

AGRICULTURE DISASTER RISK MANAGEMENT PLAN

OLD HARBOUR BAY, ST. CATHERINE

August 1, 2012

FOREWORD

Jamaica's geographical location makes it vulnerable to hurricanes and to earthquakes and its geology and topography also make it prone to landslides in its hilly areas, and to flooding on its plains during heavy rainfall. In the past, susceptibility to multiple natural hazards has resulted in considerable damage and loss of life and livelihoods which presents a major challenge to sustainable development. Minimizing the loss of life has been the main focus of preparedness and response strategies and while this is critical, it must be complemented by the effective reduction of the impact on livelihoods. This is equally important for resilience from future impacts and for recovery and sustained development.

The approach of FAO has been to promote a shift from reactive emergency relief (which nonetheless remains important) to pro-active disaster risk reduction (DRR) in the pre-disaster stages. The agriculture (farming and fisheries) sector are significant centers of livelihoods for rural Jamaica with high vulnerability to hydro-meteorological hazards and as such should be the focus of interventions to mitigate impacts and promote the sustainability of the sector.

In 2010 an Agriculture Disaster Risk Management (ADRM) Plan was prepared for Jamaica by FAO in collaboration with the Ministry of Agriculture and Fisheries (MOAF). The Plan represents an important achievement in placing disaster risk reduction on the national agenda of the agricultural sector. The ADRM Plan comprehensively prescribes roles, responsibilities and activities at all stages of the DRM Cycle: Preparedness, Mitigation, Emergency Response and Recovery/Rehabilitation.

The National ADRM Plan also provides basic guidelines for the achievement of a more food secure Jamaica and the improvements in agricultural livelihoods through the promotion of sustainable agriculture. It seeks in particular to augment local/community-level initiatives for DRR in the relevant sub-sectors of agriculture by the preparation of Community-based Agricultural Disaster Risk Reduction (ADRM) Plans. These plans are focused on enhancing the resilience of vulnerable communities before, during and after crises through risk assessment, risk reduction (preparedness, prevention and mitigation), emergency response and rehabilitation.

To be effective these plans require detailed livelihood assessments that are specific for the sector to ensure that preparedness is based on hazard typologies, pre-determined profiles of the most vulnerable households and a menu of responses that are efficient and targeted. Good baseline quantitative and qualitative data of existing agricultural assets facilitate planning for appropriate post-disaster compensation, improving coping, recovery and monitoring mechanisms. The growing significance of climate change in risk reduction requires that agro-meteorological data also be an integral part of the risk analysis and the livelihoods assessment.

LIST OF ACRONYMS

ADRM	Agricultural Disaster Risk Management
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EA	Extension Area
ED	Electoral District
EWS	Early Warning Systems
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GIS	Geographic Information Systems
GPS	Global Positioning System
MOAF	Ministry of Agriculture & Fisheries
NADRM	National Agriculture Disaster Risk Management
NDRM	National Disaster Risk Management
NGO	Non- Governmental Organization
ODIPERC	Office of Disaster Preparedness and Emergency Relief Coordination
ODPEM	Office of Disaster Preparedness and Emergency Management
PADRM	Parish Agriculture Disaster Risk Management
PDCs	Parish Disaster Committees
PIOJ	Planning Institute of Jamaica
RADA	Rural Agricultural Development Authority
SDC	Social Development Commission
STATIN	Statistical Institute of Jamaica
WRA	Water Resources Authority

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1. INTRODUCTION

1.0 Background

In recent times the fisheries sector has been badly affected by a series of natural disasters which has resulted in negative impacts on the livelihoods of fishers across the island. The problem is amplified by the challenge of managing fish production and over fishing. Of the major species fished, conch and lobster require much of the legislative controls for limiting overfishing. However, declining rate in the past 8 years can also be attributed to climate and weather impacts. The urgent need for a sector-specific disaster risk reduction plan was recognized by the Ministry of Agriculture and Fisheries and the Food and Agriculture Organization (FAO) with the establishment of the Agriculture Disaster Risk Management (ADRM) Plan in 2010.

For the first time in the country's history, disaster risk reduction is an integral component of the national agenda of the agriculture sector. An important feature of the ADRM plan is the preparation of Community-based Agricultural Disaster Risk Reduction (ADRM) Plans. The objectives of these plans are focused on enhancing the resilience of vulnerable communities before, during and after crises through risk assessment, risk reduction (preparedness, prevention and mitigation), emergency response and rehabilitation. This report presents the Community-based Agricultural Disaster Risk Reduction (ADRM) Plan for one of Jamaica's most vulnerable fishing community- Old Harbour Bay, St Catherine.

1.1 Community overview

A number of coastal communities in Jamaica are directly dependent of marine resources for a livelihood; Old Harbour Bay is a prime example. Old Harbour Bay is divided into the Old Harbour Bay Proper and Blackwood Gardens districts. The community is bordered in the north by Old Harbour, south by the sea and in the east by Lloyd's Pen and west by Port Esquivel (SDC 2009). The community is located in the South Westerly section of Jamaica around 29km from Spanish Town. The area is reputed to be the largest of Jamaica's 213 official landing sites for marine fish.

