

Building Disaster Resilient Communities in Jamaica

FINAL REPORT



Initial Damage Assessment Team during Earthquake Simulation exercise, Castleton 2015

1 April 2014 – 30 June 2015

Submitted by HelpAge International, September 2015

Overview

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| Organisation Name | HelpAge International |
| Project Name | Building Disaster Resilient Communities in Jamaica |
| Programme Goal | To strengthen the resilience of vulnerable communities and populations, in the parishes of Portland, St Catherine, St Thomas and St Mary in Jamaica, to natural hazards. |
| Geographical Location | Caribbean/Jamaica <ul style="list-style-type: none"> ▪ St Catherine: Riversdale, Princess Field, Spring Vale, Giblatore, Content, Browns Hall and Ginger Ridge ▪ Portland: Bybrook and Reach ▪ St. Thomas: Aeolus Valley/Lloyds and Dalvey ▪ St. Mary: Castleton |
| Project duration | 1 April 2014 to 30 June 2015 (15 months) |
| Dollar amount financed | USD\$ 250,000 |
| Sector Name | Agriculture and Food Security |
| Objective | Farmers and other at-risk populations are equipped with knowledge, skills and resources to protect their livelihoods from natural disasters. |
| Number of Beneficiaries | Targeted: 1565 Reached: 1535 |
| Keywords: | Livelihoods, Climate |
| Sub-sector Name | <i>Seed System Security</i> |
| Indicators | <u>Indicator 1:</u> 785 people benefiting from seed systems/agricultural input activities, disaggregated by sex. (Reached 708 persons, 62% female) |
| Sub-sector Name | <i>Improving Agricultural Production/Food Security</i> |
| Indicators | <u>Indicator 1:</u> Projected increase in number of months of food self-sufficiency due to distributed seed systems /agricultural input for beneficiary households. <u>Indicator 2:</u> 180 people benefiting from seed systems/agricultural input activities, by sex. (Reached 182 persons; 72 male, 110 female) <u>Indicator 3:</u> At least 150 persons (at least 50% female) benefit from improved farming techniques (182 reached, 110 (60%) female) <u>Indicator 4:</u> At least 100 older female farmers are able to demonstrate increased and improved livelihood protection procedures and crop protection by the end of the project. (91 older female farmers reported better protection and procedures being used) <u>Indicator 5:</u> 600 people consulted in the livelihoods needs assessment (810 consulted, 645 used) |
| Sector Name | Natural & Technological Risks |
| Objective | Twelve (12) local communities are better prepared to respond to natural |

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| | hazards |
| Number of Beneficiaries | Targeted: 560 Reached: 642 ¹ |
| Keywords | Early-Warning Systems (EWS) |
| Sub-sector Name | <i>Geological Hazards</i> |
| Indicators | <p><u>Indicator 1</u>: 560 people benefiting from geological disaster-related activities, disaggregated by sex. (Reached 642)</p> <p><u>Indicator 2</u>: Number of geological policies or procedures modified as a result of the activities to increase the preparedness for geological events (4 community disaster plans developed with ODPEM; 12 CERT Constitutions drafted; 4 earthquake drills completed)</p> <p><u>Indicator 3</u>: 340 people trained to reduce the impact of geological events, disaggregated by sex (342 persons reached;)</p> |
| Sub-sector Name | <i>Hydro-meteorological Hazards</i> |
| Indicators | <p><u>Indicator 1</u>: 340 people benefiting from proposed hydro-meteorological activities, disaggregated by sex. (342 persons reached)</p> <p><u>Indicator 2</u>: Number of hydro-meteorological policies or procedures modified as a result of the activities to increase preparedness for hydro-meteorological events. (4 community disaster plans developed with ODPEM; 12 CERT Constitutions drafted)</p> <p><u>Indicator 3</u>: 340 and percentage of people trained in hydro-meteorological-related activities retaining knowledge two months after training, disaggregated by sex. (342 persons reached)</p> <p><u>Indicator 4</u>: At least 220 people attend the International day of Disaster Risk Reduction conference (300 persons attended)</p> |

Executive Summary

Jamaica's geographic location in the Enriquillo-Plantain Garden fault zone coupled with the effects of climate change contributes to an increased likelihood of geological and hydro-meteorological disasters. The "Building Disaster Resilient Communities in Jamaica" project aimed to address this by building capacity in 12 communities to better prepare for and respond to disasters. The project was aimed at communities in the parishes of St. Catherine, St. Mary, St. Thomas and Portland that are highly vulnerable to natural disasters. The most vulnerable groups in the target communities are farmers, especially older women farmers; children and youth; older persons (men and women) and people with disabilities (PwD). The project aimed to strengthen preparedness and response capabilities of families with children and older persons, farmers and the communities at large through capacity building in emergency response and training in livelihoods protection.

Although experiencing several delays during the implementation period, the project achieved its objectives, while exceeding the targeted number of beneficiaries (2,177 persons). Overall, feedback from participants in communities and other stakeholders was very positive, highlighting the gains

¹ The final number of beneficiaries is lower than that reported in the last quarterly report because there was a mistake in the number of people trained under activity 3 (147 instead of the correct number of 118)

made in raising community awareness and preparedness for disasters. Objective 1 aimed to increase farmers' ability to protect their crops and livelihoods; the project reached 1,535 persons through training and participation in the baseline assessment. Over 700 farmers were trained in seed selection and post-harvesting techniques and 182 participated in field schools to increase their knowledge of crop nutrition, disaster-resilient farming techniques, land husbandry and irrigation methods. Most sessions reflected over 50% attendance by persons over 50 years old, with more females attending than males. Feedback from participants indicated that as a result of the training, they have implemented the knowledge gained, particularly in better choice and application of fertilizers (including natural/home-made), soil conservation techniques and water/irrigation usage which has benefited their production. Some persons have also shared their knowledge with other family members and neighbours, such as one female farmer who showed her husband how to harvest rainwater for irrigation of his crops by using tarpaulin and stakes to make a water catchment. The livelihoods baseline assessment raised awareness within communities about vulnerability of livelihoods, and provided some evidence-based research to policy-makers and other stakeholders to support HelpAge's advocacy for farmers and older persons' access to livelihoods, housing and other basic needs.

Objective 2 sought to prepare the 12 targeted communities to respond to natural hazards. All 12 communities were engaged, and the target of 560 persons was exceeded as we reached 642 in total. The Community Emergency Response Teams (CERTs) were trained in aspects of organizational development, including the project cycle, leadership and group development. Draft Constitutions are in place, which outline roles and responsibilities of the Team members, among other things. Although we were unable to start the process of registering the CERTs to become formal entities, the Teams are committed to pursue this path with the assistance of the Social Development Commission and the Parish Disaster Coordinators. Training was carried out to prepare the teams for their emergency response role, which included First Aid, Radio Telecommunications, Psychological First Aid, Initial Damage Assessment and Shelter Management. All the teams also received equipment to facilitate their response, such as water boots, wheelbarrows, flashlights, hard hats, etc. Four (4) of the Teams participated in Earthquake simulation drills, which allowed them to practice their new skills and test their emergency response procedures. Overall, the drills were well-executed, bringing commendation from the members of the Fire Department and the Parish Disaster Coordinators in attendance. Areas for improvement were noted, and will be addressed with the assistance of ODPEM and the Disaster Coordinators. The Springvale CERT was called into action when the father of one of its members went missing; after several hours of a coordinated search which involved over 80 community residents, he was found and safely restored to his family. The trained CERTs thus form a valuable cadre of volunteers to support the national emergency planning and response mechanisms, and as such they were formally 'handed over' to the ODPEM's Volunteer Corps in December 2014. Community resilience, particularly the vulnerabilities and contributions of older persons, was a focus of the International Day for Disaster Reduction (IDDR) Conference, which raised awareness about the issues and received good media coverage.

This report highlights the achievements, challenges and impact of the project over the implementation period, and presents lessons learned and recommendations for future interventions.

