

SUB-REGIONAL OFFICE FOR THE PACIFIC ISLANDS

GUIDANCE NOTE
ASSESSING POST-DISASTER FOOD SECURITY

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**FOOD AND AGRICULTURE ORGANIZATION
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Guidance Note in Assessing Post-Disaster Food Security

I. Introduction

The following guidance note describes the requirements and steps in undertaking post-disaster food security assessment. The guidance note on damage, loss and needs assessment intended for recovery and reconstruction is prepared separately.

II. Purpose of This Guidance Note

This guidance note is a general and simplified tool which can be used by individual pacific countries in assessing food security after a disaster. It is focused on how to estimate quickly the food needs of a country immediately after a disaster to enable the government and the development partners to respond accordingly during the emergency phase. It is aimed that this guidance note will start a systematic assessment which can be expanded in the future to cover more complex emergencies.

The sub-sectors that are included in the assessment are:

- a. Crops that are the usual source of food for the population.
- b. Livestock and poultry that are the sources of meat, eggs and dairy.
- c. Fish production.
- d. Drinking water supply.

The effects of a disaster on the above items will determine the potential occurrence of food insecurity in an affected area/s over a certain period of time. As such, governments and their development partners can estimate the food requirements in the areas and respond accordingly to avert hunger and famine.

It should be noted that the assessment described in this guidance note is on the quantity or volume of food and food production affected without referring to their prices. The post-disaster damage, loss and needs assessment of the agriculture sector, in accordance with the current international standard, will be discussed in a separate guidance note.

Since the intention of this guidance note is to assess food gaps immediately after a disaster, the gender dimensions here are notably insufficient. They should, however, be considered in the implementation of food aid activities. The IASC Gender Marker Tip Sheet for Food Security 1 (Food Assistance) dated 29 July 2011 should be used to guide implementers of post-disaster food aid.

III. Steps in Assessing Post-disaster Food Security

The following steps can be followed by national assessment teams in agriculture to estimates the post-disaster food security in a province or any affected area/s.

Step 1. Gather Pre-Disaster Baseline Information

There are certain sets of information that must be gathered prior to a disaster to enable a post-disaster food security assessment. The following are the possible sources of data required:

- a. In some countries data for the agriculture sector already exists based on past surveys.

- b. Demographic and socio-economic information can be sourced from the latest family income and expenditure surveys.
- c. If the required sets of data are not yet existing, the national government can request the provincial governments to conduct sample surveys in cooperation with the municipal or village authorities.

The geographical reference of the information can be the village, district or province depending on the country. In the templates that will be shown in this guidance note, the province will be used as the reference. Individual countries should use their preferred or appropriate geographical reference.

The following sets of data are the important baselines.

A. Demography

The demographic profile of the population is important because it will give an indication of the number and status of those that can be adversely affected by food insecurity after a disaster.

Table 1. Information on Population and Households

Province			
Demography and Economic Information	Male	Female	Total
1. Total Population by sex			
2. Total number of households, by sex of household head			
3. Population by age			
a. 0 – 1 year			
b. 1.1 – 3 years			
c. 3.1 – 5 years			
d. 5.1 – 10 years			
e. 10.1- 15 years			
f. Above 15 years			
4. Average household size, by sex of members			N.A.
5. Average family income, by sex of household head			N.A.

Notes in filling out Table 1.

- The annual income mentioned above should refer to the total income derived by households or families from all sources.
- Demographic profiles and income sources can be sourced from the regular survey of the National Statistics Office NSO and/or the data from Agricultural Statistics Offices of the Government.
- The segregation by sex and age of the population will be important in the assessment of special needs and impacts on the gender.

B. Farmers Profile

As a special group engaged in food production, the number of farmers, by sex and scale of operation, is important to be known in case there may be a need to provide a special intervention for them (although post-humanitarian aid will be discussed in the post-disaster needs assessment). It can be assumed that

subsistence farmers with smaller farms are most vulnerable to hunger once a major disaster occurs. The table below can be used.

Table 2. Number of farmers and their income according to scale of operation

Province							
Type of Farmers	Profile of Farmers						
	Number of Farmers		Average Family Income (\$)	Average Family Size by Age			
	Male	Female		Male		Female	
			< 1 year old	> 1 year old	< 1 year old	> 1 year old	
Subsistence Farmers							
a. < 1 hectare							
b. 1.1 – 3 hectares							
c. 3.1 – 5 hectares							
d. 5.1 – 7 hectares							
e. 7.1 – 10 hectares							
f. > 10 hectares							
Commercial farmers							
State enterprise farmers							
Landless workers							
TOTAL							

Notes in filling out Table 2.

