04. Agriculture Sector

C. Fisheries Sub-sector

Organization Responsible

Level of Responsibility	Name of Ministry/Agency/Institution
Ministry	Ministry of Fisheries and Aquatic Resources
Department	Ceylon Fisheries Harbour Corporation
District	Fisheries Harbour (20 Nos)
DS Division	Fisheries Inspector
GN Division	Fisheries instructor

Concepts and Definitions

Agriculture 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*** like cattle, chicken, etc.
d. ***Fisheries*** which may be open sea, 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
g. ***Agriculture-related Assets*** like irrigation, storage, agricultural inputs, etc.

This Guidance Notes will apply to the fisheries sub-sector in Sri Lanka.

Damages

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

1. ***Structures or buildings.*** Agricultural buildings like storage, animal shelters, irrigation, research laboratories and other structures which function as part of the sector. They should be assessed in coordination with the local authorities.

2. ***Equipment and other machinery/equipment.*** There are various instruments used for agricultural purposes like tractors, mechanical harvesters, farm tools, etc. The types of equipment, machinery and other important assets should be considered.

3. ***Agricultural products, inputs, materials and supplies***. Farmers normally have stocks such as harvested rice, corn etc., seed stocks, seedlings, fertilizers, pesticides, veterinary medicines, etc. Their value can be sufficiently high to warrant individual assessment.

4. ***Plantation which were fully destroyed (uprooted).*** The totally detroyed permanent crops plantations like oil palm, coconuts, coffee, tea, cacao, etc. are considered agricultural assets and are valued at their replacement costs (replanting and maintenance cost until again in full production). Their production is considered as a loss and accounted under this for all the years until the crops is again fully productive.

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 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 agriculture sector will include:

1. ***Loss or reduction in output (production) or income.*** The reduction in income will occur when planted crops, livestock, fisheries, forestry, etc. are partially damaged by disasters. This can be estimated by considering the pre-disaster expected income less post-disaster expected income. Totally destroyed seasonal crops like rice, corn and vegetables which are ready to be harvested are valued at farm gate prices.

2. ***Reduction in future output or income*****.** Long-term income losses from harvests can be due to:

    a. The degradation of land by floods, landslides, prolonged droughts, etc. This will happen if agricultural lands are rendered less productive after a disaster which can extend years after a disaster. This can be estimated by considering the pre-disaster expected income less post-disaster expected income spread through the years until production levels normalize.
    b. The production from totally destroyed permanent crops and trees. This can be estimated by considering the pre-disaster expected income spread through the years until the permanent crops and trees are productive again to the same level.

3. ***Investment losses.*** 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) within the year, the value of investment put into the destroyed crops (or livestock or fish stock) will be considered as loss. Otherwise, losses are estimated as the value of the reduction of the expected production.

4. ***Higher or added production cost.*** The added cost of production will occur if the farmers (livestock and fisheries growers) replant (or replace the stocks) in time to harvest within the year. This will mean that the farmers (or growers) will incur a higher production cost to produce the same volume of harvest within the year. The added cost of production will be the value of lost investment by the farmers (or growers).

5. ***Additional expenses*** to clean up the debris of destruction, retrieval of buried assets, etc.

Losses of the sector may stretch even beyond the year that the disaster occurred. It is expressed in monetary value at current prices.

In conducting a post-disaster damage and loss assessment in the agriculture sector, the following steps should be followed for every disaster-affected District.

Steps in Undertaking Post-Disaster Damage and Loss Assessment for Fisheries Sub-sector of the Agriculture 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 or district levels before the field assessment or, if possible, prior to the occurrence of disaster. The tables below must be completed to be used for the baseline information in the online system for the fisheries sub-sector.

A. People in Fisheries

The activities in fisheries and the number of people engaged in them will provide a general picture of the sub-sector and will be useful in undertaking the social impact assessment.

Table 1. Baseline information on the number of people engaged in fisheries

District			
Sub-sector	**Number of Fishers/Growers**		
Fisheries	**Families**	**Male**	**Female**
Inland fisheries			
River fishing			
Marine fishing			

B. Assets, Production and Costs

The following baseline information for fisheries will provide the basis for the estimation of damages and losses.

