

**Enhanced Capacities for Disaster Risk Management in Agriculture,
Fisheries and Forestry**

TCP/SLT/3202

Implementation plans for regions 2, 3, 6 and 7

Food and Agriculture Organization of the United Nations

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Table of Contents

Region 2 Babonneau – Stabilization of River Bank and Main Drains.....	4
Region 3 Mabouya Valley – Soil and Water Conservation Practices	8
Region 6 Delcer/La Pointe – Pest Management. Comparative Field and Greenhouse Studies	12
Region 7 Roseau – Establishment of a Reservoir and Water Distribution System.....	17

Region 2- Babonneau

Activity - Stabilization of River Bank and Main Drains

Introduction

The community of Bogis (in Babonneau) was selected based on established criteria (see Inception/Progress Report) as one of the pilot sites for project demonstration activities for disaster risk management in agriculture. After two consultations coordinated by the National Project Coordinator, the Extension Officer (Mr. Edwin Henry) designated to the project and the National Lead Consultant were held with representatives of various farmers groups and other representatives in the community. During these consultations, the project was introduced in detail and a number of activities for disaster risk management in the community were identified and discussed. The hazards that were of interest to the group included flood, pest and disease, wind storms, and water shortage/ drought and irrigation. At a final consultation however, it was agreed that flood management including river bank stabilization in the general area where a number of farms were situated was most appropriate at the time.

This intervention is based on findings that revealed deforestation and land degradation along with the decentralization of major gullies and drains upstream was impacting river bank stabilization downstream. About 15 to 20 farmers are expected to benefit from this intervention

The activity will involve two phases, one which will see the stabilization and rehabilitation of the main drains and the other the stabilization of the river bank through the planting of tree crops and forest trees. The estimated cost of this activity is EC\$20,958.50 details of which are presented in the attached Procurement Plan. An MOU will have to be established between the land owners and the Ministry of Agriculture to ensure sustainability of the project.

Objective

- To demonstrate and promote the use of maintenance of drains as a means of mitigating flood damage;
- To demonstrate and promote the use of river bank stabilization by the planting of trees to minimize flood damage
- To promote awareness of the impacts of deforestation and land degradation on as a cause of flooding and impacting livelihoods of farmers.

Output

The project outputs are:

- i) Main drains along the defined area where farms are located rehabilitated
- ii) Four thousand tree crops and 5000 forest trees planted to stabilize the river bank in the defined area where arms are located

Major Activities

- i) Cleaning and rehabilitation of main drains leading to the river in the defined area
- ii) Planting of tree crops and forest trees
- iii) Awareness raising on impacts of deforestation, and land degradation during activity

Major Inputs

- 4000 tree crops (of economic value)
- 500 forest trees
- Small farm implements (e.g. forks, spades, cutlasses, etc)
- Labour

The total cost for the activity is presented in the attached procurement plan.

Implementation and Institutional Support

Implementation will commence as soon as approval for the procurement plan has been received and the MOU signed. The Extension Officer with support from the NLC consultant and the NPC will coordinate implementation of the activity.

Technical supervision will also be provided by the Forestry Department and the Extension Division.

Implementation Schedule

Activities	August				September				October				November			
	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4
Confirmation and demarcation of location for drain rehabilitation and bank stabilization				✓	✓											
Develop plan for tree planting					✓	✓										
Procurement of materials									✓	✓						
Rehabilitation of main drains											✓	✓				
Tree planting													✓	✓		
On site awareness training facilitation											✓	✓				
Maintenance and follow-up													✓	✓		

Assumptions

- Farmers will provide necessary in kind assistance as required in the MOU
- Necessary and adequate funding is provided for the activity
- Farmers will maintain their interest in the proposed activity

Monitoring and Sustainability

The Extension Officer with support from farmers in the area will be directly responsible for monitoring and evaluating the intervention. Any problems will be reported to the NPC and NLC who will liaise as necessary with the Steering Committee, and other appropriate agencies and Departments within the Ministry and advice on any actions necessary.

An MOU will be signed by the farmers in the environs and the Ministry of Agriculture with regard maintenance and monitoring and reporting impacts of the intervention to ensure sustainability of the initiative.

