Repair Cost per Square Meter (Kips)			
		Roof	Wall	Floor	Others
a. Bus terminals					
b. River ports					
c. Transport Association					
d. Others					

Notes in filling out Table 2.

- ✿ The average construction and repair costs of roofs, walls, and floors are expressed on a per square meter basis (Kips/SqM).
- ✿ The 'average repair cost' refers the value in Kips normally spent to repair the various parts of the structures. 'Others' may include the average repair cost of electrical and plumbing, etc. which can be based on previous costs.
- ✿ All costs should be based on the pre-disaster values.

C. Equipment, machineries and supplies

The equipment, supplies and other assets of the agencies can be summarized in the following table

Table 3 Baseline information on the equipment, machineries and supplies

Name of City or District:			
Equipment and Supplies	Unit Costs (in Kips)		
	Average acquisition value per unit	Average replacement cost per unit	Average repair cost per unit
Heavy equipment			
a. Bulldozers			
b. Graders			
c. Loaders			
d. Trucks			
e. Others (Enumerate)			
Materials and supplies			
a. Construction materials			
b. Computers			
c. Others (Enumerate)			

Notes in filling out Table 3.

- ✦ The average acquisition cost is the mean value when the assets were procured.
- ✦ The average replacement cost is the mean value of the assets before the disaster.
- ✦ The average repair cost is the mean value when the assets are repaired before disaster.

D. Private and Public Types of Transportation

The baseline information on the transportation assets using the table below.

Table 4 General types of land and Water Transportation vehicles

Name of City or District:					
Types of transportation	Number		Average Replacement Cost (Kips/Unit)	Average Repair Cost (Kips/Unit)	Average Operating Cost (Kips/Km)
	Public	Private			
Land transportation					
a. Cars					
b. Motorcycles					
c. Bicycles					
d. Buses					
e. Tuk tuks					
f. Trucks					
g. Others					

Water Transportation					
a. Boats					
b. Ferries					
c. Others					

Notes in filling out Table 4.

- ✦ The 'Average replacement cost', 'Average repair cost' and 'Average Operating Costs' refer to the types of the assets at pre-disaster prices or values.

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses in the sector/sub-sector are accurate to the extent possible.* The assessment of roads should include all of their components like culverts, ditches, dikes, etc. Both public and private damages and losses must be included in the assessment.

Step 2.1. Estimate the damages to assets and facilities owned by the Government

The post disaster assessments should be done per district. The assessment team can use the following tables in assessing the damages.

A. Roads and bridges

Table 5 Damages to roads and bridges in a district						
Name of District:						
Estimated Damages						
Damaged Assets	Totally Destroyed		Partially Damaged		Total	Average Time to Repair
	Quantity	Total (Kips)	Quantity	Total (Kips)	(Kips)	Days
	A	B	C	D	E	F
Roads (in Kilometers)						
a. Concrete						
b. Bitumen						
c. Graveled						
d. Earth						

Bridges (in Meters)						
a. Steel						
b. Concrete						
c. Wood						
d. Others						

Notes in filling out Table 5.

- ✦ The values in the baseline information should be used in estimating damages. For example, if 20 kilometers of the road are partially destroyed, the damage will be the cost of repair per kilometer multiplied by 20 kilometers. On the other hand, if the whole stretch of the road is totally destroyed, the value of damage will be its replacement cost at post-disaster (current) prices.
- ✦ The total for the totally destroyed (or partially damaged) assets will be the total number multiplied by the replacement cost (or average repair cost). The average replacement and repair costs are in the baseline information.
 - Column B = (Column A) x replacement cost
 - Column D = (Column C) x repair cost
- ✦ In formula, 'Total damages' Column E will be: = (Column B) + (Column D)
- ✦ The average time to repair refers to the time to restore the affected structures to their pre-disaster levels. This will give an indication on the number of days before normal services will be restored.

B. Structures, Equipment and Other Machineries

The damage to government structures, equipment and the assets of government-owned transport companies, among others, should be assessed. The concerned government officials in charge of public transport facilities and public transport, like bus and boat operators, should be interviewed by the assessment team. The damages can be summarized in the following table.

Table 6 Damages to government assets in a district						
Name of City or District:						
Estimated Damages						
Damaged Assets	Totally Destroyed		Partially Damaged		Total	Average Time to Repair
	Quantity	Total (Kips)	Quantity	Total (Kips)	(Kips)	Days
	A	B	C	D	E	F
Structures						
a. Terminals						
b. Buildings						
c. Others						

Moving Assets						
a. Cars						
b. Motorcycles						
c. Buses						
d. Tuktuks						
e. Boats						
f. Ferries						
g. Heavy equipment						
h. Others						
Equipment						
Machineries						
Other assets						
TOTAL						

Notes in filling out Table 6.

- ✦ The values in the baseline information should be used in estimating damages. For example, if 20 square meters of the roof are damaged, the repair cost will be the cost of roofing per square meter multiplied by 20 square meters. On the other hand, if the whole structure is totally destroyed, the value of damage will be its replacement cost at post-disaster prices.
- ✦ The total for the totally destroyed (or partially damaged) assets will be the total number multiplied by the replacement cost (or average repair cost). The average replacement and repair costs are in the baseline information.
 - Column B = (Column A) x replacement cost
 - Column D = (Column C) x repair cost
- ✦ In formula, 'Total damages' Column E will be: = (Column B) + (Column D)
- ✦ The average time to repair refers to the time to restore the affected structures to their pre-disaster levels. This will give an indication on the number of days before normal services will be restored.

Step 2.2. Estimate the losses to the Government-owned transportation firms

The government-owned transport firms may suffer losses due to the damages to its assets as well as other unexpected expenditures. After getting the information on damages during the interview of the government-owned transportation officials, the DPWT assessment should continue the interview to get the estimated losses. These concerned officials can estimate the losses of their respective firms more accurately. The interview of these officials should ask the following questions about their losses:

- a. Is there a reduction in income after the disaster? If there is, how much? What is the expected reduction in income for the year the disaster occurred and the next two years?
- b. Is there an increase in the operating and maintenance costs after the disaster? If there is, how much? What is the expected increase in operation and maintenance for the year the disaster occurred and the next two years?

- c. Were there unexpected expenses after the disaster like cleaning up of debris and others? If there were, how much was spent for them?

Table 7 Losses of the public transport sector				
Losses (in Million Kips)				
Sources of Losses	Disaster Year	Year 1	Year 2	Total
a. Foregone income				
b. Cleaning up of debris				
c. Higher operating costs				
d. Other unexpected expenses				
TOTAL				

Step 2.3. Estimate the damages and losses of the private sector

For private sector damages and losses, the DPWT assessment can use a questionnaire which should be used by the assessment team members in interviewing the officials of the private sector businesses like bus companies, boat operators, etc. or associations of transport organizations. The owners of private firm/s like bus companies can estimate the damages of their respective firms more accurately. Moreover, considering that some of the damages may cover a wide area that may be inaccessible to the assessment team, the officials of the firm/s can get the data quicker through their people in the field.

Damages to vehicles of private individuals can be sourced through interviews with local officials in the affected villages. Losses to private vehicle owners will in the form of higher operating and maintenance costs. The following questionnaire can be used. The private firms must include all their assets that were destroyed and damaged.

The information that will be gathered from the survey should be consolidated by the assessment team as the private sector damages and losses.

