Emergency Response Strategy and Action Plan for the Agriculture Sector in the Caribbean

Volume II - Action Plan

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Acronyms

AFNC	Agriculture Food and Nutrition Cluster
AP	Action Plan
ASEACP	Agriculture Sector Emergency Assistance Coordination Plan
CAHFSA	Caribbean Agriculture Health and Food Safety Agency
CAP	Caribbean Community Agriculture Policy
CARDI	Caribbean Agricultural Research and Development Institute
CaribVET	Caribbean Animal Health Network
CARICOM	Caribbean Community
CARPHA	Caribbean Public Health Agency
CBOs	Community-based Organizations
CCA	Climate Change Adaptation
CCCCC	Caribbean Community Climate Change Centre
CCS	CARICOM Community Secretariat
CDB	Caribbean Development Bank
CDEMA	Caribbean Disaster Emergency Management Agency
CDERA	Caribbean Disaster Emergency Response Agency
CDM	Comprehensive Disaster Management
CIMH	Caribbean Institute for Hydrology and Meteorology
CLS	Collymore, Little, Spence
COVID-19	Coronavirus disease 2019
COTED	Council on Trade and Economic Development
CPHD	Caribbean Plant Health Directors
CRFM	Caribbean Regional Fisheries Mechanism
CROSQ	CARICOM Regional Organization for Standards and Quality
CSME	Caribbean Single Market and Economy
DaLa	Damage and Loss Assessment
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
ECCB	Eastern Caribbean Central Bank
ECLAC	Economic Commission for Latin America and the Caribbean
ER	Emergency Response
ERS	Emergency Response Strategy
EWS	Early Warning System
FAO	Food and Agriculture Organization
ICT	Information and Communication Technology
IICA	Inter-American Institute for Cooperation in Agriculture
ISO	Initial Situation Overview
MOA	Ministry of Agriculture
MS	Member States
NGO	Non-Government Organization
NOAA	National Oceanic and Atmospheric Association
OECS	Organization of Eastern Caribbean States

PDNA	Post-impact Needs Assessment
RFNSP	Regional Food and Nutrition Security Policy
SAI	Standard Audit Instrument
SIDS	Small Island Developing States
SOP	Standard Operating Procedure
SPS	Sanitary and Phytosanitary
SVG	St Vincent and the Grenadines
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
UWI	University of the West Indies
WTO	World Trade Organization

1.0: Introduction

The Agriculture Sector in Caribbean Community (CARICOM) Member States (MS) and Associate MS comprises crops, livestock, fisheries and forestry. The sector is highly susceptible to the impact of hazards – natural, technological and biological. The Caribbean ranks high on the vulnerability index, with many weather-related natural events causing losses of about 2 percent of regional gross domestic product (GDP) every year[1]. These climatic events have resulted in significant costs to both the economy and quality of life. As a result of natural hazard-related disasters, the Caribbean has lost almost 240 000 lives and had many more displaced between 2000 and 2020. The Caribbean has also recorded over USD 32 billion in damage and losses from natural events over the same period[2].

Some of the major natural hazard-related disasters in the Caribbean include Hurricane Ivan in 2004, which eroded over 200 percent of Grenada's GDP, and the 2010 earthquake in Haiti, which displaced over 5 million people and eroded 114 percent of the country's GDP. In 2017, Hurricane Irma reduced Antigua and Barbuda's GDP by 15 percent, whilst Hurricane Maria caused damages and loss exceeding two entire years of Dominica's (over 200 percent) GDP with estimated damages and loss to agriculture and fisheries at US $180 million. More recently, in 2019, Hurricane Dorian, which hit the Bahamas, caused total economic damages of approximately USD 8 billion.

According to the 2019 Global Assessment Report on Disaster Risk (UNDRR), the increasing complexity and interaction of human, economic, political and natural systems has made risk increasingly systemic. This in turn results in impacts that are no longer singular and stationary in nature, but rather, trigger a complex web of interrelated risks and secondary impacts, at different levels and across rural communities and entire value chains. With increasing urbanization and globalization, food systems are becoming more interconnected and complex. This creates both huge opportunities and challenges for farmers, fisherfolks and small-scale enterprises.

Accordingly, in 2017, the 71st Special Meeting of the Council for Trade and Economic Development (COTED) – Agriculture, an Organ of CARICOM, mandated the Agriculture Food and Nutrition Cluster (AFNC) to develop an Emergency Response Strategy and Action Plan for the Agriculture Sector[3].

The Action Plan has become more urgent in face of the coronavirus (COVID-19) pandemic, focusing on the roles of different stakeholders related to the agriculture sector in the region. The Action Plan provides a framework for collaboration of national institutions, regional and international organisations, and the implementation modalities for emergency responses following major natural hazards and threats to the regional agriculture sector. Further, it includes

[1] Caribbean Development Bank
[2] Ram, Justin. Resilience Impact Securities with Equity (RISE) — How to Finance and Democratize Resilience Building during and after the POST COVID-19 Era (2020)
[3] https://caricom.org/coted-green-lights-agriculture-regional-emergency-response-team

policy recommendations on how to bolster regional mechanisms and how this support should be coordinated, mobilized and managed.

2.0: Structure of the Plan

2.1 Action Plan Description

This section looks specifically at the mechanisms to activate the Action Plan and the different activities to be implemented by stakeholders according to the type and magnitude of the emergency. Additionally, the Action Plan describes the scope, purpose, assumptions, institutional arrangement and the recommended implementation process to be followed.

2.2 Functional Annexes

The functional annexes contain: a Livelihood Assessment Toolkit that provides guidelines for analysis and responding to the impact of disasters on the livelihoods of people; a resilience index for measurement and analysis; damage and loss assessment; post disaster needs assessment; and proposed interventions over the short, medium and long term.

3.0: Purpose

To allow for an immediate and coordinated response through emergency agricultural assistance in any affected CARICOM MS or Associate MS in accordance with the Plan's procedures, in the event of a disaster. Specifically, the Action Plan will seek to:

i. provide guidelines for coordinating regional and international agricultural assistance in support of national response efforts to the impact of a natural hazard;

ii. define roles and responsibilities among regional and international actors in order to provide timely and effective emergency agricultural response;

iii. Provide tools for the assessment of damage and loss caused to the agriculture sector (including crop, livestock, fishery and forestry) in the CARICOM MS and Associate MS, and identification of recovery and rehabilitation needs; and

iv. mobilize and coordinate assistance, as well as identify/secure resources (financial and technical) for the agriculture sector in affected CARICOM MS.

5.0: Assumptions

i. An Agricultural Disaster Risk Management Plan (inclusive of fisheries) which includes a trigger for this regional Action Plan, exists in each CARICOM MS and Associate MS.

ii. Resources to implement the Action Plan are available and accessible at all levels – national, regional and international; and

iii. The Action Plan will operate in an environment in which a range of governmental, non-governmental, regional and international agencies at national and regional levels will work jointly to achieve its objectives.

6.0: Scope

The ERS & AP will operate within the jurisdictions CARICOM MS and Associate MS. Development partners and other stakeholders are encouraged to utilize the provisions of the Plan in designing future intervention support to MS.

7.0: Institutional arrangement

The Caribbean Disaster Emergency Management Agency (CDEMA) co-chaired by the Chair of the Thematic Group on Climate Change, Disaster Risk Management and Natural Resources Management will administer/operationalize the Plan. The Chairs will act under the Authority of the Agriculture Food and Nutrition Cluster (AFNC) and the CARICOM Secretariat.

8.0: Institutional framework

i. The Action Plan is intended to ensure coordination of agricultural[4] response to emergencies affecting any of the 20 CARICOM MS and Associate MS – Anguilla, Antigua and Barbuda, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, and Turks and Caicos Islands;

ii. The Plan covers **geophysical** (w.g. tsunamis, earthquakes, landslides, volcanic activity), **hydro-meteorological** (e.g., hurricanes, heavy rainfall, floods, droughts and **biological** (e.g., animal and plant pest and diseases) **disasters and** other related emergencies such as coronavirus disease that can indirectly affect the sector;

iii. The Plan outlines the framework for CARICOM MS to establish multilateral agreements to assist each other in recovering the agriculture sector following a disaster, in partnership with regional bodies such as CDEMA and others;

[4] Agriculture sector means, primary production of livestock, crops, fisheries and forestry.

iv. Stakeholder and beneficiary engagement of the Action Plan is critical to its successful implementation. The Activity Framework Matrix in Section 2 of the Plan outlines stakeholders' responsibilities for specific key activities. Target stakeholders/beneficiaries of the Plan include but are not limited to:

1. National Ministries of Agriculture, Environment and Fisheries – including forestry divisions;
2. The CARICOM Secretariat;
3. Disaster risk management agencies (i.e. National Disaster Offices and CDEMA);
4. Caribbean Agricultural Research and Development Institute (CARDI);
5. Caribbean Regional Fisheries Mechanism (CRFM);
6. International agriculture agencies operational in the Caribbean;
7. Agriculture-based non-government organisations (NGOs) and community-based organizations (CBOs);
8. Farmers and farming households;
9. Fisher folks including aquacualturist;
10. Agricultural associations, cooperatives and farmers'/fisher groups;
11. Consumer and marketing distribution organizations;
12. Agriculture-linked industries such as food processing and tourism;
13. Education institutions (Colleges, Universities, and other tertiary institutions); and
14. Media.

v. Specialized organizations (i.e. Food and Agriculture Organization of the United Nations [FAO], Inter-American Institute for Cooperation in Agriculture [IICA], CDEMA, CARDI, Caribbean Institute for Meteorology and Hydrology (CIMH), Organisation of Eastern Caribbean States (OECS) Commission, etc.) supporting the agriculture sector under the umbrella of the Thematic Group on Climate Change, Disaster Risk Management and Natural Resources Management (CC DRM & NRM) and AFNC, will play a critical role in supporting emergency response and coordinating relief efforts for CARICOM and Associate MS where the agriculture sector is impacted.

vi. Implementing partners: Assignment of these roles and responsibilities should be guided by the Major Activities highlighted in Section 2. Anticipated implementing partners in addition to the CC, DRM&NRM Thematic Group Members include but not limited to:
    1. Caribbean Community Climate Change Centre (CCCCC)
    2. University of the West Indies (UWI)
    3. Other National Universities and Colleagues (University of Guyana etc.)
    4. Caribbean Public Health Agency (CARPHA)
    5. Economic Commission for Latin America and the Caribbean (ECLAC)
    6. Caribbean Development Bank (CDB)
    7. Eastern Caribbean Central Bank (ECCB)

8. International Bank for Reconstruction and Development (IBRD, World Bank)
9. United States Agency for International Development (USAID)
10. CBOs
11. Farmer-based organizations (FBOs)
12. Caribbean Region Fisheries Mechanism (CRFM)
13. Fisherfolk organizations (FFOs)

9.0: The trigger mechanism

i. CDEMA is the focal point for effecting the Plan in consultation with, the CARICOM Secretariat the Chairs of the AFNC, Thematic Groups. The other members of the Thematic Group and Cluster are expected to be integral in the implementation of the AP;

ii. The Plan is intended to support National Agricultural Disaster Risk Management (ADRM) Plans and when in place, requires the national plans to include standard operating procedures (SOPs) for triggering the regional assistance mechanism as part of this Action Plan;

iii. The following are expected to be common but not limited to the presiding scenarios, for all intent and purposes which can activate the Plan and emergency response:

1. The Government of a CARICOM and or Associate MS impacted by a natural disaster issues a request for support through their Ministry of Agriculture or designate, notifies the CARICOM Secretariat and CDEMA; or

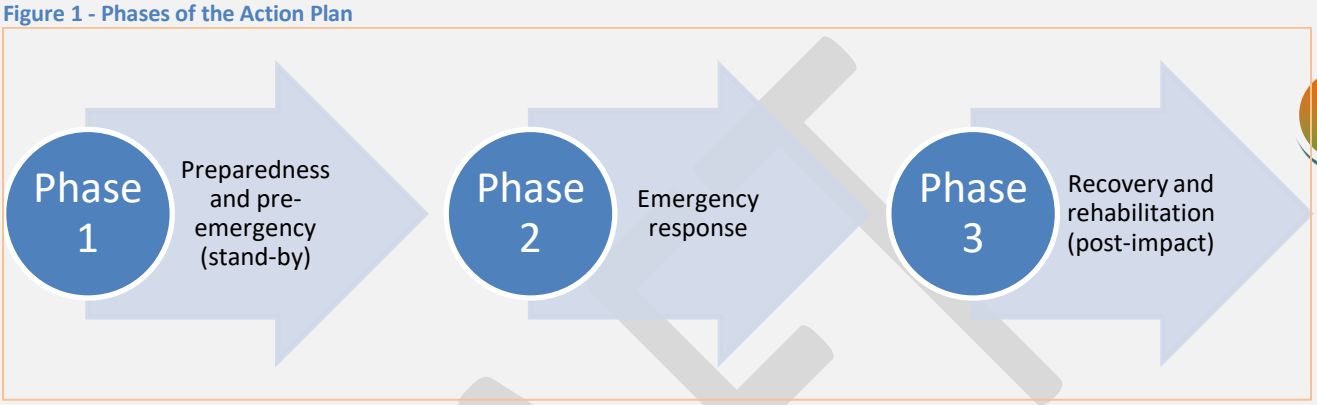
2. Based on verified reports from credible sources, CDEMA in consultation with CARICOM Secretariat or OECS Commission or the Chairs of the AFNC and the Thematic Group and the becomes aware of the impact and liaises with the affected MS through their Ministry of Agriculture / Designate to confirm and assess the needs and coordinated response

iv. In accordance with designated responsibilities, the CDEMA with the implementing partners, will lead the emergency response coordination.