- Although subsistence farmers should be in accordance with the definition of individual countries, they are generally those that are engaged in farming as the major source of livelihood whose produce are mostly for home consumption with minimal surplus for sale. These farmers have control over production regardless of land ownership.
- Commercial farmers refer to individual farmers working on farms operated on a commercial scale with mechanized systems.
- State enterprise farmers refer to individual farmers working on commercial farms owned and operated by the government.
- Landless workers refer to seasonal agricultural workers who earn wages from working on other people's farms during planting, weeding or harvest season. These workers have no control over the management and production decisions on the farm.
- The segregation of male and female farmers by sex can be used in analyzing the potential impacts on women and children. The age of children should indicate the number of infants and lactating mothers who are more vulnerable to food insecurity.

C. Planting to Harvest Season

A planting to harvest season monthly chart of the crops consumed on a daily basis will give immediate information on what types of crops are planted as well as their stages of growth if and when disasters occur. The assessment specialist can, thus, focus on these crops during the assessment. The chart will also provide the time required before food crops can be harvested since their planting stage. Consequently the gaps in food supply for the coming days or weeks after a disaster can be analyzed.

Table 3. Planting and harvest season of staple food and other crops

Province															
Crops	Total Area Planted by Scale (Hectares)			Planting to Harvest Season (Months)											
	Subsistence	Commercial	State Enterprise	J	F	M	A	M	J	J	A	S	O	N	D
1. Taro															
2. Cassava															
3. Yam															
4. Sweet potato															
5. Rice															
6. Corn															
7. Soybean															
8. Peanut															
9. Pineapple															
10. Papaya															
11. Banana															
12. Leafy vegetables															
13. Others															
TOTAL				Not Applicable (N.A.)											

Notes in filling out Table 3.

- The total land area by scale of operation is the consolidated number of hectares planted with the crops indicated.
- Individual countries should include in the above table their own staple crops.
- The letters under the “Planting to Harvest Season” refer to the months of the year.
- Tick the boxes under the column of months to show the period from planting to harvesting of the crops.

D. Food Production

The volume of production of staple food items in each province (or any geographical point of reference) must be established to estimate the amount consumed on a monthly basis. This will enable assessment specialists to quickly approximate the potential impact on food security and the corresponding needs to avert it after a disaster.

The following tables can be used for staple crops, fish as well as meat and poultry.

Food Crops

Table 4. Staple food crop production

Province									
Month	Main Staple Food Production Per Month in Kilograms								
	Taro	Cassava	Yam	Bread Fruit	Sweet Potato	Corn	Banana	Other Fruits	Other Vegetables
January									
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
TOTAL									

Notes in filling out Table 4.

- The main staple foods will depend on each individual country. As such, each country must include here the main staple foods that are generally consumed by their population.
- If there are other types of main/staple food, like other fruits and vegetables, another table should be created to reflect the actual production and consumption situation.

Meat, Fish, Dairy and Other Processed Food Items

There are must be other staple food items in the country that may be locally produced or imported which should likewise be identified since they are part of the normal source of food for the population. The following table can be used.

Table 5. Other staple food production and consumption

Province											
Month	Available Quantity of Other Staple Food Per Month										
	Beef	Pork	Other Meat	Fish	Eggs	Milk	Processed Food				
							Meat	Fish	Bread	Noodles	Others
Kg.	Kg.	Kg.	Kg.	Units	Liters	Kg.	Kg.	Units	Units	Units	
January											
February											
March											
April											
May											
June											
July											
August											
September											
October											
November											
December											
TOTAL											

Notes in filling out Table 5.

- A separate table can be created if there are different types of major food source. For example, a separate table can be created for different types of fish harvested like grouper, tuna, etc.
- Each Pacific country should identify the common types of processed food consumed by their population whether domestically produced or imported. If the information is not yet covered by their existing statistical information, an estimate can be made through the local producers or quantity or volume imported.