Questionnaire 1 Damages and losses of the private sector						
Name of District:						
Name of Transport Company:						
Estimated Damages						
Assets	Totally destroyed		Partially damaged		Total (Kips)	Average Time to Repair (Days)
	Quantity	Total Estimated Replacement Cost (Kips)	Quantity	Total Estimated Replacement Cost (Kips)		
	A	B	C	D		
Structures						
a. Buildings						
b. Others						
Moving assets						
a.						
b.						
Equipment						
a.						
b.						
Machineries						
a.						
b.						
Others						
a.						
b.						
TOTAL DAMAGES						
Estimated Losses						
Sources of Losses	Disaster Year	Year 1	Year 2	Total		
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL LOSSES						

Step 2.4. Summarize the damages and losses in a district

After securing the information from the public and private sectors, the total value of damages and losses can be estimated by the DPWT.

Damages

The damages in a district can be summarized in the table below. Roads and bridges are assumed to be government-owned. This uses the data in Tables 1-6.

Table 8 Value of damages in a district								
Name of City or District:								
Type of structures	Totally destroyed		Partially damaged			Total Damages	Average Time to Repair	
	Length	Value of Damages	Length	Value of Damages				
Land Transport	Kilometers	(Kips)	Kilometers	(Kips)		(Kips)	Days	
Roads								
a. Concrete								
b. Bitumen								
c. Graveled								
d. Earth								
Total							N.A.	
Bridges								
a. Steel								
b. Concrete								
c. Wood								
d. Others								
Total							N.A.	
Other Assets								
	Totally destroyed		Partially damaged			Total Damages (Kips)	Average Time to Repair	
	Units		Units		Value of Damages (Kips)			
	Public	Private	Value of Damages (Kips)		Public	Private	Value of Damages (Kips)	
Land transport	A	B	C	D	E	F	G	H
Equipment								
a.								
b.								
Structures								
a. Offices								
b. Others								

Vehicles								
a. Cars								
b. Motorcycles								
c. Busses								
d. Tuktuks								
e. Heavy equipment								
f. Others								
Water transport								
Structures								
a. Port								
b. Others								
Sea crafts								
a. Boats								
b. Others								
Equipment								
a.								
b.								
c. Others								
GRAND TOTAL OF DAMAGES (in Kips)								

Losses

Losses can occur a year or even years after the disaster occurred. The value of losses can be summarized in the following table which shows estimates even those that can be experienced 2 years after a disaster.

Table 9 Name of City or District							
Name of City or District							
Sub-sector	Losses in (Kips)						
	Disaster Year		Year 1		Year 2		Total
	Public	Private	Public	Private	Public	Private	
Land transport							
a. Foregone income							
b. Cleaning up of debris							
c. Higher operating costs							
d. Other unexpected expenses							
Total							

Water transport							
a. Foregone income							
b. Cleaning up of debris							
c. Higher operating costs							
d. Other unexpected expenses							
Total							
TOTAL LOSSES							

Step 2.5 Summarize damages and losses in the province

Once the summary of damages and losses for each affected district has been filled out, the information should be used to summarize the damages and losses at the provincial level like the table below.

Table 10 Summary of damage and losses in the transportation sector in Khammouane								
Name of Province: Khammouane								
Name of District	Within the Disaster Year (in Kips)				Losses Beyond Disaster Year (in Kips)			
	Damages		Damages		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
District 1:								
a. Roads								
b. Bridges								
c. Equipment								
d. Vehicles								
e. Others								
District 2:								
a. Roads								
b. Bridges								
c. Equipment								
d. Vehicles								
e. Others								
District X:								
a. Roads								
b. Bridges								
c. Equipment								
d. Vehicles								
e. Others								
TOTAL								

Again, the following must be remembered:

- a. Roads and bridges are assumed to be owned by the government, thus the damages and losses are public in nature. Damages are the cost of repair or replacement while losses will be mostly in terms of unexpected expenses of the government like constructing temporary bailey bridges, detours, etc.
- b. Losses of the private sector are the foregone income and higher operating costs of public transport like bus companies, tuktuks and boats as well as their unexpected expenses like cleaning of debris, etc. Private vehicle owners will incur losses in terms of higher operating and maintenance costs of their vehicles due to damaged roads and bridges.

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting across the sub-sectors, a meeting among the assessment team members should be held. This can be organized and facilitated by the team leader of the DPWT in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members for both land and water transport can share their collected data, issues and experiences in the field, among others.

The road engineers must check that the data they have collected are not counted in the water transport sub-sector.

At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below – refer to the document “Standard Operating Procedure (SOP) for DaLNA”, No. 11.

Validation meeting sessions may include:

- ✦ Opening remarks from the DPWT Head
 - Each sub-sector (land and water transport that conducted damage and loss assessment) briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)
- ✦ Recommendations from damage and loss assessment results
- ✦ DPWT Head / Secretariat presents:
 - Summary of damages and losses based on each sub-sector’s reports
 - Recommendations to resolve data validation problems (if any)
 - Next steps in the DaLNA process
 - Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DALNA from the field to avoid duplication and double counting across sectors. Refer to the document “Standard Operating Procedure (SOP) for DaLNA”, No. 12.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of each of the sub-sectors (land and water) of the transport sector must be able to analyze the broad impacts of the damages and losses to the people, local economy and the environment, among others. The impact assessments should be done by the people who undertook field assessment and the overall impacts should be consolidated by the DPWT. These impacts should be included in the post-disaster DALNA report that will be submitted to the PDMC. The assessment team should assess the impacts in relation to, among others:

- ❖ The additional costs to businesses of damaged roads, bridges, and ports.
- ❖ The impact on the poor on the potential increase in transportation fares.
- ❖ Potential food shortages if the roads or bridges are the main access to delivery of food supply;
- ❖ Possible losses of jobs in the sector if structures are not repaired immediately.

To the extent possible, the assessment team must also provide an analysis of impacts on personal or household situation especially on women, children, the elderly and other vulnerable groups. These effects can be:

- ❖ The hardships in commuting for persons with disabilities;
- ❖ The increased danger of broken roads and bridges for women, children and the elderly, etc.;
- ❖ Loss of access to health and educational facilities.

Lastly, there may be some DRR and environmental issues that may surface as a result of a disaster. For instance, the vulnerability of other bridges that were not damaged may have increased due to the erosion of the roads leading to these bridges. Such issues must also be included in the impact assessment. The following example of a matrix can be used in identifying impacts.

Matrix 1 Broad post-disaster impacts				
Broad impacts of damages to the transport sector	Assessment of Impact			
	Severe	Low	Possible	No data
1. Additional costs to businesses and prices				
2. Increase in transportation fares				
3. Food shortages				
4. Losses of jobs				
5. Hardships in commuting for persons with disabilities				
6. Increased danger for commuters				

7. Loss of access to health and educational facilities, etc.				
8. Structural weakening of roads, bridges, ports, etc.				
9. Others				

Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if transport facilities are not immediately restored, the aggregate needs of the sector must be estimated. The DPWT must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify overall recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the DPWT assessment team must identify the strategies to be followed for recovery and reconstruction for the transport sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction¹. Some of the general strategies that could be considered include the following:

1. **Rapid rebuilding of people's livelihoods and accelerate the revitalization of the local economy.** After a disaster, there is a critical need for an early revival of production, trade and the creation of income and employment opportunities in support of people's own initiatives. The immediate restoration of livelihoods will avert food shortage (especially in agricultural province like Khammouane) and lessen the dependency of the people from outside aid.
2. **Restoring community safety.** Recovery must promote safety and security in the disaster-affected areas. Activities that will provide or promote the physical security of the people will facilitate the overall recovery process.
3. **Community Participation and Use of Local Knowledge and Skills.** The participation of the community in all process (identification, planning, design and implementation) of recovery activities will help ensure the acceptability of projects and optimize the use of local initiatives, resources and capacities.
4. **Focus on the most vulnerable and socially disadvantaged groups such as children, women, and the disabled.** Recovery programming needs to give priority to the most vulnerable groups, including female-headed households, children and orphans, and the poor, and take into account those with special needs, to avoid their being overlooked.