10.0: Implementation phases

CDEMA with support from the Chair of the Climate Change, Disaster Risk Management and Natural Resources Management Thematic Group is responsible for managing and coordinating the support of regional partners and stakeholders for activating the Plan. Activities will be executed in three phases:

Figure 1 - Phases of the Action Plan



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Phase 1: Preparedness and pre-emergency (standby):
Under this phase, MS will undertake activities aimed at strengthening agricultural resilience and enhance capacities to effectively respond to an emergency should it occur. These activities will include the following:

i. Support the preparation of ADRM Plans[5] and SOPs in all CARICOM and Associate MS;
ii. Collate baseline agriculture sector information from Agriculture Sector Audits in MS and carry out seasonality-based risk profiling/assessment;
iii. Update contact information for Ministries of Agriculture, Environment, Fisheries and Forestry and National Emergency Focal Points in CARICOM MS. This information will be also shared with CDEMA;
iv. Develop and/or update Memoranda of Understanding to support preparedness activities in the AP;
v. Identify and confirm specific support, which may be provided to the Agriculture Sector in the CARICOM and Associate MS by development partners germane to strengthening agricultural resilience;
vi. Develop a national and regional roster and confirm availability of experts who can assist in the agricultural sector in pre- and post-emergency situations;
vii. Pre-order and pre-position agricultural inputs and services where possible, and use seasonality-based risk assessments if available; and
viii. Simulate and update SOPs annually or as required.

[5] These ADRM Plans should include livelihood profiling and contingency planning.

Phase 2: Emergency response

Emergency response is initiated after a hazard impact in a CARICOM or Associate MS and when an affected country mobilizes its own personnel and/or request external assistance through CDEMA for support to respond to an emergency (figure 2).

The response will be dictated by the type and magnitude of the emergency on the agriculture sector of the affected MS and by the capacity of the agriculture sector in the impacted state(s) to respond. The Plan identifies three levels of potential impact:

i. Level 1: local level agriculture sector impact. MS agriculture sector resources are adequate and available.

ii. Level 2: local level agriculture sector impact for which the impacted MS' agriculture sector resources and response capacity are limited and insufficient for effective national response. Impacted MS requests focused specialized regional assistance. This may include technical assistance, specialized equipment, emergency funds and support personnel.

iii. Level 3: Hazard Impact on the agriculture sector of an MS is such that national resources and response capacities of the Ministry of Agriculture are overwhelmed and the MS requests major external assistance including from regional resource partners.

Once the response phase is entered, CDEMA, with support from the Chair of the Thematic Group and other relevant member agencies/institutions, will have direct responsibility for managing the response phase. During the response phase, dedicated resources will be mobilized to assist the agriculture sector in the affected MS.

N.B. Whether or not a national disaster or emergency is declared, based on national needs, a set of specific actions may be carried out in regard to the agriculture sector, which may include:

i. Mobilize the required technical experts to respond to the emergency. This can be done at a national, regional and/or international level. The Ministries of Agriculture of the impacted MS should liaise with CDEMA to determine the needs, timing for deployment of support and possible duration of such support. Assessment activities to be conducted will be in line with the regional Damage Assessment and Needs Analysis (DANA) continuum.

ii. CDEMA in collaboration with the Chair of the Thematic Group and the Ministry of Agriculture of impacted states, spearheads deployment of support from development partners and other regional institutions to conduct a rapid/initial situation assessment. In the immediate term, the initial situation overview (ISO) team should rely on field visits, interviews of relevant stakeholder, remote sensing/satellite data and field-level video/photographic representations to inform the overview (refer to Annex 3). In such case, the initiation of the ISO should commence within 48-72 hours after the disaster;

iii. After the ISO, through CDEMA, a rapid response resource partner support initiative will be provided through the Ministry of Agriculture and in-country international partners (i.e., seeds and tools for replanting, shelters for livestock, etc.);

iv. Within one to two-weeks after an emergency event, Ministries of Agriculture in MS in collaboration with CDEMA and other specialized agencies (FAO, CRFM, IICA, CARDI, etc.), should implement a more in-depth sectoral and sub-sectoral (crop, livestock, fisheries and forestry) post-disaster needs assessments that will identify the damage and losses experienced by the sector/subsectors and recognize/prioritize the needs for recovery in the short (1-2 month), medium (3-6 month) and long-term (above six months);

These more specific assessments shall be conducted in consultation with the impacted MS (Ministry of Agriculture) and by utilizing appropriate and standardized tools and approaches such as the FAO damage and loss methodology or other methodologies / tools commonly used in phased disaster impacts assessments.

v. Start to mobilize the funds necessary to respond to the needs and to support a well-coordinated recovery and rehabilitation phase; and

vi. At the culmination of sector rehabilitation, the final step will be to deactivate the national response based on the advice of the affected MS.

Phase 3: Recovery and rehabilitation

Recovery and rehabilitation interventions should adopt "Build Back Better (BBB)"[6] and resilience building principles in order to promote initiatives that would lessen (mitigate) the effects of future disasters.

Activities under Phase 3 will include:

i. Continue to secure the funds necessary to start with the implementation of the recovery and rehabilitation interventions (medium and long term), identified as part of the post-disaster needs assessments using tools such as the Damage and Loss Assessment (DaLa) and or the post disaster needs assessment (PDNA);

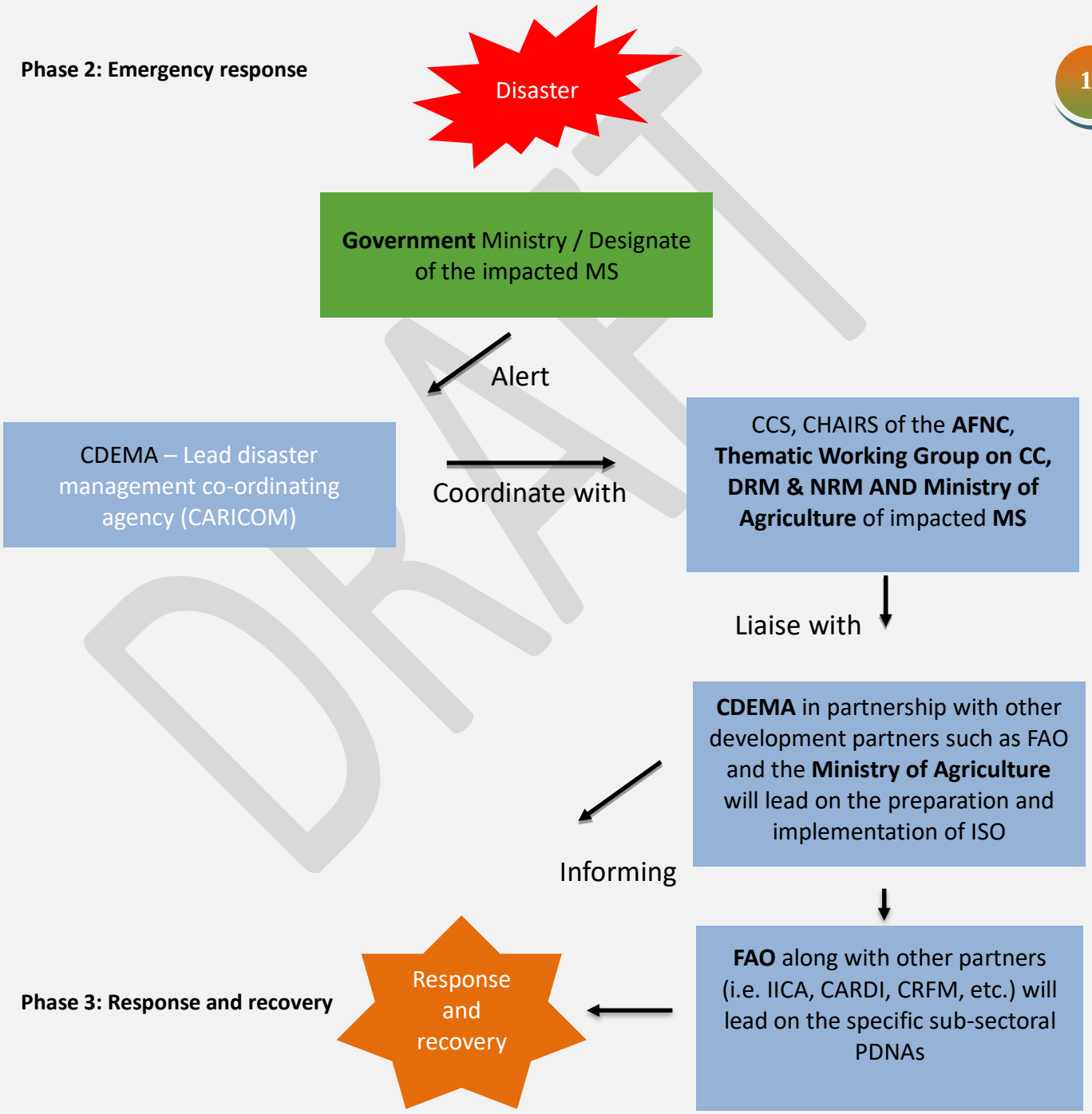
ii. Implement recovery and rehabilitation activities;

iii. Undertake after-action reviews of national response plans and provide recommendations for updating where appropriate; and

[6] https://www.unisdr.org/files/53213_bbb.pdf

iv. Through the AFNC and the CARICOM Secretariat and OECS Commission share relevant lessons learned, recommendation, etc. with the Thematic Group for updating of the ERS & AP as appropriate based on findings of the after-action reviews.

Figure 2 - Chain of command from disaster occurrence to the recovery and response



11.0: Functional annexes

A total of seven annexes constitutes this Plan and serves as a consolidated and simplified toolkit for common agriculture disaster risk preparedness, reduction, emergency response and recovery/rehabilitation actions. The compendium of annexes are as follows:

i. Annex 1: List of additional methodologies and toolkit to conduct agriculture-related pre and post disaster needs assessment, food security and nutrition assessment, and livelihood analysis at sectoral and sub-sectoral levels
ii. Annex 2: Checklist for damage and loss assessment
iii. Annex 3: Initial Agriculture Rapid Damage/Loss and Needs Assessment Form
iv. Annex 4: Rapid Agriculture and Livelihood Needs Assessment Form
v. Annex 5: Potential List of Immediate Needs/Intervention for the Restoration of the Agriculture Sector and Livelihoods after Disaster
vi. Annex 6: Potential List of Medium/Longer Term Needs/Intervention for the Full Recovery of the Agriculture Sector and Livelihoods after Disaster
vii. Annex 7: List of Potential Targeting Criteria to be used after an Emergency for the Agriculture Sector

Action Plan and Activity Framework

12.0: Action Plan and activity framework

The Action Plan specifies actions that translates the emergency response strategy framework – outlined in Volume I (Table 2) – into specific activities that are needed for effective and sustainable implementation of the Action Plan during Phase 1: Preparedness and pre-emergency (stand-by), Phase 2: Emergency response, and Phase 3: Recovery and rehabilitation (post impact). Actions are cross-cutting in relation to the thematic pillars of the ERS and as such, are not uniquely aligned across thematic areas.

Additionally, the activities identified in the matrix below are applicable for the agriculture sectors and sub-sectors crops, livestock, fisheries and forestry at large.

The Action Plan is designed with the understanding that there are other regional models such the CRFM 'Model Disaster Preparedness and Risk Management Plan. It is envisaged that MS will reference these existing models.