Background

The "Building Disaster Resilient Communities in Jamaica" project was originally a 12-month intervention covering the period March 26, 2014 to March 31, 2015. It was subsequently granted a no-cost extension to June 30, 2015 to allow for the achievement of project targets that were behind schedule due to unexpected delays early in the implementation period. The project builds on the achievements and learning made through the implementation of the *"Building the Resilience of Vulnerable Communities, through community-based Disaster Risk Management in Jamaica"* project which was implemented by HelpAge International from 2011 to 2013 with funding from USAID/OFDA. The main aim of this project is to strengthen the resilience of vulnerable communities and populations

to natural hazards, in twelve (12) communities in 4 parishes: Portland (Bybrook and Reach); St. Thomas (Aeolus Valley/Lloyds and Golden Grove/Dalvey); St. Catherine (Springvale, Riversdale, Princessfield, Ginger Ridge, Browns Hall, Content and Giblatore); and St. Mary (Castleton). The intervention was expected to reach a total of 2,125 direct beneficiaries while strengthening preparedness and response capabilities of families with children and older persons, farmers and the communities at large through capacity building (organization of Community Emergency Response Teams (CERTs) and training in emergency response skills e.g. initial damage assessment, shelter management, first aid, etc), training in crop protection, and seed selection and post-harvest storage training.

The project operated under two sectors: **(1) Agriculture and Food Security** to equip farmers and other at-risk populations with knowledge, skills and resources to protect their livelihoods from natural disasters. *Subsectors: Seed System Security and Improving Agricultural Production/Food Security;* and **(2) Natural and Technological Risks** to better prepare 12 local communities to respond to natural hazards. *Subsectors: Geological Hazards and Hydro-meteorological Hazards.*

Beneficiaries reached

| | Objective 1 <i>Farmers and other at-risk populations are equipped with knowledge, skills and resources to protect their livelihoods from natural disasters.</i> | Objective 2 <i>Twelve (12) local communities are better prepared to respond to natural hazards</i> | Totals |
|--|---|---|---------------|
| Number of beneficiaries targeted | 1,565 | 560 | 2,125 |
| Number of beneficiaries reached | 1,535 | 642 | 2,177 |
| Cumulative number of beneficiaries targeted | 1,565 Seed-selection training – 785 persons Farmer Field School – 180 persons Livelihoods Baseline – 600 persons | 560 Training to reduce impact of geological & hydro-meteorological hazards – 340 persons Number of policies/procedures modified - 4 IDDR Conference participants – 220 persons | |
| Cumulative number of beneficiaries reached | 1,532 Seed-selection training – 708 persons Farmer Field School – 182 persons Livelihoods Baseline – 645 persons | 642 Training to reduce impact of geological & hydro-meteorological hazards – 342 persons Number of policies/procedures modified – 4 community disaster plans; 12 CERT Constitutions drafted IDDR Conference | |

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| | | participants – 300 persons | |
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Assessments and surveillance data used to measure results

The results and impact of the project were measured in various ways, mainly qualitative. These included:

- *Site visits* – Project staff visited the communities at least twice a month to observe activities and interact with beneficiaries as part of the monitoring process. Any issues arising from these visits were documented in internal monthly reports, as necessary. Photographs were also taken to document activities.
- *Meetings with participants and stakeholders* – Monthly meetings were held with Community Mobilizers for planning and reporting purposes. Meetings were held with other stakeholders such as Office of Disaster Preparedness and Emergency Management (ODPEM) as needed.
- *Trainers’ reports* – Trainers were required to report on the implementation of training activities including number of participants (by sex and age), issues arising, recommendations and participants evaluation of the training. Trainers carried out their own assessments of learning, such as asking questions of trainees and use of practical demonstrations.
- *Internal reports* – The Project Officer prepared monthly reports on project implementation which documented activities, participant numbers, issues arising, etc. Community Mobilizers also submitted monthly reports that detailed their activities and achievements made.
- *Project evaluation meetings* – At the end of the project, meetings were held in communities to formally close the project and project staff also conducted an evaluation of participants’ experience and assessment of the project’s achievements. A questionnaire was used to guide the discussion, which was held in a focus group-like setting. Responses were captured on a flipchart. Community Mobilizers were also given a modified questionnaire to interview those participants who could not attend the close-out meeting.

Successes and Constraints

Success stories

- Livelihoods Baseline data: This provided strong evidence of the precarious situation regarding livelihoods and vulnerability to disaster among farming communities. Some key findings of the assessment were:
 - About 6% of all the farming households had monthly incomes of JMD \$10,000 (USD\$86) or less. More than half of farming households had a monthly income in the JMD \$10,001-\$50,000 (USD \$87- \$434) range; 41.3% of farming households had monthly incomes in excess of JMD \$50,000 (USD \$435+). The data also revealed that 28% of farming households’ monthly expenses were in excess of their monthly incomes, and 10% achieve the break-even point for monthly incomes and expenses. A marginal gain of less than JMD \$10,000 (<USD\$86) per month was observed for 32% of the entire sample, and 37% of the sample reported a gain between JMD \$10,000 (USD\$86) and JMD \$25,000 (USD\$ 217) per month. Finally, a small proportion of farming households (2.7%), showed a gain in excess in the range JMD \$50,001 (USD \$435) ≤ JMD \$75,000 (USD \$652) per month.
 - Willingness to offer assistance appeared to be more prevalent among close friends and relatives and more widely displayed during a crisis or disaster. Approximately 86% of respondents reported that their livelihoods were impacted by natural disasters at some time. A little over half of the respondents (55%) who reported being affected by a disaster indicated that they took no steps to protect their livelihoods. Further, only 18% of respondents in the sample indicated that they received training in protection of crops/animals and property before, during and after natural disasters.

- There were more females (56%) than males (49%), who reported not having skills or training in other areas outside of agriculture. Moreover, even in the context of living in disaster-prone areas and engaging in main economic activities that are frequently impacted negatively by natural disasters, a significant number have not received any training in crop and livestock protection.
- Unemployment was high among the elderly (68%), and most of them (80%) relied on agriculture as their main income source. They engage in mixed farming (58%), crops (34%) and livestock (8%). Most of the elderly (88%) were impacted negatively by a natural disaster at some time.
- The mediating forces (e.g., government assistance, policies etc.), have done very little to assist these communities to build resilience against vulnerability factors; moreover, the farming households are themselves too resource poor to embark on this task.

Findings and recommendations were shared with national-level stakeholders such as Jamaica Red Cross, Planning Institute of Jamaica, ACIDI/VOCA, National Council for Senior Citizens, ODPEM and RADA, who were very supportive of using the data in their own planning for disaster response and agricultural and rural development policy. There was a lively discussion about several aspects of the findings, particularly:

- The significant percentage of persons (63%) who reported not securing their livelihoods pre-disaster due to the (un)availability of resources (human, technical, financial) to do so, lack of awareness of how to protect livelihoods and the fact that many public education messages stress protection of life rather than livelihoods were felt to be factors influencing this.
- The need to shift messages from focusing on personal safety to resilient livelihoods: ODPEM indicated that this is already happening in the Building Disaster Resilient Communities (BDRC) approach.
- Participatory approach to shelter management is a useful way of incorporating and strengthening community involvement. Red Cross PASSA methodology is one example of this.

The sharing of this report also highlighted the vulnerabilities and gaps in responsiveness to the needs of older persons, which is critical given that Jamaica's population is aging. It has therefore helped keep the topic visible to policy-makers and further facilitated HelpAge's role as advocate for the needs of this target group.

Key points from the report were also shared with the Farmer Field School trainer for incorporation into sessions to ensure that the information imparted was relevant to the needs of the participants, particularly around more resilient farming practices and ways of protecting crops and livestock from the effects of disasters.

- Improved Farming Practices: The more than 700 participants in the Farmer Field School and Seed Selection trainings expressed great satisfaction with the interventions, which covered understanding of markets; financial management; record keeping; land preparation and nutrition; land husbandry best practices; and seed selection and pre and post harvesting practices. Due to the delays in starting the training, we were not able to carry out formal post-training tests to determine levels of retention and behavior change. However, during the evaluation meetings, participants reported increased knowledge, and in some instances even behavior change, as a result of the trainings as follows:

Knowledge:

- How to gather and extract seeds
- How to preserve seeds
- How to make breadfruit pudding
- How to spray infected areas to mitigate against pest and diseases and not the entire field

One participant in Farmer Field School from St. Catherine told us how he learned about preventing destruction of his crops ahead of a storm: *“in the farming [school] they tell you when disaster coming you can cut down things like cassava trees and leave the root in the ground. So when the storm comes it coming like no storm come. I gain great, great benefit.”*

Behaviour change:

- “Change harvesting methods and practice proper sorting and packaging methods using crates”
- “Learned about mulching and dry farming that it helps to maintain moisture in the soil and now practicing the mulching which helps now that there is a drought”
- “Practiced seed extraction as taught during the training”

Of particular importance is that more than 40% of the participants in the Farmer Field School were over 50 years old, and 60% of all participants were female. For the Seed Selection training, more than 50% of participants were over 50 years old, and 62% were female. This will enable these particularly vulnerable groups to increase production and protect their livelihoods from future disaster events.