It is very important to remember that the above pre-disaster food supply in the province (or area) is assumed to be the normal condition. Any gap in the food supply within any month is self-correcting and would not cause food insecurity. The food gaps in some months, if there are any, are assumed to be compensated by food substitution behavior of the people (cassava or banana for rice or taro; fish for meat; etc) and/ or filled in by imports.

E. Average Productivity and Investment Cost

The average productivity of the farms for every type of crops will enable the assessment specialist to estimate the potential reduction in production as well as the food gaps that may result after a disaster. Likewise, the information on the types of farms (irrigated or rainfed) by area and the investment costs per hectare can assist in determining the types and amount of assistance that can be extended to avert any shortage of food.

Table 6. Type of Farms, Average Productivity of Food Crops, Investment Costs

Province	Type of Farm					
Crops	Irrigated			Rainfed		
	Area Planted	Average Productivity	Average Investment Costs	Area Planted	Average Productivity	Average Investment Costs
	Hectare	Kilograms per Hectare	\$ per Hectare	Hectare	Kilograms per Hectare	\$ per Hectare
1. Taro						
2. Cassava						
3. Yam						
4. Sweet potato						
5. Rice						
6. Corn						
7. Soybean						
8. Peanut						
9. Pineapple						
10. Papaya						
11. Banana						
12. Leafy vegetables						
13. Others						

Notes in filling out Table 6.

- The value in the latest agricultural survey can be used for the average productivity of various crops, the investment cost per type of crop per hectare and the areas irrigated.
- The investment costs can be used to estimate urgent replanting needs should the government or the development partners decide to assist farmers.

F. Source of Drinking Water

As a major part of food supply, the source of drinking water by the population should be known to enable the assessment of post-disaster needs especially for far-flung areas or villages. (The food security cluster, however, should coordinate with the Water, Sanitation and Hygiene (WASH) cluster in determining the amount of post-disaster water supply). The following table can show the drinking water sources by population.

Table 7. Source of Drinking Water by Population

Province								
Drinking Water Source	Number of Users							
	< 1,000	1,001– 3,000	3,001– 5,000	5,001– 7,000	7,001– 10,000	10,001– 13,000	13,001– 15,000	>15,000 (Specify Number)
1. Piped-in Tap Water								
2. Communal Tap Stands								
3. Communal Wells								
4. Springs or Rivers								
5. Bottled Water								
6. Others								
TOTAL								

Notes in filling out Table 7.

- Piped in tap water refers to the water provided to individual households by a water authority and paid for by consumers.
- Communal tap stands refer to the taps existing within a community whose source normally comes from a spring box.
- Communal wells are ground water sources where the people get their water.
- Springs or rivers are surface water sources of drinking water.
- It should be noted that piped-in water supply to houses and communal tap stands supply can be adversely affected if the springs or rivers which are the main sources of water are damaged.
- Individual countries should choose their appropriate population/user range.

Step 2. Conduct Post-Disaster Field Visit and Estimate Reduction in Supply and Production

After a disaster, field assessment should be undertaken and reports should be consolidated to assess food security.

A. Stored Produce and Other Food Items

There are normally food items intended for consumption which are stored in individual houses, groceries, supermarkets or in storage facilities. After a disaster, these stored items may be damaged or lost if and when houses or storage facilities are destroyed. They can be accounted for by using the following table.

Table 8. Destroyed Food items

Province			
Stored Food Items	Quantity Destroyed in Kilograms	Equivalent Consumption Days	Estimated Value in \$
1. Crops			
a. Taro			
b. Cassava			
c. Yam			
d. Sweet potato			
e. Rice			
f. Corn			
g. Soybean			
h. Peanut			
i. Pineapple			
j. Papaya			
k. Banana			
l. Leafy vegetables			
m. Others			
Other Food Items	Quantity Destroyed in Kilograms (or Units)	Equivalent Consumption Days	Value in S
2. Eggs			
3. Dairy (Milk)			
4. Meat			
a. Beef			
b. Pork			
c. Other meat			
5. Fish Stocks			
a. Tuna			
b. Grouper			
c. Others			
Processed Food Items			
1. Processed Fish			
2. Processed Meat			
3. Bread			
4. Noodles			
5. Others			

Notes in filling out Table 8.