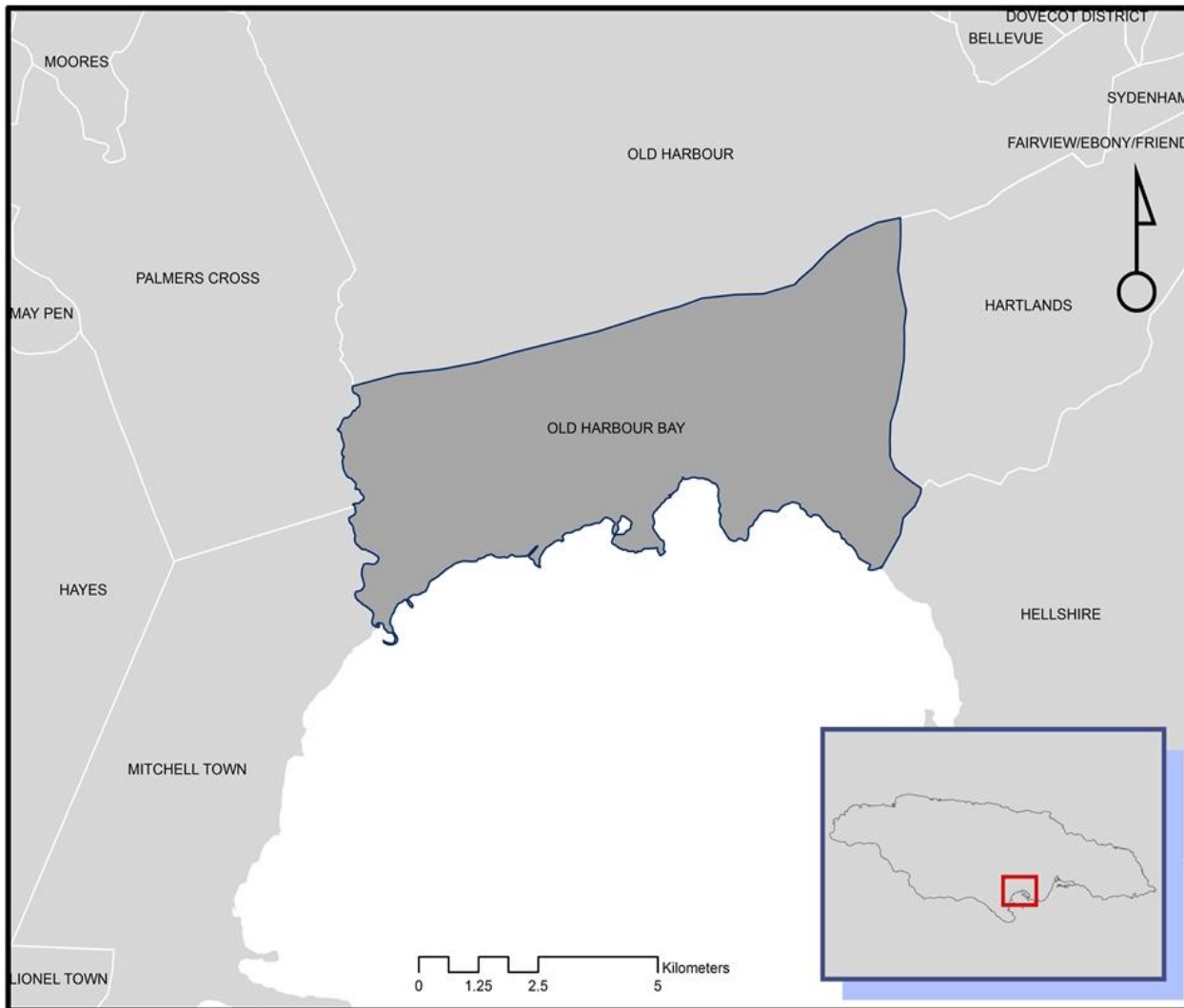
Old Harbour Bay is estimated to have a population of 7,388 and an average household size of 4.0 (SDC Socio Economic Survey, 2009). The area is hinged to one of the fastest growing urban residential centers of Portmore, with the increasing economic activity leading to more illegal capturing of land and greater demand on coastal locations. The population is broadly described as youthful and of working age with 63 percent of the community's population between the ages of 15-64.

The main economic activities in Old Harbour Bay include fishing, farming, commercial business and construction. Although fisherfolks in Jamaica have been noted for basic primary level educational attainment, Old Harbour Bay has an enrolment rate of 70.9 percent of the existing school aged residents (SDC, 2009). Enrolment details reveal that only 1.3 percent is pursuing vocational or training programs. Matching the general youthful nature of the population, the majority of school enrolment occurs in primary and basic school institutions. An unfortunate reality is the limited overall standard educational attainment. At least 83 percent of males and females have no certification at CXC or equivalent levels. This has grave implications for employability. Additionally, training is limited to only around 25 percent of the population- the main areas being construction, cabinet making, hospitality and machine repair.

As far as basic amenities and public facilities go, Old Harbour Bay has five educational institutions, a police station, a sports complex with playfield, a market but no health care facilities and several churches. Although 51 percent of the population is employed full time, there is a high rate of unemployment for women and youth. The ESSJ (2007) indicated that overall youth unemployment accounted for 32.4 percent of the total unemployment population, a figure 10 percent higher than the then national average of 23.6 percent

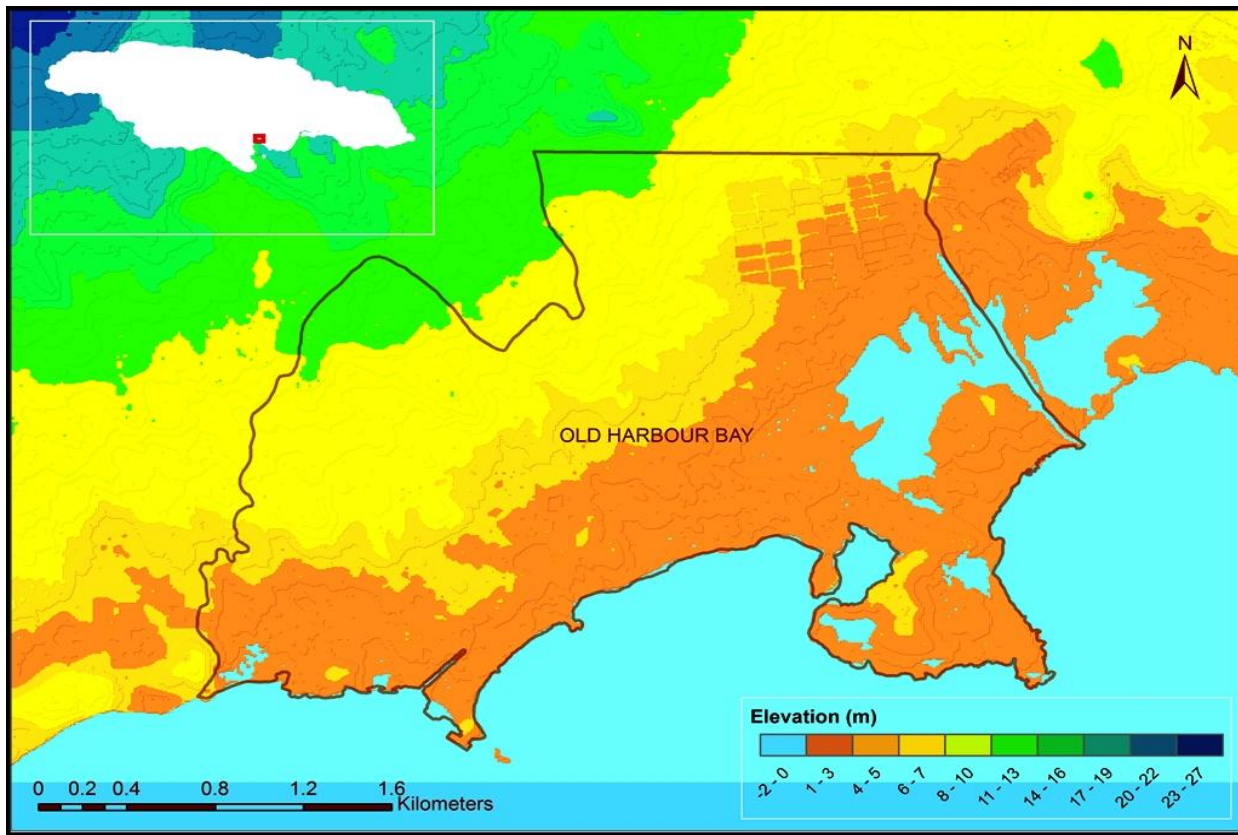
Social structure is evidenced by way of several organization and community groups such as the Fishermen's Co-op Society, the Fisherman's Benevolent Society and the Old Harbour Bay Fisher's Association. Old Harbour Bay is also considered somewhat of a prototype for forging partnerships between government, local people and non-government organizations.