Photo of participant demonstrating extraction of seeds at Bybrook Seed Selection training (Photo: S. Scott)

- **Radio-Telecommunications Training:** The project successfully increased the cadre of persons at community level trained in basic radio telecommunications by over 100 volunteers. As a result, the national network of Emergency Affiliated Radio Service (EARS) operators has been strengthened, which supports parish and national efforts at communication for emergency preparedness and response.

Some of the people trained in Advanced Radio Telecommunications were placed as volunteers on the national Chikungunya hotline set up in late 2014 to provide information to persons with suspected cases of the virus as well as collect information on the location of potential breeding sites for mosquitoes, among other things. Also, 4 CERTs trained in Advanced Radio telecoms successfully delivered training to 97 other volunteers, showing their mastery of the material and ability to train others. Some of these sessions were observed by a former ODPEM trainer for quality assurance purposes, and feedback indicated that the CERTs performed well. This trainer is currently part of a project being implemented by a local NGO (ABACUS for Communities) in collaboration with ODPEM to provide radios and radio-telecommunications training in several communities island-wide. His participation and the support of ABACUS, contribute to the sustainability of this component of the project, as they have indicated interest in including trained community members in their activities with ODPEM

where possible. Additionally, ABACUS has agreed to provide a radio to the Bybrook community it is a part of the wider Skibo which falls within their project area.

- Community Emergency Response Teams (CERTs): Five (5) communities which did not have active CERTs now have these bodies in place, and teams in all 12 communities have been strengthened through training in Group Development, Leadership, Financial Management, Project Cycle Management, Letter Writing and Meeting Preparation. Importantly, all the CERTs have developed a draft constitution for their group, which not only strengthens the groups, but makes them into more organized structures within the community that can be registered as official groups. Relationships have also been built or strengthened with state agencies responsible for community-based organizational development (the Social Development Commission) and community-level emergency response (Parish Council and ODPEM). Part of this relationship-building was achieved when 348 volunteers were 'handed over' to ODPEM to form part of the national volunteer corps for disaster response and management. Since the implementation of the project started, the Office of Disaster Preparedness and Emergency Management (ODPEM) launched a volunteer program. As part of this program CERTs will officially fall under their umbrella. Currently, the Volunteer programme is still in the start-up phases; the CERTs are however, linked to the ODPEM and Parish Councils through the Parish Disaster Committees and the Parish Disaster Coordinators. Their interface with ODPEM will therefore continue through these mechanisms, and they are recognised as trained community volunteers.

Most importantly however, the CERTs are equipped to both prepare for and respond to community emergencies through training in emergency response skills (First Aid, Initial Damage Assessment, Shelter Management, Psychological First Aid, Relief Distribution and Radio-telecommunications) and provision of relevant tools and supplies (such as water boots, flashlights, backpacks, tarpaulins, first-aid kits, shovels, vests). They have also identified the most vulnerable community residents (i.e. the elderly, persons with disabilities, etc.) who would need special attention in the event of an emergency. This significantly improves community-level preparation and resilience to hazards, given the remoteness of several of the communities. The reality is that few rural communities will be prioritized for immediate attention post-disaster because of limited parish and national resources. The ability of these communities to respond immediately to a range of hazards is therefore critical to public safety and protection of life and property. Older people in the community are chief beneficiaries of the CERT team, as they receive help with clearing of land around their homes and minor repairs to roofs, among other forms of assistance. A CERT member noted that *"The older people in the community are well aware. Those that are shut-in we try to visit them and tell them what we are about, do some bushing, and cleanup for them. They don't wait on us, they will call and say 'when yuh a come help mi out?'"*

The CERTs skills and knowledge were tested and proven during 4 earthquake drills conducted in Golden Grove, Lloyds/Aeolus Valley, Castleton and Bybrook, in collaboration with ODPEM and the Parish Disaster Coordinators. Overall, these exercises were successfully executed, with the teams showing evidence of their readiness to respond effectively. They were tested on their coordination, communication, response times, knowledge of emergency response procedures, response skills (e.g. in first aid, initial damage assessment, etc) and availability of necessary equipment, among other key areas. Feedback from ODPEM, the Parish Coordinators and the CERTs themselves indicated that the teams did well given that this was the first 'test' of their abilities. For all teams, the main areas of commendation were response times, availability and use of equipment/materials, knowledge and application of knowledge, especially evacuation, radio communications, and shelter management. The main area for improvement was communication and coordination of the group - for example, in Aeolus Valley, it was noted that some persons immediately responded when the alarm was sounded instead of meeting as a group to strategise their response, while in Bybrook the team's response was not as coordinated as it could have been. The Parish Coordinators and ODPEM

will work with the teams to address these issues, and the members of the Fire Department indicated their willingness to provide refreshers in first aid and other key skills to keep them current.



Member of the Fire Brigade giving feedback at the Bybrook Earthquake Simulation exercise

The project also served to strengthen relationships with key stakeholders, and to integrate the teams into the parish-level emergency coordination and response mechanisms. This will facilitate sustainability post-project, as the Parish Disaster Coordinators have indicated their willingness and intent to continue supporting the teams to ensure that they do not slip into dormancy.

Constraints encountered:

- Recruitment of staff: One of the main challenges faced under the project was the lengthier than expected recruitment process especially for the appointment of the Project Officer. An offer was made to an applicant who accepted, but later turned it down. This resulted in some delays in the project implementation.
- Collaboration with key stakeholders: While our relationships with ODPEM and RADA are strong and collaboration runs smoothly, there were two serious challenges experienced during this project which negatively affected implementation. This occurred despite their having been involved in the project design, and agreeing to partner in the specified manner. With RADA, the Assistant Executive Director and senior technical staff agreed to make all the necessary preparations including the development of templates, training materials available to HelpAge, and start the trainings with communities by September 2014. However, following the participation of RADA at several public events, including the Annual Denbigh Agricultural Show, and the death of the Minister of Agriculture Roger Clarke in late August 2014, dates for the submission of documents were postponed. Despite repeated follow-ups, no progress was

made and in order to achieve the project objectives an alternative in the form of external consultants was pursued. With ODPEM, delays in procurement of the radio-telecommunications equipment resulted in the funds being reallocated as the materials would not have arrived within the project period. HelpAge subsequently negotiated with ABACUS, which is implementing a similar telecommunications program in collaboration with ODPEM, to provide a radio for the Bybrook CERT, and to include the trained persons in their refresher activities as relevant. This will help sustain the knowledge base in the communities as well as support collaboration with the EARS network.

- Participation of older persons in CERTs: This remained low despite efforts at increasing older people's involvement. The main reason given was the perceived need for younger, stronger persons to actively assist in the disaster response. Some older people also indicated that this is a good activity for the youth in the community as it helps get them involved in community life and teaches them useful skills. As such, they did not themselves participate but put forward the younger residents.
- Illness: Jamaica experienced an outbreak of Chikungunya and dengue fever in last quarter of 2014, which greatly affected populations across the island. As a result, there were delays in project implementation because of participant and consultant unavailability due to illness. Where activities were held as planned, turn-out was often lower than anticipated.
- Community unrest or competing events: Although the project communities are generally peaceful, there were some harrowing events in some St. Catherine communities including reprisal killings and the murder of a child in the latter part of the implementation period. These naturally negatively affected community life, resulting in postponement of some project activities. Additionally, there were a few instances of unexpected competition from other entities in the community which resulted in lower attendance at project events
- Mobilization of target numbers: Community mobilizers experienced challenges in recruiting the required numbers and demographic profiles of participants due to small population size in some communities coupled with significant distances between the different sections of communities. While persons might agree to participate, they often did not turn up because of the distance to be travelled. This was particularly true for older persons. In some communities, the lack of an active senior citizens group also hampered mobilization of older persons.