¹ Refer to the document "Standard Operating Procedure (SOP) for DaLNA", Step 16.

5. **Building Back Better (BBB).** Design recovery activities based on BBB principles will promote longer-term disaster risk reduction and management.
6. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
7. **Coordinated and coherent approaches to recovery.** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.
8. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. For instance, there may be some cases where demand for services will be reduced if out-migration of disaster affected population will occur. On the other hand, it should be clear how assistance to the recovery of the private sector will be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.
9. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected, through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy in the sector as soon as possible and transportation is one of the very important sector that will expedite a quick recovery. Thus, the transportation sector in Khammouane must ensure that transport services will be normalized as soon as possible.

In accordance with the general strategies for recovery, some of the possible activities are:

- ✿ Urgent restoration of at least minimum traffic flows through destroyed road sections and the acquisition and installation of Bailey-type bridges, in which cash-for-work schemes may play a very important role.
- ✿ Dredging of port and river navigation channels, to ensure a minimum of access and traffic flow after floods or other similar disasters.
- ✿ Procurement of important equipment and machinery needed for urgent repairs and restorations.
- ✿ Cash assistance for clearing of debris and for overtime pay, as necessary.

The cost of emergency repairs will be determined by the need of the people, extent of destruction and the availability of necessary equipment and manpower, among others. For the public transport system, the government budget is normally utilized. To the extent possible, the repair of structures must be in accordance with the 'Building Back Better' principle in the recovery and reconstruction strategy.

Step 5.3. Estimate reconstruction needs

Reconstruction needs are generally long-term in nature (3 years or more) and are intended to 'build back better' from the ruins of a disaster. It is to be noted that reconstruction activities should include both public as well as private transport businesses and may require different types of financing strategy. Possible reconstruction related activities in the transport sector could include the following:

- ✿ Reconstruction and repair of public roads, bridges, ports and land transport stations under a building-back-better strategy to ensure future disaster resilience through the adoption and enforcement of improved construction standards.
- ✿ Cost of replacing equipment and machinery that were destroyed may be included in the reconstruction needs, unless they have been covered under the recovery needs to provide temporary transport services for the affected area.
- ✿ Structural retro-fitting of undamaged or partially damaged transport facilities so that they are not affected by disasters in the future. The costs for such a scheme must be estimated on an ad hoc basis, for which architects and civil engineers would need to define the new standards up to which retro-fitting should aim and the estimated funding required for it.
- ✿ Relocation of vital transport facilities to safe areas, as necessary. In this case, the additional costs land acquisition, and basic services provision (water, sanitation, electricity, etc.) should be included.
- ✿ Soft-term credit for reconstruction and repair of private transport businesses. Such schemes can be accompanied by technical assistance for improved disaster resilient standards of construction.

Step 5.4. Prioritize identified projects for recovery

Among the projects identified, relative priorities can be set in order to determine which among them are the more important. Based on the broad strategies for recovery, the DPWT assessment team should select the priority projects/activities among the total identified needs. The prioritization can be made by using a set of impact indicators and the level by which the projects can achieve said impacts. The following criteria as indicated in the guidelines for the PDRF, can be used among others, to prioritize or rank the proposed post-disaster projects:

1. The greatest social and economic impact, which is to be evaluated in terms of the relative cost of not undertaking reconstruction or rehabilitation.
2. The biggest pro-poor impact, such that sub-projects in poorer Kumbans will be given a higher priority than sub-projects located in better-off Kumbans.
3. Whether there is a strong likelihood that an adequate budget and appropriate provisions will be made to cover the operations and maintenance (O&M) of the reconstructed infrastructure item.

The criteria above can be placed in a matrix like the one below where the impacts are ranked according to low, medium or high. This matrix can show the relative benefits of proposed projects to the people in the affected areas which, in turn, will inform and assist the government of Khammouane (or the PDMC) in determining the priority projects within the sector.

Matrix 2 Impacts of identified post-disaster projects									
Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Repair of Bridge A									
Repair of Road 1X									
Others									

The DPWT assessment team must prepare the above matrix based on the strategies identified by the PDMC. The matrix must include all the relevant and important impact indicators that they would like to use in prioritizing recovery projects.

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the DPWT assessment team identifying the post-disaster projects for the recovery and reconstruction. It should be noted that assistance to vital transportation assets and facilities owned by the private sector, which is normally extended as credit, is purely based on the decision of the government. The following table can be used.

The contents of Table 11 is a summary of identified priority needs in the transport sector which includes all the projects from the different districts. The DPWT must maintain a separate copy of the identified needs for each district.

Table 11 Summary of recovery and reconstruction needs in the transport sector	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed
	(Kips)
Recovery Needs	
a. Urgent restoration of access roads and bridges	
b. Urgent restoration of ports	
c. Procurement of vital equipment and machinery	
d. Cleaning operations	
e. Overtime payments	
f. Others (Specify)	
g. Credit assistance to the private transport sector	
Total	
Reconstruction Needs	
Reconstruction and repair of:	
a. Roads	

b. Bridges	
c. Ports	
d. Land transport stations	
e. Others	
Procurement of:	
a. Equipment	
b. Machinery	
c. Others	
Structural retrofitting	
Relocation of vital facilities	
Others (specify)	
Total	
GRAND TOTAL	

Notes in filling out Table 11

- ✦ Project titles can be inserted under the column on recovery and reconstruction needs.

Step 5.6. Provide all the districts a copy of the list of projects identified as priorities by the DPWT

The Head of the DPWT assessment team should inform all the districts covered by the DALNA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.
2. Plot the timeline of activities of all the projects, with the urgent ones on top, with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.

4. To the extent possible, a logical framework (Log frame) should be created for each of the project proposed for inclusion in the recovery plan. Log frames are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 11 Summary of recovery and reconstruction needs in the transport sector						
Recovery and Reconstruction Needs	Annual Needed Amount of Assistance (Kips)					Total Needs
	Disaster Year	Year 1	Year 2			(Kips)
Recovery Needs						
Urgent repairs of:						
a. Roads						
b. Bridges						
c. Ports						
d. Terminals/stations						
e. Others (enumerate)						
Emergency procurement of:						
a. Equipment						
b. Machineries						
c. Others (enumerate)						
Other urgent expenditures						
a. Overtime payments						
b. Cleaning operations						
c. Others (Specify)						
d. Credit to the private sector						
Total						
Reconstruction Needs						
Reconstruction of:						
a. Roads						
b. Bridges						
c. Ports						
d. Land transport stations						
e. Others (specify)						
Procurement of:						
a. Equipment						
b. Machinery						
c. Others (enumerate)						

Structural retrofitting						
Relocation of vital facilities						
Others (specify/enumerate)						
Total						
GRAND TOTAL						

Note for filling up Table12

✦ Project titles can be inserted under the column on recovery and reconstruction needs

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) of the sector

With all the information gathered using the previous steps, a report for the transportation sector can be drafted by the DPWT and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the transport sectors in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the transportation sector in the disaster-affected areas.
2. Damages in the transportation sector by areas and by types of facilities affected.
3. Losses in the transportation sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the transportation sector of Khammouane.
6. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report of the DPWT for the transportation sector should be submitted to the PDMC for integration into the overall post-disaster DALNA (PDNA) report for the province which should contain the other similar DALNA reports of the other sectors. The final DALNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DALNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.