12.1 Action Plan – Phase 1: Preparedness and pre-emergency (stand-by)

Table 1: Activity framework matrix for Phase 1: Preparedness and pre-emergency (stand-by)

No.	Main activity	Sub-activities	Timeframe	Outputs	Means of Verification (MOV)	Responsibility
1 2.	**Improvement and management of agriculture sector data/information system** **Application of the Standardized Audit Instrument for the assessment of ADRM and CCA in the Agri-sector.**	1. Conduct audit of existing data information systems in agriculture at national and regional levels 2. Develop and/or reinforce the statistical unit/division within the MOA with trained staff on information system management and appropriate IT resources 3. Identify good practices in the development and maintenance of agriculture information system at national and regional levels 4. Establish platforms for knowledge sharing/transfer of good practices in development and maintenance of agriculture sector data information systems (Designing IT systems	1-6 months (depending on the type of sub-activities and the requirement of a particular country). **For censuses**, the preparation and implementation can reach up to two years in total.	- Inventory of existing agriculture sector data information systems at national and regional levels - Database on national good practices for development and maintenance of agriculture sector data information system - Enhancement of regional and national knowledge and technical expertise on good practices for management and maintenance of agriculture sector data information systems - Complete list of potential sector beneficiaries for emergency response -Synergies and complementarities with Social Protection are explored/tapped - Reliable baseline and pre-disaster information readily available for: a) Establishment of agriculture insurance scheme and similar products.	- Audit report - Inventory of existing agriculture sector data information systems at national and regional levels - Platforms for knowledge sharing and dissemination of good practices related to development and maintenance of agriculture sector data information systems - Institutionalization of methods and tool for pre- and post-disaster data collection efforts - Financial statements, reports, procurement plans and expenditure invoices.	Led by the government through the MOA and with support from relevant partners (National Statistical Institute, academia, international organizations, UN agencies, NGOs, etc.) including private sector.

No.	Main activity	Sub-activities	Timeframe	Outputs	Means of Verification (MOV)	Responsibility
		that can be integrated at a Regional Level) 5. Prepare for and agree on initial/rapid situation overview and post-disaster needs assessments methodology[7], data collection tools (i.e. questionnaires, focus group discussions, etc.) and duties and responsibilities during the emergency response process (who will do what at national and regional level).[8] 6. Coordinate with social welfare ministries and explore the use of social protection registries/databases to complement farmers/farms/fisher's mapping, identification and targeting (during response).		b) Rapid disaster impact simulations and more granular contingency planning c) Reliable post-disaster needs assessment and monitoring of food and nutrition security. d) Facilitate any other work stream requiring data (strategic planning, fund proposals, reporting, etc.)		

[7] Please refer to Annexes for a preliminary list of existing pre- and post-disaster needs assessment methodology related to agriculture and other specific sub-sectors including crop, livestock, fishery and aquaculture.

[8] The FAO Damage and Loss (D&L) Methodology is recommended for major disasters as well as localized events. The Post Disaster Needs Assessment (PDNA) and the Damage and Loss Assessment (DaLa) Methodology are currently used during major disasters in both in the Caribbean Region and Worldwide requiring external support.

No.	Main activity	Sub-activities	Timeframe	Outputs	Means of Verification (MOV)	Responsibility
		7. Complete and conduct farmers/farms/fisher's registration. 8. Gather baseline data disaggregated by gender, especially men and women (crop cultivated and hectares planted, type and animal owned, yield/production, boat(s)/gear/pond(s) owned, etc.).[9] 9. Conduct Staff training for on-going data set maintenance (cultivation, production etc.) and routine analysis 10. Conduct/update agriculture census every 10 years 11. Establish / reinforce the required synergies and partnerships between Ministry of Agriculture and National Statistical Offices (NSOs)				

[9] Refer to checklist in Annex 1 for more detailed information at sub-sectoral level.

No.	Main activity	Sub-activities	Timeframe	Outputs	Means of Verification (MOV)	Responsibility
		12. Procurement of: (1) IT equipment (computers, laptops, printers, tablets, etc.); (2) software for data analysis (i.e. SPSS, STATA, etc.); (3) Drones, Global Position system (GPS) devices and Geographic Information System (GIS) software; (4) back-up systems such as online and/or physical (i.e. external drive or similar)				
3	**Set-up of Preparedness and Early Warning Early Action (EWEA) interventions**	1. Conduct risks assessment (i.e. disaster risk prioritization, hazard analysis, livelihood profiling and contingency planning)[10] at a national and regional level. 2. Identify and define EWEA indicators and triggers 3. Identification and dissemination of best practices for crops, fisheries and livestock protection and continuity of business	1-12 Months (depending on the type of sub-activities and the requirement of a particular country).	- Reduced natural disasters' impacts on the agriculture sector – including crop, livestock, fisheries and forestry - and on the people / organizations relying on it. -Identified indicators and triggers that will inform Early Actions - Avoid damage and loss and emergency response. - Timely and effective support for the sector/subsector/population in need. - Emergency relief items (i.e., seeds, fertilizers, hand tools, etc.) prepositioned for a	- Reports, policy documents, procurement plans and strategic / recovery plans, including quotations and fact sheets - identified and agreed upon EWEA indicators and triggers - confirmed sources of EW information - approved EAs (possibly as part of a contingency plans)	Led by the government through the MOA or Local Government Offices and with support from relevant partners (academia, international organizations, UN agencies, and NGOs, MET Offices etc.) including private sector.

[10] http://www.fao.org/3/a-i0304e.pdf

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No.	Main activity	Sub-activities	Timeframe	Outputs	Means of Verification (MOV)	Responsibility
		(applies to risk reduction, disaster preparedness and emergency response including BBB phases) 4. Identify, prepare for and agree on Early Actions and their corresponding triggers 5. Establish EWEA systems (i.e. drought/floods) including EW multi-disciplinary, multi-level information sources. 6. Explore (and operationalize if possible) linkages with the social protection sector (i.e. linking EWEA with Social Protection) 7. Prepare for and agree on emergency response planning and operations - similar to what was done above from the governance side. 8. Preposition relief items to support rapid response and recovery		quicker and more effective recovery. - More accurate post-disaster needs assessment reports and emergency recovery strategies in place. - More reliable EWEA systems and greater access to related data and information - Synergies with Social Protection work - Enhanced integration of lessons learnt from past events into future plans - Integration of informal knowledge in preparedness and response planning - Gender-inclusive approach to emergency preparedness and response planning - Use of risk assessment results to inform contingency planning (which includes Early Actions) and response prioritization		

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No.	Main activity	Sub-activities	Timeframe	Outputs	Means of Verification (MOV)	Responsibility
		of the agriculture sector including logistics for the transportation time-critical, livelihoods-saving of the emergency inputs. 9. Prepare fact sheets & lessons learned from previous disasters also using the south-south cooperation approach. 10. Conduct research related to indigenous and traditional knowledge for effective emergency response 11. Develop emergency preparedness and response plan at community level				
4	**Capacity building on information system management, Agriculture Disaster Risk Management (ADRM)**	1. Training on EWEA and disaster preparedness 2. Training on emergency preparedness & EWEA interventions 3. Training on ADRM related to the development of effective frameworks and mechanisms as well as the implementation	1-4 Weeks	- Establishment of a national, regional and sub-regional network of specialists in emergency response, post-disaster needs assessment, disaster risk reduction and management - Reduced external support for impact assessments and emergency response and improved national and regional support mechanisms	- ToR, training material, training evaluation, reports, and lessons learned Number/frequency of data collection, analysis and reporting opportunities - Frequency of opportunities for EWEA training and	Led by the government through the MOA and with support from relevant partners (academia, international organizations, UN agencies, and NGOs, etc.) including private sector.

No.	Main activity	Sub-activities	Timeframe	Outputs	Means of Verification (MOV)	Responsibility
		of good agricultural practices 4. Training on emergency response and recovery which includes capacity building on methodologies to conduct agriculture post-disaster needs assessment and designing and managing emergency response projects/programmes 5. Training on report writing and resources mobilization 6. Setting up of a database of persons trained in various areas at national and regional level		- Enhanced preparedness and EWEA processes and responses - Strengthened ADRM for a more resilient agriculture sector - More accurate and effective post-disaster needs assessment and emergency response	number of persons trained - Number of personnel trained in ADRM - Increase cadre of personnel trained in emergency response and timely response to needs of impacted agriculture producers - Increase in expressed satisfaction with alignment between disaster loss and assessed needs	
5	**Revision and development of frameworks and policies for ADRM, including emergency response.**	1. Revision, update and alignment of existing policies, legislation, regulations and guidelines related to ADRM through consultation and validation exercise 2. Development of Agriculture Disaster Risk Management (ADRM) Plan at the national level	1 - 12 months (the institutionalization of policies and legislations might take longer than a year because requires cabinet approval)	- Existing policies and guidelines revised and updated - New policies and guidelines developed - New and existing policies and guidelines enforced - Consultation and validation workshop/meeting conducted - Improved inter-sectoral and inter-ministerial collaboration for emergency response.	Policy documents, guidelines for emergency management, reports, newspapers, workshop/meeting minutes, etc.	Led by the government, through the MOA and other relevant Ministries (Planning, Environment, etc.) with support from relevant partners (i.e., regional and international organizations, Development Banks etc.).

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No.	Main activity	Sub-activities	Timeframe	Outputs	Means of Verification (MOV)	Responsibility
		3. Development of new policies and guidelines for emergency response, relief distribution and accountability system 4. Policy instruments (frameworks, plans, roadmaps) linking EWEA and Social Protection 5. Enforcement of existing/new policies and guidelines 6. Discussion and approval of inter-sectoral linkages among different Ministries (Planning, Environment, etc.) and other stakeholders on relevant policies and frameworks related to the major activity areas using consultation and validation exercise		- Share of responsibilities and mandate achieved - Increased compliance with existing emergency response guidelines for the agriculture sector		
6	**Establishment of a coordination mechanism /secretariat/ platform for ADRM as well as Emergency Response**	1. Organization of national and regional round tables and/or constitution of technical working group and	1 to 3 months Every month or bi-monthly depending on the season and exposure to natural disasters of the country	- Relevant national, regional and community level meetings and workshops organized - Enhanced streamlining of emergency response coordination between national and regional stakeholders	- ToR, reports, meeting minutes, etc. - Simulation exercises results	MOA (leading) other Ministry and actors to co-leading and to attend meetings and simulation exercise

No.	Main activity	Sub-activities	Timeframe	Outputs	Means of Verification (MOV)	Responsibility
		related Terms of Reference (ToR)[11] 2. Establishment of a regional/national Agri-Sector Emergency Operations Centre (EOC) 3. Establishment of national secretariat/focal point for agriculture emergency response 4. Organization of simulation exercise related to emergency response		- Focal point and channels of communication established - Simulation exercise conducted		

[11] Actors to be involved: Ministry of Planning, MOA, Ministry Environment, Ministry of Tourism, Disaster Management Office, CSO, NGO, UN, farmers' and fishermen' representatives, etc.

7	**Allocation /mobilization of financial resources for DRR/DRM and emergency response**	1. Identification and allocation of internal government funding as required 2. Preparation of funding proposals 3. Establishment of a national emergency fund for the agriculture sector 4. Negotiations between regional and national stakeholders with external donors and organizations providing financial, technical and logistic support for agriculture sector response.	Throughout the year	- Proposal developed and funded - Increased mobilization of financial resources - Increased allocation of internal budget to DRR/DRM and emergency response - Improved relationship with donors and implementing partners - Reduced duplication of efforts	- Written proposals, meeting and workshop note, events reports etc. - Completed funding proposals for emergency response projects - Meeting's agenda, negotiation announcements, and funding announcements	Government, MOA (leading) with support from relevant partners (international organizations, NGOs, etc.), including donors.

The Action Plan description provides a succinct explanation of all major activities to be undertaken before and after natural disasters and/or hazardous events occur. During this phase, a Disaster Recovery Framework should be developed to inform who will do what during the recovery process.

Activity : Improvement and Management of Agriculture Sector Data/Information System

An agriculture **information system** is an organized system for the collection, organization, storage and communication of information generated by reliable and up-to-date data. Nowadays, computer-based information system is the most used and consists of hardware, software, databases, networks and procedures.

The first four components (hardware, software, database and network) make up what is known as the information technology platform. Information technology workers can then use these components to create information systems that oversee safety measures, risk and the management of data.

In order to establish an information system, it is necessary to first purchase/secure:

1. Information technology equipment (computers, laptops, printers, tablets, etc.);
2. Software for data analysis (i.e., SPSS, STATA, PowerBI, R, etc.);
3. Global Position system (GPS) devices, Geographic Information System (GIS) software and other modern low-cost geospatial tools such as drones and free satellite datasets;
4. Back-up systems such as online and/or physical (i.e., external drive, cloud/online storage or similar).

This set of equipment and actions is generally required for day-to-day and emergency response operations. On the other hand, to maintain a functional information system, technical expertise in this area are essential. Therefore, when the expertise are not available in-house, new skilled personnel needs to be hired or capacity building exercise (i.e., training) conducted.

There are indeed additional exercises that need to be conducted under this major activity:

1. Building baseline data

Baseline data are information describing the situation prior to the disaster, against which the effects of the disaster can be assessed. Pre-disaster data should be gathered and used to establish a baseline snapshot of the affected areas and population, including pre-existing vulnerabilities, traditional coping strategies, as well as exposure to and recurrence of specific threats, risks, or hazards. The sources of baseline data information include:

- Agricultural censuses and surveys and administrative data
- Living Standards Measurement Surveys (LSMS) conducted by the World Bank (http://surveys.worldbank.org/lsms)
- Integrated Phase Food Security Classification maps and data (http://www.ipcinfo.org/)
- FAOSTAT (http://www.fao.org/statistics/en/) /

- World Bank data (https://data.worldbank.org/)
- Land use, bathymetry, and topographical map (GIS maps)
- Other Earth Observation/satellite datasets (e.g., vegetation maps, forest cover maps, etc.)