Extension Officer: Edwin Henry

Region 3-Mabouya Valley

Activity – Soil and Water Conservation Practices

Introduction

After the community was selected (see Inception/Progress Report) as one of the pilot sites for project demonstration activities, a number of consultations coordinated by the National Project Coordinator (NPC), the Extension Officer (Mr. Cletus Alexander) designated to the project and the National Lead Consultant (NLC) were held with representatives of various farmers groups and other representatives in the community. During these consultations, the project was introduced in detail and a number of activities for disaster risk management in various locations of the Mabouya Valley were identified and discussed. The activities proposed included those for managing flood, water shortage, the improvement of marginal lands including countering the effects of sea blast, landslides and pest control.

Final consultations defined the activity that all stakeholders were comfortable with and an integrated project for soil and water conservation was agreed upon. The water conservation component required the harvesting of rain water through the creation of a dam. However, establishment of the dam required the approval of a third party which could have implications for sustainability and as such stakeholders agreed that the location for the activity be moved and substituted to a tank collection system to a more appropriate farm nearby, the owner of which had fully consented.

The farmer Mr. Constantine is very cooperative and cultivates a four acre plot of land at La Perle in the Mabouya Valley. He is already harvesting and storing water on a small scale and this would be an improvement to his system and four other farmers will benefit. In this activity a small shed with guttering attached would feed a thirty thousand gallon tank to be used for the next dry season. The other component of the activity will demonstrate the establishment of contour stone bunds to reduce soil loss on the main farm.

Objective

The project seeks to demonstrate to farmers the importance of engaging in risk management strategies for continued production in times of crises namely drought and severely degraded soils. Specifically the activity will

- Demonstrate and promote methodologies for rainwater harvesting on the farm;
- Demonstrate the use of contour stone bunds to minimize soil and water loss

Output

The project will

- iii) irrigate about nine (9) acres in the Mabouya Valley through water harvesting techniques implemented during the rainy season;
- iv) introduce soil and water conservation strategies using contour stone bunds.

Activities

- iv) With advice from the Extension Officer one contour stone bund will be constructed using stones that are readily available on the farm. This bund will help reduce the amount of soil loss on the farm.
- v) One (1) small shed measuring 12" x 6" with guttering attached to collect rain water will be constructed. There will be a minimal fee for labour given the expertise required
- vi) One slab will be constructed and a prefabricated tank installed on the slab. There will be a minimal fee for labour given the expertise required.
- vii) Water will be fed into the tank from the roof guttering and will be distributed to the farms through gravity

Major Inputs

- Galvanise and guttering for shed
- Stones (small boulders)
- One (1) water tank (30,000 gallons)
- Six (6) cubic yards of ready mix
- Twenty (20) bags of cement
- Fifty (50) concrete blocks

The total estimated cost for the activity is **EC\$38,797.50** details of which are presented in the attached procurement plan.

Implementation and Institutional Support

Implementation will commence as soon as approval for the procurement plan has been received and the MOU signed. The responsible Extension Officer with support from the NLC consultant and the NPC will coordinate project implementation activities. Some in kind labour will be provided by the farmers involved.

The technical works will be supervised by the Engineering Unit of the Ministry of Agriculture with support from the Extension Division.

Implementation Schedule

Activities	July				August				September				October			
	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4
Confirmation relocation of activity and identify and visit site	✓	✓	✓	✓												
Site preparation and sourcing materials needed					✓	✓	✓									
Contour bond designed and constructed									✓							
Procurement of materials									✓	✓	✓					
Construction of shed and slab												✓				
Placement of tank													✓			
Complete assembly of system and irrigation lines													✓	✓	✓	
Test run and demonstration													✓	✓	✓	

Assumptions

- That the landowner will remain committed to use of his lands for erection of infrastructure for rain water harvesting and related activities.
- Farmers will provide necessary in kind assistance as required in the MOU
- Necessary and adequate funding is provided for the activity
- Farmer(s) will maintain their interest in the proposed activity

Monitoring and Sustainability

The Extension Officer will be directly responsible for monitoring use of the system and for reporting any problems to the NPC and NLC who will liaise with the Steering Committee and other appropriate agencies and advice on any actions necessary.

An MOU will be signed by the farmer on whose farm the system will be located and the Ministry of Agriculture to ensure appropriate use and sustainability of the project.

Evaluation and monitoring reports will be presented by the Officer.