ANNEX
PHOTOCOPY TEMPLATE



Table 1 Baseline information for roads and bridges in districts

Name of City or District:									
Type of Roads	Total Length of Road by classification (in Kilometers)					Average Replacement Cost (Kips/Km)	Average Repair Cost (Kips/Km)	Average Number of Users per Month	
	N.R.	P.R.	D.R.	Others	Remark			Persons	Vehicles
a. Concrete									
b. Bitumen									
c. Graveled									
d. Earth									
Type of Bridges	Total Length of Road by classification (in Kilometers)					Average Replacement Cost (Kips/Km)	Average Repair Cost (Kips/Km)	Average Number of Users per Month	
	N.R.	P.R.	D.R.	Others	Remark			Persons	Vehicles
a. Steel									
b. Concrete									
c. Wood									
d. Others									

Table 2. Baseline information for the related costs of structures

Name of district or city:					
Types of structures	Average Replacement Cost per Square Meter (Kips)	Average Repair Cost per Square Meter (Kips)			
		Roof	Wall	Floor	Others
a. Bus terminals					
b. River ports					
c. Transport Association					
d. Others					

Table 3 Baseline information on the equipment, machineries and supplies

Name of City or District:			
Equipment and Supplies	Unit Costs (in Kips)		
	Average acquisition value per unit	Average replacement cost per unit	Average repair cost per unit
Heavy equipment			
a. Bulldozers			
b. Graders			
c. Loaders			
d. Trucks			
e. Others (Enumerate)			
Materials and supplies			
a. Construction materials			
b. Computers			
c. Others (Enumerate)			



Table 4 General types of land and Water Transportation vehicles

Name of City or District:					
Types of transportation	Number		Average Replacement Cost (Kips/Unit)	Average Repair Cost (Kips/Unit)	Average Repair Cost (Kips/Unit)
	Public	Private			
Land transportation					
a. Cars					
b. Motorcycles					
c. Bicycles					
d. Buses					
e. Tuk tuks					
f. Trucks					
g. Others					
Water Transportation					
a. Boats					
b. Ferries					
c. Others					

Table 5 Damages to roads and bridges in a district

Name of District:						
Estimated Damages						
Damaged Assets	Totally Destroyed		Partially Damaged		Total (Kips)	Average Time to Repair Days
	Quantity	Total (Kips)	Quantity	Total (Kips)		
	A	B	C	D	E	F
Roads (in Kilometers)						
a. Concrete						
b. Bitumen						
c. Graveled						
d. Earth						
Bridges (in Meters)						
a. Steel						
b. Concrete						
c. Wood						
d. Others						



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TRANSPORTATION SECTOR

Table 6 Damages to government assets in a district

Name of City or District:

Estimated Damages

Damaged Assets	Totally Destroyed		Partially Damaged		Total (Kips)	Average Time to Repair Days
	Quantity	Total (Kips)	Quantity	Total (Kips)		
	A	B	C	D	E	F
Structures						
a. Terminals						
b. Buildings						
c. Others						
Moving Assets						
a. Cars						
b. Motorcycles						
c. Buses						
d. Tuktuks						
e. Boats						
f. Ferries						
g. Heavy equipment						
h. Others						
Equipment						
Machineries						
Other assets						
TOTAL						

Table 7 Losses of the public transport sector

Losses (in Million Kips)

Sources of Losses	Disaster Year	Year 1	Year2	Total
a. Foregone income				
b. Cleaning up of debris				
c. Higher operating costs				
d. Other unexpected expenses				
TOTAL				



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Questionnaire 1 Damages and losses of the private sector

Name of District:

Name of Transport Company:

Estimated Damages

Assets	Totally destroyed		Partially damaged		Total (Kips)	Average Time to Repair (Days)
	Quantity	Total Estimated Replacement Cost (Kips)	Quantity	Total Estimated Replacement Cost (Kips)		
	A	B	C	D	E	F
Structures						
a. Buildings						
b. Others						
Moving assets						
a.						
b.						
Equipment						
a.						
b.						
Machineries						
a.						
b.						
Others						
a.						
b.						
TOTAL DAMAGES						
Estimated Losses						
Sources of Losses	Disaster Year		Year 1		Year 2	Total
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL LOSSES						



TO PHOTOCOPY

TRANSPORTATION SECTOR

Table 8 Value of damages in a district

Name of City or District:

Type of structures	Totally destroyed		Partially damaged		Total Damages (Kips)	Average Time to Repair Days		
	Length	Value of Damages	Length	Value of Damages				
Land Transport	Kilometers	(Kips)	Kilometers	(Kips)				
Roads								
a. Concrete								
b. Bitumen								
c. Graveled								
d. Earth								
Total						N.A.		
Bridges								
a. Steel								
b. Concrete								
c. Wood								
d. Others								
Total						N.A.		
Other Assets	Totally destroyed		Partially damaged		Total damages (Kips)	Average Time to Repair		
	Units		Units					
		Public	Private	Value of Damages (Kips)	Public	Private	Value of Damages (Kips)	
Land transport	A	B	C	D	E	F	G	H
Equipment								
a.								
b.								
Structures								
a. Offices								
b. Others								
Vehicles								
a. Cars								
b. Motorcycles								
c. Buses								
d. Tuktuks								
e. Heavy equipment								
f. Others								
Water transport								
Structures								
a. Port								
b. Others								



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Sea crafts								
a. Boats								
b. Others								
Equipment								
a.								
b.								
c. Others								
GRAND TOTAL OF DAMAGES (in Kips)								

Table 9 Value of losses in a district

Name of City or District:

Sub-sector	Losses in (Kips)						
	Disaster Year		Year 1		Year 2		Total
	Public	Private	Public	Private	Public	Private	
Land transport							
a. Foregone income							
b. Cleaning up of debris							
c. Higher operating costs							
d. Other unexpected expenses							
Total							
Water transport							
a. Foregone income							
b. Cleaning up of debris							
c. Higher operating costs							
d. Other unexpected expenses							
Total							
TOTAL LOSSES							



TO PHOTOCOPY

TRANSPORTATION SECTOR

Table 10 Summary of damage and losses in the transportation sector in Khammouane

Name of Province: Khammouane

Name of District	Within the Disaster Year (in Kips)				Losses Beyond Disaster Year (in Kips)			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
District 1								
a. Roads								
b. Bridges								
c. Equipment								
d. Vehicles								
e. Others								
District 2								
a. Roads								
b. Bridges								
c. Equipment								
d. Vehicles								
e. Others								
District X								
a. Roads								
b. Bridges								
c. Equipment								
d. Vehicles								
e. Others								
TOTAL								

Matrix 1 Broad post-disaster impacts

Broad impacts of damages to the transport sector	Assessment of Impact			
	Severe	Low	Possible	No data
1. Additional costs to businesses and prices				
2. Increase in transportation fares				
3. Food shortages				
4. Losses of jobs				
5. Hardships in commuting for persons with disabilities				
6. Increased danger for commuters				
7. Loss of access to health and educational facilities, etc.				
8. Structural weakening of roads, bridges, ports, etc.				
9. Others				



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Matrix 2 Impacts of identified post-disaster projects.

