TCP/RLA/3101

Assistance to Improve Local Agricultural Emergency Preparedness in Caribbean Countries Highly Prone to Hurricane Related Disasters

Good Practices for Hazard Risk Management in Agriculture

Summary Report Haiti
Project Phase I

March 2007

Submitted by:

The Food and Agriculture Organization of the United Nations

TCP RLA 3101

Assistance to Improve Local Agricultural Emergency Preparedness in Caribbean Countries Highly Prone to Hurricane Related Disasters

Good Practices for Hazard Risk Management in Agriculture

Summary Report Haiti
Project Phase I

Jointly implemented by

The Food and Agriculture Organization of the United Nations, and
The Ministry of Agriculture, Natural Resources and Rural Development (MARNDR), Haiti

Environment, Climate Change and Bioenergy Division, FAO

Cover page picture captions and credits

Upper left: Hurricane Jeanne impacts in Gonaives in 2004, Credits: FAO/Marmelade;
Upper right: Flood in the South in 2006, Credits: FAO Emergency Unit;
Down left: Improved Contour Canal at Marmelade, Credits of FAO/Marmelade;
Down right: gully plugs in Marmelade, Credits FAO/Marmelade.

ACKNOWLEDGEMENTS

The completion in Haiti of the Phase I of the Project has been possible thanks to kind support of several individuals whose contribution the author wishes to acknowledge:

Particular thanks to the Ministry of Agriculture, Natural Resources and Rural Development (MARNDR), including of former Minister, Mr. Philippe Mathieu and current Agriculture State Secretary Mr. Joanas Gué in particular, and the National Project Coordinator, Mr. Boniface Louijamé appointed for supporting this project.

Special thanks to Mr. Eberle Nicolas and Mr. Joseph Denis, respectively the Artibonite and South East Agricultural Departmental Directors, for their spontaneous availability in providing transportation facilities when consultants requested them.

Special appreciation is due to Mr Marcelin, lead national consultant during project phase I, who conducted the field work and consolidated the material for this report.

Technical backstopping and supervision to the project was provided by FAO Headquarters staff, led by Dr. Stephan Baas, Ms. Micaela Rossello and Ms. Maria Ruiz-Villar.

The FAO Haiti Emergency Coordination Unit, including Mr. Javier Escobedo and the entire unit's staff, inclusive of secretaries, drivers, consultants and other colleagues, are thanked for administrative and logistic support.

Our appreciation also to all farmers at the Bassin Magnan and Lavanneau pilot sites, particularly Sébastien François and Elyzée Noel, those in Belle-Anse and Marmelade who kindly offered to share their farm-based field experiences by spontaneously participating in the survey, the Marmelade FAO Project staff who warmly offered hospitality and suggestions, the communal agronomists responsible of the *Bureau Agricole Communal* at Gonaives and Jacmel, the staff of Artibonite and South-East Departmental Delegation offices, disaster and risk management and Civil Protection Direction field officers, and finally to all the participants at the national workshop on good practice assessment.

EXECUTIVE SUMMARY

Haiti is an agro-based economy whose general livelihood systems have been seriously affected by recurrent onslaught of weather-related disasters resulting in 18,441 killed, 4,708 injured and 131,968 homeless, 6,376,536 affected and economic damages for 4.6 billion US $ over the 21st century. Particular physiographic characteristics - semiarid tropical climate, rough and mountainous terrain - and the combined interplay of environmental degradation with extreme socio-economic conditions in the form of poverty, illiteracy, inefficient land use systems and governance problems, have made the country increasingly vulnerable. In 2004 alone, a very active cyclonic year, hurricanes Ivan and Jeanne resulted in 320,852 affected, of which 2,757 killed, as well as heavy material losses. Such extensive damages combined with the vulnerability of small farmers, lessons learnt from a number of FAO emergency and rehabilitation projects and critical gaps in disaster and risk management strategies eventually oriented FAO towards a more proactive approach.

Within this framework, the FAO funded the regional TCP "Assistance to improve Local Agricultural Emergency Preparedness in Caribbean countries highly prone to hurricane related disasters" in Cuba, Grenada, Haiti and Jamaica to "assist governments of participating countries to support the food security of small farmers operating in the most hazard prone areas by improving institutional frameworks and technical options for hurricane-related disaster preparedness, emergency response and post-emergency agricultural assistance". The proposed approach was to use a Participatory Rural Appraisal - PRA/based qualitative research paradigm.