FIGURE 1: Old Harbour Bay, St. Catherine



Geographically, the community of Old Harbour Bay is predominantly flat. Most of the community is less than 10 meters above sea-level. Rainfall patterns mirrors the bimodal-peak profile for the island. Despite the location of the community in an agroecological dry zone, it is not uncommon to experience relatively long periods of heavy rainfall. Old Harbour Bay falls within the Rio Cobre Hydrological Basin and is a part of the Portland Bight Protected Area. The area is also comprised of a number of gullies, swamp lands and mangroves. The area is generally categorized as swamp Mangrove. The community and the surrounding areas as a result of their physical location are vulnerable to overland flooding, liquefaction, storm surges, tropical systems and tsunamis.

FIGURE 2: Digital Elevation Model (DEM) of Old Harbour Bay



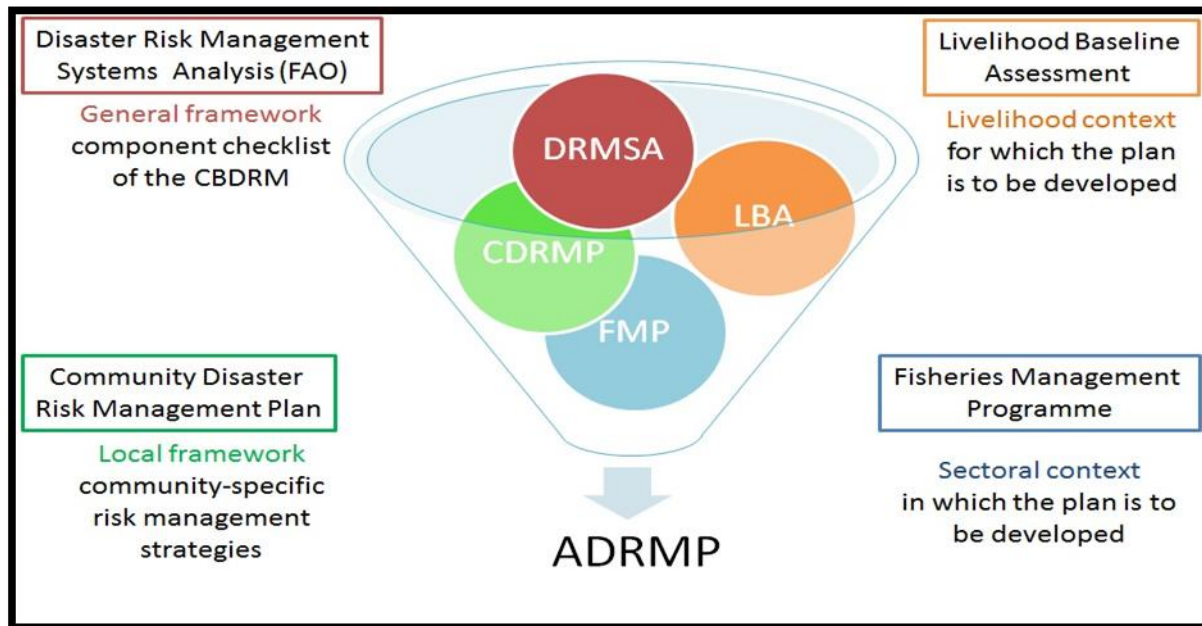
1.2 ADRM Planning process- overview

Development of the Community-based ADRM Plan is premised on the important role that fisheries stakeholders nationally and locally must play in determining the organizational structures and initiatives that are required for reducing the impact of hazards and their disasters on their lives and livelihood. In that regard, the first step was the establishment of a Local Plan Development Committee (LPDC), consisting of local stakeholders representing the community, to oversee and inform the evolution of the Plan. The LPDC included representatives from the Old Harbour Bay Community Development Committee, Fisherfolks Council, Fishermen's Cooperative, ODPEM, Parish Disaster Coordinator, the Social Development Commission (SDC), the Fisheries Division, Caribbean Coastal Area Management (C-CAM) Foundation and selected fishers from the community.

It was determined that the plan should be structured within the context of the disaster risk management cycle with special focus on the mitigation/prevention/ preparedness phase of

the cycle. The development is guided by the Livelihood Baseline Assessment (LBA) which provides the livelihood context; the Fisheries Management Program (FMP) establishes the sectoral context; the Community Disaster Risk Management Plan (CDRMP) provides the community disaster risk context and; the FAO’s Disaster Risk Management System Analysis (DRMSA) provides the technical framework for developing Community-Based Disaster Risk Management Plans.

FIGURE 3: ADRM plan development context



The plan development process included a series of community and stakeholder meetings. In tandem with the national ADRM plan, the overall focus of the Community-based ADRM plan is livelihood protection. More specifically the plan is seeks to achieve the following objectives:

1. Mitigating, preventing and preparing for the impact of disasters on the livelihood of fishers
2. Promoting appropriate and effective emergency response to the impact of hazards and disasters
3. Ensuring timely and effective recovery and rehabilitation from the impacts of disasters

2. HAZARD CONTEXT

Old Harbour Bay is exposed to a number of hazards that threaten the livelihood of fishers. Overland flooding and hurricane are the most prominent and remain key elements of current vulnerability. Under current conditions, both events are expected to directly impact household and personal property, public infrastructure and food supply (ODPEM, 2012). Personal fishing property is perhaps the most vulnerable assets in the community. All hazard events from an oil spill, heavy winds or flooding has potential risk for fishing boats, marine life, fishing nets, the fish market and fishing huts. Therefore mitigation will be the most important step towards protection of livelihoods and assets. A timeline account of the disaster history and impacts of extreme weather events in the community provides useful insights to the current exposure of the community.