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low

Table 11 Summary of recovery and reconstruction needs in the transport sector

Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)			
Recovery Needs				
a. Urgent restoration of access roads and bridges				
b. Urgent restoration of ports				
c. Procurement of vital equipment and machinery				
d. Cleaning operations				
e. Overtime payments				
f. Others (Specify)				
g. Credit assistance to the private transport sector				
Total				
Reconstruction Needs				
Reconstruction and repair of:				
a. Roads				
b. Bridges				
d. Land transport stations				
e. Others				
Procurement of:				
a. Equipment				
b. Machinery				
c. Others				
Structural retrofitting				
Relocation of vital facilities				
Others (specify)				
Total				
GRAND TOTAL				



TO PHOTOCOPY

Table 12 Summary of recovery and reconstruction needs in the transport sector

Recovery and Reconstruction Needs	Annual Needed Amount of Assistance (Kips)			Total Needs (Kips)
	Disaster Year	Year 1	Year 2	
Recovery Needs				
Urgent repairs of:				
a. Roads				
b. Bridges				
c. Ports				
d. Terminals/stations				
e. Others (enumerate)				
Emergency procurement of:				
a. Equipment				
b. Machineries				
c. Others (enumerate)				
Other urgent expenditures				
a. Overtime payments				
b. Cleaning operations				
c. Others (Specify)				
d. Credit to the private sector				
Total				
Reconstruction Needs				
Reconstruction of:				
a. Roads				
b. Bridges				
c. Ports				
d. Land transport stations				
e. Others (specify)				
Procurement of:				
a. Equipment				
b. Machineries				
c. Others (enumerate)				
Structural retrofitting				
Relocation of vital facilities				
Others (specify/enumerate)				
Total				
GRAND TOTAL				





Sectoral Damage, Loss and Needs Assessment (DaLNA)
in Khammouane Province, Lao PDR

WATER SUPPLY SECTOR



Developed under the Khammouane Development Project (KDP),
Implemented by the Department of Planning and Investment, Thakhek, Khammouane Province





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Trigger for a Damage, Loss, and Needs Assessment (DaLNA)

As per the Lao National Guidelines a full damage, loss and needs assessment (DaLNA) should be conducted when a national state of calamity is declared by the National Disaster Management Committee (NDMC). However, in the case of a local disaster which affects several districts, Khammouane province may decide to conduct DaLNA in one or more sectors. This request is made from the Provincial Governor's Office, and coordinated by the Provincial Disaster Management Committee (PDMC). The following are the key persons in conducting a DaLNA.

Personnel	Role in the DaLNA
Staff from Division of Urban Water Supply (DUWS) of the DPWT of the Khammouane Province for piped water supply systems and staff from Department of Public Health for rural water supply (water supply experts, hydrologists, procurement specialists, engineers and finance personnel)	Lead and coordinate
Staff from national Housing and Urban Development Planning	Participate and provide technical advice
Staff from the affected district/s engaged in urban and rural water supply	Provide damage and loss information and facilitate assessment
Development partners (if active in the Water Sector in Khammouane)	Participate and provide technical advice



Concepts and Definitions

Water supply Sector

The water supply sector can be grouped into two types, namely: a) the urban water supply where water is supplied to houses and offices etc. and fees are charged for the amount of water consumed per month; and b) the rural water supply systems which are mainly stand-alone or single wells where the people collect water without paying fees.

The commercial water supply sector which is under the Division of Urban Water Supply (DUWS) of the Department of Public Works and Transport (DPWT) is composed of the different types of water impounding, treatment and distribution systems like water collection and storage, pipelines for distribution, pumping stations, water treatment facilities, various equipment and other facilities used to supply water to households and other commercial or industrial entities. If sewerage disposal or treatment is part of the water supply, it should be considered as part

of the sector. The water supply company may be owned by the government or by private individuals or corporations. The rural water supply systems are generally constructed by the government under the Department of Public Health (DPH).

Damages

In the water supply sector, damages are cost of: a) repair of partially destroyed assets and/or b) replacement of totally destroyed assets and infrastructure. For the commercial water supply, damages can happen under each of the various sub-systems such as:

- ✿ Water generation, storage and supply
- ✿ Water distribution
- ✿ Waste water treatment

The following are the other types of assets in the commercial water sector:

- ✿ Structures such as office buildings, storage buildings, etc.
- ✿ Office equipment and machinery like computers, air conditioners, etc.
- ✿ Vehicles, tools, and stock materials and supplies, etc.

For the rural water supply, damages can occur when the wells, hand pumps and their support structures are totally or partially destroyed.

Damages occur at the time of, or shortly after the disaster and are to be measured in physical terms for which monetary replacement values are subsequently estimated.

Losses

Losses are the values in the change in economic flows (income and expenditures) during the period of recovery and reconstruction following the disaster. They are the current value of goods and services that were not and/or will not be produced over a time span due to the disaster until full recovery is attained. Losses will occur until full capacity and supply have been reestablished in all system components and/or user demand (in all sectors) has been restored to pre-disaster levels which can last during the entire period of reconstruction and recovery. Losses in the commercial water supply will include the following:

- ✿ Losses in revenues due to non-provision of water to the users during the period of rehabilitation and reconstruction.
- ✿ Foregone sales in water due to the decline in demand from consumers that have been affected by the disaster.
- ✿ Higher cost of chemicals and other inputs in ensuring the quality of drinking water.
- ✿ Higher water distribution costs when using tanker trucks to reach users.
- ✿ Higher cost due to more intensive operation of systems to compensate for water losses in damaged system components.
- ✿ Cost of cleaning of treatment plants and other sub-systems after flooding and removal of debris.

For the rural water supply where there are no fees charged to users, there are no losses in revenues. However, the government may incur losses if it will undertake cleaning operations and other activities to ensure the portability of the water source. Rural water supply systems are those used by the people that are not reached by the commercial water supply firms.

It should be noted, however, that manufacturers of bottled water and other similar industries are not under this sector. They should be considered under the commerce and industry sector.



General Steps in Conducting a Post-disaster Damage, Loss and Needs Assessment (DaLNA)

The following steps are to be undertaken for DaLNA:

- | | |
|--------|--|
| Step 1 | Collect and/or validate the baseline data for each of the disaster-affected district |
| Step 2 | Estimate damages and losses |
| Step 3 | Validate the information on damages and losses |
| Step 4 | Analyze the impacts of the damages and losses to affected population |
| Step 5 | Estimate recovery and reconstruction needs |
| Step 6 | Draft the implementation plan of the identified programs and projects |
| Step 7 | Draft the post-disaster damages, losses and needs (DaLNA) of the sector |

These procedures for each Step are provided in the following sections.



Detailed Steps in Undertaking Post-Disaster DaLNA in the Water Supply Sector

In conducting a DaLNA in the water supply sector, the following steps should be followed. Each template table should be **completed for every disaster-affected district in Khammouane**.

Step 1

Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled before the field assessment or, if possible, prior to the occurrence of disaster. The baseline data should be validated before the field visit to serve as the basis for the estimation of damages and losses for the disaster-affected area/s. This data can be compiled at the provincial office or at the district levels. The tables below can be used for the baseline information.

Table 1 Baseline information on assets in the commercial water supply sector

Name of water supply system:

Location:

Ownership	Public () Private ()								
Water Users and Supply	Water Demand Forecast (Liters per year) and Rates (Kips per Liter)								
	Current year			Year 1			Year 2		
	Users	Volume (L/Yr.)	Rate (Kips/L)	Users	Volume (L/Yr.)	Rate (Kips/L)	Users	Volume (L/Yr.)	Rate (Kips/L)
a. Residential									
b. Commercial									
c. Industrial									
d. Others									
Water supply structures	Total Capacity (Liters)		Operating cost (Kips/Liter)		Average Repair Cost (Kips)		Average Replacement Cost (Kips)		
a. Treatment plants									
b. Storage									
c. Distribution									
d. Other sub-systems									
Equipment	Average Replacement cost (Kips/ Equipment)				Unit Costs of Repair (Kips/Equipment)				
a.									
b.									
c.									

Notes for filling in Table 1.