Table 2. Baseline information on fisheries

District						
Production						
Types	**Area**		**Average Value of Yield**		**Production Cost**	
	(Acres)		**(LKR/Year)**		**(LKR/Acre/Year)**	
	Public	**Private**	**Public**	**Private**	**Public**	**Private**
Inland Fisheries						
River Fisheries						
Marine Fisheries						
Assets						
	Inland Fisheries		**River Fisheries**		**Marine Fisheries**	
Types of Assets	**Average Replace**	**Average Repair**	**Average Replace**	**Average Repair**	**Average Replace**	**Average Repair**

	ment Cost (LKR)	Cost (LKR)	ment Cost (LKR)	Cost (LKR)	ment Cost (LKR)	Cost (LKR)
Fishing Equipment						
Boats						
Engines						
Nets						
Traps and Cages						
Gears						
Others						
Office equipment						
Computers						
Furniture						
Office supplies						
Others						
Machinery						
Vehicles						
Others						
Structures						
Harbour						
Cold storage						
Others						
Buildings	**Average Replacement Cost (LKR/sqm)**			**Average Repair Cost (LKR/sqm)**		
				Roof	**Wall**	**Floor**
1 floor						
2-3 floors						
More than 3 floors						

Step 2. Estimate damages and losses

With the baseline information, field assessment should be undertaken in the affected districts after a disaster. Direct interviews with officials involved in the construction and repair of facilities can also be conducted during the field visit in order to validate unit costs of repair and reconstruction.

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

Based on the field visit, the table below will be filled out in the online system.

Table 3. Damages and losses in fisheries in a District

District:			
Type of Fishing	**Inland Fisheries**	**River Fisheries**	**Marine Fisheries**
Damages			
	Number of	**Number of**	**Damages**

Assets	Totally Destroyed		Partially Damaged		(LKR)	
	Public	Private	Public	Private	Public	Private
Fishing Equipment						
Boats						
Engines						
Nets						
Traps and Cages						
Gears						
Others						
Total						
Office equipment						
Computers						
Furniture						
Office supplies						
Others						
Total						
Machinery						
Vehicles						
Others						
Total						
Structures						
Harbour						
Cold storage						
Others						
Total						

Buildings	Totally destroyed		Partially Damaged				Total (LKR)
	Number	Total sqm	Number	Roof (sqm)	Wall (sqm)	Floor (sqm)	
Public							
1 floor							
2-3 floors							
More than 3 floors							
Total							
Private							
1 floor							
2-3 floors							
More than 3 floors							
Total							

TOTAL OF DAMAGES	Public	Private

LOSSES						
	Year 1		Year 2		Losses (LKR)	
	Public	Private	Public	Private	Public	Private
Inland Fisheries						
Percentage Reduction in Value of Yield (%)						
Production losses						

(Private)						
Cleaning of Debris						
Higher operating expenses						
Other unexpected expenses						
Total						
River Fisheries						
Percentage Reduction in Value of Yield (%)						
Production losses						
Cleaning of Debris						
Higher operating expenses						
Other unexpected expenses						
Total						
Marine Fisheries						
Percentage Reduction in Value of Yield (%)						
Production losses						
Cleaning of Debris						
Higher operating expenses						
Other unexpected expenses						
Total						
TOTAL LOSSES						

✓ *Step 2.2. Summarize the Damages and Losses in the District*

Based on the information gathered in the previous tables, the summary table below can show the magnitude and scope of damages and losses to the sector. This summary is an aggregate of the assessment done for both public and private sectors using the previous table.

Table 4. Summary of damages and losses to fisheries in the District

Name of District:								
Type of Fisheries	**Year 1**				**Year 2**		**Total (LKR)**	
	Damages (LKR)		**Losses (LKR)**		**Losses (LKR)**			
	Public	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**
Inland Fisheries								
River fisheries								
Marine fisheries								
Total								

✓ *Step 2.3. 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 Districts. The following table is used in the online system.

Table 5. Summary of damages and losses in the fisheries sub-sector in the Province

Name of Province								
District	**Year 1**				**Year 2**		**Total (LKR)**	
	Damages (LKR)		**Losses (LKR)**		**Losses (LKR)**			
	Public	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**
District 1								
Inland Fisheries								
River fisheries								
Marine fisheries								
Total								
District N								
Inland Fisheries								
River fisheries								
Marine fisheries								
Total								
GRAND TOTAL								

AGGREGATE DAMAGES AND LOSSES IN THE PROVINCE								
Districts	**Year 1**				**Year 2**		**Total (LKR)**	
	Damages (LKR)		**Losses (LKR)**		**Losses (LKR)**			
	Public	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**
District 1								
District 2								
District N								
TOTAL								

✓ *Step 2.4. Summarize damages and losses of the sector at the national level*

A nationwide summary of the assessment will be created enumerating the damages and losses of the sector at each province. The data in the national summary should include all the information gathered by the various teams that assessed the different disaster-affected districts. The following table will be used for the national summary.