FIGURE 4: Hazard Map of Old Harbour Bay

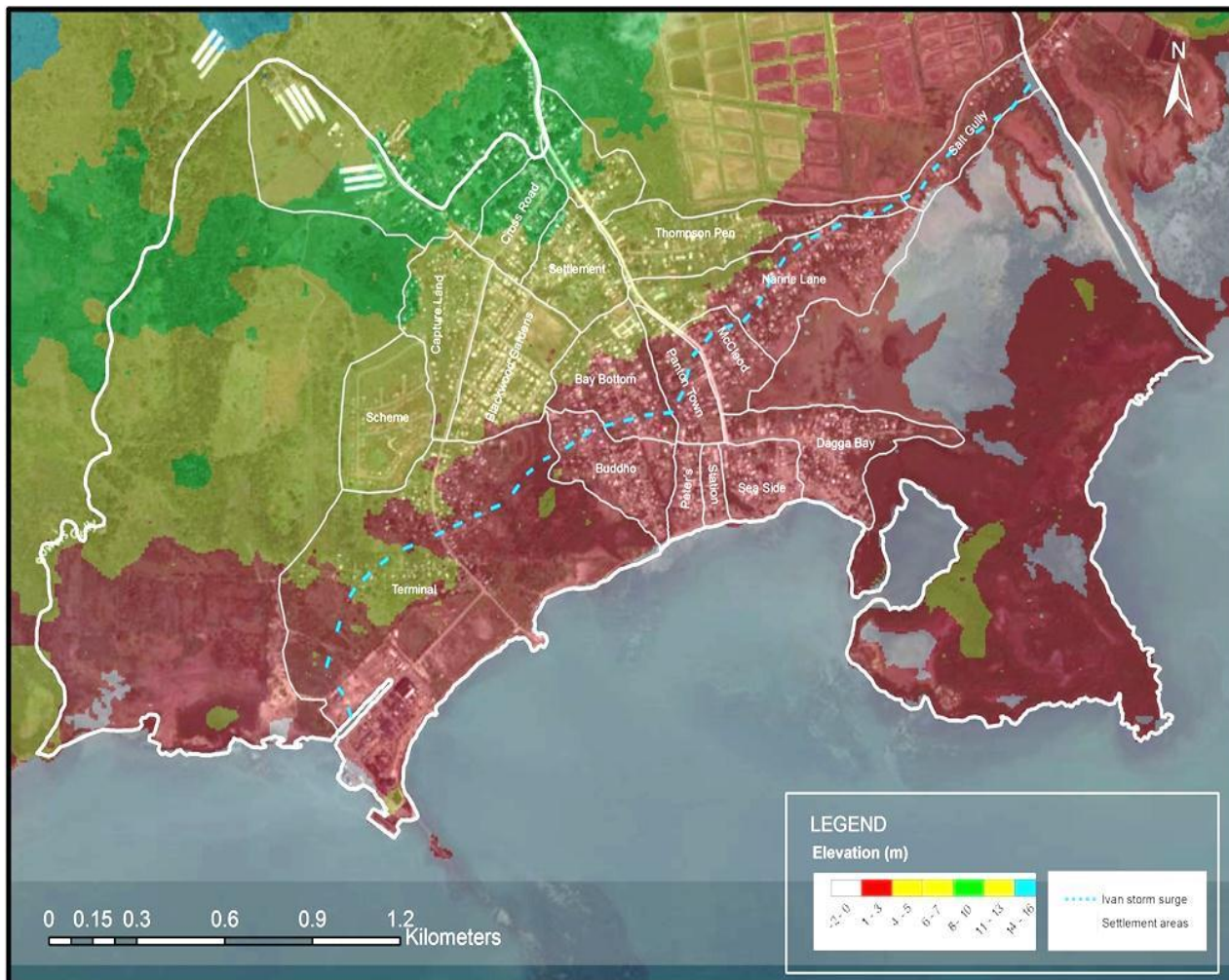


TABLE 1: Selected hurricane and flood events in Old Harbour Bay (1951- 2007)

Date	Event	Impacts
1951	Hurricane Charley	Death, destruction of homes and fishing equipment , flooding
1988	Hurricane Gilbert	Loss of power, water, livestock, damage to fish pots & nets, coastal erosion, loss of coral reefs, damage to buildings
1998	Hurricane Mitch	Storm surges, blocked roads & drains, houses washed away, damage to fish pots & nets, coastal erosion, loss of coral reefs, damage to buildings
2002	Heavy Rainfall	Flooding of houses and roads
2004	Hurricane Ivan	Roof damage, flooded shelters, schools & houses, lack of water supply, inadequate relief supplies, damaged/lost fishing equipment, erosion of quays, storm surge
2005	Hurricane Dennis	Loss of electricity, roofs blown off, loss of water supply, blocked roads, damaged bridges
2005	Hurricane Wilma	Blocked roads, flooding, landslides, severe damage to road surfaces
2007	Surface Trough/Tropical Wave	Houses flooded, roads blocked by landslides, roads inundated by floodwaters
2007	Hurricane Dean	Storm surges, landslides, blocked roads & drains, houses washed away, damage to fish pots & nets, coastal erosion, loss of coral reefs

Flood impacts vary across the Old Harbour Bay Community and have been influenced by both environmental and human factors. During the focus group discussions, fishers identified Buddho and Narine as the main settlement areas that have been the worst affected by flooding in the past. They also pointed to the development of the New Harbour housing scheme as a major contributing factor to flooding in these areas.

In addition to hurricane and flood, fisheries activities in the community faces threat from coastal erosion, tsunami and climate change. The ODPEM (2012) estimates that the occurrence of a major tsunami could result in complete destruction of the community and livelihoods. The FAO (2011) cautions that climate change is projected to impact broadly across ecosystems, societies and economies, increasing pressure on all livelihoods and food supplies including those in the fisheries and aquaculture sector. Warnings of this nature have serious implications for coastal communities such as Old Harbour Bay.

3. LIVELIHOOD VULNERABILITY AND RISKS

Vulnerability has much to do with responses to possible threat, and the general decision making governing land use and development. Statistics from the SDC (2009) indicate that perception of vulnerability was highest for natural disasters such as flooding (76 percent), storm surge (5.6 percent) while earthquakes and freak storms had only 1.6 percent each. ODPEM (2012) provides a Historical Hazard Impact and Coping Mechanism Matrix for Old Harbour Bay. Climate change induced sea level rise which is expected to result in the loss of its land mass is predicted, to be around 101.9km² pending sea level rise and storm surges. Importantly, coping mechanisms improved markedly in 2001 with community effort playing a major role in mitigation, warning dissemination and preparation of household through battening down, and proper food storage. The strategies shown in table (2) clearly show that the fishers are aware of some of the basic steps required to reduce risk.

TABLE 2: Fisher's perceptions and impact of hazards

Event	Hurricane	Flood	Strong winds	Tsunami
Most fearful of	63%	5%	2%	30%
Affected you worst in the past	77%	15%	8%	N/A
Least able to protect against	53%	14%	4%	29%
Average number of times affected by	3	2	1	N/A

Table 4 shows that of all the natural hazards, the fishers are most fearful of hurricanes and tsunamis. More fishers believe that they are less able to protect against flood than those who are fearful of it. In general, more fishers have been badly affected by hurricanes than floods and strong winds. The top 3 direct impacts of hurricane, flood and strong wind are summarized in table 4.

TABLE 4: Preparedness actions, coping strategies and livelihood impacts of selected hazards

Event	Main livelihood impact	Preparedness actions	Coping strategies
Hurricane	Damage to House (especially the roof) Damage or loss of fishing equipment	Secure house: Sand bags on roof; Roof straps; Batten down windows and doors Protect fishing equipment: move equipment to higher	Use personal savings Borrow from friends and family members

Event	Main livelihood impact	Preparedness actions	Coping strategies
	<p>Availability of fish at sea</p> <p>Availability of fuel</p> <p>Problems with storage of fish</p> <p>Damaged roads limit access of patrons to the fish market</p>	<p>grounds; Secure boats on land; Move and secure boat in mangrove; Secure boat engine in barrel</p> <p>Evacuate: Move family to higher grounds; Move to higher ground</p>	<p>Rent boat</p> <p>Seek work outside fishing</p> <p>Sell fishing equipment</p>
Flood	<p>Damage to fishing equipment (especially from debris)</p> <p>Difficulty to access coastal areas (makes it difficult to go to sea)</p> <p>Damaged roads limit access of patrons to the fish market</p>	<p>Cleaning Drain</p> <p>Construct and improve storm water drains</p> <p>Construction of housing on elevated floor levels</p> <p>Construction of more culverts</p>	<p>Use personal savings</p> <p>Borrow from friends and family members</p> <p>Seek work outside fishing</p>
Strong winds	<p>Unable to access fishing grounds (due to low tide)</p> <p>Strong winds makes it risky to venture out to sea</p> <p>Usually associated with low catch</p>	<p>Increase safety measures before going to sea (cellphone, extra paddles, life jacket etc)</p> <p>Avoid going to sea</p>	<p>Seek work outside fishing</p> <p>Use personal savings</p> <p>Borrow from friends and family members</p>