- For the structures and equipment, the table can be expanded to include all the types of structures or buildings and equipment, especially those that are vital in the operation of the water supply system.
- Year 1 and Year 2 refer to the estimated water demand after the current year.

For the rural water supply system, the following table can be used for the baseline information

Table 2 Baseline information on rural water supply in a district				
Name of District:				
Type of Water Supply	Number by Ownership		Average construction cost	Average repair cost
	Public	Private	Kips	Kips
Type 1: Open well				
Type 2: Closed well with hand pump				
Type 3: Closed well with storage and electric water pump and tap stands				
Type 4: Others				

Notes for filling in Table 2.

- ✦ The number of each type of rural water supply in a district should be identified whether public or private in ownership.

Step 2

Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. *The assessment team from the province must work with their local counterparts in the district to ensure that the estimates for the damages and losses in the sector are accurate to the extent possible.* Direct interviews with the private firms and contractors or government officials involved in the construction and repair of facilities can also be conducted during the field trip in order to validate unit costs of repair and reconstruction (which is already contained in the baseline data).

It should be noted that since there is a possibility that only one water supply firm that provides water to a number of districts, caution should be exercised to avoid double counting. It is recommended that the assessment of damages and losses of the firm should be accounted for in the district where the main office is located. However, if the main office is located outside the disaster area, the assessment team must account for the damages and losses of the firm with an indication as to where such damages and losses occurred.

Step 2.1. Estimate the damages and losses to water supply facilities

Repair and replacement costs should be estimated for the damaged components of water supply firms. The time needed to reconstruct the damages should also be estimated. Aside from field visits to the disaster sites, the assessment team should interview the officers of the firm/s to ascertain the extent and value of

the damages and the estimated period before supply can be fully restored to the pre-disaster level. The officials and experts of the firm/s can estimate the damages of their respective firms more accurately. Moreover, considering that some of the damages may cover a wide area that may be inaccessible to the assessment team, the people in the firm/s can get the data quicker from their colleagues in the field.

The value of totally and partially damaged assets can be summarized in the following table which should be used in interviewing the officials of the water supply firm/s as a questionnaire.

Table 3 Value of totally damaged assets and losses to water supply system in a district						
Name of Water Firm						
Ownership	Public () Private ()					
Location	Name of District:					
Estimated Damages						
Damages to Structures and Assets	Totally destroyed		Partially damaged		Total Damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost (Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D		
Water Treatment						
1. Structures						
A. Buildings						
B. Treatment plants						
C. Others						
2. Equipment						
3. Machinery						
4. Others						
Storage						
1. Structures						
a. Buildings						
b. Storage tanks						
c. Others						
2. Equipment						
3. Machinery						
4. Others						
TOTAL						N.A.

Estimated Losses				
Type of Losses	Current year	Year 1	Year 2	total (Kips)
a. Foregone income				
b. Cleaning up of debris				
c. Higher operating costs				
d. Other unexpected expenses				
TOTAL				

Notes for filling in Table 3.

- ✿ The firm/s should fill out information appropriate to their assets. There are various machineries and equipment in the water supply systems. They should be assessed especially those that are vital to the operation.
- ✿ 'Average Replacement Cost' will be the average pre-disaster value of the structures and assets that were totally destroyed.
- ✿ 'Average Repair Cost' will be the average cost of repair of the structures and assets that were partially damaged.
- ✿ In formula, the total damages will be (Column E) = (Column A) x (Column B) + (Column C) x (Column D).

Rural water supply systems which are relatively simpler should be assessed separately. The following table can be used..

Table 4 Value of damages and losses in the rural water supply sector								
Name of District:								
Type of rural water supply	Totally destroyed			Partially damaged			Total damages (Kips)	Total Losses (Kips)
	Number of totally destroyed		Average Replacement Cost (Kips)	Number of partially damaged		Average Repair Cost (Kips)		
	A	B	C	D	E	F	G	H
	Public	Private		Public	Private			
Type 1								
Type 2								
Type 3								
Type 4								
Total								

Notes for filling in Table 4.

- ✿ The 'Average Replacement Cost' and the 'Average Repair Cost' are in the baseline information.
- ✿ In formula, the total damages will be (Column G) = [(Column A + Column B) X (Column C)] + [(Column D + Column E) X (Column F)].
- ✿ Losses will be the cost of water that is supplied by the government to the rural people. If the cost of temporary water supply according to the users of water supply type, the cost can be considered as a single cost to the government.
- ✿ It must be noted that the losses may extend beyond the year that the disaster occurred.

Step 2.2. Summarize the damages and losses in the sector in a district

Based on the survey of water supply firms companies, the damages and losses can be summarized in the following table.

Table 5 Summary of damages and losses in the district								
Name of District:								
Water Supply	Within the Disaster year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
Commercial water supply								
Firm 1								
Firm								
TOTAL								
Rural Water Supply								
Type 1								
Type 2								
Type 3								
Type 4								
TOTAL								
GRAND TOTAL								

Notes for filling in Table 5.

- 'Public' and 'private' refers to the ownership of the firm.
- The damages and losses should be accounted for under the type of ownership of the firm.
- Losses will be the cost of water that is supplied by the government to the rural people. It may extend beyond the year that the disaster occurred.

Step 2.3. Summarize damages and losses in the water supply sector in the province

Once the summary table for each affected district has been filled out, the information should be used to summarize the damages and losses at the provincial level. The summary table below can be used.

Table 6 Summary of damages and losses in the province

Name of District: Khammouane

Name of water firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
District:								
Commercial water supply								
a. Firm 1								
b. Firm n								
c.								
d.								
Rural Water Supply								
a. Type 1								
b. Type 2								
c. Type 3								
d. Type 4								
District:								
Commercial water supply								
a. Firm 1								
b. n								
c.								
d.								
Rural Water Supply								
a. Type 1								
b. Type 2								
c. Type 3								
d. Type 4								
TOTAL								

Step 3

Validate the information on damages and losses

In order to ensure the integrity of the data collected and that there is no double counting, a meeting among the assessment team members should be held. This can be organized and facilitated by the team leader of the DUWS and DPH in coordination with the PDMC. The meeting or workshop can be a one-day event where all the assessment team members share their collected data, issues and experiences in the field, among others. At the end of this meeting/workshop, all team members must have validated and reconciled their data collected from the field which will be the basis of the final value of damages and losses. Suggested activities of the validation meeting sessions are found below.

Validation meeting sessions may include:

- ✿ Opening remarks from the DUWS/DPH Head
- ✿ Each sub-team which assessed various districts or kumbans will briefly present:
 - Damage and loss assessment summary
 - Data validation problems (if any)
 - Recommendations from damage and loss assessment results
- ✿ DUWS/DPH Head / Secretariat presents:
 - Summary of damages and losses based on the reports
 - Recommendations to resolve data validation problems (if any)
 - Next steps in the DaLNA process
 - Close the meeting.

It should be noted that the above process will be repeated where the PDMC will organize a similar meeting with the other major sectors that undertook DaLNA from the field to avoid duplication and double counting across sectors.

Step 4

Analyze the impacts of the damages and losses to affected population

The assessment team of the water supply sector should analyze all potential impacts of the loss of water supply in relation to, among others:

- ✿ The possible effects on hospital operations, productivity, government services, etc, if water supply is not restored immediately.
- ✿ The additional costs to families if they will have to procure water from other sources.
- ✿ Possible losses of employment if the water supply sector will have to lay off workers.

- ❖ Potential adverse impacts to the production and employment of other industries if water supply is not restored.