The current section summarizes the project implementation outcome in Haiti during phase I, June 2006 - January 2007.

I. DRM Framework Linkage Improvement

A relatively new concept in Haiti, Disaster and Risk Management has been topical from 1998 when, in response to Hurricane George, the government initiated a program to reinforce national capacities with emphasis on disaster response and preparedness. With the formulation of the National Plan for Disaster and Risk Management institutionally supported by UNDP, a rather sound national framework was developed for this sector. Projects realized so far have known mixed successes, owing to planning deficit, lack of well-trained local evaluators, an emphasis on response rather than rehabilitation, lack of synergy between actors, inadequacy of scope of the programs versus the many needs of disaster-stricken communities and relatively weak links binding DRM to other national strategic activity sectors, particularly the important socio-economic agriculture sector.

The following recommendations, likely to improve the national DRM framework and initiate a stronger DRM–Ag interface, emanated from farmers, farm extension officers, agriculture and/or DRM national experts:

1. Collection of additional information, based on relationships between the DRM and the agriculture sectors,
2. A more participative and egalitarian approach should underlie the relationships between executives, stakeholders, beneficiaries, and actors in the two sectors at all levels;

3. A better planning is needed between the institutions to design joint action plans to reduce risks and be more efficient in delivering disaster relief to farmers;
4. There is a need for an effective decentralization of government decisions to lower administrative levels in both sectors;
5. Small stipends (seed money) should eventually be provided to DRM local committee members for them to be more involved and efficient in the execution of their duties;
6. The MoA DRM sector committee needs to be activated, with mandate to elaborate and execute agriculture sector-wide contingency plans related to DRM issues;
7. A better timing is needed for the undertaken DRM activities (e.g. real time delivery of early warning messages, in time delivery of relief to disaster stricken communities);
8. Both sectors should shift their global vision of DRM from the current passive disaster-management-dominated approach to a more proactive risk-management-based approach.

II. Pilot site selection and profiling

The basic criteria used to select the two pilot sites of *Bassin Magnan* and *Lavanneau* are, among others:

a) the vulnerability to hydro-meteorological hazards and multi-hazard exposure, frequency of hazards within the last 5 years,

b) evidence of local risk mitigation capacity, existence of local knowledge perceived as DRM good practice,

c) evidence of ongoing farm activities,

d) relatively high dependence on agriculture for a livelihood.

Bassin Magnan is a 9 km^2 rural farming area, with about 2,500 inhabitants located on a very dry, deforested plateau 160/300 m above sea level and is part of the very dry tropical forest life zone. Bassin Magnan is part of a leeward region and is prone to extensive droughts which combined with extreme deforestation of surrounding hills rendered inapt to farming activities exacerbate the vulnerability of the local population, ultimately compelled to burn charcoal and excavate the bed of local rivers for gravel, sand and stones for a living. Coping strategies include: good practices for drought/water management, migration, selling of farm labor, informal local credit system, sharecropping, cattle herding, etc.

Bassin Magnan farmers consider FAO the number one local contributor to post-disaster rehabilitation efforts, while the Ministry of Agriculture is regarded as the object of the poorest performance. Lavanneau farmers, on the other hand, perceived the Haitian Red Cross as the most effective local contributor, and the Ministry of Agriculture as the worst.

Lavanneau is a fairly deforested peri-urban farming area of about 6.5 km^2, with 2,000 inhabitants. It includes two distinct zones, Beaudouin at 40 metres above sea level and Romage at 350 m above sea level, part of the dry tropical forest life zone. Lavanneau is prone to floods in its lower part and vulnerable to wind and water erosion in its higher part characterized by steep slopes and exposition to local dominant winds. Local residents resort to mesquite charcoal burning, migration, farm labor selling, sharecropping, cattle herding, and informal extra-farm activities

such as motorcycle-taxi riding as livelihood coping strategies. The presence of high value crops such as mandarin and plantain makes living standards apparently higher at Lavanneau compared to Bassin Magnan, where local farmers, whose houses mostly have thatched roofs, are compelled to prioritize drought resistant and low-market value crops such as sorghum and millet.