Overall Performance of the Project, including Recommendations

The project was successful in achieving the overall goal to 'strengthen the resilience of vulnerable communities and populations, in the parishes of Portland, St Catherine, St Thomas and St Mary in Jamaica, to natural hazards'. Specifically, the following were accomplished (by sector and sub-sector):

- (1) ***Agriculture and Food Security*** to equip farmers and other at-risk populations with knowledge, skills and resources to protect their livelihoods from natural disasters.

Subsectors: Seed System Security and Improving Agricultural Production/Food Security

- 708 farmers were trained in seed selection and post-harvest practices which has built their capacity to better protect their crops through improved stock (seed selection); self-sufficiency in being able to extract seeds with greater likelihood of successful germination; greater knowledge of how to protect their crops from disasters and how to utilize crops that might have been damaged (or are at risk of damage) such as through making of preserves; improved post-harvest practices to keep produce fresh for longer periods, etc.

- 182 farmers trained in land husbandry, soil conservation, market requirements, post-harvest techniques, crop nutrition and other relevant topics.
- More than 700 people interviewed for the Livelihoods Baseline Assessment (645 used), and report presented to key national stakeholders for consideration in policy and planning, as well as to communities.
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(2) *Natural and Technological Risks* to better prepare 12 local communities to respond to natural hazards.

Subsectors: Geological Hazards and Hydro-meteorological Hazards.

- 116 members of the Community Emergency Response Teams (CERTs) in 12 communities trained in organizational strengthening (Leadership, Meeting Preparation, Project Management, etc) and draft constitution developed for each CERT.
- 108 members of CERTs trained in First Aid, Psychological First Aid, Shelter Management, Relief Distribution and Initial Damage Assessment, and provided with relevant equipment (wheelbarrow, shovels, hard hats, etc) to prepare for and respond to emergencies at community level.
- 118 community persons trained in radio-telecommunications
- 300 persons attended the International Day for Disaster Reduction (IDDR) Conference in Kingston, including policy-makers, planners, academics and civil society representatives.

Although falling short of some specific target beneficiary numbers, the project still reached 52 more persons than expected. This was due to greater attendance at the IDDR conference and higher numbers of persons trained in disaster preparedness and response than anticipated. While the radio-telecommunications equipment was not procured, the communities were not negatively impacted as 10 had access to radios, and arrangements have been made for a radio to be given to the Bybrook community by another NGO working in the wider Skibo community.

Recommendations:

- In the future, given the challenges of collaboration with government agencies (despite prior agreement), alternatives to this collaboration should be identified early in the project process in the event that the required support does not materialize. This would allow for faster decision-making, with less impact on project implementation.
- More emphasis on small livestock would be useful for the communities, especially as poultry-rearing is often very much the domain of older women farmers, a key target group in terms of vulnerability to loss of livelihoods.
- Agricultural inputs would be appreciated by farmers, many of whom expressed the need for, seeds and other materials to improve their stock and production. This would also serve as additional incentive to attend trainings and project events, as some persons indicated that while they would have liked to attend, they had to prioritize other activities that would garner them some immediate, tangible benefit.

Costs

The project achieved its objectives within the budget. The full budget of \$250,000 was spent.

Comparison of Accomplishments against Expected Results

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| Sector Name | <i>Agriculture and Food Security</i> | |
| Objective | To equip farmers and other at-risk populations with knowledge, skills and resources to protect their livelihoods from natural disasters. | |
| Subsector | Indicators | Results |
| <i>Seed System Security</i> | <u>Indicator 1</u> : 785 people benefiting from seed systems/agricultural input activities, disaggregated by sex | 708 persons (267 male, 441 female) were trained in seed selection and post-harvest practices, thus increasing their ability to protect their livelihoods. This potentially benefits 2,832 persons if the benefits are extended to each trainee's household ² . A manual was also developed by the trainer, which will be shared with the Rural Agricultural Development Authority (RADA) for their use. This will not only build capacity within RADA, but extend the benefit of this training to other communities post-project. |
| <i>Improving Agricultural Production/Food Security</i> | <u>Indicator 1</u> : Projected increase in number of months of food self-sufficiency due to distributed seed systems /agricultural input for beneficiary households. | No agricultural inputs were envisaged or distributed during the project. However, the knowledge gained by farmers from the seed selection and farmer field school trainings have improved their capacity to boost production as well as to better protect their crops in the event of a disaster. From anecdotal evidence, this has increased food self-sufficiency in the target communities; however, we are unable to estimate the number of months increase. |
| | <u>Indicator 2</u> : 180 people benefiting from seed systems/agricultural input activities, by sex. | 182 farmers participated in farmer field school activities (72 male, 110 female). |
| | <u>Indicator 3</u> : At least 150 persons (at least 50% female) benefit from improved farming techniques | 182 farmers were reached, 110 (60%) of whom were female. Based on feedback, they have implemented the knowledge gained, particularly in better choice and application of fertilizers, soil conservation and water/irrigation usage which has benefited their production. |
| | <u>Indicator 4</u> : At least 100 older female farmers are able to demonstrate increased and improved livelihood protection procedures and crop protection by the end of the project. | 91 older female farmers reported better protection and procedures being used. These included knowledge of how to protect crops and livestock ahead of a disaster, as well as change in practices, such improving water harvesting techniques. |
| | <u>Indicator 5</u> : 600 people consulted in the livelihoods needs assessment | 810 persons were interviewed during the data collection process, and 645 were used in the analysis. Members of the CERTs were |

² Assumption: average household size is 4 persons

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| | | trained to administer the questionnaires. The findings were shared with communities at the project close-out meetings, as well as with representatives of 9 stakeholder agencies, including USAID/OFDA, the Planning Institute of Jamaica (PIOJ), ODPEM, Red Cross, Rural Agricultural Development Authority (RADA), ACDI/VOCA and National Council for Senior Citizens (NCSC). |
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| Sector Name | Natural & Technological Risks | |
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| Objective | Twelve (12) local communities are better prepared to respond to natural hazards. | |
| Subsector | Indicators | Results |
| <i>Geological Hazards</i> | <u>Indicator 1</u> : 560 people benefiting from geological disaster-related activities, disaggregated by sex. | 642 (196 male, 446 female) community members directly benefited from emergency response activities including organizational capacity-building, skills training and drills. These included the members of the 12 CERTs that were strengthened, as well as other community members who participated in trainings. |
| | <u>Indicator 2</u> : Number of geological policies or procedures modified as a result of the activities to increase the preparedness for geological events | 4 community disaster plans were developed with ODPEM, which covered identification of hazards and procedures for responding to disaster events. 12 CERT Constitutions were drafted, thus building their capacity as community-based groups and preparing them for formal registration. 4 earthquake drills were completed in Golden Grove, Lloyds/Aeolus Valley, Castleton and Bybrook, in collaboration with ODPEM and Parish Disaster Coordinators. |
| | <u>Indicator 3</u> : 340 people trained to reduce the impact of geological events, disaggregated by sex | 342 persons (112 males, 230 females) were trained in organizational capacity-building (116), emergency response skills (108), and radio telecommunications (118), which strengthens their ability to reduce the impact of disasters on their community. |
| <i>Hydro-Meteorological Hazards</i> | <u>Indicator 1</u> : 340 people benefiting from proposed hydro-meteorological activities, disaggregated by sex. | 342 persons participated in organizational capacity-building, emergency response skills training and drills. These included the members of the 12 CERTs that were strengthened, as well as other community members who participated in trainings. |
| | <u>Indicator 2</u> : Number of hydro-meteorological policies or procedures modified as a result of the activities to increase preparedness for hydro-meteorological events. | 4 community disaster plans were developed with ODPEM, which covered identification of hazards and procedures for responding to disaster events; 12 CERT Constitutions were drafted, thus building their capacity as community-based groups and preparing them for formal registration; |
| | <u>Indicator 3</u> : 340 and percentage | 342 persons reached through various |

| | | |
|--|--|---|
| | of people trained in hydro-meteorological-related activities retaining knowledge two months after training, disaggregated by sex | trainings. We are unable to determine percentage retaining knowledge given the late start of many of the trainings who did not allow for formal re-testing in the project period. However, CERT performance during the 4 drills carried out indicated a high level of knowledge retention and application of skills learned, which was confirmed by resource persons present from the Jamaica Fire Brigade and ODPEM. |
| | Indicator 4: At least 220 people attend the International Day for Disaster Reduction conference | 300 persons attended the event, including older persons and national agencies. This resulted in increased awareness among stakeholders about the issues of aging in the context of DRR and emergency response. |

Reasons why established goals/targets were not met (if applicable), the impact on the program objective(s), and how the impact has been/will be addressed.