Step 5

Estimate recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are likewise integrated. After analyzing the potential effects and impacts if no assistance will be provided to the sector, the aggregate needs of the sector must be estimated. The DUWS and DPH must have the list of programs and projects where the specific needs are detailed.

Step 5.1. Identify recovery and reconstruction strategies

Ideally, the provincial government should develop the overall strategy to be followed for recovery and reconstruction before the field assessment is undertaken to provide guidance to the teams. After the field assessment, the DUWS and DPH assessment teams must identify the strategies to be followed for recovery and reconstruction for the sector. These strategies should be presented for consideration during the meeting that will be convened by the PDMC with the other sector teams to discuss the overall final strategies that will be adopted for recovery and reconstruction. Some of the general strategies that could be considered for the water supply sector include the following:

1. **Building Back Better (BBB).** Design recovery activities based on BBB principles that will promote longer-term disaster risk reduction and management. BBB principle should also look at the how to make facilities safer from future disasters, the advantages of resettlement in disaster-safe areas instead of rebuilding in the same disaster-prone areas, etc.
2. **Secure development gains.** Recovery strategies, although may be a separate set of activities, must be supportive of existing development plans and must attempt to re-establish and secure previous development gains.
3. **Coordinated and coherent approaches to recovery.** Projects for disaster recovery must have the full and effective coordination among all involved agencies based on comprehensive information exchange, flexibility in administrative procedures, and uniformity of policies. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs. Under this strategy, capacity building activities for the local public administration may be part of the recovery activities including a well-defined monitoring and evaluation system for the overall implementation of the recovery plan.
4. **Efficient use of financial resources.** The overall strategy should also include the identification of fund sources that are suited for the recovery activities. It should be clear how assistance to the recovery of the private sector will be delivered. Also, some cheaper source of funds from international donor partners should be initially identified for longer-term expensive projects.
5. **Transparency and accountability.** The overall plan and implementation of projects for recovery must be transparent, especially to those affected,

through open and wide dissemination of information on all aspects of the recovery process.

Step 5.2. Estimate recovery needs

Recovery needs are intended to bring back normalcy in the sector as quick as possible. In the water supply sector, quick recovery efforts must be undertaken especially as a great number of people and businesses depend on it for their activities. Recovery activities should include those that will enable firms to resume their normal operations. To assist the sector, the DUWS can identify policy measures that will enable the firms to recover without necessarily using direct government budget to cover the costs required. There are certain options that can be implemented through policy measures to expedite recovery and reconstruction of the private sector. Among them are:

1. Income tax breaks for private firms such as:
 - a. Temporary reduction or freeze or deferment in the collection of tax;
 - b. Temporary freeze on basic service charges in the utilization of certain services over the time of the recovery phase;
 - c. Non-collection of property taxes for the duration of the recovery period;
 - d. Exemption from registration fees for replacements of the destroyed equipment and machinery over a certain period of time.
2. Subsidizing construction materials and equipment to be imported by private water firms during the recovery and reconstruction phase through an exemption from paying customs duties and other levies.

Some of the possible recovery-related activities in the water sector can include:

- ✿ Repairs of the damages to the storage and distribution systems which are normally affected by strong winds and floods. Among the repairs that may be required are clogged or busted pipes among others.
- ✿ Emergency procurement of vital equipment necessary to supply the needs of basic lifelines like hospitals, police and military needs, transportation, etc.
- ✿ Clearing of debris that may have affected the various sub-systems of the sector.
- ✿ Assistance to water users in checking or repairing their individual installations to assure safety after the disaster.
- ✿ Urgent repairs of the damages to the rural water supply sector especially those that are used by the poor people in remote areas. This will prevent the spread of water-borne diseases and lessen the cost to the government of providing temporary water supply.

Step 5.3. Estimate reconstruction needs

Reconstruction needs are generally long-term in nature (3 years and more) and are intended to 'build back better' from the ruins of a disaster. It is to be noted that reconstruction activities should include both public as well as private facilities and may require different types of financing strategies. It is to be noted that since the commercial water supply firms are revenue-generating enterprises, financing their needs can come through soft-term credit schemes for the reconstruction and repair of their damaged assets. Such schemes can be accompanied by technical

Urgent repairs of rural water supply systems									
Procurement of vital supplies									
Cleaning operations									
Others									

The projects identified by the assessment team must be included in the above matrix.

Step 5.5. Summarize the estimated recovery and reconstruction needs

Based on the estimated and prioritized recovery and reconstruction needs, a summary should be created by the DUWS assessment team identifying the post-disaster projects for recovery and reconstruction. It should be noted that assistance to the commercial water supply facilities owned by the private sector, which can be extended as direct assistance or through credit, is purely based on the decision of the government. The following table can be used.

Table 7 Summary of recovery and reconstruction needs in the water supply sector	
Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
Commercial water supply	
a. Urgent repairs	
b. Procurement of vital equipment and materials	
c. Cleaning up of debris	
d. Others	
Rural Water Supply	
a. Urgent repairs	
b. Cleaning up of debris	
c. Others	
TOTAL	
Reconstruction Needs	
Commercial water supply	
a. Replacement or reconstruction of affected structures	
b. Upgrading of equipment and machinery	
c. Technical assistance	
d. Relocation	
e. Structural retro-fitting	
f. Mitigation measures (specify)	
g. Others (Specify)	

Rural Water Supply	
a. Relocation	
b. Structural retro-fitting	
c. Mitigation measures (specify)	
d. Others (Specify)	
TOTAL	
GRAND TOTAL	

Step5.6. Provide all the districts a copy of the list of projects identified as priorities by the DUWS/DPH

The Head of the DUWS/DPH assessment team should inform all the districts covered by the DaLNA on the identified priority projects within the individual districts. This will enable the concerned district officials to review the priority projects identified by the assessment team versus the priorities made by the district officials within the same sector. Any difference in the priorities can be brought by the district officials at the PDMC level.

Step 6

Draft the implementation plan of the identified programs and projects

The identified needs should have a rough schedule of implementation outlining at the very least the activities, timing and budget required for all the programs and projects. The following techniques can be considered:

1. Identify the specific projects according to their relative urgency or priority in relation to recovery.
2. Plot the timeline of activities of all the projects, with the urgent ones on top, in a Gantt chart with the corresponding funding requirement on an annual basis. This will assist the national government in programming the necessary funds over a certain time period, like on a quarterly or annual basis.
3. Identify and include in the list of projects that need further feasibility studies which may be funded by foreign grants.
4. To the extent possible, a logical framework (logframe) should be created for each of the project proposed for inclusion in the recovery plan. Logframes are normally required by foreign donors to consider project proposals.

The recovery and reconstruction needs of the sector can be summarized in the table below showing the financing requirements over the years. Reconstruction needs mostly require long-term implementation periods. They normally require three or more years to complete. The following table can be used in plotting the implementation period of recovery and reconstruction needs.

Table 8 Summary of recovery and reconstruction needs in the water supply sector

Needs	Annual Needed Amount of Assistance (Kips)			Total Needs (Kips)
	Current year	Year 1	Year 2	
Recovery Needs				
Commercial water supply				
a. Urgent repairs				
b. Procurement of vital equipment and materials				
c. Cleaning up of debris				
d. Others				
Rural Water Supply				
a. Urgent repairs				
b. Cleaning up of debris				
c. Others				
TOTAL				
Reconstruction Needs				
Commercial water supply				
a. Replacement or reconstruction of affected structures				
b. Upgrading of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Structural retro-fitting				
f. Mitigation measures (specify)				
g. Others (Specify)				
Rural Water Supply				
a. Relocation				
b. Structural retro-fitting				
c. Mitigation measures (specify)				
d. Others (Specify)				
TOTAL				
GRAND TOTAL				

Notes for filling in Table 8.