Similarities between the two pilot sites include: proximity to a departmental city; under-development; presence of a small-scale irrigation system; proneness to hurricanes; marked absence of state-led farm extension services; social stratification in three farmer classes; relatively degraded state of natural resources and priority holding by a minority of farmers; active presence of numerous NGOs filling up for the absence of the State; relative strength of local associative movement, etc.

III. Good practice assessment and prioritization

Twenty six good practices were identified on the field during PRA-based surveys. Sixteen were further documented for their relative higher relevance and effectiveness to disaster and risk management. Soil conservation related practices were the most frequently used by the respondents to address DRM issues, tree pruning, however, received the highest scores for feasibility, sustainability, efficiency, and replicability, the criteria according to which the Haiti workshop participants prioritized them, in descending order of importance:

1. Tree Pruning
2. Removing livestock from low lying areas to higher and more secure grounds
3. Appropriate selection of cropping seasons and cultivars
4. Tree Planting
5. Land tiling
6. Soil Conservation practices package
7. Building a traditional granary "*Colombier*" to store the harvest
8. Banana plantation management package

TABLE OF CONTENTS

1. STUDY BACKGROUND 1
1.1 NATIONAL HAZARD RISK CONTEXT 3
1.1.1 Framework conditions shaping the vulnerability to natural hazards 3
1.1.2 Natural hazards and disasters 5
2. STUDY METHODOLOGY 7
2.1 LITERATURE REVIEW/SITUATIONAL ANALYSIS 8
2.2 SELECTION OF PILOT SITES 8
2.3 PRIMARY FIELD RESEARCH AT PILOT SITES 8
3. STRUCTURE OF THE DRM SECTOR IN HAITI 10
3.1 THE DRM INSTITUTIONAL FRAMEWORK 10
3.1.1 The DRM National System 10
3.1.2 Disaster preparedness and mitigation programs in Haiti 12
3.1.3 DRM-based activities undertaken in the agriculture sector 12
3.2 THE AGRICULTURE INSTITUTIONAL FRAMEWORK 15
3.2.1 Characteristics of the farm sector in Haiti 15
3.2.2 Representation of the Agriculture sector within the National DRM system and existing links 15
3.3 THE DRM-AGRICULTURE INTERFACE: SOME RECOMMENDATIONS FOR IMPROVEMENTS 17
4. PILOT SITE PROFILING 20
4.1 THE BASSIN MAGNAN PILOT SITE 20
4.1.1 Location and physiographic features 20
4.1.2 Natural resources base 22
4.1.3 Other socio-economic resources 23
4.1.4 Farming activity at Bassin Magnan 24
4.1.5 Characteristics of Livelihoods 25
4.1.6 DRM Issues at Bassin Magnan 26
4.2 THE LAVANNEAU PILOT SITE 29
4.2.1 Location and physiographic features 29
4.2.2 Natural resources base 31
4.2.3 Other socio-economic resources: 32
4.2.4 Farming activity at Lavanneau 32
4.2.5 Characteristics of Livelihoods 34
4.2.6 DRM issues at Lavanneau 35
5 IDENTIFIED GOOD PRACTICES FOR DISASTER RISK MANAGEMENT IN AGRICULTURE 38
5.1 GENERAL CONSIDERATIONS 38
5.2 THE DOCUMENTED GOOD PRACTICES LIST 40
6 NATIONAL WORKSHOP TO VALIDATE GOOD PRACTICES IN DR M 42
LIST OF REFERENCES 44
BIBLIOGRAPHY 44
WEBSITES VISITED 45
ANNEX 1: NATURAL DISASTERS IN HAITI 46
ANNEX 2: IDENTIFIED GOOD PRACTICES FOR DRM 48
ANNEX 3 ADDITIONAL GOOD PRACTICES IDENTIFIED ON THE FIELD (WITHIN AND OUTSIDE THE STUDY SITE) 65
ANNEX 4- PILOT SITES 76