- The equivalent consumption days refers to the number of days by which the quantity of the destroyed produce can be consumed in the province or area considered in the assessment.
- The value of lost stored farm produce can be estimated if there is existing information on the quantity retained by the farmers on a monthly basis. For example, there may be some information that a farmer who harvests 100 kilograms of cassava a month normally retains, say, 70 kilograms for home consumption.
- The assessment specialist can conduct a random survey on supermarkets and groceries to estimate the quantity of destroyed or lost processed food items.
- It must be noted that, in cases of drought, there may be no damaged stored produce. People will normally consume whatever food they have saved before the total effects of a drought could be felt.

B. Production of Food Crops

The effects on food production can be determined by comparing the pre-and post-disaster estimates for each crop. By knowing beforehand what crops are planted when the disaster occurred, the assessment specialist can just focus on specific crops. The following template can be used.

Table 9. Crops Affected

Province						
Crops	Total Area Damaged in Hectares		Estimated Production in Kilograms		Estimated Production Gap	Equivalent Consumption
	Totally	Partially	Pre-disaster	Post-disaster	Kilograms	Days
A	B	C	D	E	F	G
1. Taro						
2. Cassava						
3. Yam						
4. Sweet potato						
5. Rice						
6. Corn						
7. Soybean						
8. Peanut						
9. Pineapple						
10. Papaya						
11. Banana						
12. Leafy vegetables						
13. Other vegetables						
14. Other fruits						
TOTAL			Not Applicable		Not Applicable	

Notes in filling out Table 9.

- The areas damaged can be estimated from the field visit.
- Totally damaged areas (Column B) means that no production is expected from the land or farms due to the disaster.

- Partially damaged area (Column C) means that there will be reduction in production from the land or farms due to the disaster.
- The pre-disaster production estimate (Column D) can be sourced from the baseline information. This can also be estimated by multiplying the areas planted by the productivity per hectare.
- The post-disaster production estimate (Column E) should be estimated by the assessment specialist based on the totally and partially damaged crops.
- The estimated production gap will be the difference between the pre- and post-disaster estimates (Column F = Column D minus Column E).
- The equivalent consumption (Column G) is the number of days by which the production gap could have been consumed.
- It is assumed here that production will be reduced but consumption will be the same.

C. Damages to Livestock, Fisheries and Other Assets

The death of livestock and poultry will definitely impact in the production of meat and dairy. On the other hand, damages to fishing equipment and gears will reduce the volume of fish catch. The table below can show the estimated reduction in production.

Table 10. Damages and Estimated Reduction in Production

Province					
1. Meat Production	Quantity of Dead	Estimated Meat Production in Kilograms		Estimated Production Gap	Equivalent Consumption
		Pre-disaster	Post-disaster	Kilograms	Days
a. Cattle					
b. Goat					
c. Swine					
d. Sheep					
e. Chicken					
f. Others					
2. Egg Production	Quantity of Dead	Estimated Egg Production in Units		Estimated Production Gap	Equivalent Consumption
		Pre-disaster	Post-disaster	Units	Days
a. Layers					
3. Milk Production	Quantity of Dead	Estimated Milk Production in Liters		Estimated Production Gap	Equivalent Consumption
		Pre-disaster	Post-disaster	Liters	Days
a. Dairy Cattle					
b. Dairy Goat					
4. Fisheries	Quantity of Damaged	Estimated Fish Production in Kilograms		Estimated Production Gap	Equivalent Consumption
		Pre-disaster	Post-disaster	Kilograms	Days
a. Boats					
b. Nets					
c. Engines					
d. Fish Ponds					
e. Others					

Notes in filling out Table 10.

- The quantity of dead livestock and poultry will result in lower production of meat, eggs and milk (cattle for beef; swine for pork; sheep for mutton, etc.).
- It should be noted too that the productivity of animals (for milk and eggs) are also affected by the heavy stress brought about by disasters, thus there is a possibility that production of eggs and dairy may be reduced even if there are no animal death that occurred.
- The number of damaged boats, nets, etc., will result in the reduction of fish catch.
- The estimated production gap will be the difference between the pre- and post-disaster estimates.
- The equivalent consumption is the number of days by which the production gap could have been consumed.
- Other food items produced in provinces or areas under assessment should be included here.

Step 3. Summarize the Estimated Food and Water Supply Gaps

Based on the assessment described earlier and tables generated, a summary can be created to show the food supply gaps of the disaster-affected province or area. The table below can be used.

A. Food Gap

The total food supply gap will be the sum of the destroyed produce, stocks and the estimated reduction in production or harvest after the disaster. This value can be translated into the equivalent number of days of consumption in the province or area under assessment. The table below can be used.