2. Development, identification and use of data collection methods and tools.

For any given activity/action to be implemented such as PDNA, the establishment of EWEA systems, and the response to an emergency (i.e., develop a procurement and distribution plan) there is the need to have a methodology/approach in place accompanied by specific tools, for data collection and monitoring.

Qualitative and quantitative research methods are both used for capturing information. Qualitative research is used to gain an understanding of underlying reasons, opinions, and motivations. It provides insights into the problem or helps to develop ideas or hypotheses for potential quantitative research. Qualitative research is used to uncover trends in thought and opinions, and dive deeper into the problem. Qualitative data collection methods vary using unstructured or semi-structured techniques. Some common methods include focus groups (group discussions), individual interviews, and participation/observations. The sample size is typically small, and respondents are selected to fulfil a given quota.

On the other hand, quantitative research is used to quantify the problem by way of generating numerical data or data that can be transformed into usable statistics. It is used to quantify attitudes, opinions, behaviours, and other defined variables – and generalize results from a larger sample population. Quantitative research uses measurable data to formulate facts and uncover patterns in research. Quantitative data collection methods are much more structured than qualitative data collection methods. Quantitative data collection methods include various forms of surveys – online surveys, paper surveys, mobile surveys and kiosk surveys, face-to-face interviews, telephone interviews, and systematic observations among others.

Activity: Set-up of preparedness and EWEA interventions

In order to prepare for and reduce the impact of natural disasters while ensuring better response, the following steps and actions should be undertaken:

1. Strengthen institutional capacities.

The success of achieving the expected outputs of Activity 2 rely on the human capacities and knowledge to conduct data collection and analyses (i.e., baseline), establish and manage information system, formulate preparedness, and early warning and early actions, including disaster risk reduction and management, and emergency response. Therefore, it is important to develop new knowledge, skills and attitudes toward the work to be done in these areas of interest. Extension agents of the Ministry of Agriculture and additional personnel working at central level are generally the most important actors to be trained, followed by farmers, fishers and other categories of beneficiaries.

2. Coordination, communication and division of roles (management)

This is another important aspect to consider (who will do what and how). There are many people and divisions within a Ministry and other relevant institutions (private and public) that need to work together to effectively operate and deliver. When it comes to establishing information system, baseline, and developing/implementing preparedness activities, and other actions, there is the need to identify focal points and ways to correctly communicate and coordinate. MS are encouraged to reference existing models such as the CRFM 'Model Disaster Preparedness and Risk Management Plan for Fisheries and Aquaculture Sector'. The Ministry of Agriculture shall take the lead and appoint staff with the capacity to carry out this type of work. A clear understanding of roles and responsibilities enables people, teams and organizations to establish working relationships that can make a difference during a crisis. It is therefore important to identify key activities for ensuring a coherent coordination system, especially in the event of an emergency.

3. Development of national Agriculture Disaster Risk Management (ADRM) Plan.

This set of sub-activities (n. 3) are extremely important.

For example, the Agriculture Disaster Risk Management (ADRM) Plan remains among the most central planning document designed to:

- Strengthen technical capacities and institutional frameworks for DRR
- Improve decision-making and coordination for DRM among stakeholders at international, national, regional and local levels
- Establish a sustainable mechanism for integrated financial resource mobilization that facilitates continued implementation of DRM activities
- Effectively respond to some crises/emergencies when embedded with an emergency response strategy.

The identification, assessment and prioritisation of disaster risks affecting agriculture and food security is also essential to inform a wide variety of short- and long-term resilience and disaster risk management programmes, tools and procedures. Prioritizing disaster risks contributes to early action/anticipatory action, threat-specific emergency preparedness (contingency planning, internal operational preparedness planning, early warning analysis, and disaster risk monitoring and resourcing) and to shaping long-term resilience strategies and programming.

With disaster risk assessment and prioritisation in place, it is possible to identify and rank the potential disasters. This will allow to identify in a timely, effective and efficient fashion the interventions which can mitigate the impacts of the potential disasters before they occur, and the necessary capacities, knowledge and resources required to implement those interventions.

On the other hand, livelihood profiling and contingency planning are processes done in anticipation of potential crises and aims at developing scenarios, arrangements and procedures to address the humanitarian needs of those adversely affected by crises. Livelihood profiling helps to understand the living conditions, livelihood, wealth and vulnerability of people living in the different livelihood zones in a country.[12]

[12] http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/171069/

Contingency planning is risk-specific and should be as detailed as possible in terms of the potential areas and number of people affected: the higher the level of detail, the higher the quality of the preparedness and response actions identified.
The contingency planning process can be broken down into two simple questions:

- What would most likely happen?
- What actions can be taken to be prepared?

Contingency plans allow to identify preparedness gaps and plan the response before the crisis/disaster strikes. In addition to increasing the quality of the response, contingency plans also save time in the response phase: on average, the time spent in drafting the contingency plan equals the time saved when a disaster occurs. Contingency planning should always be undertaken when there is a high risk or probability that a disaster or emergency situation may occur and/or when there is evidence of recurring natural disasters (e.g., seasonal events such as floods, hurricanes or cyclones, and droughts). Contingency planning is linked to, and builds on, the risk assessment and prioritisation (described above) and the country's hazard/seasonal calendar. Because the amount of time available to draft contingency plans for slow onset disasters (e.g., drought) is different from that available for sudden disasters (e.g., cyclone), the scope and focus of the contingency planning will vary according to the kind of disaster/crisis.

Alongside all of the above-mentioned processes and steps, it is now more important than ever to always consider 'multiple hazards and systemic risks.' The experience from the COVID-19 pandemic has proven that risks are truly systemic and have highly complex links and interactions with other risks or hazards.

Activity : Capacity building on information system management, Disaster Risk Reduction (DRR) and Disaster Risk Management (DRM)

Capacity building shall be carried out before any crisis/disaster and continue throughout the year, in order to increase the operational capacities of national and local stakeholders as well as reduce the external support, which can be costly and time consuming. Governments and more specifically the Ministries of Agriculture shall allocate resources in their annual budget for the required trainings and reach out to potential organizations and institutions to request support in a given area of interest. This should be done systematically at the end/beginning of every fiscal year, especially when relations with resource partners and other partners (UN, NGOs, academia, etc.) are well established.

Activity : Revision and development of frameworks and policies for DRR and DRM, including emergency response.

Without taking into consideration this aspect and making all the necessary efforts to standardize and institutionalize methodologies, frameworks and policies in the areas of interest, it will be difficult to ensure sustainability of the actions taken for DRR/DRM and emergency response. An enabling policy environment is thus key for successful DRR/DRM. Personnel and management as well as policy makers are often and quickly changing within the political context of a country. As a result, more resources and time needs to be allocated for standardization and

institutionalization of certain mechanisms, methodologies and documents, which can be updated when required and used as a main source of reference.

Activity : Establishment of a coordination mechanism/platform for DRR/DRM and emergency response

Government and the Ministry of Agriculture should have or establish mechanisms to mobilize external financial resources in addition to what they allocate from their regular budget programme. This will require trained personnel with experience in writing project proposals and in liaising with donors and partners. In addition, considering the trend in the region and the increase in occurrence and magnitude of natural disasters associated with climate change, it is extremely important to identify and assign more funds for disaster prevention, mitigation and preparedness, which include reliable information systems. In fact, without a reliable and functional system it is very hard to implement and monitor the work related to agriculture DRR/DRM and other areas of interest, especially post-disaster needs assessment.

Activity : Allocation/mobilization of financial resources for ADRM and emergency response

The establishment of a coordination mechanism for agriculture DRR/DRM and emergency response has proven to be very effective in many countries. There are different solutions/options that can be considered for the set-up of this mechanism. Nonetheless, a practical solution may be the formation of a national working group under the leadership of the Ministry of Agriculture, which shall include the participation of other key actors, such as the Office Disaster Preparedness Management (ODPM), the Ministry of Environment, UN agencies (i.e., FAO and WFP), intergovernmental agencies (i.e., CARDI, IICA), NGOs, academia and any other relevant institutions/organizations from the private and public sectors. This working group shall have clear roles and responsibilities of the various partners, as well as the goals/activities of the group. Monthly or bimonthly meetings are generally necessary depending on the specific needs and importance of the thematic areas covered by the group in the country.

An alternative could be the establishment of a DRR/DRM and emergency response committee, which has a similar set-up of the working group (in terms of participants and leadership) but meets less often (i.e., quarterly) and when required (before and soon after an emergency). This committee could be quite effective when associated to existing Agriculture Disaster Risk Management (ADRM) Plan that also favours the implementation of the activities under the Plan itself. The Ministry of Agriculture should also seek representation on any National Disaster Management committee. This will facilitate the flow of information, facilitate planning and the allocation of resources from central government to the sector for emergency preparedness, response and recovery.

12.2 Action Plan – Phase 2: Emergency response, and Phase 3: Recovery and rehabilitation (post impact)

This section focuses on Phases 2 and 3 of the suggested trigger response mechanism under the Action Plan.

Table 2: Activity framework matrix for Phase 2: Emergency response, and Phase 3: Recovery and rehabilitation

No.	Major Activity	Sub Activities	When	Timeframe	Outputs	Means of Verification (MOV	Responsibility
1	**Initial situation overview (ISO) / assessment for preliminary scenario definition**	1. Conduct initial agriculture situation overview using primary and secondary information, field visits, interviews, pictures and videos.[13] 2. Execute Field and Aerial Assessments (when possible) in collaboration with relevant actors/stakeholders.	Immediately after the disaster (within the first 48/72 hours).	2/3 days	Clear indication of the initial damage and loss experienced by the agriculture sector and sub-sectors with identified needs for recovery (preliminary reports).	Reports, pictures, videos, interviews, etc.	**CDEMA** in partnership with OTHER Development Partners such as FAO and the **Ministry of Agriculture** will lead on the preparation and execution of ISO
2	**Rapid Agriculture, Food Security and Livelihood Needs Assessment**	3. Collect primary and secondary data, and conduct analysis to deepen, validate and/or modify information collected in the initial situation overview.[14]	Completed within the first two to three weeks after the disaster	1/2 weeks	- More-in-depth analyses/evidence of the impact caused by the disaster on the agriculture sector and sub-sectors (including livelihood and food security) with		Development Partners in partnership with the government, through the MOA, and with support from other regional partners

[13] Refer to the Initial Rapid Damage / Loss and Needs Assessment Form (Annex 3) for further details.
[14] Refer to the Rapid Agriculture and Livelihood Needs Assessment Form (Annex 4) for further details.

No.	Major Activity	Sub Activities	When	Timeframe	Outputs	Means of Verification (MOV	Responsibility
					identified needs for recovery (preliminary reports). - Comprehensive standard procedures leading to more rapid analysis and response		(specialized agency such as CRFM, CARDI other UN agencies, producer organisations, NGOs, etc.).
3	**Post-Disaster Needs Assessment (PDNA)[15] or Damage & Loss Assessment (DaLa)[16]**	1. Identification of disaster impact and needs (at national, regional and community level) Through: i) Data Collection (at sub-sectoral level)[17] ii) Data Analysis iii) Report writing	If requested by the government generally conducted after 2/3 weeks from the disaster	2/4 Weeks	- Comprehensive standard procedures leading to a rapid analysis, recovery and response formulation - Enhanced relevance of emergency response	- Sub-sectoral assessment reports (including maps, photographs, videos and studies). - Aerial (drones, satellite imagery, etc.)	Led by the Government (through the MOA) with support from the World Bank, EU and UN agencies / FAO, IICA and/or ECLAC
4	**Emergency response for the immediate restoration of the agriculture sector and**	1. Identification and allocation of financial and human resources that entails the preparation of funding proposal and flash appeals suing the results of the various	Starting soon after the emergency and after the finalization of the various	1-3 months	- Timely and effective interventions initiated and implemented	Minute's meetings, reports, project documents, procurement	Led by the government through the MOA and with support from relevant

[15] http://www.recoveryplatform.org/pdna/ - http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/276058/
[16] http://caribbean.cepal.org/content/handbook-disaster-assessment
[17] Refer to Annex 2 and 4 to understand the typology of baseline and in-crises/post-disaster data required for these assessments.