Extension Officer: Mr. Cletus Alexander

Region 6-Delcer/La Pointe

Activity – Pest Management-Comparative Field and Greenhouse Studies

Introduction

The community of Delcer in Choiseul was selected based on established criteria (see Inception/Progress Report) as one of the pilot sites for project demonstration activities. At least three consultations coordinated by the National Project Coordinator, the Extension Officer (Mr. Cornelius Sydney) designated to the project and the National Lead Consultant were held with representatives of various farmers groups and other representatives in the community. During these consultations, the project was introduced in detail and a number of activities for disaster risk management in various locations of Delcer were identified and discussed. From inception the community grouping was mainly interested in pest management as it was seen as an emerging hazard affecting their livelihood in recent times. One concept was to have an integrated project including water harvesting, the grazing of small ruminants (for manure) along with the use of IPM. In the final analysis however, in consultation with the Project Extension Officer and another senior officer deputizing for the NPC the group firmly decided to undertake a comparative field and greenhouse study to investigate how best to management the pest Curly Leaf Tomato Virus and other diseases affecting tomatoes which was seriously impacting farmers crops.

The major component of this activity is to investigate pest and disease management in tomatoes through training of farmers during demonstrations at three (3) outfield plots and one (1) green house. The outfield demonstrations will be undertaken on farmers belonging to Vincent Montoute, Marianna Charles and Francis Ismael while Anthony Alexander has consented to host the greenhouse studies. The activity will benefit at least 35 farmers in the Delcer/La Pointe areas of Choiseul.

An MOU will have to be established between the land owners and the Ministry of Agriculture to ensure sustainability of the project and that the identified stakeholders benefit. The estimated cost of the activity is **EC\$39,264.65**, details of which are presented in the attached procurement plan.

Objective

- To train farmers in the identification and control of major pest of tomato using the integrated pest management method
- To evaluate the economic impact of the use of IPM on tomato production and yield in the mentioned area;
- To demonstrate practices in IPM.

Output

- v) Increased production of marketable yield of tomatoes from the region
- vi) At least 35 farmers trained in methods of IPM and in the identification and control of pest in tomatoes;

Major Activities

- 1) Identification and confirmation of sites/farms
- 2) Seedlings ordered
- 3) Land clearing and preparation
- 4) Procurement of seedlings
- 5) Transplanting
- 6) Crop husbandry
- 7) Harvesting
- 8) Post harvest handling
- 9) Marketing

Major Inputs

- Three farms for outfield production and one greenhouse farmer
- Organic manure
- Fertilizers
- Insecticides
- Fungicides
- Drip lines
- Knap sac sprayers
- Complete irrigation system
- Bird net
- Covering plastic
- Installation cost for greenhouse repair

The total cost for the activity is presented in the attached procurement plan.

Implementation and Institutional Support

Implementation will commence as soon as approval for the procurement plan has been received and the MOU signed. The Extension Officer with support from the NPC and the NLC will coordinate project implementation activities.

The technical works will be supervised by the designated Extension Officer with support from the Extension Division of the Ministry of Agriculture.

Implementation Schedule

Activities	August				September				October				November				December					
	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	
Place order for seedlings				✓																		
Land clearing				✓																		
Land preparation					✓	✓																
Procure seedlings							✓															
Transplanting & manuring							✓	✓														
Fertilizer application							✓	✓	✓													
Pest & disease control							✓	✓		✓			✓		✓		✓		✓		✓	
Weeding & moulding									✓	✓	✓											
Pruning									✓	✓												
Staking											✓	✓										
Harvesting																✓		✓		✓		
Post harvest handling																	✓		✓		✓	
Marketing																	✓		✓		✓	

Notes:

Apart from the crop husbandry practices to be employed, the following will be undertaken:

1. Farmer field school activity will be conducted simultaneously with the Disaster Mitigation Project. Therefore all participants of the disaster mitigation project are expected to participate in the farmer field school activity.
2. To avoid duplication of all training exercises will be done at the Farmer Field School site.
3. Farmers hosting the demonstration plots will be required to take records on all crop husbandry practices carried out.
4. Reporting / Evaluation will be carried out by Extension Officer responsible and NLC at the end of each crop cycle

Assumptions

- That the landowners will remain committed to use of their lands for demonstration activities
- Farmers will provide necessary in kind assistance as required in the MOU
- Necessary and adequate funding is provided for the activity
- Farmers will maintain their interest in the proposed activity

Monitoring and Sustainability

The Extension Officer will be directly responsible for monitoring implementation activities with support from other Extension staff. The Officer will liaise with the NPC and the NPC to report any problems who will advise on appropriate actions to be taken.

An MOU will be signed by the farmers on whose lands the demonstrate activities will take place and the Ministry of Agriculture to ensure benefits to all stakeholders and sustainability of the project.