Seed Selection & Post-Harvest Practices – The original project design anticipated significant involvement of the Rural Agricultural Development Authority (RADA) to provide the training and facilitate mobilization for this activity. However, although RADA was verbally supportive, it became clear that there were time constraints as well as a knowledge gap on their part to adequately fulfill this role. Unfortunately it was some time before this became clear to HelpAge, leading to a delay in implementation while an alternative trainer was recruited through newspaper advertisements. Training was therefore not begun until more than halfway through the project period. Challenges mobilizing the required number of participants from 7 communities led to the decision, in consultation with the communities, to extend the training to the other 5 project communities, as well as to request a no-cost extension to allow sufficient time to meet the targets. **Impact:** Despite the challenges, 90% of the target (708 persons) was reached, and participant feedback indicated that the training was very well received as participants are now more confident of their ability to select better stock and increase chances of preservation in the event of a disaster. Examples given during the evaluation meetings provided evidence of knowledge retained and being put into practice. Additionally, the trainer produced a manual to facilitate future trainings, which will be shared with RADA to augment their resources and address the existing capacity gap. This is of significant benefit beyond the project as it facilitates inclusion into the national agricultural agency’s practices and allows for replication with farmers island-wide.

Non-procurement of the radio-telecoms equipment – We were unable to procure the equipment due to delays in receiving the relevant information to inform procurement. Given past experience with procurement of similar equipment that took almost a year to arrive, the decision was made to forego this purchase and reallocate the funds to support project branding expenses. **Impact:** The impact on communities was mitigated by the fact that all except 2 communities (Bybrook and Ginger Ridge) had received radio equipment under a previous project. Discussions with ABACUS, a local NGO implementing a similar radio-telecoms project, resulted in an agreement for them to provide a radio to Bybrook, and we continue to seek a radio for the final community from ODPEM. All the targeted communities were trained in radio telecommunications practices, and the earthquake simulation exercises showed that participants performed effectively when called upon to do so.

Non-registration of CERTs – The delays experienced in completing the CERTs training and drafting of the constitution, along with the varying levels of readiness of the CERTs themselves meant that although the teams were exposed to the process for registration, they were not able to complete this during the project period. They have been encouraged to seek the support of the relevant Parish

Disaster Coordinators and Social Development Commission officers to continue the process. It should be noted that Bybrook community will not seek registration, because it is a part of the wider Skibo CERT. Bybrook's vulnerability to being cut off from Skibo due to geographical features is recognized, and for this reason it is important that they have a trained and equipped team to facilitate response if the wider community is unable to reach them after a disaster. The Parish Coordinator and ODPEM will work with them to ensure that there is better integration and smooth operational approaches between the Bybrook and Skibo teams.

A Baseline Livelihood Assessment of Farming Households in Four Parishes in Jamaica



DECEMBER 2014:

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EUROPEAN COMMISSION



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Table of Contents

Page

| | |
|--|-----|
| List of Tables | ii |
| List of Figures | iii |
| Map of Jamaica & Areas of Study | v |
| Executive Summary | 1 |
| Introduction..... | 4 |
| | |
| Chapter 1: Analytical Framework & Situational Analysis | 6 |
| 1.1 Background to the Study..... | 6 |
| 1.2 Analytical Framework | 7 |
| 1.3 Data and Information Sources | 9 |
| 1.4 Situational Analysis | 10 |
| Chapter 2: Analysis of Livelihoods in the Four Parishes..... | 19 |
| 2.1 Livelihood Activities..... | 20 |
| 2.2 Livelihood Assets..... | 21 |
| 2.3 Analysis of Gender and the Elderly..... | 32 |
| Chapter 3: Livelihood Outcomes in the Four Parishes | 47 |
| 3.1 Food Availability, Access and Utilization | 47 |
| 3.2 Vulnerability Factors and their Impacts..... | 49 |
| 3.3 Building Resilience for Sustainable Livelihoods..... | 54 |
| Chapter 4: Programing Priorities and Recommendations..... | 60 |
| 4.1 Diversify Agriculture Portfolio..... | 62 |
| 4.2 Strengthen Food & Nutrition Security | 63 |
| 4.3 Increase Financial Security | 64 |
| 4.4 Rebuild Social Capital at Community Level | 65 |
| 4.5 Strengthen Human Capital & Income/Employment Opportunities | 65 |
| 4.6 Programs to Build Resilience..... | 66 |
| 4.7 More Efficient Mitigation Efforts..... | 67 |
| Chapter 5: Summary and Conclusions | 68 |
| References..... | 70 |
| Appendices..... | 72 |
| Appendix 1: Livelihoods Baseline Survey Instrument | 72 |

List of Tables

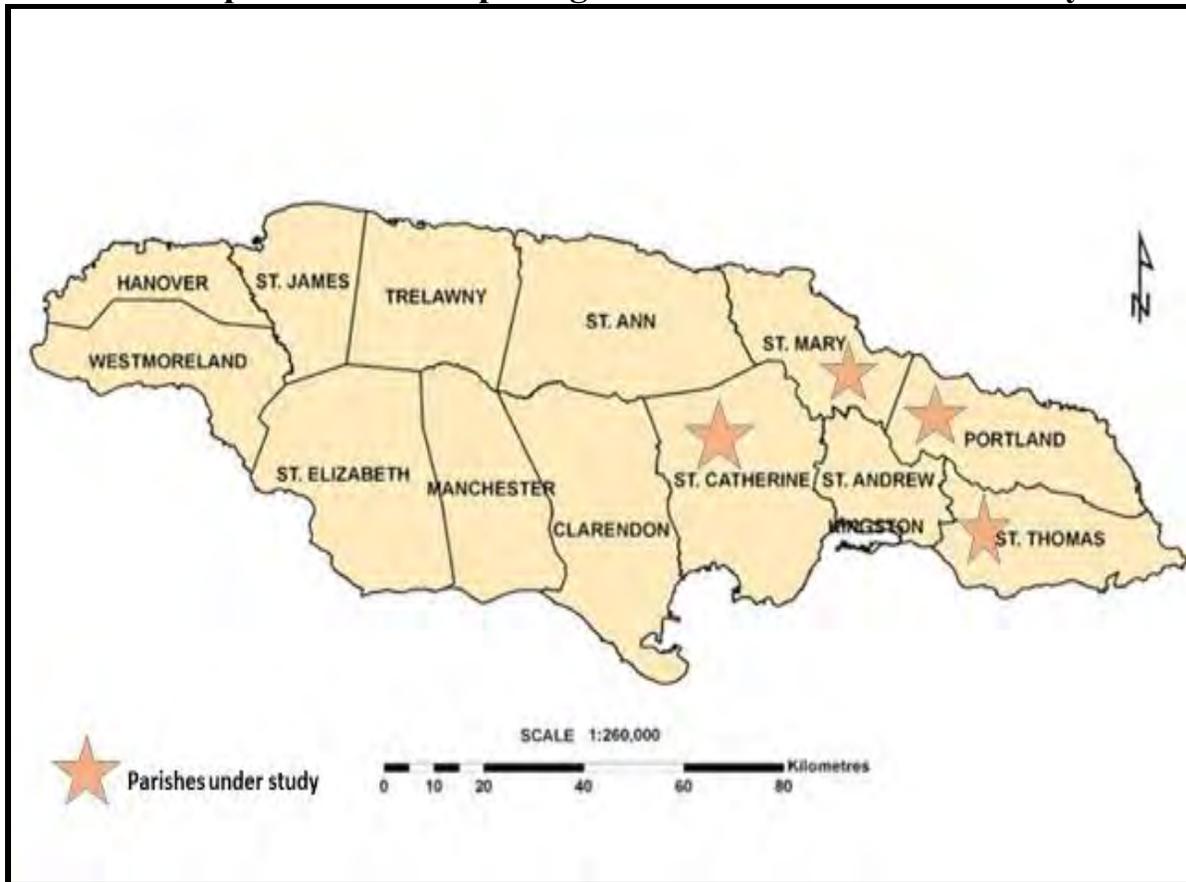
| | |
|---|----|
| Table 1.1: Selected Parish-level Data, Jamaica..... | 11 |
| Table 1.2: Selected FarmIndicators..... | 17 |
| Table 2.1: Distribution of Survey Respondents by Age Group (%)..... | 19 |
| Table 2.2: Distribution of Sample by Communities and Parishes..... | 20 |
| Table 2.3: Types of Farming Across Parishes (%)..... | 20 |
| Table 2.4: Main Source of Income Across Parishes (%)..... | 21 |
| Table 2.5: Other Sources of Income (\$/monthly)..... | 26 |
| Table2.6: Information on Savings of Farming Households (%)..... | 28 |
| Table2.7: The Number of Persons in Farming Households across Four Parishes (%)..... | 30 |
| Table 2.8: Females in Households in the Sample across the Parishes under Study..... | 30 |
| Table2.9: Persons 60 years and over in Households across the Parishes under Study..... | 31 |
| Table2.10: Children Under 18 years in Households across the Parishes under Study..... | 31 |
| Table2.11: Household Employment Situation across the four Parishes under Study (%)..... | 32 |
| Table 2.11: Steps Taken To Protect Against Natural Disasters..... | 40 |
| Table3.1: Impact of Hurricane Ivan in Four Parishes of Jamaica, 2004..... | 54 |
| Table 3.2: Impact of Hurricane Sandy in Four Parishes of Jamaica (2012)..... | 55 |
| Table3.3: Length of Recovery Period after a disaster..... | 56 |
| Table3.4: Preferred Means of Support by Farming households..... | 58 |
| Table 3.5: Additional Support For Farming Household..... | 59 |
| Table 4.1: Key Characteristics of Farming Livelihoods in the Communities Under Study..... | 61 |