No.	Major Activity	Sub Activities	When	Timeframe	Outputs	Means of Verification (MOV	Responsibility
	sub-sectors (short-term)	assessment conducted after the disaster experienced by the country 2. Preparation of procurement and distribution plan and targeting strategy with a clear definition of selection criteria 3. Identification and selection of beneficiaries by gender and vulnerability group in the affected areas 4. Develop execution plan and deploy materials and human resource as needed. 5. Execute MOU for priority clearance of imported agriculture sector recovery resources at ports of entry 6. Develop a Disaster Recovery Framework[18]	agriculture post-disaster needs assessments		- Timely human and financial resource support to agriculture sector - Enhanced objectivity in provision of post-disaster support - Inclusiveness in provision of emergency support - Reduced agriculture sector recovery timeframe	and distribution plans, flash appeals, etc.	partners (international organizations and UN agencies, NGOs, CDEMA, etc.) and donors.
5	**Recovery and rehabilitation of the agriculture sector and sub-sectors (medium-long-term)**	1. Development of an agri-sector recovery plan. 2. Implementation of recovery interventions. The needs/interventions will vary according to the extent of damages and losses experienced in the different sub-sectors as	Generally starting after 2/3 months from the disaster yet depending on its scale and the disruption caused to the	2 to 36 months	- Types and numbers of interventions implemented - Financial resources mobilized and allocated	Reports, proposals, project documents, procurement and distribution plan, etc.	Led by the government through the MOA and with support from relevant partners (international organizations

[18] https://www.gfdrr.org/sites/default/files/publication/DRF-Guide.pdf

No.	Major Activity	Sub Activities	When	Timeframe	Outputs	Means of Verification (MOV	Responsibility
		identified with previous post-disaster needs assessments (under major activity 1,2,3).	sector and sub-sectors				and UN agencies, NGOs, etc.) and donors.

Activity description for Phase 2: Emergency response, and Phase 3: Recovery and rehabilitation (post impact)

Activity : Initial situation overview (ISO)/assessment for preliminary scenario definition

This is generally initiated within 48-72 hours after a natural disaster/event. Depending on the magnitude of the event and the disruption caused, this assessment shall be conducted by the Government/MOA with or without the support of external actors. When external support is needed, and more specifically for what is suggested under this Action Plan, the MOA, under the guidance of CDEMA with support from FAO and other development partners will assist with the data collection, analysis and report writing under Activity 1 (see Annex 3 for guidance on the checklist for data collection to be possibly used for this specific initial assessment).

During this phase it is important to have a quick overall idea of the type of impact caused by the natural disaster/event through both primary and secondary data collection. Also, depending on the accessibility of the areas affected, extension and fisheries officers from the MOA will be the first correspondents on the ground to access/collect the data and information required as part of the assessment. In fact, they generally know the majority of farmers, livestock keepers and fishers in their jurisdiction and through field visits and phone calls – when possible – they will be able to access valuable information.

Field and aerial assessment can be also carried out (when possible) in this early stage of the emergency response using satellite imagery and drones. The enhanced user-friendliness and safety features as well as reduced prices of drones altogether make these new generation tools more accessible and reliable. These technologies will allow the gathering of data in places that are not accessible or have been isolated due to the disaster. Through advanced drone and satellite analysis it will be possible to verify the level of damage and losses experienced in various areas (i.e., type of crops and animals affected, quantity of production lost, infrastructure and productive assets damaged/destroyed) and additional analysis as deemed necessary.

The entire set of tools and actions described above will provide an initial estimate of the damages and losses and preliminary needs on the ground. Generally, this first assessment should not last more than two/three days in total since it is important to rapidly release an initial overview of the situation on the ground which will inform resource mobilization and lead to the activation of an emergency response when required. The information generated can also inform subsequent damage assessment and needs analysis activities.

When external organizations are supporting the development of a final assessment report, it will be necessary to obtain MOA's clearance before disseminating the report.

Activity : Rapid agriculture, food security and livelihood needs assessment

Generally conducted one/two weeks after the disaster. This is the phase when more detailed information will become available considering there might have been accessibility and

communication constraints, especially after major natural disasters such as hurricanes, floods and earthquakes. Extension officers from the MOA will remain the primary link among farmers, fishers and other stakeholders and partners who need to collect information and provide relief assistance. This type of needs assessment is carried out with a set of standardized checklists and questionnaires (see Annex 2) which can support the collection of required information. This will allow for better understanding of the situation on the ground and thus trigger improved planning for more accurate response interventions at sub-sectoral level. Secondary information and the triangulation with the information collected directly on the ground are imperative to increasing the understanding of the impact of the event and what is needed for recovery. The most important questions to answer at this stage are:

- How many people are affected and food insecure?
- What have they lost and how are they coping with the situation?
- What are their needs for recovery and food requirements?
- Are there specific gender considerations to be addressed in the assessments?

<u>Activity</u> : Post-Disaster Needs Assessment (PDNA) or Damage and Loss Assessment (DaLa)

PDNA and DaLa are the most used/standardized methodologies to assess the impact of major natural disasters/events together with the equivalent needs for recovery and restoration. These methodologies are mainly adopted when external support is requested by the Governments of the country affected. Indeed, after capacity building and training, the methodologies can be used with reduced support from external sources.

DaLa was initiated by the Economic Commission for Latin America and the Caribbean (ECLAC) in the 70s and it was also adopted by the World Bank to determine the extent of damages and losses as well as needs in post-disaster situations. However, at the beginning of the year 2000, most specifically in 2008, the World Bank together with the European Union and United Nations Development Group (UNDG) decided to develop an additional integrated methodology called PDNA, which aimed at better capturing the impact on the "human dimension" after any given major natural disaster. Currently, the PDNA is the most adopted integrated-approach to conduct PDNAs at global level, which generally starts 6-8 weeks after a disruptive disaster with a duration of 10-20 days – always depending on the magnitude of the disaster and the expertise available on the ground.

These particular assessments (DaLa and PDNA) are always led by governments with international partners providing support according to their mandate and area of expertise. For example, during PDNAs, FAO generally supports the analysis of the agriculture sector in partnership with experts from the WB and EU. Other organizations such as UNICEF or UNDP will take the lead on the education and infrastructure sectoral analyses, respectively.

The main aim of these assessment methodologies is to provide a dollar value to the damage, loss and needs assessed, in order to inform governments, donors and humanitarian partners on what has happened and what is required to support recovery. The decision on whether to use a PDNA and/or a DaLa is often taken by the government of the affected country and the interaction with the international organizations providing support.

Activity : Emergency response (short-term)

Once a PDNA and other impact analysis are concluded the government with support from humanitarian actors and additional relevant partners can start planning for emergency response. However, it will be necessary to identify the funds to respond to the emergency and prioritize recovery interventions which are required in the short-term (1-3 months after a disaster). A summary list of the likely interventions required in the short-term under each agriculture sub-sector are shown in Annex 5. After the identification and allocation of financial resources it will be important to start the procurement and transportation process, which in the case of the Caribbean could take longer as the majority of the agriculture relief items is generally provided through marine transport and not by air as in the case of other commodities such as food and health-kits. In this regard, it will be important to have all necessary protocols in place to clear inputs at the port of entry in order to avoid delays and congestion. While the procurement is ongoing, it will be important to have a final list of beneficiaries who can be targeted according to various vulnerability criteria selected jointly by the government and humanitarian organizations providing support. Once the inputs are cleared and ready for delivery, it will be necessary to have a distribution plan in place to facilitate the transport and allocation of relief items. During this phase, the implementation of the Disaster Recovery Framework should start and resource requirements should be determined.

Activity : Recovery and rehabilitation of the agriculture sector (medium to long term)

The only difference with the previous activity is the timing of implementation of the recovery interventions. In fact, medium-/long-term recovery and rehabilitation interventions start at least 1-2 months after major disasters strike and can take up to 2-3 years for implementation. All interventions under Activity 5, might lead to the establishment of development programmes and projects which will serve to strengthen a particular area of the agriculture sector and sub-sectors hence the longer period for implementation. Also in this case, a summary of the medium-/long-term interventions required for recovery and reconstruction is presented in Annex 6.

13.0: Communication and information management

Information and communication are the most valuable commodities during emergencies and disasters as they are not only integral to the emergency coordination process but also help in generating visibility and credibility.

Communication and information management is based on the principles of accessibility, inclusiveness, inter-operability, accountability, verifiability, objectivity, humanity, timeliness and sustainability. As all other operational aspects of emergency management, information and communication management is applicable to all phases of emergency response. Table 3 provides a generalized matrix for communication and information management in the Action Plan.

Table 3: Communication and information management plan

Objectives	Audience	Strategy	Activities/tools
Ensure that a situation report regarding the development/unfolding of the emergency agricultural situation (pre and post disaster) are produced and updated regularly	National focal points, international resource partners, community level stakeholders, and media	Establish the communication and information management team for collecting, analysing, producing, and disseminating technical and visibility information	- Identify pertinent sources of information for relevant subsectors - Produce/update scheduled reports for relevant subsectors - Systematically circulate these reports to relevant agriculture stakeholders - Publish/update reports on relevant media
Ensure that pre and post disaster emergency communication includes information on countermeasures to reduce impact	Vulnerable and impacted communities, agriculture sector decision-makers/ authorities and international/regional agricultural organizations	Strengthen relationships within the audience stakeholders and media partners to facilitate ongoing dissemination of information	- Prepare press releases, conduct interviews, distribute press kits, and support tours in affected areas. - Organize media interface to raise their awareness and ensure commitment to publicizing measures to mitigate the impact of hazards on agriculture
Strengthen participation of agriculture sector level stakeholders organization for more effective emergency response	Leaders of CBOs, NGOs, local and national agriculture interests, civil society, and agricultural financial agencies	Cement partnerships with local and national agricultural stakeholders for more effective emergency response	- Train local partners/volunteers in emergency response activities - Organize awareness campaigns targeting varied demographics on emergency agricultural response - Engage local populations in agricultural recovery efforts post impact

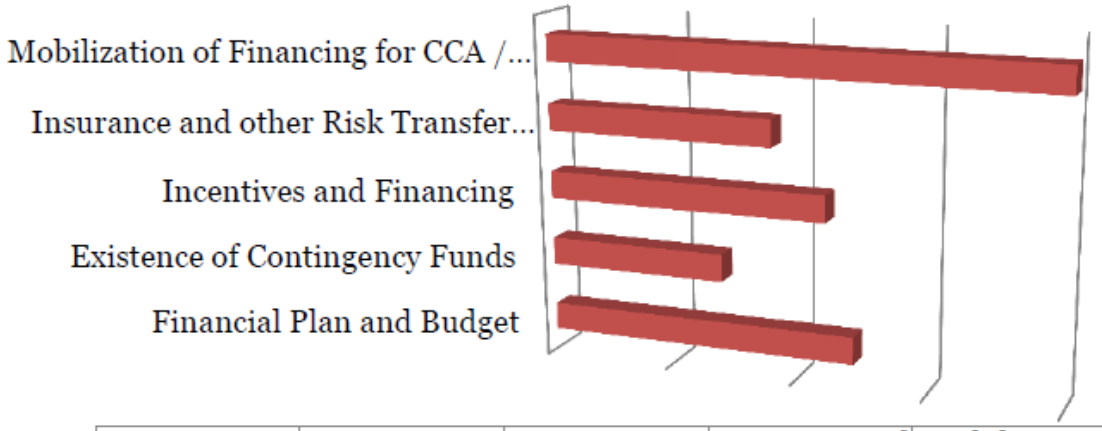
Objectives	Audience	Strategy	Activities/tools
Ensure adequate knowledge regarding application of emergency communication standards in agriculture sub-sectors	Emergency agricultural response personnel and extension services	Emergency communication training	- Organize sub-sector information sessions - Develop information posters regarding emergency response benefits of standards application

14.0 Financing and resource management

Effective and efficient financing and resource management for implementing the Action Plan is hinged on the conduct of the status of financing and resources to support DRM and CCA in Caribbean agriculture. The CLS Joint Venture (2016) of the financial capacity for integrating DRM and CCA considerations in ten CARICOM States concluded that all the analyzed states had low financial capacity as reflected in a regional average score of 1.8 measured against a maximum average of 4.5 (Figure 3).

A breakdown of the financial capacity of selected analysed states is shown in Figure 4.

