12 - Mining Sector

Organization Responsible

Level of Responsibility	Name of Ministry/Agency/Institution
Ministry	Ministry of Mahaweli Development and Environment
Department	Geological Survey and Mines Bureau
District	Regional Office
DS Division	
GN Division	

Concepts and Definitions

Mining Sector

The Mining sub-sector is composed of the different types of mining activities in extracting various minerals including their related equipment and other facilities. They may be owned by private corporations or state-owned enterprises.

Damages

In mining, damages are cost of: a) repair of partially damaged 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 of foregone revenues or income 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.

In conducting a post-disaster damage and loss assessment in the mining and quarrying sector, the following steps are normally followed for every disaster-affected district.

Steps in Undertaking Post-Disaster Damage and Loss Assessment for Mining Sector

Step 1. Collect and/or validate the baseline data for each of the disaster-affected district

Baseline information must be compiled and validated at the national, provincial and district levels before the field assessment or, if possible, prior to the occurrence of disaster. The table below must be completed to be used for the baseline information in the online system.

Table 1: Baseline information for industrial mining firms and artisanal mining

District					
Industrial Mining					
Name of Firm and Mineral Outputs	**Ownership**		**Number of Employees**		**Outputs**
	Pubic	**Private**	**Male**	**Female**	**Average Output per Year (Tons/Year)**
Firm 1					
Nickel					
Copper					
Gold					
Others 1					
Others N					
Firm N					
Nickel					
Copper					
Gold					
Others 1					
Others N					
	Artisanal Mining				
Minerals	**Total Number of People**				**Average Output per Year (Tons/Year)**
	Male		**Female**		
Nickel					
Copper					
Gold					
Others 1					
Others N					

Notes 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 Post-Disaster Damage and Loss Assessment.*
- *Artisanal mining refers to small scale mining where private individuals work on their own or groups.*
- *The 'total number of people' refers to the number of people engaged in artisanal mining.*

Step 2. Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster.

- ✓ *Step 2.1. Estimate the damages and losses*

During the field visit, direct interviews with the affected firms should be conducted where repair and replacement costs should be estimated for the affected assets of the firm/s. The officials and experts in the firm/s can estimate their respective damages 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.

Alternatively, the firms affected by the disaster can be given the data entry sheets of the online reporting system to enable them to provide the information required for the assessment. The assessment team will input the information provided by the firms in the data entry sheet of the online system. For artisanal mining, interviews with the people engaged in small scale mining should be conducted.

The value of damaged and losses can be assessed using tables below.

Industrial Mining

The damages and losses by a firm engaged in industrial mining will be assessed using the table the below.

Table 2. Damages and losses of mining firms

District			
Name of Firm			
Ownership	**Public**	**Private**	
Number of Employees	**Male**	**Female**	
Damages			
Assets	**Replacement Value of Totally Destroyed Assets (LKR)**	**Repair Cost for Partially Damaged Assets (LKR)**	**Total Damages (LKR)**
Structures			
Tunnels			
Office buildings			
Others (Enumerate)			
Total			
Equipment			
Loaders			
Computers			
Others (Enumerate)			
Total			
Machinery			
Generators			
Others (Enumerate)			

Total				
Vehicles				
Trucks				
Cars				
Others				
Total				
Stocks				
Mineral 1				
Mineral N				
Others				
Total				
GRAND TOTAL				

Losses						
Types of Losses	**Average Value of Output per Year**	**Reduction in Value 0f Output (%)**		**Losses (LKR)**		**Total Losses (LKR)**
Production Losses	**LKR/Year**	**Year 1**	**Year 2**	**Year 1**	**Year 2**	
Nickel						
Copper						
Gold						
Others 1						
Others N						
Total						
Other Losses						
Cleaning up of debris						
Higher operating costs						
Other unexpected expenses						
Total						
GRAND TOTAL						

Notes in filling out Table 2:

- *The **'Replacement Value of Totally Destroyed Assets'** refers to the amount needed to replace totally destroyed assets.*
- *The **'Cost of Repair for Partially Damaged Assets'** refers to the amount needed to repair partially damaged assets.*
- *The **'Total Damages'** will be the sum of the total replacement value and the total cost of repair.*
- *The '**Reduction in Value in Output (%)**' is the estimated percentage reduction of income of the firm due to the disaster within the year the disaster occurred and on the next year.*
- *Other unexpected expenses can include relief payments for employees and assistance to the local village recovery activities, among others.*
- *The '**Total Losses**' will be the sum of the losses for Year 1 and Year 2.*

Artisanal Mining

The damages and losses in artisanal mining will be assessed using the table the below.

Table 3. Damages and losses in artisanal mining

District	
Damages	

Assets	Replacement Value of Totally Destroyed Assets (LKR)	Repair Cost for Partially Damaged Assets (LKR)	Total Damages (LKR)
Structures			
Tunnels			
Others (Enumerate)			
Total			
Equipment			
Tools			
Others (Enumerate)			
Total			
Machinery			
Generators			
Others (Enumerate)			
Total			
Stocks			
Mineral 1			
Mineral N			
Others			
Total			
GRAND TOTAL			

Losses						
Types of Losses	**Average Value of Output per Year**	**Reduction in Value 0f Output (%)**		**Losses (LKR)**		**Total Losses (LKR)**
Production Losses	**LKR/Year**	**Year 1**	**Year 2**	**Year 1**	**Year 2**	
Nickel						
Copper						
Gold						
Others 1						
Others N						
Total						
Other Losses						
Cleaning up of debris						
Higher operating costs						
Other unexpected expenses						
Total						
GRAND TOTAL						

Notes in filling out Table 3:

- *Although the same principle applies in estimating damages and losses for both the industrial mining and artisanal mining, the assets and production in artisanal mining are few and lower in value.*

✓ *Step 2.2. Summarize the damages and losses in a district*

Based on the assessment of the firms and artisanal mining, the damages and losses will be summarized online in the following table which will appear in the online reporting system.

Table 4. Summary of damages and losses in a district

Name of District:								
Type of Mining Firm	Year 1				Year 2		Total (LKR)	
	Damages (LKR)		Losses (LKR)		Losses (LKR)			
	Public	Private	Public	Private	Public	Private	Public	Private
Industrial Mining								
Firm 1								
Firm N								
Artisanal Mining								
TOTAL								

✓ *Step 2.3. Summarize damages and losses in a province*

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

Table 4. Summary of damages and losses in the province

Name of Province:								
Type of Mining Firm by District	Year 1				Year 2		Total (LKR)	
	Damages (LKR)		Losses (LKR)		Losses (LKR)			
	Public	Private	Public	Private	Public	Private	Public	Private
District 1								
Industrial Mining								
Artisanal Mining								
Total								
District N								
Industrial Mining								
Artisanal Mining								
Total								
GRAND TOTAL								

✓ *Step 2.4. Summarize damages and losses nationwide*

A nationwide summary of the assessment will be created enumerating the damages and losses of the sector at each province. The following table will be used for the national summary.

Table 5. Summary of damages and losses nationwide

Type of Mining Firm by Province	Year 1				Year 2		Total (LKR)	
	Damages (LKR)		Losses (LKR)		Losses (LKR)			
	Public	Private	Public	Private	Public	Private	Public	Private
Province 1								
Industrial Mining								
Artisanal Mining								
Total								
Province N								
Industrial Mining								
Artisanal Mining								

Total								
GRAND TOTAL								