LIST OF FIGURES

Figure 1 Geographic location of the Republic of Haiti within the Caribbean region....3
Figure 2 Summary of the project cycle....7
Figure 3 Diagram showing the PRA-based sequential method of data collection....9
Figure 4 The Haiti DRM National System organization chart....11
Figure 5 The Haiti agriculture national framework organization chart....15
Figure 6 Location map of the study area....20
Figure 7 Monthly mean rainfall (a) and temperature (b) at Bassin Magnan, Gonaives....21
Figure 8 Typical cropping calendar in Bassin Magnan, Gonaives, Haiti....25
Figure 9 Bassin Magnan farmers' perception of the contribution of local and national institutions to disaster response and recovery efforts....27
Figure 10 Vulnerability factors and hazards' exposition at Bassin Magnan....28
Figure 11 Rough vulnerability map of the Bassin Magnan Pilot Site, Gonaives, Haiti....29
Figure 12: Monthly mean rainfall (a) and temperature (b) at Lavanneau, Jacmel....30
Figure 13: Typical cropping calendar at Lavanneau, Jacmel, Haiti....34
Figure 14 : Coping strategies adopted by local farmers of the Lavanneau pilot site....35
Figure 15: Lavanneau farmers' perception of the contribution of local/national institutions to disaster response and recovery efforts.....36
Figure 16 Perceived vulnerability factors and exposure to hazards' at Lavanneau....37
Figure 17: Rough vulnerability map of the Lavanneau Pilot Site....38
Figure 18 Global Typology of the field identified Good Practice....4042

LIST OF TAB LES

Table 1 Activities undertaken by some institutions....14
Table 2 Links between DRM and Agriculture sectors and improvement recommendations....18
Table 3 General characteristics of the selected pilot sites....20
Table 4 Coping strategies adopted by local farmers of the Bassin Magnan pilot site....26
Table 5 Good DRM related farming practices....39

CONVERSION UNITS

The main unit for land measurement in Haiti is the "carreau"
1 Carreau (Cx) = 1.29 hectare = 12,900 m^2
1 Carreau (Cx) = 3.18765966 acres
1 hectare = 2.471054 acres = 10,000 m^2

- The official exchange rate in October 2006 in Port-Au-Prince, Haiti was 1 US $/39.75 Haitian Gourdes

LIST OF ACRONYMS

ACDI	Agence Canadienne de Développement International
ASSODLO	Association Haïtienne pour la Maîtrise des Eaux et des Sols
BAC	Bureau Agricole Communal
BRH	Banque de la République d'Haïti
CARE-Haiti	Cooperative for American Relief Everywhere-Haiti
CASEC	Conseil d'Administration de la Section Communale
CBO	Community Based Organization
CDERA	Caribbean Disaster for Emergency Response Agency
CEPAL	Comission Economique Pour l'Amérique Latine
CIDA	Canadian International Development Agency
CIDPSA	Comission Inter-Départemental de Production des Semences Artisanales
CNSA	Centre National de la Sécurité Alimentaire
CRH	Croix Rouge Haïtienne
CROSE	Coordination Régionale des Organisations du Sud'Est
CRS	Catholic Relief Service
DDA Sud'Est	Direction Départementale Agricole
DDAA	Direction Départementale Agricole de l'Artibonite
DPC/U. Européenne	Département de la Protection Civile/Union Européenne
DRM	Disaster Risk Management
ECHO	European Community Humanitarian Aid Department
ECLAC	Economic Commission for Latin America and the Caribbean
EU	European Union
FACN	Caféière Native Haïtienne
FAMV/UEH	Faculté d'Agronomie et de Médecine Vétérinaire/Université d'Etat d'Haïti
FAO	Food and Agricultural Organization of the United Nations
FIC	Frères de l'Instruction Chrétienne
HGRP	Hurricane Georges Recovery Program
HTG	Haitian Gourde
IDB	International Development Bank
IMF	International Monetary Fund
IPM	Integrated Pest Management
KPSL	Komite Pwoteksyon Sivil Lokal
MARNDR	Ministère de l'Agriculture des Ressources Naturelles et du Développement Rural
MDE	Ministère de l'Environnement
MED	Ministére de l'economie et des finances
MICT	Ministère de l'Intérieur et des Collectivités Territoriales
MoA	Ministry of Agriculture
NGO	Non Governmental Organization
OPDES	Organisation Pré-Désastres et de Secours
ORE	Organisation pour la Réhabilitation de l'Environnement
OXFAM	Oxford Committee for Famine Relief

PADF	Pan American Development Foundation
PAE	Plan d'Action pour l'Environnement, Action Plan for the Environment
PIA	Programme d'Intensification Agricole
PNGRD	Plan National de la Gestion des Risques et Désastres
PRODEVA	Association Haitienne pour la Promotion d'un Developpement Autonome
S/DDA	Sous- Direction Départementale Agricole
SNRE	Service National des Ressources en Eau
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WFP	World Food Program