Region 7-Roseau

Activity – Establishment of a Reservoir and Water Distribution System

Introduction

After the community of Roseau was selected based on established criteria (see Inception/Progress Report) as one of the pilot sites for DRM project demonstration activities a number of consultations coordinated by the National Project Coordinator, the Extension Officer (Ms Cherry Anne Smith)) designated to the project and the National Lead Consultant were held with representatives of various farmers groups and other representatives in the community. During these consultations, the project was introduced in detail and a number of activities for disaster risk management in various locations of Roseau were identified and discussed. The hazards that were of interest to the group included water shortage and drought, wind, flood, erosion and increasingly new problems with pest. However, the drought situation which prevailed at the time shifted the focus to rainwater harvesting, and equitable distribution for irrigation.

At a final consultation and with consensus by all stakeholders, it was agreed that at least five (5) farms not impacted by previous water distribution interventions and without any access to water be fed with construction of a reservoir/dam in an area where there was a natural water basin. The reservoir was to be established on adjoining lands belonging to Mr. Conrad James and Ms. Jacinta Gilbert.

Following at least two (2) site visits by the Engineering Unit of the Ministry of Agriculture, Lands Forestry and Fisheries, to determine feasibility of the project, it was confirmed that the site could accommodate the reservoir and design proposals and costing were undertaken by the Engineering Unit with support from Mr. Eloi Alexis of the Extension Division.

The main component of the project is the construction of the dam/reservoir with costing details presented in the attached Procurement Plan. The estimated cost of the activity is **EC\$40,167.75**. An MOU will have to be established between the land owners and the Ministry of Agriculture to ensure sustainability of the project and that the identified stakeholders benefit.

Objective

- To demonstrate and promote the use of small dams (or reservoirs) for rain water harvesting and conservation
- To facilitate the irrigation of adjoining farms by using water from the established dam. For demonstration purposes one farm will be irrigated through drip lines.

Output

The project outputs are:

- vii) Construct a dam with the holding capacity of 262 cubic meters of dimensions
Length 35m
Width 5 m
Depth 1.5m
- viii) At least five (5) farms (approximately 20 acres) irrigated during the dry months
- ix) Demonstrate the use of drip irrigation on one farm fed from the reservoir

Activities

- viii) Site clearing and excavation
- ix) Dam/Reservoir construction under direction of the Engineering Unit of the Ministry of Agriculture, Lands, Forestry and Fisheries
- x) Connection of pump and pipes for water distribution;
- xi) Establishment of a drip irrigation system on one farm and pilot tested
- xii) Other farmers to establish individual irrigation systems from the mains;

Major Inputs

- Construction equipment
- 15Hp Robin Pump
- Cement
- Ready mix aggregate
- Sand
- BRC steel
- ½ ‘ steel
- Blocks
- 4” pipes and metal valve
- Labour for technical works
- Drip irrigation lines

The total cost for the activity is presented in the attached procurement plan.

Implementation and Institutional Support

Implementation will commence as soon as approval for the procurement plan has been received and the MOU signed. The NLC consultant with support from the NPC and the Extension Officer will coordinate project implementation activities.

The technical works will be supervised by the Engineering Unit of the Ministry of Agriculture with support from the Extension Division.

Implementation Schedule

Activities	July				August				September				October			
	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 1	Wk 2	Wk 3	Wk 4
Visit and confirmation of site for proposed dam			✓	✓												
Design proposals and costing					✓	✓	✓									
Procurement of materials									✓	✓						
Land clearing and preparation										✓	✓					
Construction of dam												✓	✓			
Complete assembly of pump and water lines														✓	✓	
*Test run and demonstration of drip lines on one farm																✓

N.B. Other farmers will make their own connections from the main line out of the reservoir

Assumptions

- That the landowners will remain committed to use of their lands for construction of the reservoir
- Farmers will provide necessary in kind assistance as required in the MOU
- Necessary and adequate funding is provided for the activity
- Farmers will maintain their interest in the proposed activity

Monitoring and Sustainability

The Extension Officer will be directly responsible for monitoring use of the dam/reservoir and for reporting any problems to the NPC and NLC who will liaise as necessary with the Steering Committee, and other appropriate agencies and Departments within the Ministry and advice on any actions necessary.

An MOU will be signed by the farmers on whose lands the dam will be located and the Ministry of Agriculture to ensure appropriate use and sustainability of the project.

Extension Officer: Ms. Cherry Anne Smith