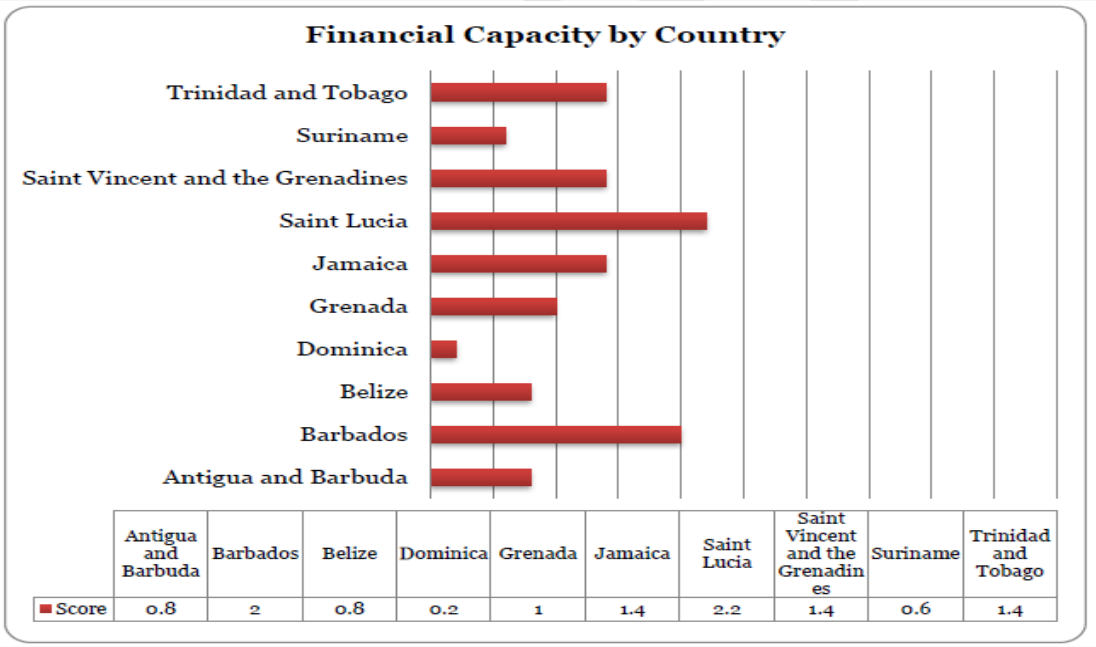
Figure 3 - Financial capacity for DRM /CCA Activities: Regional average CLS



	Financial Plan and Budget	Existence of Contingency Funds	Incentives and Financing	Insurance and other Risk Transfer Mechanisms	Mobilization of Financing for CCA / DRM
Score	1.22	0.7	1.11	0.9	2

Source : CLS Joint-Venture, 2016

Figure 4 - Financial capacity for selected MS



	Antigua and Barbuda	Barbados	Belize	Dominica	Grenada	Jamaica	Saint Lucia	Saint Vincent and the Grenadines	Suriname	Trinidad and Tobago
Score	0.8	2	0.8	0.2	1	1.4	2.2	1.4	0.6	1.4

Source: CLS Joint Venture, 2016

Indications are that there is substantial inadequacy in financial capacity and requisite resources to support effective emergency response in all agriculture sub-sectors. Priorities for disaster

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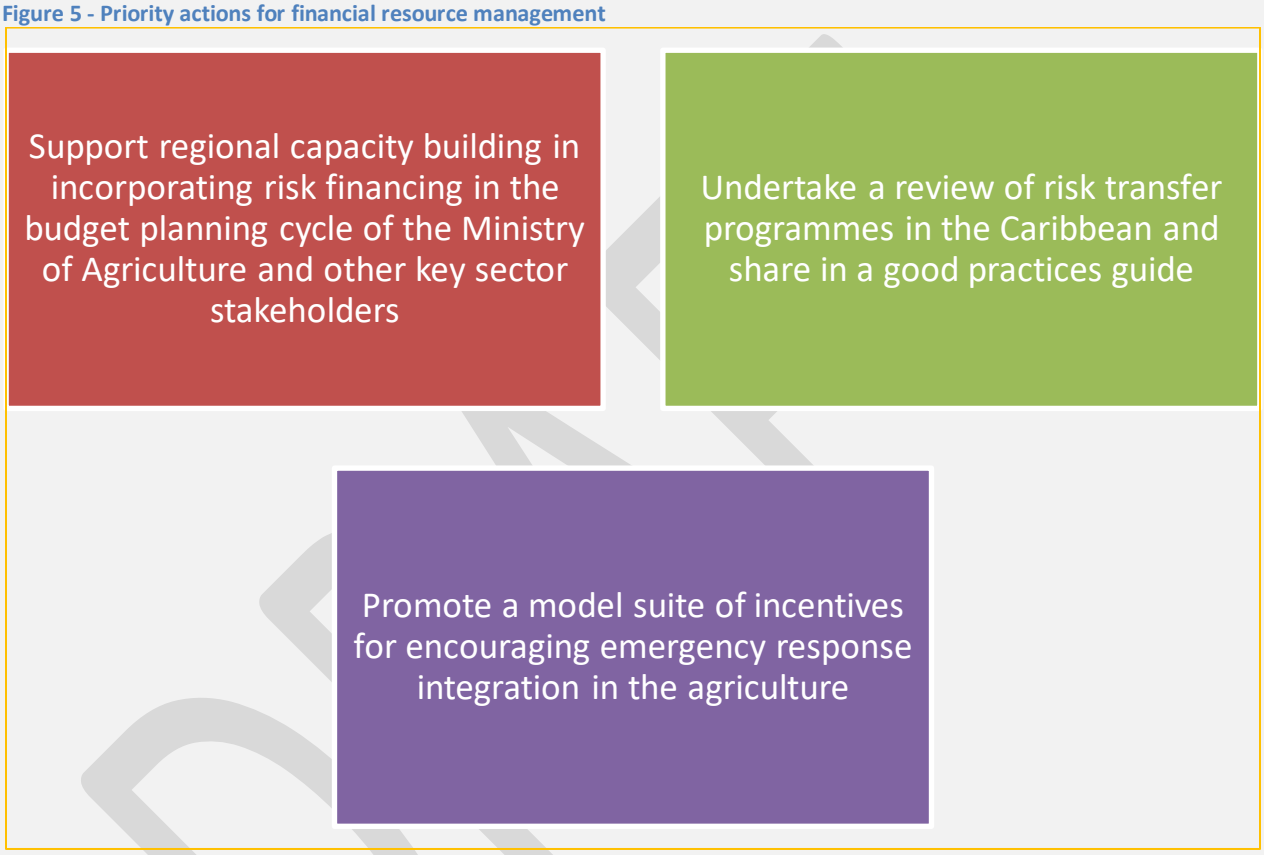
resilience investment in general are unclear and rarely elaborated into the planning cycle. Where emergency response contingency funds exist, they are inadequate and routinely diverted for other purposes. These inadequacies are further confounded by a paucity of disaster risk transfer measures.

Financial and resource management activities to support implementation of the Action Plan should address the following three priority actions (Figure 5).

Figure 5 - Priority actions for financial resource management



Conclusion

15.0: Conclusion

The Action Plan provides a pragmatic approach to prepare for and respond to emergencies in the context of the regional agriculture sector in the Caribbean.

Through this Plan, governments and more specifically Ministries of Agriculture, as well as national and international partners, can take suggested actions to strengthen emergency response, thus providing timely assistance to the sector and the people who rely on it when necessary.

In order for the suggested three phases of action – preparedness and pre-emergency (stand-by), emergency response, and recovery and rehabilitation (post impact) – to function, there is the need to institutionalize the Plan at a regional and national levels.

The CARICOM Secretariat and equally the OECS commission will support the regional institutionalization of the Plan through its endorsement at the COTED level. Additionally, CARICOM and Associate MS shall put in place the required measures to further institutionalize the Plan at a national level.

Once the Plan is institutionalized, it will be relevant to carry out simulation exercises for its implementation and enforcement. This would also contribute to preparing the countries and institutions to respond to any likely emergency situation.

16.0: Documents Consulted

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17.0 Annexes

Annex 1 - List of additional methodologies and toolkits to conduct agriculture related pre and post disaster needs assessment, food security and nutrition assessment, and livelihood analysis at sectoral and sub-sectoral level.

- **Analysis tool: The Livelihood Assessment Tool-kit – Analyzing and responding to the impact of disasters on the livelihood of people.**

What it is: This toolkit has been formulated as a joint effort between FAO and the International Labour Organization (ILO). As currently designed, the LAT is aimed at collecting information - at community level and the existing livelihood groups - on people's ability sustain livelihood before and after sudden onset natural disasters such as floods, earthquakes and tsunamis.

Purpose: The toolkit will enable Member States to be better prepared to analyze and respond to the impact of disasters in relation to the livelihood of the people, especially those involved in agriculture and related activities.

Objectives: Conduct interrelated assessment:

1. **Livelihood Baseline (LB)** - compiled at national level prior to a disaster, the LB provides a good picture of 'normal' livelihood patterns in areas at risk from natural hazards together with an indication of likely impact of hazards, key response priorities and institutions likely to be involved in recovery;
2. **Initial Livelihood Impact Appraisal (ILIA)** – done within 14 days after a disaster, the ILIA provide immediate first-hand information on the impact of the disaster on the livelihoods of the affected people to be integrated into multi-sectoral assessments (e.g., MIRA);
3. **Detailed Livelihood Assessment (DLA)** - usually done within the first three months after a disaster, the DLA provides a more detailed information and rationale for development or fine-tuning of early recovery livelihood response strategies, programmes and projects.

How and when to use: The toolkit can be used prior to disaster in the phase of preparation and after disasters as described above.

Technical capacities: Agriculture sector specialist are generally better prepared to use the toolkit. These specialists should ideally have some previous training and experience in agriculture, livelihood and food security assessments, and should also be specifically trained on the use of the toolkit.

For more info: http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/171069/

- **Analysis tool: Resilience Index for Measurement and Analysis (RIMA_II).**

What it is: RIMA II is an innovative quantitative approach that allow explaining why and how some households cope with shocks and stressors better than others do.

Purpose: This methodology provides support for more effectively designing, delivering, monitoring and evaluating assistance to populations in need, based on what they need most.

Objectives:

- Targeting of the population (ranking from most to least resilient).

- Prioritization of interventions (which aspect of resilience needs to be addressed more urgently);
- Understanding of recovery mechanisms (what are the main drivers of food security recovery);
- Impact Evaluation of projects.

Methodological approach: RIMA-II predicts the determinants of changes in resilience capacity and food security and it establishes statistically sound causal relationships between food security determinants and outcomes, under a dynamic framework.

RIMA-II directly measures resilience through:

Resilience Capacity Index (RCI) the capacity of households to cope with shocks and stressors and avoid long-term damages.

Resilience Structure Matrix (RSM): how much each pillar contributes to determining the resilience capacity.

RIMA-II measures resilience both in a direct and indirect way:

- The direct measure provides descriptive information on household resilience capacity and it allows to target and rank households from most to less resilient.
- The indirect measure provides evidence on the main determinants of households' resilience capacity.

RIMA-II estimates the impact of shocks gathering data from secondary sources; it employs geographical and climatic data from satellite; data on conflicts from ALCED and PRIO; qualitative data (such as wellbeing perception).

How and when to use: Impact evaluation: RIMA-II is applied before the initial implementation phase of a project to create a baseline evidence. A second round of RIMA is run after 2/3 years to obtain a follow up analysis on the impact.

Resources: The main resource is data. They can be either pre-existing or collected ad-hoc. In each case, they need to be statistically valid and representative of the area and/or indicator of interests. Available datasets can be further integrated with secondary data to enrich the analysis.

Technical capacities: RIMA is run by econometricians over three months' work. Communication tools are prepared to translate complex analysis in key messages and indications for policy makers.

For more info: http://www.fao.org/resilience/background/tools/rima/en/

Analysis tool: Damage and Loss Assessment (DaLa)

What it is: Is a multi-sectoral methodology used to assess the impact of disasters, and most specifically calculate damage and loss to the sectors affected, including agriculture. It was developed by the United Nations Economic Commission for Latin America and the Caribbean (UN ECLAC) in the 1970s

Purpose: DaLa creates a point of departure for national dialogue around disaster risk reduction, vulnerability reduction, sustainable development and adaptation to climate change. The methodology also provides a basis for defining the post-disaster needs for recovery and reconstruction.

Methodological approach: The typical steps to be followed during an assessment of damage and losses are the following:

1. Define a pre-disaster baseline

2. Develop a post-disaster situation
3. Estimate damage and losses on a sector-by-sector fashion
4. Estimate overall amount of disaster effects
5. Estimate macro-economic impact
6. Estimate impact on personal/household employment and income

How and when to use: After major emergencies caused by natural disasters requiring international assistance.
Technical capacities: The team composition can vary according to the type and scale of the disaster and the extent of its likely impact on the Agricultural Sector. These specialists should ideally have some previous training and experience in agriculture and emergency assessments and should also be specifically trained on the use of DaLa.
For more info: https://www.cepal.org/sites/default/files/static/files/dala_final_brochure_0.pdf
http://www.pdf.ph/downloads/PDNA/Materials/DaLA%20TOOLKIT/GUIDANCE%20NOTES/006%20Guidance%20Notes%202%20Text%206%20September%2009%20RJ.pdf

- **Analysis Tool: Post Disaster Needs Assessment (PDNA)**

What it is: PDNA is a multi-sectoral approach to identify recovery needs in the aftermath of a disaster by assessing the immediate impact and most urgent needs, in order to save lives and preserve livelihoods. The PDNA is a tripartite agreement between the European Union, UN system and World Bank.

Purpose: It provides the basis for resource mobilization in support of a country's recovery by developing a comprehensive, multispectral recovery strategy.
Methodological approach: PDNA process covers four main sectors: 1) social; 2) infrastructure; 3) finance and 4) productive (which includes agriculture and its sub-sectors, crop, livestock, fishery, aquaculture and forestry) along with several cross-cutting themes that are addressed across all sectors.

The methodology compares baseline with post-disaster information, calculating the damages and losses caused by a disaster[19].

The PDNA approach encompasses two perspectives:
1. The valuation of physical damages and economic losses, and
2. The identification of human recovery needs based on information obtained from the affected population.