List of Figures

| | |
|---|----|
| Figure 1.1: The Sustainable Livelihood Framework for Livelihood Assessment..... | 8 |
| Figure 1.2: Map of Jamaica Depicting the Four Parishes under study..... | 10 |
| Figure 1.3: Selected Data on the Jamaican and International Economies..... | 14 |
| Figure 1.4: Food Component of the Jamaican Rural Consumer Price Index (Base Year=2006)..... | 14 |
| Figure 1.5: Poverty in Jamaica, Selected Years—2006-2010..... | 15 |
| Figure 1.6: Poverty Distributed by Age in Jamaica, Selected Years—2006-2010 (%)..... | 16 |
| Figure 1.7: Poverty Estimates for Selected Parishes (1992-2008 Data) (%)..... | 17 |
| Figure 1.8: Distribution of Farm Size in Four Parish of Jamaica (%)..... | 18 |
| Figure 2.1: Additional Livelihood Support by Farming Households (%)..... | 21 |
| Figure 2.2: The Highest Percentages of Farming Households in 20 Specific Crops (%)..... | 23 |
| Figure 2.3: Comparison of Parishes according to Proportion of Households in Top 10 Ten Crops (%)..... | 23 |
| Figure 2.4: Comparing the Proportion of Farming Households in the Top 10 Ten Crops by Parish (%)..... | 24 |
| Figure 2.5: Proportion of Farming Households in Livestock Rearing (%)..... | 25 |
| Figure 2.6: Farming Households' Income from Farming Activities (%)..... | 26 |
| Figure 2.7: Total Monthly Income of Farming Households from All Sources by Parish (%)..... | 27 |
| Figure 2.8: Farming Households' Monthly Median Expenses (\$,%)..... | 28 |

| | |
|--|----|
| Figure 2.9: Monthly Income vs Monthly Expenses by Parish (%)..... | 29 |
| Figure 2.10: Distribution of Gender by Parish-Sample and Agricultural Census Data %)..... | 33 |
| Figure 2.11: Agriculture as Main Income Source, by Gender (%)..... | 33 |
| Figure 2.12: Types of Farming by Gender (%)..... | 34 |
| Figure 2.13: Employment Status by Gender (%)..... | 35 |
| Figure 2.14: Monthly Income from Agriculture by Gender (%)..... | 36 |
| Figure 2.15: Monthly Income from Agriculture by Parish and By Gender (%)..... | 36 |
| Figure 2.16: Additional Sources of Income, by Gender (%)..... | 37 |
| Figure 2.17: Total Income by Gender (%)..... | 38 |
| Figure 2.18: Total Monthly Income from all Sources by Parish and by Gender (%)..... | 38 |
| Figure 2.19: Monthly Income vs. Expenses by Gender (%)..... | 39 |
| Figure 2.20: Households Impacted by Natural Disasters, by Gender (%)..... | 40 |
| Figure 2.21: Proportion of Sample that Have Training in Areas other than Agriculture, by Gender (%)..... | 41 |
| Figure 2.22: Proportion of Sample that Received Training in Crop/Livestock Protection, by Gender (%)..... | 41 |
| Figure 2.23: Distribution of Elderly Farmers by Sex and by Parish (%)..... | 42 |
| Figure 2.24: Length of Recovery Period for the Elderly after a Disaster (%)..... | 43 |
| Figure 2.25: Monthly Income of the Elderly from Agriculture, by Gender (%)..... | 44 |
| Figure 2.26: Monthly Income of the Elderly from Agriculture, by Parish and Gender (%)..... | 45 |
| Figure 2.27: Total Income of the Elderly by Gender (%)..... | 45 |
| Figure 2.28: Total Monthly income of the Elderly, by Gender and Parish (%)..... | 46 |
| Figure 2.29: Monthly Income vs. Expenses of the Elderly (%)..... | 46 |
| Figure 3.1: Proportion of Produced Crops and Livestock Consumed by Farming Households (%)..... | 48 |
| Figure 3.2: Farming Households that were Impacted/Not Impacted by a Natural Disaster by Parish (%)..... | 50 |
| Figure 3.3: Natural Disasters Remembered that Affected Farming Households in Study Areas..... | 51 |
| Figure 3.4: Natural Disaster Events with Greatest Impact on Farming Households..... | 51 |
| Figure 3.5: Communities Affected by Hurricane Sandy, 2012..... | 52 |
| Figure 3.6: Communities Affected by Hurricane Ivan, 2004..... | 52 |
| Figure 3.7: Level of Damage Suffered from Natural Disasters among Farming Households (%)..... | 53 |
| Figure 3.8: Initiatives for Recovering Livelihoods After Natural Disasters (%)..... | 55 |
| Figure 3.9: Sources/Types of External Assistance Received for Disaster Recovery (%)..... | 55 |
| Figure 3.10: Efforts to Protect Against Natural Disasters (%)..... | 57 |
| Figure 3.11: Proportion of Farming Households that Received Natural Disaster Training from Selected Agencies (%)..... | 58 |

Map of Jamaica Depicting the Four Parishes under Study.



Source: <http://www.eoj.com.jm/content-69-188.htm> (Accessed November, 2014)

Executive Summary

This report provides a baseline livelihood assessment of farming households in four parishes of Jamaica. The primary data were collected from a sample of 642 respondents from farming households in the parishes of Portland (35%), St. Thomas (31%), St. Catherine (26%) and St. Mary (8%). One-third of the respondents were in the age group 31-49 years and 29% were over the age of 60 years. The sample comprised 67% males and 33% females. Although the survey was targeted at farming households, 3% of the sample (22 respondents) was from non-farming households.

More than half of the farming households sampled engaged in mixed farming (i.e., both livestock and crop production), while 32% concentrated on only crop farming and 12% on livestock rearing. Among the respondents who characterized themselves as farmers, 74.0% indicated that agriculture was their main source of income while 26.6% derived their main incomes from a range of other sources. The farming households also derived income support from several additional sources: government and other assistance, remittances and several “miscellaneous” (irregular) sources such as, day labour, support from friends/relatives, vending, etc.

Approximately 53 different crops were reportedly produced by the farming households. However, the highest proportions of households were in the production of banana (54%), plantain (49%), yam (33%), cocoa (11%), and pumpkin and peas (17%, respectively). There are several advantages to banana, plantain, cocoa and other tree-crop cultivation, but these crops are also the most vulnerable to hurricanes, major storms and other natural disasters, which should they occur would have adverse effects on farming communities.