4. MAIN ISSUES AT THE COMMUNITY LEVEL AFFECTING FISHERIES

- Cooperative Management and Effectiveness
- Fish Stock Management
- Empowering Fisherwomen
- Access and Use of Technology
- Financial management strategies
- Safety practices at sea
- Securing Equipment
- Environmental information and monitoring
- Advocacy, environmental awareness and information strengthening

5. PRIORITIES OF THE COMMUNITIES RELEVANT TO ADDRESSING THE RISKS

5.0 Cooperative Management and Effectiveness

- Greater training on how to run cooperatives effectively and how allowing more members might strengthen the cooperative
- Greater awareness of the role and value added that allowing women members into the cooperative would bring since women are better money managers
- Need for greater transparency in how the cooperative as a whole is run – and improved management of the cooperative
- Increase awareness amongst non-members about the role and functions of the cooperative and criteria for membership

5.1 Fish Stock Management

- Practice proper catch and release techniques such as using a circle hook, which is less likely to catch a fish's gut and improves its chances of survival upon release.
- Stronger mechanism to discourage the capture of immature fish
- Encourage the rotation of fishing grounds. Let fishing grounds rest.

- Promote the use of improved fish pots with biodegradable panels to prevent ghost fishing.
- Greater involvement of fishers in the management of protected fishing areas – protect fish sanctuaries
- Expansion and promotion of mangrove replanting. Consider moving from project to a sustainable program
- Stronger mechanism to discourage illegal fishing practices
- Promotion and expansion of the artificial reef systems
- Greater awareness of ways to strengthen coral reefs

5.2 Empowering Fisherwomen

- Since female fishers own and manage most of the assets in the community; they are likely to be amongst the biggest losers after a disaster. This should be a major consideration when coordinating post-disaster response efforts
- Greater involvement of female fishers in disaster risk management planning at the community level. This is one way of ensuring knowledge transfer of a disaster plan from one generation to another
- Strengthen the role of females in fisheries management strategies to give them greater control over the management of their resources
- Promotion of greater involvement of female fishers in community based organizations (e.g. cooperatives and friendly societies)

5.3 Access and Use of Technology

- More GPS training programs to increase awareness of its capabilities
- Incorporate GPS training in fisheries management strategies
- Greater access of GPS devices for local fishers
- Encourage fishers (especially inexperienced ones) to fish within the limits of phone range especially during unfavorable weather conditions.

- Promote the use renewable energy systems in fisheries operations
- Promote the use of marine radios

5.4 Financial management strategies

- More information about possible insurance options in the event of disasters
- Greater access to loans and lines of credit
- Ways to collectively get loans if individuals do not qualify or do not have sufficient collateral because they may not own their own boat
- Savings in credit union, bank or through the Co-op
- Financial management skills training for individual fishers

5.5 Promote good safety practices

- Greater need to practice safe keeping of important documents such as titles to equipment in the event of storms or disasters
- Increase awareness of how to respond when early warning systems are announced
- Promote the practice of *fishing in convoys* especially during unfavorable weather conditions
- Greater awareness of the need to have a safety at sea kit onboard when going to sea
- Greater awareness of the need to have paddles and oars in case of engine failure
- Develop strong communication techniques to highlight the dangers of going to sea when a warning has been issued or in poor weather
- Improve access of safety equipment/gear to fishers (e.g. life jackets)
- Need for regular drills on how to prepare for storms and disasters and where to evacuate to. Fishers have a favorable view of safety drills and would like to see them more frequently in their community

5.6 Securing Equipment

- Effective management of process of to secure boat in mangrove
- Increase awareness of proper technique to secure boat in mangrove

- Provide an alternative to securing boats in mangrove should issues of capacity arise
- Organization of strategy to secure boats on the beach in case of a hurricane threat
- Promote good practices for securing boat engines and other fishing equipment (e.g. detach and secure boat engine and store in a sealed plastic barrel)
- Reconsider the effectiveness of the newly constructed gear sheds. They were ineffective during the last hurricane

5.7 Environmental information and monitoring

- Addressing gaps in science knowledge about local coastal areas (e.g., beach profiles, mapping shoreline trends over time)
- Rehabilitation and post disaster response
- Infrastructure provision (e.g. protecting harbours and landing sites)
- Management of 'coastal squeeze' and/or realignment options
- Protection, restoration or enhancement of natural protective coastal ecosystems
- Beach nourishment or other 'soft engineering' options
- 'Hard engineering' options (e.g., sea walls, groynes)

6. ACTION PLAN AND IMPLEMENTATION STRATEGY

OLD HARBOUR BAY AGRICULTURE DISASTER RISK MANAGEMENT ACTION PLAN AND IMPLEMENTATION STRATEGIES, 2013 – 2017

THEME 1: TRAINING AND CAPACITY BUILDING

STRATEGY	KEY ACTIONS	EXPECTED RESULTS	RESPONSIBLE AGENCY	INDICATORS	COMPLETION DATE
Improve and strengthen the effectiveness and management of the Fisheries Cooperative	Assess capacity needs and develop training programmes to strengthen the Cooperative management	Greater transparency and managerial efficiency of the Cooperative	Fisheries Division/ OHB Fishermen's Cooperative/Jamaica Fishermen's Cooperative	Number of training programs offered and number of Cooperative members trained	2015
	Increase awareness of the value of female membership in the cooperative	Greater involvement of female fishers in the Cooperative and Cooperative management activities		Number of females involved in the cooperative and cooperative management activities	

STRATEGY	KEY ACTIONS	EXPECTED RESULTS	RESPONSIBLE AGENCY	INDICATORS	COMPLETION DATE
	<p>Assess and identify opportunities for diversification of cooperative service and business activities</p> <p>Work with the cooperative and Jamaica Fishermen's Cooperative to increase its capacity to accommodate more members</p> <p>Increase awareness amongst non-members about the role and functions of the cooperative and criteria for membership</p>	<p>Greater diversification of service activities offered by the cooperative</p> <p>Increased number of fishers in the Cooperative</p> <p>Greater awareness of the services provided by the cooperative as well as its roles and responsibilities</p>		<p>Number of service activities provided by the Cooperative</p> <p>Number of fishers in the cooperative</p> <p>Number of awareness programmes and number of participants</p>	