[19] Depending on circumstances and requirements, additional in-depth/sector-specific assessments may be recommended. These tools include LEGS; Fisheries/Aquaculture Sector Damage Needs
Assessments; Seed System Security Assessment (SSSA): Crop and Food Security Assessment missions (CFSAM); the DLA component of the LAT; market surveys such as EMMA or MIFIRA; and SEAGA for Emergency and Rehabilitation Programmes and the related Passport to Mainstreaming a Gender Perspective in Emergency Programmes.

These perspectives are integrated into a single assessment process to support the identification of *short, medium and long-term recovery prioritized needs*, and to inform the national disaster recovery framework (DRF) usually developed on the basis of the PDNA.

How and when to use it: Implementation of PDNA is required and led by the Government and supported by the three PDNA partners, EU-UN-WB. FAO generally leads the agriculture sector on behalf on UN group.

A PDNA consists of the following four main elements and steps:
1. Collect pre-disaster and post-disaster data and information;
2. Assess the disaster's effects;
3. Assess the disaster's impacts; and
4. Prepare a recovery strategy that determines the recovery needs for all sectors.

Resources: This approach requires a combination of (i) a good baseline, (ii) post-disaster quantitative data to quantify the extent of physical damage to infrastructure and assets, and (iii) post-disaster qualitative information to assess the implications of such damage on livelihoods and food security or to examine how access to basic agricultural goods and services has been affected.

This implies the use of a variety of assessment methods, including primary data collection techniques such as participatory rural appraisal techniques, key informant interviews, group discussions, participant observations and other secondary data methods such as review of crop production estimates.

Technical capacities: The team composition can vary according to the type and scale of the disaster and the extent of its likely impact on the Agricultural Sector. These specialists should ideally have some previous training and experience in agriculture and livelihood assessments and should also be specifically trained on PDNA.
For more info: http://www.recoveryplatform.org/pdna/ - http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/276058/

- **Analysis Toolkit: Seed Security Assessment (SSA)**

What it is: SSA is an assessment methodology developed by FAO to collect and analyze data and allow an understanding of the parameters of seed security. Usually, SSA help to determine what interventions are appropriate to support seed security and an effective agricultural recovery.
Purpose: The overriding goal of the any SSA is to understand the seed security situation of the target or affected communities in the aftermath of a disaster, shock or crises.

Methodology[20]: this is based on the Seed Security Conceptual Framework (SSCF) and it is aimed at measuring a set of suggested indicators to estimate changes in seed security parameters. In the revised SSCF, there are five pillars of household seed security:

- Seed availability
- Seed access
- Varietal preference and suitability
- Seed quality
- Resilience of the seed system

SSA should be based on a well-defined sampling strategy and results should be analyzed rigorously, using standard quantitative techniques. Nonetheless, both qualitative and quantitative data collection tools are used such as Focus Group Discussions, key informants interview as well as sampled household and local market survey. Seed and seed security have to be examined in the context of the cropping system adopted in the area of interest. The primary cropping system is the field where crops are grown which in the majority of situations around the world are cereals and grain legumes.

How to implement it: Preparation for a SSA requires defining scope and objectives; identifying stakeholders; developing SSA terms of reference (ToR); logistical preparation and budgeting, and training of assessment teams.

When to use it: SSA is characteristically carried out in an emergency context shortly after a shock; it can also be executed in the context of a protracted crisis or as a baseline exercise, when there is no crisis. More specifically:

(a) **Post-disaster / emergency**: here the current seed security situation may be compared with the situation before the disaster. This therefore requires understanding of the farming/seed system (baseline) before the occurrence of disaster as well as the current situation.

(b) **Non-emergency**: SSA takes the form of a situation analysis: i.e., it focuses on current seed security without comparing to the past.

(c) **Protracted crisis**: seed security may fluctuate according to periodic worsening or improvements in the situation. When there is a sudden change in seed security within the overall context of a protracted crisis, then it may be possible to apply the *before and after technique* used for a classic post-disaster situation to look at the impact of that particular shock within the broader crisis context.

Technical capacities: To implement an SSA, the dedicated staff should be trained in SSA (*Intensive SSA training and Refresher SSA training are available*).[21] The SSA team would be comprised of people with different backgrounds such as seed experts, agronomists, plant protection officers, agricultural economists, socio-economists and data analysts. The assessment should be possibly led by an expert familiar with every aspect of SSA.

For more info: http://www.fao.org/resilience/resources/resources-detail/en/c/419024/

[20] FAO has recently developed new practitioner guidelines on SSA http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/282218/

[21] More info on trainings available at: http://www.fao.org/in-action/food-security-capacity-building/project-components/seeds/revision-of-ssa-guidelines-and-training-materials/en/

- **Analysis/Programming tool: Livestock Emergency Guidelines and Standards (LEGS)**

What it is**:** LEGS is a set of international guidelines[22] and standards for designing, implementation, and evaluating livestock interventions. LEGS is based on three livelihoods objectives: to provide rapid assistance, to protect livestock assets, and to rebuild the livestock assets of crisis-affected communities.

Purpose: LEGS support the saving of both lives and livelihoods by preserving livestock assets through two key strategies:

- Helping in identifying the most appropriate livestock interventions in emergencies
- Providing standards, key actions, and guidance notes for aforementioned interventions based on good practice.

Methodological approach

LEGS provides technical advice and guidelines for each of the livestock interventions most common during emergency response to natural and human-induced disasters. These are: destocking, veterinary support, provision of feed, water, shelters and livestock. Looks at the animal health issues and livestock off-take (destocking), provision of water and feed, and shelter;

When to use/ implement it:

- It is used during emergencies (drought, floods that have effects on livestock).
- Should be well timed (when the emergency is beginning to unfold).
- It should be informed by the livestock early warning system (LEWS).

How to use/ implement it:

- Initial assessment for planning;
- Full scale implementation depends on the identified priority interventions;
- Final evaluation of interventions is undertaken if the situation allows.

Technical capacities**:** livestock specialist (veterinarians, livestock production, and rangers), but also not professional can be trained in LEGS. LEGS trainings for practitioners are available.

Expected impact**:** maintain livelihoods during hard times and help them to recover and bounce back without major negative impacts.

(i) Keep animal assets alive during emergencies (e.g., livestock feed and water good practices help animals to remain alive)

(ii) Off-take practices help them to save their livelihoods (animals) from dying and bring cash to buy other requirements.

For more info: https://www.livestock-emergency.net/

- **Analysis tool: Guidelines for the fishery and aquaculture sector on damage and needs assessment in emergency.**

What it is: These guidelines are for use in post-emergency damage and needs assessment and provide advice and a structure for assessing the requirements of relief and rehabilitation relating directly to fisheries and aquaculture.

Purpose: Respond to emergencies situation and understand the impact of disaster on the fisheries and aquaculture sub-sector while identifying needs for recovery.

Objectives: Effectively and timely measure the damage experienced by the fisheries and aquaculture sub-sector after a disaster and identify needs for recovery.

[22] FAO has recently developed other guidelines available at: http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/426021/

Methodological approach: Similar to the one related to the PDNA methodology.
Technical capacities: For the proposer use of these guidelines, specialist with background on fisheries and aquaculture, as well as emergency response and needs assessment shall be trained accordingly.
For more info: http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/274664/

Annex 2: Checklist for Damage & Loss Assessment
Check list of the main baseline information to be collected for damages and losses calculation in the agriculture sector and sub-sectors.
N.B. The information should be as accurate as possible and **disaggregated at the lowest admin level available**.

SECTION 1 – CROP AND PLANTATIONS

Pre-Disaster information (i.e., before disaster):

- Area of land under cultivation (in Acres/ha) disaggregated by each annual and perennial crop including plantations (vineyard, fruit orchards, etc.) and additional cash crop, fodder and staple crop grown in the country.
- Average yield (in Acres/ha) for each crop, plantation, etc. during a regular monsoon season.
- Seasonality of the crop (i.e. cropping calendar).
- Amount of input stocks (feed, seeds, grain, fertilizer, pesticides, veterinary supplies, agricultural inputs, others) and unit selling prices (wholesale, retail).
- Numbers and types of agricultural assets owned by farmers:
  - Tractor, oxen
  - Hand tractor
  - Thresher
  - Inter-cultivator
  - Reaper
  - Plow
  - Combined harvesters
  - Dryers
  - Seed processing plants
  - Other equipment, machinery
- Area of agricultural land under irrigation VS Area of rain feed agricultural land (in Acres/ha).
- Number, length/capacity and location of agriculture infrastructures:
  - Silos or storage buildings
  - Animal shelter
  - Rice mills
  - Warehouse
  - Irrigation facilities (including area irrigated in acres, monthly fee, public or private ownership, numbers of beneficiaries)
  - Rural roads
  - Government buildings/offices
  - Other infrastructure
- Price of agricultural machineries (tractors, mechanical hoe, etc.) and inputs (fertilizers, seeds, etc.), possibly retail and wholesale.
- Cost of agricultural land (per Acre/ha) both irrigated and non-irrigated.
- Market prices (at farm gate, wholesale, retail) for all produced and exported crops and fruits.
- Unit cost of transports (per ton of crop) from farm gate to wholesaler for every crop.
- Price of fuel.
- Unit cost of processing (threshing, drying, milling, warehousing, packaging, etc.) per ton of crop for every crop during a regular rainy season.

- Number of farmers (self-employed) and workers (wageworkers, seasonal workers, include. landless workers) engaging in crop and fruit production (distinction between women and men).

- Logistics and value chain-related services, facilities and distribution channels:
  - Input suppliers (seeds, fertilizers, pesticides)
  - Machinery rental
  - Credit access, saving schemes, insurance
  - Transportation
  - Storage facilities
  - Distribution centres
  - Processing plants
  - Cold-chain facilities for fruits and vegetables (precooling systems, refrigerated trucks, warehouses, cold storage, …)
  - Others

Pre-Disaster information (i.e., before disaster):

- Number of registered animal for each category (cattle, buffalo, poultry, goats, sheep, bees etc.) also disaggregated by species if possible.
- Seasonality/recurrence of production (milk, eggs, etc.)
- Area of grazing land and pasture (Acres/ha).
- Amount of input stocks (fodder, water, veterinary supplies, others) and unit selling prices (wholesale, retail).
- Total and individual amount of animal products produced by each livestock category, species and animal by-products (milk, eggs, meat, honey, etc.).
- Price of animal products (milk, eggs, meat, honey, etc.) at farm gate, wholesale, retail.
- Animal feed, medicine and vaccine unit selling price and types (wholesale, retail).
- Price of alive and slaughtered livestock for each category and species.
- Number of livestock facilities/infrastructures (feed and vaccine storages, vet services, etc.).
- Number of livestock shelters/enclosures.
- Number of people in the sub-sector (wageworkers, seasonal workers, self-employed) engaging in livestock production (distinction between women and men if possible).
- Logistics and value chain-related services, facilities and distribution channels:
  - Veterinary services (equipment, human resources, info systems)
  - Transport
  - Extension services
  - Animal health services (diseases warning systems, medicines vaccines distribution)
  - Slaughterhouses
  - Livestock traders
  - Credit access, saving schemes, insurance
  - Local livestock markets and related facilities

Pre-Disaster information (i.e., before disaster):

- Number of fishponds / fish farms registered.
- Number of registered fishery hatcheries.
- Seasonality/recurrence of fishing/fish farming production.
- Complete list of number and types of most common fishing assets (boats, gears, motors, floats, traps, cages, etc.)
- Average fish catch (per day / per season / per year) or average production disaggregated by fish species, including fingerlings and fish embryos.
- Fishing/aquaculture inputs (bait, feed, seeds, fuel, medicine, vaccines) unit selling prices (wholesale, retail) and types.
- Price of fish for each species sold per kg (farm gate, collector, processor, retail), including price of fingerlings and fish embryos.
- List of prices for gears and other fishing equipment (boats, engines, nets, traps, cages, etc.).
- Price of fuel and power.
- Number of people in the sub-sector (wageworkers, seasonal workers, self-employed) and by occupation (producers, local collectors, traders, transporters, fishmongers, others) engaging in small scale and commercial fishing including aquaculture production (distinction between women and men).
- Logistics and value-chain related facilities, services, distribution channels (handling, preservation, transportation, packaging, processing)
  - Service providers (boat builders, engine repairs, gear manufacture)
  - Ancillary suppliers (ice, fuelwood, salt, fingerlings, medicines, vaccines)
  - Info systems
  - Access to water
  - Breeding farms
  - Vessels (incl. precooling systems)
  - Transportation (incl. refrigerated trucks)
  - Warehouses, storage facilities (incl. cold storage)
  - Distribution centres
  - Processing plants (dried-, frozen fish, other)
  - Local and national markets
  - Others

Pre-Disaster information (i.e., before disaster):

- Area of land (in acre) covered by forest (manmade forest or planted woodlots).
- Area of land covered by mangroves (in acre).
- Typology of forest-product produced and possibly amount (timber, fruits, non-timber forest products, etc.), and unit selling price of seedling per type of tree.
- Seasonality of production.
- Number of people (wage workers, seasonal workers, self-employed) engaging in forestry production (distinction between women and men).
- Prices of forest products.
- Logistics and value-chain related facilities, services, distribution channels
  - Processing plants (saw mill, wood plants, pulp mill)
  - Transporters
  - Distributors
  - Warehouses
  - Distribution centres
  - Local, national markets
  -