Table 11. Summary of Food Supply Lost, in Kilograms or Appropriate Unit

Province					
	Stored Items Destroyed	Estimated Reduction in Production	Estimated Total Food Supply Lost	Total Equivalent Consumption	Estimated Period Before Supply Normalizes
Food Items	Kilograms	Kilograms	Kilograms	Days	Days
1. Taro					
2. Cassava					
3. Yam					
4. Sweet potato					
5. Rice					
6. Corn					
7. Soybean					
8. Peanut					
9. Pineapple					
10. Papaya					
11. Banana					
12. Leafy vegetables					
13. Others					
Other Food Items					
1. Eggs					
2. Dairy					
3. Meat					
4. Fish					
5. Others					
Processed Food Items					
1. Processed Fish					
2. Processed Meat					
3. Bread					
4. Noodles					
5. Others					

Notes in filling out Table 11.

- The equivalent consumption is the estimated number of days that the total amount of food lost could have been consumed. These values indicate the number of days by which food supply has been reduced in the province.
- The equivalent consumption in days can be the reference for the duration of emergency food assistance to the disaster-affected province or area/s.
- The estimated period before supply normalizes refers to number of days/weeks/months before supply of food in the provinces/areas will come back to their pre-disaster levels. This can be the number of days from planting to harvest season of affected crops (which is given in the baseline information), the period before they will be able to produce their own food requirements. (In the meantime, there can food aid or a massive food importation to fill in the supply gap).
- The number of days from planting to harvest period for each crop can assist the assessment specialist in validating the number of days that food aid should be extended to the affected province or area to avert any food crisis.
- The assessment specialists should be aware that the estimated number of days before supply of processed food will normalize is dependent on, among others, the capacity of traders to resume their businesses and the restoration of facilities and infrastructure related to transportation and logistics like ports, airports and roads and bridges in some remote areas.

B. Drinking Water Supply Gap

The sources of drinking water supply, as enumerated in the baseline information, can be damaged by floods, landslides, etc. which can make the water unsafe for drinking over a period of time. The table below can show the supply gap in drinking water.

Table 12. Damages and Drinking Water Supply Gap

Province				
Water Source	Quantity of Damaged or Contaminated Water Sources	Estimated Reduction In Drinking Water Supply	Estimated Period Before Water Supply Will Normalize	Drinking Water Supply Gap
		Liters Per Day	Days	Liters
1. Piped-in Tap Water				
2. Communal Tap Stands				
3. Communal Wells				
4. Rivers				
5. Bottled Water				
6. Others				
Total Drinking Water Needed				

Notes in filling out Table 12.

- The total drinking water needed will be the supply gap which is the estimated required volume of drinking water to maintain the pre-disaster level of supply.

- The number of days required to normalize the supply of safe drinking water should be assessed by water supply experts in the country.
- It should be noted, however, people will substitute the sources of drinking water if their normal source is interrupted. For example, people relying on bottled water or tap water inside their homes will source their drinking water from uncontaminated rivers. Thus, the assessment specialist must be aware of such situation to have reliable information and decided as to whether direct water supply is needed or water purifiers instead.

Step 4. Determining the Type of Food Aid to be Provided

Based on the assessment of the food gaps, the food requirements over a period of time can be estimated to avert any food crisis in the disaster-affected area/s. The following are some possible food items that can be provided:

1. *The same or similar food items that are normally consumed before the disaster.* This may be difficult to supply considering that the food items normally consumed in the Pacific countries are perishable stuffs which may not be readily available from the market or in storage for distribution.
2. *Food rations containing pre-determined food items.* Pre-determined food rations are relatively easier to distribute considering that they are normally composed of non-perishable items like rice, oil and tinned goods. However, their nutritional content may not be sufficient especially to those with special needs like lactating mothers, infants, children and the elderly.
3. *Equivalent food items which are more nutritious or with micronutrients for better nutrition.* Disaster emergencies can be used by governments to introduce other types of food items which are more appropriate to the health of the people like low-sugar food items for diabetes-prone Pacific countries.