STRATEGY	KEY ACTIONS	EXPECTED RESULTS	RESPONSIBLE AGENCY	INDICATORS	COMPLETION DATE
<p>Strengthen the role of female fishers in livelihood related activities</p>	<p>Promotion of greater involvement of female fishers in community based organizations</p> <p>Strengthen the role of female in fisheries management strategies</p> <p>Develop a more targeted post-disaster assessment of damage and loss experienced by females</p>	<p>Greater involvement of female fishers in community based organizations</p> <p>Increased involvement of females in fisheries management activities</p> <p>More detailed assessment of damage and loss experienced by female fishers after disasters</p>	<p>Fisheries Division/ C-CAM/SDC/CBOs</p>	<p>Number of female fishers in community-based organizations</p> <p>Number of females in fisheries management programmes and activities</p> <p>Identification of loss or damage to assets experienced by female fishers and the number of</p>	<p>2017</p>
<p>Increase access and use of GPS technology</p>	<p>Incorporate GPS training in fisheries extension service to increase usage amongst fishers</p>	<p>Mainstreaming of GPS training program with extension services of the Fisheries Division</p>	<p>Fisheries Division</p>	<p>Establishment of GPS training program and number of fishers trained</p>	

STRATEGY	KEY ACTIONS	EXPECTED RESULTS	RESPONSIBLE AGENCY	INDICATORS	COMPLETION DATE
	<p>Increase the availability of GPS units to local fishers</p> <p>Conduct GPS training Programme for fishers</p>	<p>Fishers more knowledgeable of how they can obtain GPS units</p> <p>Increase in the number of fishers who use GPS units. Increased awareness of GPS amongst fishers in the community</p>	<p>Fisheries Division</p> <p>C-CAMF/FAO</p>	<p>Fishers knowledge of procedure for obtaining GPS units</p> <p>Number of training sessions and fishers trained</p>	<p>2016</p>
	<p>Design and implement training/ awareness raising programs to promote the use of biodegradable mesh, line and hook and well as non-offset circular and stainless hooks</p>	<p>Increase in awareness of the environmental benefits of using these tools</p>		<p>Number of programmes/seminars to promote the use of biodegradable fishing material. Number of participants at each session</p>	

STRATEGY	KEY ACTIONS	EXPECTED RESULTS	RESPONSIBLE AGENCY	INDICATORS	COMPLETION DATE
Increase awareness of 'green' fishing practices and technology	<p>Promote proper catch and release techniques amongst fishers</p> <p>Design and implement training/ awareness raising programs to promote the use renewable energy systems in fisheries operations</p>	<p>Increased awareness and practice of proper catch and release techniques amongst fishers</p> <p>Fishers have more access to renewable energy source and more fishers use it in their operations</p>	Fisheries Division/ Community Development Association	<p>Number of programmes to encourage proper catch and release technique. . Number of participants at each session</p> <p>Number of fishers who participate in awareness programs. Number of fishers using renewable energy</p>	2014
Strengthen financial management capacity of fishers	<p>Develop and conduct targeted awareness programmes about possible loan and credit options available to fishers</p> <p>Develop and conduct financial skills management training Program for fishers</p>	<p>Fishers knowledge about loan and credit options enhanced</p> <p>Fishers become more aware of financial management strategies and are better able to manage</p>		<p>Number of capacity development completed and level of participation raised or sustained amongst fishers</p> <p>Financial management capacity development training completed and level of participation raised or sustained amongst fishers</p>	

STRATEGY	KEY ACTIONS	EXPECTED RESULTS	RESPONSIBLE AGENCY	INDICATORS	COMPLETION DATE
	<p>Design and implement awareness raising program to promote the benefits of NIS and other insurance schemes</p> <p>Promote alternative livelihood strategies</p>	<p>financial resources</p> <p>Increased awareness of the benefits of NIS and other insurance schemes</p> <p>Fishers have a more diversified livelihood portfolio. Reduced dependence of one form of fisheries activity</p>	<p>Fisheries Division/loan agencies/ Community Development Association/SDC</p>	<p>Number of capacity development completed and level of participation raised or sustained amongst fishers</p> <p>Number of livelihood activities</p>	<p>2015</p>
THEME 2: DISASTER MITIGATION AND PREVENTION					
<p>Strengthen fisheries related disaster risk reduction practices carried out in the community</p>	<p>Promote awareness of the proper technique for securing boat in mangrove in the event of a storm. Promote the community center as</p>	<p>Organized and well-managed process of securing boats in the event of a storm</p>		<p>Reduced damage or loss of boats as a result of storm events</p>	

STRATEGY	KEY ACTIONS	EXPECTED RESULTS	RESPONSIBLE AGENCY	INDICATORS	COMPLETION DATE
	<p>an alternative location to secure boats in the event of a storm</p> <p>Develop and implement a community based disaster mitigation advisory system to increase awareness amongst fishers</p> <p>Increase awareness of disaster mitigation practices in fisheries amongst CBOs</p>	<p>Increased awareness and practice of disaster mitigation by fishers</p> <p>Community-Based Organizations are more actively involved in disaster mitigation efforts in the sector</p>	OHB Zonal Committee/Fisherfolks Council/ Community Development Association	<p>Reduced impact of disasters on fishing livelihoods</p> <p>Increased involvement of CBOs in fisheries related disaster mitigation practices</p>	2014
THEME 3: AWARENESS RAISING AND DISSEMINATION OF RISK INFORMATION					
Develop and Implement community-based disaster awareness Programme for fishers	Promote awareness of safety at sea practices such as; "Boat pooling", fish within limit of cell phone signal , wear life jacket while at sea, back up paddles	Greater awareness of safety at sea practices and a reduction risky fishing practices	Fisheries Division/OHB Zonal committee/CDA Fisherfolk Council	Reduction in the number of fishers lost or dying at sea. Number of fishers involved in safety at sea practices	2017

STRATEGY	KEY ACTIONS	EXPECTED RESULTS	RESPONSIBLE AGENCY	INDICATORS	COMPLETION DATE
	<p>and fishing in small 'convoy'</p> <p>Strengthen disaster risk communication through strategies such as field days, folk songs, dramas, poems, posters</p> <p>Strengthen fisheries management programs in the community</p>	<p>Disaster risk communicated in a variety of formats to reach more fishers</p> <p>Increased awareness and participation in fisheries management programs such as; mangrove restoration, fish sanctuary, artificial reef system, lobster condominiums</p>	<p>C-CAM</p>	<p>Number of communication strategy develop and implemented and level of participation raised or sustained amongst fishers</p> <p>Number of fishers participating in fisheries management programs</p>	

THEME 4: COMMUNITY LEVEL EARLY WARNING SYSTEMS

STRATEGY	KEY ACTIONS	EXPECTED RESULTS	RESPONSIBLE AGENCY	INDICATORS	COMPLETION DATE
<p>Develop and implement a disaster risk early warning system for fishers</p>	<p>Develop and implement an early warning messaging system for priority hazards affecting fishing. Develop and build awareness of the alert signals for different types of hazards</p> <p>Implement strategy to ensure outreach of EWS to the most vulnerable fishers</p> <p>Promote and Incorporate Indigenous knowledge in EW systems</p>	<p>Increase in awareness of disaster threat among fishers. Establishment of hazard specific EW alert signals and increased awareness of their meanings</p> <p>Disaster risk information reaches the most vulnerable fishers in a timely manner</p> <p>Traditional warning techniques are incorporated in early warning messaging systems</p>	<p>OHB Zonal Committee/ Fisheries Division/CDA</p>	<p>Establishment of fully functional hazard specific early warning messaging system for fishers</p> <p>Reduced disaster impact on the most vulnerable fishers</p> <p>Traditional warning systems identified and incorporated in EW systems</p>	<p align="center">2015</p>