Annex 3: Initial Agriculture Damage/Loss and Needs Assessment Form

1. Assessor Name	Mobile:	Email:	Organization:		
2. Assessment location	Region:	Perish:	Other (specify):		
3. Type of disaster					
4. Source of information (tick yes/no)	Key Informant Interview:	Direct Observation:	Community discussion:	Other (specify):	
5. Name of communities affected	Fully:	Partially:	Fully:	Partially:	Etc.
5.1 N. of farmer and livestock keeper affected (specify)	Men:	Women:	Elderly:	Youth:	Other (specify):
5.2 N. of fisher folk affected (specify)	Men:	Women:	Elderly:	Youth:	Other (specify):
6. Productive assets/resources damaged					
6.1 Crop damaged (acre) & crop type	Fully:	Partially:			
6.2 Livestock dead/lost (#)	Cattle (meat):	Cattle (milk):	Goat/Sheep:	Poultry:	Other (specify):
6.3 Fishery damaged (#) - fully	Boat:	Gears:	Other (specify):		
6.4 Fishery damaged (#) - partially	Boat:	Gears:	Other (specify):		
6.5 Forestry damaged (acres) & trees type	Fully:	Partially:			
6.6 Mangrove damaged (acres) & species type	Fully:	Partially:			
7. Infrastructure damaged					
7.1 Building destroyed (#) - fully	Storage:	Processing facilities:	Animal stable:	Markets (specify):	Other (specify):
7.2 Building destroyed (#) - partially	Storage:	Processing facilities:	Animal stable:	Markets (specify):	Other (specify):
8. Food Security					
8.1 Do you have enough food at home?	Yes (indicate n. of days):	No:	Other (specify):		

9. Needs/interventions for recovery (within the next 1-4 weeks)					
9.1 Crop	1st:	2nd:	3rd:	4th:	5th:
9.2 Livestock	1st:	2nd:	3rd:	4th:	5th:
9.3 Fishery and Aquaculture	1st:	2nd:	3rd:	4th:	5th:
9.4 Forestry	1st:	2nd:	3rd:	4th:	5th:
9.5 Other (i.e., food)	1st:	2nd:	3rd:	4th:	5th:

Annex 4: Rapid Agriculture and Livelihood Needs Assessment Form

Note: (1) The purpose of this assessment is to identify the impact of disaster on Agriculture and Food Security and Livelihood situation of a society affected by a disaster and its ability to cope with it. (2) This format is to determine the immediate, short-term, medium-term and long-term needs of the affected population. (3) The completed form should be submitted within 3-5 days of assessment start. (4) It is expected that an Initial assessment has already been undertaken in the affected area which recommended the need for this more detail follow-up rapid assessment. (5) This form is intended to be used for district level data collection as decided by the assessment committee. (6) Consult the guideline for more specific clarification.

Name, organization, phone & email of assessor:			Date of assessment:
District:	Region:		Perish:
Type of disaster:		Date & time of onset:	
Sources of collected information: 1=Community consultation; 2=Focused group discussion; 3=Extension Office; 4=other (specify)			

1. Status of disaster effect:	# Of districts severely affected: # Of region severely affected: # Of perish severely affected:	# Of districts partially affected: # Of region severely affected: # Of perish severely affected:	# Of districts not affected: # Of region severely affected: # Of perish severely affected:

2. Population details

Items	Men (yrs.)		Women (yrs.)		Boy (yrs.)	Girl (yrs.)	Infant (month)	Children (month)	Children (month)	Elderly (yrs.)	Total
	18-60	13-18	18-60	13-18	5-12	5-12	0-5	6-23	24-59	60+	
a) Total population											
b) Farmer affected											
c) Fisherman / Aquaculturist affected											
d) Other affected (specify)											

3. Assets Damaged:	**Numbers before crisis (acres, MT, etc.)**	**% Which was affected, destroyed, lost (specify)**
b) Animal Sheds (#)		
c) Livestock (#) (specify – i.e., cattle, poultry, etc.		
e) Crops (hectare) & types		
f) Livestock and Poultry Feed (MT)		
g) Crop seed/ seedbeds (MT or hectare)		

h) Vegetable garden (hectare)		
i) Pond fishery (MT)		
j) Shrimp gher (# or hectare)		
k) Agricultural machinery/ tools (#)		
l) Fishing gear equipment (#)		
m) Tree/ Orchard (#)		
n) Forest (acre) & types		

4. Infrastructure Damaged:	**Numbers/type before crisis**	**% Which was affected, destroyed, lost**
a) Earthen roads (km)		
b) Irrigation structures / Channel (km)		
c) Bridges/ Culverts (#)		
d) Embankments (# or km)		
e) Agro extension services and other service provider's buildings (specify)		
f) Veterinary clinic and other agro-service provider's buildings (specify)		
g) Processing facilities (crop, fishery, livestock and forestry) – specify		
h) Food and input storage facility (specify)		
i)Fishpond infrastructure (specify)		
j) Shelter facility (i.e., animal stable) - specify		
k) Other (specify)		

5. Food Access (market condition):				
a) No of local markets functioning. Explain and specify area				
b) Physical access to market re-established? (Yes/No)				
c) Food supply in local market re-established? (Yes/No)				
d) Food supply and demand balanced? (Yes/No)				
e) Price change of basic commodities (specify unit) due to disaster	**Food items**	**Price before event**	**Price after event**	**Unit**
	i) Local coarse rice			
	ii) Imported rice			
	iii) corn			
	iv) Wheat grain			
	v) wheat flour			

	vi) Potato			
	vii) Green leaf vegetable (shak)			
	viii) Fresh fish (small)			
	ix) Lentils (dal)			
	x) Chicken			
	xi) Beef			
	xii) Egg			
	xiii) Cooking oil / palm oil			
	xiv) Cereal seeds			
	xv) Pulses seeds			
	xvi) Fuel			
	xvii) Main poultry feed			
	xviii) Fertilizer Urea			

6. What percentage of affected population was dependent on these activities for their livelihood before the crisis? Also rank these livelihoods in terms of impact by the disaster (1= most affected, 2= least affected)		**Rank**
a) Farming		
b) Fishing		
c) Livestock		
d) Aquaculture		
e) Skilled labour		
f) Salaried employee		
g) Small trade/ own business		
h) Agri wage labour		
i) Non-Agri wage labour		
j) Day labour		
k) Remittance		
l) Rickshaw/Van/Boat		
m) Other		

7. When will the households be able to resume their first or second principal livelihood? 1= already resumed; 2=immediately; 3=within 2 weeks; 4=within 1 month; 5= longer than 1 month; 6=never- change livelihood	First
	Second

8. Food consumption coping strategy of affected households. **What coping strategies have the households adopted for survival?**	**% Of households**
a) Rely on less preferred and less expensive food	
b) Borrow food from neighbour/ relatives/ friend	
c) Purchase food on credit / borrow money	

d) Gather wild foods or harvest immature crops	
e) Reduce portion sizes at mealtime	
f) Reduce number of meals consumed in a day	
g) Skip day without eating	
h) Barter or sell part of Food Aid rations to buy more staple food of poorer quality	
i) Send family members to eat elsewhere? (Community kitchen, primary school…)	
j) Out-migration of household members	
k) Sell labour in advance	
l) Sell domestic assets (radio, fridge, furniture, TV, etc.) to buy food	
m) Sell agricultural assets (tools, seeds, livestock)	
n) Sell or mortgage productive assets (farm, land etc.)	
o) Take children out of school	
p) Seek alternative or additional jobs	
q) Beg or glean food from field	
r) Gather waste food from market/ restaurants	
s) Borrow from bank or micro credit organization	

9. Daily average wage rate change of unskilled day labour:			
	Rate before disaster	Rate after disaster	Rate change (%)
Agricultural wage labour			
Non-agricultural wage labour			

10. Disaster response to date (types of relief distributed, quantity and number of beneficiaries): 1=food; 2=cash relief; 3=cash for house building; 4=non-food relief items (tarpaulin, stove, plastic, utensils etc.); 5=nutrition supplements for children and PLW; 6=FFW/CFW; 7=medical care; 8=construction material; 9=Agri-inputs (seeds, fertilizer etc.); 10=Agri-tools/ equipment; 11=fishing equipment (net, boat etc.); 12=animal; 13=other specify.	
a) Government	
b) NGO/ CBO	
c) UN	
d) Others (specify)	

11. Needs for additional assistance (name of relief items, quantity and the number of populations in need):				
Category	**Immediate (Up to 30 days)**	**Short-term (1-3 months)**	**Medium-term (3-6 months)**	**Long-term (6-12 months)**
Crop				
Livestock				

Fishery				
Forestry				

Annex 5: Potential List of Immediate Needs/Intervention for the Restoration of the Agriculture Sector and Livelihoods after Disaster

Sub-Sector	Potential Needs/Interventions (within 1-8 weeks after the disaster)	Modality
Crop	Provision of agricultural inputs (seeds, fertilizers, planting material, hand tools, empty bags, etc.)	In-kind
	Provision of equipment (chain saws, protective gears, etc.)	In-kind
	Clearance of agricultural land and road from debris	Cash/Food for work
Livestock	Provision of emergency fodder	In-kind
	Provision of veterinary supplies	In-kind
Fishery	Provision of fishing gears (nets, hooks, lines, etc.)	In-kind
	Provision of equipment (scales, cleaning trays, knives, etc.)	In-kind
Forestry	Provision of inputs (seeds, nursery material, etc.)	In-kind
	Provision of equipment (chain saws, protective gears, bird nets, etc.)	In-kind
	Forest land clearance - when necessary	Cash/Food for work
Overall Agriculture Sector	Provide food assistance to the most affected household (when necessary)	In-kind

Annex 6: Potential List of Medium/Longer Term Needs/Intervention for the Full Recovery of the Agriculture Sector and Livelihoods after Disaster

Sub-Sector	Need/Intervention (within 1 - 12 months after the disaster) *	Modality
Crop	Provision of additional agricultural inputs (seeds, fertilizers, planting material, hand tools, empty bags, etc.)	In-kind / Cash based
	Provision of reconstruction material (i.e., greenhouses)	In-kind / Cash based
	Provision of equipment (i.e., irrigation, solar pump, etc.) and machineries (i.e., tractors)	In-kind / Cash based
	Rehabilitation/reconstruction of processing and storing facilities	In-kind / Cash based
Livestock	Provision of additional emergency fodder	In-kind / Cash based
	Provision of reconstruction material (i.e., animal staple)	In-kind / Cash based
	Rehabilitation/reconstruction of processing and shelter facilities	In-kind / Cash based
	Provision of additional veterinary supplies	In-kind / Cash based
	Restocking of lost livestock	In-kind / Cash based
Fishery	Provision of additional fishing gears (nets, hooks, lines, etc.)	In-kind / Cash based
	Provision of additional equipment (scales, cleaning trays, knives, etc.) including ice-making machines	In-kind / Cash based
	Provision of reconstruction material (i.e., boat)	In-kind / Cash based
	Rehabilitation/reconstruction of processing and storing facilities	In-kind / Cash based
Forestry	Provision of inputs (seeds, nursery material, etc.)	In-kind / Cash based
	Provision of equipment (chain saws, protective gears, bird nets, etc.) including chippers and larger equipment	In-kind / Cash based
Overall Agriculture Sector	Provide food assistance to the most affected household - if necessary	In-kind / Cash based
	Facilitate access to formal low interest rate loans to restore the agriculture sector and sub-sectors	Project/Programme
	Continuation of agricultural land and roads clearance	In-kind / Cash based

Annex 7: List of Potential Targeting Criteria to be used after an Emergency for the Agriculture Sector

1. **From the point of view of livelihoods zones the beneficiaries prioritized should be:**

   - Smallholders with small and / or unviable farms, focused on subsistence farming, rain fed and living in peripheral, rural and marginal areas;
   - Agro pastoralists and pastoralists with small herds on or below subsistence level;
   - Villages/communities with a high concentration of those who make a living principally from cash labour, bush or forest product sale / processing and ocean / riverine fishing communities.

2. **From the point of view of poverty and vulnerability the beneficiaries prioritized should be:**

   - Households that have lost their livelihoods/main income generation source as a result of disaster;
   - Those with low, few or no sources of income, with few or no assets and who lack any substantial form of assistance and often or always hungry and food insecure;
   - Households headed by single mothers, pregnant and lactating women, disabled, infirmed and elderly persons;
   - Women and girls at risk of sexual exploitation or abuse;
   - Large households with a high dependency ratio - i.e., households with a large number of children under 14 and/or people over 65;
   - Marginalized and minority groups; and/or occupation groups; and/or ethnic groups.

N.B. This is a generic list, which needs to be revised/modified according to the emergency response requirements, magnitude of disaster and typology of population affected.