The analysis on livelihood assets revealed:

- Social capital was generally weak, but when it existed it was best displayed among close friends and relatives, especially in times of crises and disasters;
- Private physical capital existed in the form of houses, farmlands, crops, standing tree-crops, livestock and animal pens. However, farming households have suffered significant losses in their private capital during natural disasters. These latter wiped out years of capital accumulation, depleted savings and placed a premium on directing efforts and resources to replacing lost capital instead of creating additional capital/livelihood capacity;
- Farming households derived incomes from agriculture and a range of other sources. About 6% of all the farming households had monthly incomes of \$10,000 or less, and 41.3% had monthly incomes in excess of \$50,000. However when expenses were taken into consideration, the data revealed that 38% of the sample lived “hand-mouth” or worse every month, with a lower proportion among the elderly (33%), but no gender difference observed with respect to this situation;
- The quality of human capital was best indicated in the 71% of households aged 19-59 years, the age-group that usually drives small-scale farming. High unemployment generally, and the relatively small numbers of household members who are employed, increased households’ dependency ratios. This, coupled with a low proportion of skilled persons, compromised human capital;
- Two important features of Jamaica’s agriculture, *inter alia*, are the high proportions of landless farmers and farmers with small holdings (less than 1 hectare). The 2007 agriculture census data revealed that there were 228,683 farmers in Jamaica, of which 5% (12,033¹) were in St. Thomas, 4% (8,966) in Portland, 6% (13,421) in St. Mary and 10% (23,025), in St. Catherine. Moreover, 12% (28,070) of all farmers in the country were landless of which 21% (5,889) were in the four

¹ These numbers are accurate at five decimal places.

parishes under study, distributed as follows: 12% (2,847) were in St. Catherine; 10% (1,221) in St. Thomas, 9% (831) in Portland and 7% (990) in St. Mary. Finally, 66% of all farms in Jamaica were less than one hectare. In the four parishes under study, the proportions of farms that were less than one hectare ranged from 53% in Portland to 65% in St. Catherine.

Approximately 86% of respondents reported that their livelihoods were impacted by natural disasters at some time. A large proportion of the respondents (63%) who reported being affected by a disaster indicated that they took no steps to protect their livelihoods. Further, only 18% of respondents in the sample indicated that they received training in protection of crops/animals and property before, during and after natural disasters. The main training agencies were HelpAge International and the Rural Agricultural Development Agency (RADA), and their collaborators. The training on natural disaster preparedness varied but the main areas/topics included:

- Protection of crops & livestock
- Drainage, Soil Conservation/Erosion
- Land Husbandry/Soil Protection
- Water conservation & Landslide Prevention
- Poultry & Goat Rearing
- Banana Cultivation & Maintenance
- Climate Change

From a comparative analysis of the data on gender, the following were noted:

- Unemployment (households that did not have a wage earner), in the communities under study was high: 41% among females and 47% among males;
- More females were employed (58.7%) compared to males (52.7%);
- The proportions of males and females in mixed farming was almost similar but males dominated crop production, whereas, more females were in livestock rearing, indicating thereby that females may be disproportionately represented in the landless class of farmers;
- In the income band $\$30,001 \leq \$50,000$, females outnumbered males by about 9% in all the four parishes. At the highest income interval, $\$50,001$ and over, males outnumbered females on average by 8% in all the parishes. Approximately 27% of males and females alike had monthly expenses in excess of monthly incomes and just about 10% of both sexes were at the break-even point (i.e. incomes equal expenses). Thus, about 38% of males and females, respectively, lived in a situation of “hand-to-mouth” or worse on a monthly basis. Net gains (i.e. monthly income in excess of monthly expenses), were recorded for the other 68% of males and females, respectively, with females represented fairly well in the three upper gain interval;
- There were more females (56%) than males (49%), who reported that they had no skills or training in other areas outside of agriculture. Moreover, even in the context of living in disaster-prone areas and engaging in economic activities that are frequently impacted negatively by natural disasters, 82.4% of males and 79.4% of females have not received any training in crop and livestock protection;
- High proportions of both males and females were affected by vulnerability factors. While the data do reveal some gender variations as noted above, these differences are not so pronounced to conclude that one sex was generally more affected than the other;

Elderly persons (those 60 years and older), comprised 29% of the sample. Within the gender distribution of the elderly, 77% were males and 23% females. Unemployment was high among this age group (68%), with the majority (80%) reportedly relying on agriculture as their main income source. Of this sub-set, 58%, engaged in mixed farming, 34% in crop production and 8% in livestock rearing. As much as 88% of respondents in the 60 and older age group reported they were impacted negatively by a natural disaster at some time. On a monthly basis, 31% of the elderly derived an income of \$10,000 or less from agriculture. Finally, in terms of net income, a third of the elderly had a net gain (income in excess of expenses), of \$10,000 or less per month, while 22% had a net gain in the range $\$10,001 \leq \$25,000$ monthly. However, 28% of the elderly had a loss (incomes less than expenses) on a monthly basis, and only 6% managed to break-even. Thus, 34% of the elderly lived in a situation of “hand-to-mouth” or worse on a monthly basis.

Several factors combined to drive the vulnerability of farming households, including:

- Exposure to and adverse impacts from natural disasters, mainly hurricane, storm-surges, floods and droughts;
- Concentration of household resources in a few crops, which are themselves affected adversely in the event of a natural disaster;
- For many households the incomes earned were insufficient to meet monthly expenses and many others were just able to break-even in terms of incomes and expenses;
- There were many landless farmers in these communities and a large proportion of farming households that farmed on less than one hectare of land;
- High unemployment was a characteristic feature of these communities and many households did not have a wage earner;
- Women, children and the elderly were particularly at risk during natural disasters;
- The mediating forces (e.g., government assistance, policies etc.), have done very little to assist these communities to build resilience against vulnerability factors; moreover, the farming households are themselves too resource poor to embark on this task.

To address these and other challenges these farming households experience routinely, this report lists several programme areas for priority action. These include:

- Diversify Agriculture Portfolio
- Strengthen Food & Nutrition Security
- Increase Financial Security
- Rebuild Social Capital at Community Level
- Strengthen Human Capital & Income/Employment Opportunities
- Programs to Build Resilience
- More Efficient Mitigation Efforts

Introduction

This Report is based on an analysis of data from a baseline livelihood assessment survey¹ that was conducted among a sample of mainly farming households across four parishes of Jamaica, viz., St. Thomas, Portland, St. Mary and St. Catherine. Additional information was gathered from several relevant official statistical sources, reports and studies on these parishes, including needs assessments, surveys of living conditions, agricultural and population censuses, etc. The overall aim of the report is to provide primary information on specific aspects of farming livelihoods in the four parishes, including:

- Main livelihood activities (crop, livestock, mixed-farming; own-consumption and marketable sales of produce);
- Supplemental livelihood support (government and other assistance; remittances; wage-labor; small businesses; etc.)
- Vulnerability factors and impact (natural disasters; socio-economic factors);
- Vulnerable sub-groups (women, children and elderly);
- Livelihood resilience (training; household assets/capacity; government/NGO assistance; etc.);
- Livelihood needs (training; awareness; financial/infrastructural/marketing assistance; etc.).

The information garnered from this study is intended for sharing with key policy makers and other stakeholders (e.g., Rural Agricultural Development Agency (RADA), as a basis for identifying evidence-based programme priority actions to reduce vulnerabilities and increase resilience and overall welfare of the livelihoods in the communities under study.

Following this Introduction, Chapter 1 presents the methodology, conceptual framework and background information that guided the data analysis. Chapter 2 provides an analysis of the farming livelihoods in the four parishes focusing on livelihood activities, assets and vulnerability factors. Chapter 3 discusses the livelihood outcomes with respect to food and nutrition security,

¹The survey was designed and administered by HelpAge International (Jamaica Office), a Non-Governmental Organization with a mandate to tackle age discrimination, promote solidarity between generations and move towards a society for all ages (www.helpage.org/where-we-work/caribbean/jamaica).

impact of vulnerability factors, and building resilience and sustainable livelihoods. Chapter 4 identifies key programme priorities and recommendations while Chapter 5 provides a summary and conclusions from the previous chapters.