THEME 5: PREPAREDNESS					
STRATEGY	KEY ACTIONS	EXPECTED RESULTS	RESPONSIBLE AGENCY	INDICATORS	COMPLETION DATE
Implement and promote disaster Preparedness strategies	Develop an inventories of equipment for use during emergency	Collection of tools available for use during emergency as well as for community projects	C-CAM/FAO	Inventory of available tools	2013
	Increase awareness of community disaster preparedness plan	Fishers are aware of disaster preparedness plans	OHB Zonal Committee/ Fisheries Division/CDA	Preparedness plan developed, awareness program established and the level of participation raised or sustained amongst fishers	
	Increase and strengthen human resources support	Volunteers trained to provide support in case of emergency		Number of volunteers trained. Directory of names and inventories of equipment for use available	
	Increase the number of safety drill exercises conducted at community level	Increased awareness of actions required in the event of a hazard threat		Number of safety drills performed and number of participants	

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ADRM Plan Components	Timeline					Budget (US\$)
	2013	2014	2015	2016	2017	
Improve and strengthen the effectiveness and management of the Fisheries Coop						\$50 000
Assess capacity needs and develop training programmes to strengthen the Cooperative management	X					
Increase awareness of the value of female membership in the cooperative	X	X				
Assess and identify opportunities for diversification of cooperative service and business activities	X	X				
Work with the cooperative to increase its capacity to accommodate more members	X					
Increase awareness amongst non-members about the role and functions of the cooperative and criteria for membership	X	X	X			
Strengthen the role of female fishers in livelihood related activities						\$25 000
Promotion of greater involvement of female fishers in community based organizations	X	X	X			
Strengthen the role of female in fisheries management strategies	X	X	X	X	X	
Develop a more targeted post-disaster assessment of damage and loss experienced by females	X	X				
Increase access and use of GPS technology						\$70 000
Incorporate GPS training in fisheries extension service to increase usage amongst fishers	X	X	X			
Increase the availability of GPS units to local fishers	X	X	X	X		
Conduct GPS training Programme for fishers	X					
Increase awareness of 'green' fishing practices and technology						
Design and implement training/ awareness raising programs to promote the use of biodegradable mesh, line and hook and well as non-	X	X				

offset circular and stainless hooks						
Promote proper catch and release techniques amongst fishers	X	X	X			\$15 000
Design and implement training/ awareness raising programs to promote the use renewable energy systems in fisheries operations	X	X				
Strengthen financial management capacity of fishers						
Develop and conduct targeted awareness programmes about possible loan and credit options available to fishers	X					\$30 000
Develop and conduct financial skills management training Program for fishers	X	X				
Design and implement awareness raising program to promote the benefits of NIS and other insurance schemes	X					
Promote alternative livelihood strategies	X	X	X			
Strengthen fisheries related disaster risk reduction practices carried out in the community						
Promote awareness of the proper technique for securing boat in mangrove in the event of a storm. Promote the community center as an alternative location to secure boats in the event of a storm	X					\$25 000
Develop and implement a community based disaster mitigation advisory system to increase awareness amongst fishers	X	X				
Increase awareness of disaster mitigation practices in fisheries amongst CBOs	X					
Develop and Implement community-based disaster awareness Programme for fishers						
Promote awareness of safety at sea practices such as; "Boat pooling", fish within limit of cell phone signal , wear life jacket while at sea, back up	X	X	X	X	X	

paddles and fishing in small 'convoy'						
Strengthen disaster risk communication through strategies such as field days, folk songs, dramas, poems, posters	X	X	X			\$100 000
Strengthen fisheries management programs in the community	X	X	X	X	X	
Develop and implement a disaster risk early warning system for fishers						
Develop and implement an early warning messaging system for priority hazards affecting fishing. Develop and build awareness of the alert signals for different types of hazards	X	X	X			\$75 000
Implement strategy to ensure outreach of EWS to the most vulnerable fishers	X	X				
Promote and Incorporate Indigenous knowledge in EW systems	X	X	X			
Implement and promote disaster preparedness strategies						
Develop an inventories of equipment for use during emergency	X					\$80 000
Increase awareness of community disaster preparedness plan	X	X				
Increase and strengthen human resources support	X	X				
Increase the number of safety drill exercises conducted at community level	X					

7. PROJECT PROFILES

Project/activity name			GPS Training Program for fishers		
Objective(s) (impact on clients)			Promoting the use and access of GPS Units among fishers		
Location			Old Harbour Bay, St. Catherine		
Time to complete project or activity			August 2012		
How was the project identified and by whom?			The Project was identified through livelihood baseline assessment in the community funded by the FAO		
Who will benefit? How many people will benefit?			10 fishers will trained 5 of whom will receive GPS units		
What has to be done to achieve the project/activity?			A 1 day training workshop was conducted		
Activities will be implemented by what group			Caribbean Coastal Area Management Foundation		
Completed works will be inspected by			Food and Agriculture Organization (FAO)		
Inputs required:	Own Other	Local government	Other	Other	Total
Money					
Labour					
Materials					
Transport					
In kind resources					
Total					
What are operating costs? (and source of funds)					
What are maintenance costs? (and source of funds)					

Project/activity name		Mesh wire/net project	
Objective(s) (impact on clients)		Improve livelihood Assist in restarting fishing in the event of loss from disaster	
Location		Old Harbour Bay, St. Catherine	
Time to complete project or activity		Project to be in place by September 2012 to go on for one year	
How was the project identified and by whom?		Fishers & FAO	
Who will benefit? How many people will benefit?		Registered pot & net fishers 50 pot fishers, 20 net fishers	
What has to be done to achieve the project/activity?		Get list of fishers Each fisher to sign contract Contributions collected from fishers	

			Arrangement made with supplier for storage Distribution arrangements finalized		
Activities will be implemented by what group			Caribbean Coastal Area Management Foundation		
Completed works will be inspected by			Food and Agriculture Organization (FAO)		
Inputs required:	Own Other	Local government	Other	Other	Total
Money					
Labour					
Materials					
Transport					
In kind resources					
Total					
What are operating costs? (and source of funds)					
What are maintenance costs? (and source of funds)					

Project/activity name			Tool inventory		
Objective(s) (impact on clients)			Assist in post disaster recovery (clean-up)		
Location			Old Harbour Bay, St. Catherine		
Time to complete project or activity			Already in place to run for at least one year		
How was the project identified and by whom?			FAO made the suggestion which was accepted by the Local ADRM Committee & community members		
Who will benefit?			The Community members		
How many people will benefit?					
What has to be done to achieve the project/activity?			Storage area created at the Emergency Operating Center in Lionel Town MOU discussed & to be signed with Zonal Committee		
Activities will be implemented by what group			Caribbean Coastal Area Management Foundation		
Completed works will be inspected by			Food and Agriculture Organization (FAO)		
Inputs required:	Own Other	Local government	Other	Other	Total
Money					
Labour					
Materials					
Transport					
In kind resources					
Total					
What are operating costs? (and source of funds)					
What are maintenance costs? (and source of funds)					