- ✿ Project titles can be inserted under the column on recovery and reconstruction needs.
- ✿ Columns can be added to accommodate any additional reconstruction needs beyond Year 2.

Step 7

Draft the post-disaster damages, losses and needs (DaLNA) report of the sector

With all the information gathered using the previous steps, a report for the housing sector can be drafted by the HD/DPWT and submitted to the PDMC or the provincial government of Khammouane. This report can be considered as the inputs of the sector in the overall recovery plan of Khammouane. The following format may be considered:

1. Brief description of the sector in the disaster-affected areas.
2. Damages in the sector by areas and by types of housing affected.
3. Losses in the sector emphasizing the losses in income, increase in expenditures, estimated period before normalcy will be attained, etc.
4. Impact on the economy, individual households and the consequences to the greater community if no assistance for recovery will be provided.
5. Proposed strategies for recovery and reconstruction of the sector in Khammouane.
6. Needs of the sector, by priority, and the draft schedule of implementation with the estimated funds required for each project over time.

The draft report of the HD/DPWT should be submitted to the PDMC for integration into the overall post-disaster DaLNA report for the province which should contain the other similar DaLNA reports of the other sectors. The final DaLNA report for the province of Khammouane will serve as the basis for post-disaster planning, budgeting and financing, among others.

In instances of major or massive disasters, the DaLNA (or PDNA) report of Khammouane province should be submitted to the National Disaster Management Council (NDMC) for consolidation and inclusion in the overall national disaster recovery plan.

ANNEX
PHOTOCOPY TEMPLATE



Table 1 Baseline information on assets in the commercial water supply sector

Name of water supply system:

Location:

Ownership	Public () Private ()								
Water Users and Supply	Water Demand Forecast (Liters per year) and Rates (Kips per Liter)								
	Current year			Year 1			Year 2		
	Users	Volume (L/Yr.)	Rate (Kips/L)	Users	Volume (L/Yr.)	Rate (Kips/L)	Users	Volume (L/Yr.)	Rate (Kips/L)
a . Residential									
b. Commercial									
c. Industrial									
d. Others									
Water supply structures	Total Capacity (Liters)		Operating cost (Kips/Liter)		Average Repair Cost (Kips)		Average Replacement Cost (Kips)		
a. Treatment plants									
b. Storage									
c. Distribution									
d. Other sub-systems									
Equipment	Average Replacement cost (Kips/ Equipment)				Unit Costs of Repair (Kips/Equipment)				
a.									
b.									
c.									

Table 2 Baseline information on rural water supply in a district

Name of District:

Type of Water Supply	Number by Ownership		Average construction cost	Average repair cost
	Public	Private	Kips	Kips
Type 1: Open well				
Type 2: Closed well with hand pump				
Type 3: Closed well with storage and electric water pump and tap stands				
Type 4: Others				



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Table 3 Value of totally damaged assets and losses to water supply system in a district

Name of Water Firm						
Ownership	Public () Private ()					
Location	Name of District:					
Estimated Damages						
Damages to Structures and Assets	Totally destroyed		Partially damaged		Total Damages (Kips)	Average Time to Replace or Repair (Days)
	Number of totally destroyed	Average Replacement Cost (Kips)	Number of partially damaged	Average Repair Cost (Kips)		
	A	B	C	D	E	G
Water Treatment						
1. Structures						
A. Buildings						
B. Treatment plants						
C. Others						
2. Equipment						
3. Machinery						
4. Others						
Storage						
1. Structures						
a. Buildings						
b. Storage tanks						
c. Others						
2. Equipment						
3. Machinery						
4. Others						
TOTAL						N.A.
Estimated Losses						
Type of Losses	Current year	Year 1	Year 2	total (Kips)		
a. Foregone income						
b. Cleaning up of debris						
c. Higher operating costs						
d. Other unexpected expenses						
TOTAL						



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WATER SUPPLY SECTOR

Table 4 Value of damages and losses in the rural water supply sector

Name of District:

Type of rural water supply	Totally destroyed			Partially damaged			Total damages (Kips)	Total Losses (Kips)
	Number of totally destroyed		Average Replacement Cost (Kips)	Number of partially damaged		Average Repair Cost (Kips)		
	A	B	C	D	E	F	G	H
	Public	Private		Public	Private			
Type 1								
Type 2								
Type 3								
Type 4								
Total								

Table 5 Summary of damages and losses in the district

Name of District:

Water Supply	Within the Disaster year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
Commercial water supply								
Firm 1								
Firm								
TOTAL								
Rural Water Supply								
Type 1								
Type 2								
Type 3								
Type 4								
TOTAL								
GRAND TOTAL								



Table 6 Summary of damages and losses in the province

Name of District: Khammouane

Name of water firms	Within the Disaster Year				Losses Beyond Disaster Year			
	Damages		Losses		Year 1		Year 2	
	Public	Private	Public	Private	Public	Private	Public	Private
District:								
Commercial water supply								
a. Firm 1								
b. Firm n								
c.								
d.								
Rural Water Supply								
a. Type 1								
b. Type 2								
c. Type 3								
d. Type 4								
District:								
Commercial water supply								
a. Firm 1								
b. n								
c.								
d.								
Rural Water Supply								
a. Type 1								
b. Type 2								
c. Type 3								
d. Type 4								
TOTAL								



TO PHOTOCOPY

Matrix 1 Impacts of identified post-disaster projects

Name of proposed project	Expected Impacts and Their Levels of Impact on Recovery								
	Social and economic impact			Pro-poor impact			Available O&M budget		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Urgent repair or replacement of equipment and machinery									
Urgent repairs of rural water supply systems									
Procurement of vital supplies									
Cleaning operations									
Others									



Table 7 Summary of recovery and reconstruction needs in the water supply sector

Name of Projects Needed for Recovery and Reconstruction	Amount Needed (Kips)
Recovery Needs	
Commercial water supply	
a. Urgent repairs	
b. Procurement of vital equipment and materials	
c. Cleaning up of debris	
d. Others	
Rural Water Supply	
a. Urgent repairs	
b. Cleaning up of debris	
c. Others	
TOTAL	
Reconstruction Needs	
Commercial water supply	
a. Replacement or reconstruction of affected structures	
b. Upgrading of equipment and machinery	
c. Technical assistance	
d. Relocation	
e. Structural retro-fitting	
f. Mitigation measures (specify)	
g. Others (Specify)	
Rural Water Supply	
a. Relocation	
b. Structural retro-fitting	
c. Mitigation measures (specify)	
d. Others (Specify)	
TOTAL	
GRAND TOTAL	



TO PHOTOCOPY

Table 8 Summary of recovery and reconstruction needs in the water supply sector

Needs	Annual Needed Amount of Assistance (Kips)			Total Needs (Kips)
	Current year	Year 1	Year 2	
Recovery Needs				
Commercial water supply				
a. Urgent repairs				
b. Procurement of vital equipment and materials				
c. Cleaning up of debris				
d. Others				
Rural Water Supply				
a. Urgent repairs				
b. Cleaning up of debris				
c. Others				
TOTAL				
Reconstruction Needs				
Commercial water supply				
a. Replacement or reconstruction of affected structures				
b. Upgrading of equipment and machinery				
c. Technical assistance				
d. Relocation				
e. Structural retro-fitting				
f. Mitigation measures (specify)				
g. Others (Specify)				
Rural Water Supply				
a. Relocation				
b. Structural retro-fitting				
c. Mitigation measures (specify)				
d. Others (Specify)				
TOTAL				
GRAND TOTAL				