Table 6. Summary of damages and losses in the fisheries sub-sector nationwide

Nationwide								
Province	**Year 1**				**Year 2**		**Total (LKR)**	
	Damages (LKR)		**Losses (LKR)**		**Losses (LKR)**			
	Public	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**
Province 1								
Inland Fisheries								
River fisheries								
Marine fisheries								
Total								
Province N								
Inland Fisheries								
River fisheries								
Marine fisheries								
Total								
TOTAL								

AGGREGATE DAMAGES AND LOSSES NATIONWIDE								
Districts	**Year 1**				**Year 2**		**Total (LKR)**	
	Damages (LKR)		**Losses (LKR)**		**Losses (LKR)**			
	Public	**Private**	**Public**	**Private**	**Public**	**Private**	**Public**	**Private**
Province 1								
Province 2								
Province N								
TOTAL								

Step 3. Analyze the impacts of the damages and losses to the economy and affected population

The assessment team must be able to analyze potential impacts to the people and the economy, among others, if the sector is not restored immediately. The following are some of the issues that should assessed, among others:

- ***The possible impacts on the welfare of the people.*** Living conditions, housing, health, education, access to services and resources.
- ***Economic impacts***. Business productivity (decline in output and income); reduction in employment; increase in prices; food supply; etc.
- ***Government services.*** Reduction in provision of services in education; health; security; administrative matters; etc.
- ***Added risks.*** The additional hazards and risks brought about by the disaster

like the creation on new landslide-prone areas; epidemics; etc.

- ***Environment.*** The potential environmental risks like oil spills, destruction of watershed areas; etc.
- ***Gender and other cross-cutting issues and concerns.*** The potential impacts to vulnerable groups like women, children, elderly, indigenous peoples, etc.

Step 4. Identify the recovery strategies and estimate the recovery and reconstruction needs

The post-disaster needs must be based on a framework where policies and strategies are coherent and 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.

✓ *Step 4.1. Identify recovery and reconstruction strategies*

After the consolidation of the field assessment, the assessment team must identify or recommend the policies and strategies for the recovery and reconstruction for the sector. The following are some of the general policies and strategies that could be considered, among others.

- ***Tax breaks to business firms***. Exempting firms from paying certain taxes for a certain period, like temporary reduction in the collection of value-added tax, building permits and other related fees; temporary elimination of import duties on essential items required as inputs to recovery operations; etc.
- ***Credit.*** A credit scheme with soft terms, like low interest rate with longer repayment periods, which can provide firms the resources to buy machinery and equipment that will normalize operations.
- ***Equity*****.** In some special cases, the government may opt to provide equity in private firms instead of subsidy or credit or tax exemptions.

The following strategies can be adopted for the post-disaster recovery and reconstruction activities:

- ***Building Back Better (BBB).*** Recovery activities based on BBB principles will promote longer-term disaster risk reduction and management. BBB principle should look at the how to make infrastructure and facilities safer from future disasters like stronger engineering design, the advantages of resettlement of facilities in disaster-safe areas instead of rebuilding in the same disaster-prone areas, etc.

- ***Focus on the most vulnerable and socially disadvantaged groups such as children, women, and the disabled.*** Recovery programming should give priority to those that will benefit the most vulnerable groups,

including women, female-headed households, children, the poor, and take into account those with special needs.

- ***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.

- ***Coordinated and coherent approaches to recovery.*** The effective coordination among all involved agencies should be established based on uniformity of policies, flexibility in administrative procedures, etc. In some instances, a special new agency may be needed to oversee, coordinate and monitor complex disaster recovery programs.

- ***Efficient use of financial resources.*** Fund sources from the national budget and the international donor partners that are suited for the recovery activities should be identified. Assistance to the recovery of the private sector, if any, should be clearly outlined.

- ***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. An effective monitoring system must be established.

✓ *Step 4.2. Identify, estimate and prioritize recovery and reconstruction needs*

Recovery needs are intended to bring back normalcy to all affected areas and sectors as soon as possible while 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 sector assessment team must identify and prioritize their recovery and reconstruction projects based on their impact assessment.

✓ *Step 4.3. Summarize the estimated needs and draft the implementation schedule*

Based on the prioritized recovery and reconstruction needs, a summary should be created by the assessment team enumerating the post-disaster projects for the recovery and reconstruction with a rough general schedule of implementation outlining at the very least the activities, timing and budget required. The following table can be used.

Table 7. Summary of needs

Name of Project	Estimated Budgetary Requirement (LKR)			Total (LKR)
	Year 1	Year 2	Year N	

Step 5. Draft the post-disaster damages, losses and needs (PDNA) report of the sector

With all the information gathered using the previous steps, a report can be drafted by the assessment team which will be the inputs of the sector in the overall recovery and reconstruction plan. The draft sector report should be submitted to the DMC for consolidation.