Project/activity name			Implementation of PBPA FISH SANCTUARIES			
Objective(s) (impact on clients)			Improve fish stock/catch Improve livelihoods			
Location			Galleon Harbour, Salt Harbor & Three Bays in the PBPA			
Time to complete project or activity			On-going			
How was the project identified and by whom?			Activity is part of a wider fisheries management programme Done in discussions with stakeholders – experts, fishers, Fisheries Division			
Who will benefit? How many people will benefit?			Fishers directly and others indirectly			
What has to be done to achieve the project/activity?			Area declared as sanctuary Demarcation boundaries & signs in place Public Education & awareness campaign & buy-in Fisheries enhancement programme Office for staff Staff hired Boat bought Monitoring & enforcement commence Training of staff MOA with the Fisheries Division to manage sanctuaries			
Activities will be implemented by what group			Caribbean Coastal Area Management Foundation			
Completed works will be inspected by			Fisheries Division			
Inputs required:	Own	Other	Local government	Other	Other	Total
Money						
Labour						
Materials						
Transport						
In kind resources						
Total						
What are operating costs? (and source of funds)						
What are maintenance costs? (and source of funds)						

Project/activity name		MANGROVE RESTORATION			
Objective(s) (impact on clients)					
Location					
Time to complete project or activity					
How was the project identified and by whom?					
Who will benefit? How many people will benefit?					
What has to be done to achieve the project/activity?					
Activities will be implemented by what group		Caribbean Coastal Area Management Foundation			
Completed works will be inspected by		Food and Agriculture Organization (FAO)			
Inputs required:	Own Other	Local government	Other	Other	Total
Money					
Labour					
Materials					
Transport					
In kind resources					
Total					
What are operating costs? (and source of funds)					
What are maintenance costs? (and source of funds)					

Project/activity name		ARTIFICIAL REEF SYSTEM			
Objective(s) (impact on clients)		Improve habitat for fish Improve fish catch Provide some barrier for waves			
Location		Three Bays, St. Catherine			
Time to complete project or activity		December 2012			
How was the project identified and by whom?		Mitigation activity by Windalco – C-CAM, NEPA & the Fisheries Division identified the project			
Who will benefit? How many people will benefit?		Fishers in Old Harbour Bay, community members in Old Harbour Bay			

What has to be done to achieve the project/activity?			Signed contract with Windaclo Hired BioRock expert Trained staff & community members Purchase material Finalize design & power source		
Activities will be implemented by what group			Caribbean Coastal Area Management Foundation		
Completed works will be inspected by			Food and Agriculture Organization (FAO)		
Inputs required:	Own Other	Local government	Other	Other	Total
Money					
Labour					
Materials					
Transport					
In kind resources					
Total					
What are operating costs? (and source of funds)					
What are maintenance costs? (and source of funds)					

CONTACTS

OLD HARBOUR BAY-DISTRICT CONTACT LIST NAME	ORGANISATION	POSITION	CELL NUMBER	EMAIL ADDRESS
Wayne Thompson	OH Bay Primary School	Principal	574-4594	enyawthompson@yahoo.com
Vinelle Daily- Powell	OH Bay Primary School	Guidance Counsellor		863-2889
Debby Hutchinson	Blackwood Garden Basic	Principal		813-3091
Lucilda Thomas	St. Wade Basic School	Principal		422-8712
Vivienne Myers	SDA Basic School	Principal		332-2465
Iris Jewray	Prophecy Basic	Principal		943- 4179
Evon Bartley	Baptist Bay Basic	Principal		489-6868
Janet Taylor/Dinal Simpson	Station Lane /Peter Lane	Leader		405-1303/ 562-0560
Herman Coley	Dagga Bay	Leader		435-4896
Preston Smith * Movia Bromfield	Bay Bottom and Wilkie Football Club	Leader	848-7533/ 8394779	preston_pooh@hotmail.com
Clyde Grant Liian /	Buddo	Leader		877-3131
Navado Whyte *	Cross Roads	Leader		457-4355
Camehia Henry	Moore Pen	Leader		845-5438
Lorna Hutton	Panton Town	Leader		403-6258
Peter Davis	PNP Caretaker	436-8881		levite_7@yahoo.com
Michael Simpson	Taxi Operator	424-8469		hgscarlett@gmail.com
Kerry -Ann Robinson	New Harbour Village Cit. Assn. Phase 1	President	579-7141	newharbourvillage@yahoo.com , kerry1898@yahoo.com
Barrington A. James	New Harbour Village Cit. Assn. Phase 2	President	875-0010	levite_7@yahoo.com

(ODPEM, 2012)

Old Harbour Bay Zonal Committee - Disaster Risk Management Sub-committee Group Structure POSITION	PERSON ASSIGNED	CONTACT DETAILS (Telephone, cell, address, email)
President	Andrew Gordon	402-7873,9437533. rananev@gmail.com
Vice President	Sandra Nembhard	478-7381 sandranem@yahoo.com
Secretary	Camille Cheese	355-9930, cwilliamscheese@yahoo.com
Treasurer	Vinelle Dailey-Powell	863-2889 dez_mom@yahoo.com
Assistant Secretary	Karen Dixon	423-6599
Public Education & Fundraising Coordinator	Narda Nicholson	840-5325 adrana77@yahoo.com
Vulnerability & Risk Identification Coordinator	Preston Smith Pernell Bartley	848-7533, preston_pooh@hotmail.com 389-7373 pernell.bartley@yahoo.com
Prevention & Mitigation Coordinator	Ricardo Fearon	368-8085, fearonricardo@yahoo.com
Response and Recovery Coordinator	Paulette Coley	441-9639

(ODPEM, 2012)

Local ADRM Committee			
Agency/Individual	Role/Responsibility	Name	Contact Information
Fisheries Division	Overall responsibility for fisheries in Jamaica	Anginette Murray	
Social Development Commission	Mobilization of community members, formation of groups, support in grant applications, prepares community profile	Monica Douglas, Community Development Officer, Old Harbour Bay	
Parish Disaster Coordinator	Coordination of disaster planning & relief, monitors shelters, assists with evacuation in event of disaster, supports ODPEM on the	Patricia Lewis	

	ground.		
OHB Community Development Committee	Facilitates civil society participation in governance, brings together all CBOs in OHB	Paulette Coley	
OHB Community Development Committee	Facilitates civil society participation in governance, brings together all CBOs in OHB	Sandra Nembhard	
Zonal Committee	Works with ODPEM & Parish Disaster Coordinator at the local level to coordinate disaster preparedness, planning & relief including working as shelter managers, training	Andrew Gordon, President	
ODPEM	National disaster preparedness & planning – training, relief etc	Sophia Mitchell	
C-CAM	NGO focusing on resource conservation & livelihood improvement		
Fisher Folk Council	Manages the beach infrastructure and cleanup & maintenance of the space	Henley Banton	
Fisher Folk Council	Manages the beach infrastructure and cleanup & maintenance of the space	Compton Campbell	

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