Ideally, to identify the better mix of food items to be delivered to disaster victims, a pre-disaster analysis should have been undertaken as part of the overall preparedness plan. If this has not been achieved yet, the following issues can be considered in assessing the appropriate mix of food aid in post-disaster emergency:

1. The availability of the type of food that can be extended as food aid vis-à-vis their acceptability to the disaster-affected people.
2. The nutritional content of the food items in relation to the needs of the people especially those who are vulnerable like lactating mothers, infants, children, etc.
3. The transportation, distribution and other logistical requirements like the accessibility of the disaster-affected area/s, system of distribution, etc.
4. The possible market distortions that food aid may create in the affected area/s. In some instances, high priced food items for distribution can end up in the black market if not strictly monitored.

5. The other related requirements of the food aid that will be distributed. For example utensils (if the food items will need cooking) and can openers for tinned foodstuffs should be included as part of the food aid package.
6. The duration of food assistance. The duration of food aid can be timed with the planting seasons and production schedules of the affected area/s. For instance, food assistance can be limited to the period when farmers are replanting up to their harvest time where food supply is expected to normalize. The duration of food assistance may vary from one affected area to another but food aid should not breed dependency among the affected population.
7. The potential impact on women and children of food aid. Food aid should be equally accessible to men and women and not adversely affect the conditions of women and children. The IASC Gender Marker Tip Sheet on Food Security 1 (Food Assistance) dated 29 July 2011 can be used in ensuring the proper implementation of post-disaster food assistance.

Based on the estimated food and water supply gaps as assessed in the disaster-affected area/s, and after considering the issues above, the food security requirements can be identified and summarized in the following table which enumerates the generic types of food and the capacity of the government to respond.

Table 13. Food Requirement to Maintain Food Security

Province						
Types of Food	Total Quantity Needed	Total Equivalent Consumption	Government Capacity		Additional Quantity Needed	Total Estimated Cost
			Quantity	Equivalent Consumption		
A	B	C	D	E	F	G
Energy	Tons	Days	Tons	Days	Tons	\$
1. Grain						
2. Wheat						
3. Cereals						
4. Cooking oil						
5. Others						
Protein	Tins	Days	Tins	Days	Tins	\$
1. Tinned fish						
2. Tinned meat						
3. Soya						
4. Others						
Dairy	Liters	Days	Liters	Days	Liters	\$
1. Milk						
2. Butter						
3. Others						
Supplements	Tablets	Days	Tablets	Days	Tablets	\$
1. Micronutrients						
2. Others						
Water	Liters	Days	Liters	Days	Liters	\$
1. Bottled water						
2. Purifiers						
3. Others						
Infant feeding needs						
1. Formula						
2. Bottles						
3. Others						
Cooking Equipment	Units	N.A.	Units	N.A.	Units	\$
1. Pots						
2. Pans						
3. Others						
Eating Equipment	Units	N.A.	Units	N.A.	Units	\$
1. Spoons						
2. Forks						
3. Others						
Others						
TOTAL						

Notes in filling out Table 13.

- The types of food in Column A are just listings of possible generic food supply needed. They should be replaced by the appropriate types of food as may be determined later.

- The total quantity needed in Column B refers to the amount of food and water gaps identified earlier.
- The equivalent consumption (Columns C and E) refers to the estimated number of days that the total quantity needed can be consumed.
- Government capacity (Column D) refers to the amount of food aid that the government is capable of providing to the affected people. The information can be available from the concerned government agency like the NDMO in the country.
- Additional quantity needed (Column F) is the difference between the total need (Column B) and what the Government can provide (Column D). This will indicate to other development partners how much more is needed to avert a post-disaster food crisis.
- The total estimated cost (Column G) is the estimated financial requirement of the additional food items needed under Column F

The food requirements of the disaster-affected provinces can be summed to form the national food security requirement of the disaster-affected country.

IV. Concluding Notes

This guidance note is intended to start a standard methodology in assessing food security in the Pacific island countries after a disaster. For a more accurate assessment of food security issues, the Food Security Cluster can initiate some activities which can provide more information that can assist in the identification of the appropriate response after a disaster. Among them are:

1. *A consultative work among Pacific countries and partners in the food security cluster to:*
 - a. Pre-determine the types of food items to be provided during emergencies like the appropriate mix for food aid, its distribution and utilization;
 - b. The possibility of pre-positioning food supplies across the Pacific countries for ease of access and distribution in times of disasters; and
 - c. The establishment of an agreement or a protocol of cooperation for food aid among the Pacific countries in times of disasters.
2. *A study on the general post-disaster coping mechanism and strategies of the people within in the Pacific island countries.* A study that can describe the coping activities usually undertaken by the people after a disaster like the sourcing of alternative food; how they purify drinking water; community self-help activities, etc. which can help in identifying a more appropriate food security response.
3. *A study on the gender dimensions in agricultural production, consumption and domestic work.* This study should describe the roles of men and women in all aspects of production (types of work done; tools used; etc.) marketing, household work and consumption, etc. which can help in the identification of the appropriate types of food aid and in designing the implementation arrangements particularly in the distribution and monitoring.
4. *A study on the possibility of providing food aid by procuring food items within the disaster-affected area/s.* This strategy can enable the local economy to normalize quickly.

5. *A study on the potential losses of food crops due to certain types of disasters like floods which can expedite the food security assessment.* A matrix of potential crop losses due to floods can be created based on existing scientific information from the Ministry of Agriculture which can be validated by empirical observations in the field with the collaboration of farmers.

The matrix for potential losses can look like the one below.

Matrix 1. Estimated reduction in harvest due to natural disasters based on empirical observation.

Main Crops	Stage of Growth	Estimated Reduction in Harvest (in % per hectare)			
		Extreme Rain (in Millimeters)	Submerged in Flood Waters for:		
			1 Day	2-3 Days	> than 3 days
Taro	Stage 1				
	Stage 2				
	Stage 3				
Cassava	Stage 1				
	Stage 2				
	Stage 3				
Vegetables	Stage 1				
	Stage 2				
	Stage 3				
Banana	Stage 1				
	Stage 2				
	Stage 3				
Others	Stage 1				
	Stage 2				
	Stage 3				

Notes in filling out Matrix 1.

- Individual Pacific countries should identify their own main crops.
 - The various stages of growth of the various crops should be determined by the experts at the Ministry of Agriculture. For instance, stage 1 may be the seeding stage; stage 2 is the transplanting stage; stage 3 is flowering stage or in some crops the maturing stage.
 - At various stages of growth of crops, the estimated reduction in harvest per hectare of a specific can be varied depending on the conditions brought about by extreme rain and flooding.
 - The condition of “Extreme rain” condition in millimetres can be determined by meteorologists in each country.
 - The “Estimated Reduction in Harvest (in % per hectare)” refers to the percent reduction of harvest per hectare with the occurrence of the flood as compared to without a flood. It is a “with” and “without” floods comparison.
 - A similar analysis for winds brought about by typhoons can be done too for the same main crops.
6. *A vulnerability analysis that can provide pre-disaster information on the food crops and the corresponding area/s which are vulnerable to certain types of disasters.* The information should be based on scientific study and empirical observations on the ground.

The matrix can look like the one below.

Matrix 2. Vulnerability analysis of farm lands.

Province																
Main Crops	Land Area Planted	Vulnerability														
		Floods			Landslide			Tsunami			Drought			Others		
	(Hectares)	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Taro																
Cassava																
Leafy vegetables																
Banana																
Others																

Notes in filling out Matrix 2.

- Individual Pacific countries should identify their own main crops.
- The various levels of vulnerability (L for Low; M for Medium; and H for High) of the farms/lands planted with different crops should be determined by the experts at the Ministry of Agriculture in cooperation with the Bureau of Meteorology and other appropriate agency/ies and organization/s.

By using Matrices 1 and 2 with the relevant baseline information on crops – land area, productivity, period of planting – a reliable analysis can be made to provide a relatively accurate estimate of potential losses should a certain type of disaster occur.

7. *Training.* Since the contents of this guidance note may be new or different from the ones used in some Pacific island countries, training sessions may be necessary especially for personnel from Ministries of Agriculture tasked to perform post-disaster assessments. The trained national level personnel can echo the training to their provincial or sub-national level counterparts who will perform the assessment in their respective geographical area/s of responsibility/ies. Likewise, regional development partners within the Food Security Cluster can benefit from attending such training/s to achieve a commonality and consistency of knowledge within and among the regional and national actors.

The tables within this guidance note can be reproduced separately and be used as work sheets by assessment specialists. The full guidance note will serve as the reference to them in doing their tasks and in training other personnel at the national and sub-national levels.

The post-disaster damage, loss and needs assessment which will focus on the early to medium- and longer-term needs of the agriculture sector and the impact of damages and losses in agriculture on macroeconomic indicators will be covered under a separate guidance note.