Chapter 1

Analytical Framework & Situational Analysis

This Chapter presents the aims, objectives and rationale of the study and background information on the four parishes with special reference to farming/agriculture. It also elaborates on the methodology and analytical framework that guided the study. The methodology highlights the Sustainable Livelihood Approach as a lens for conducting the Baseline Livelihood Assessment in the four parishes. Key concepts such as food and nutrition security, vulnerability, livelihoods, sustainable livelihoods, etc., and their relevance to the study are explained. The Chapter also outlines the key socio-economic and agro-ecological characteristics of the parishes.

1.1 Background to the Study

Although needs assessments, based on focus group discussions, were conducted in the four parishes under study, significant gaps in knowledge still existed with respect to specific aspects of the livelihoods in the communities. In particular:

- The needs assessments were not characterized by systematic approaches to determine the livelihood patterns in the target communities, and hence there is no way of determining the likely impact of hazards on these communities; and
- Very little secondary quantitative data existed on the specific communities and livelihoods in the four parishes.

Against this background, HelpAge International conducted a livelihood baseline assessment survey among farming households in 14 targeted communities in the four parishes to determine livelihood activities among men and women in the communities, vulnerability factors that impact their livelihoods, and training needs of farmers to build resilience against disasters. The baseline assessments will also provide information on the pre-disaster context and will allow for informed analysis of the likely livelihood impact presented by a disaster. Since the targeted communities are mainly involved in farming, the information collected will help to determine the number of households engaged in farming activities, age and gender characteristics of these farmers, the types of animals they rear and the crops they produce, the protection mechanisms they have in

place, the potential risks they face for loss of livelihoods in the event of a disaster, and the training needs required for protection of livelihood assets. This baseline information will also help to inform the design of a Farm School Training Program based on the training needs identified and the literacy level of the prospective participants. The results of the baseline assessments, including recommendations, will be shared at a parish level consultation with a number of stakeholders from government agencies, occupational groups and other agencies. The information gleaned from the study will help to inform disaster planning and agricultural and rural development policy. It is also envisaged that this activity will go some way in enabling vulnerable groups, including older men and women, in the community to protect and sustain their livelihoods in the face of recurring disasters.

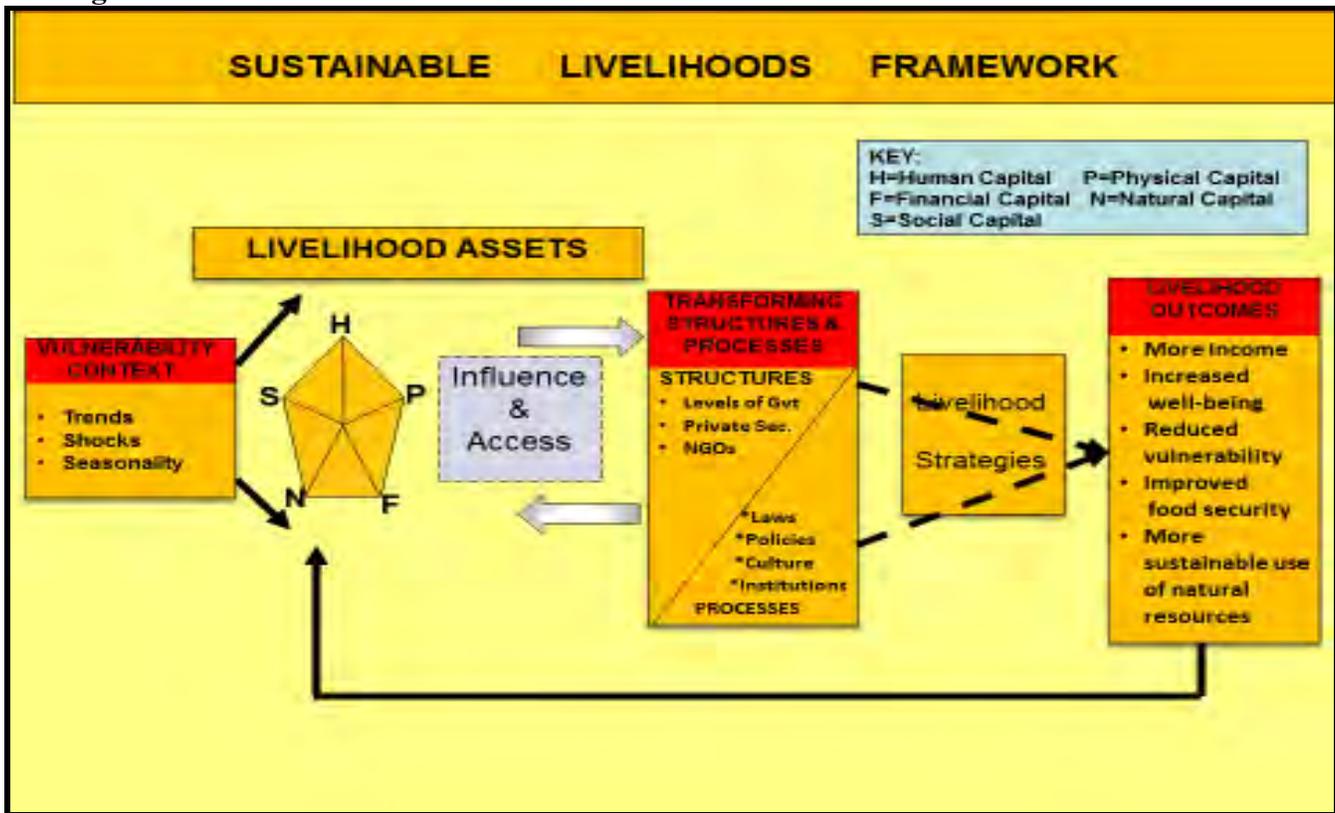
1.2 Analytical Framework

The sustainable livelihood approach (SLA), is used as the lens for conducting the Baseline Livelihood Assessment. Figure 1 shows the sustainable livelihood framework and is the basis for conducting a livelihood assessment. A livelihood comprises the household assets (expressed in five forms of capital, viz., natural, physical, human, financial and social capital), the livelihood activities/strategies of the household, which are facilitated or constrained by transforming structures, institutions and processes, and is impacted by forces of change (natural phenomena, changes in the world economy, etc.), that together determine the livelihood outcomes of individuals and households within the livelihood. Livelihood outcomes do constitute significant determinants of livelihood assets as depicted in the feed-back flow in Figure 1. To operationalize the concept into empirical terms, a livelihood is defined by the main economic activity of a household, such as farming, fishing, etc., but with explicit recognition that the household may derive supplemental support from a range of other livelihood activities (ACF, 2010; Ellis, 2000).

The sustainable livelihood approach (SLA) is particularly useful for conducting livelihood assessments:

- (i) First, it provides a lens for analyzing how people combine different assets (natural, human, financial, physical and social capital), to maintain their livelihoods (Ellis, 2000);

Figure 1.1: The Sustainable Livelihood Framework for Livelihood Assessment.



Source: Adapted from ACT, 2010, p 21.

(ii) Second, it incorporates insights from more recent work on the Food Insecurity Vulnerability Information Mapping System (FIVIMS) framework developed by the FAO (FAO, 2003, 2002; 2000). This framework is particularly useful in livelihood assessments because it draws attention to *who* are vulnerable, *where* they are located, *how* many are they, *why* they are vulnerable, including the full range of factors that place people at risk of not being able to achieve their expected livelihood outcomes, and *what* can be done to effectively address this vulnerability. Vulnerability refers to the risks of households' livelihoods should an unanticipated event such as a natural disaster or economic shock were to occur. Vulnerability captures those persons that: (i) have limited assets; (ii) do not benefit from external risk management; (iii) engage in livelihood activities that are affected negatively by shocks, trends and seasonality; and because of (i) and (ii) lack the resilience to sustain their livelihoods should an event such as a natural disaster or economic shock were to occur;

(iii) Finally, the SLA draws attention to livelihood outcomes, including, *inter alia*, food security and the resilience (or otherwise) of households to sustain their livelihoods. Food security embraces food availability, access, consumption/utilization and stability of these three components. More recent studies have included two additional components, viz., governance and food sovereignty.

1.3 Data and Information Sources

The quantitative data for this baseline livelihood assessment were collected by HelpAge International (Jamaica), through a purposive (non-probability), sampling of mainly farming households in targeted communities in four parishes of Jamaica, viz., St. Thomas, Portland, St. Mary and St. Catherine. The decision by HelpAge International (Jamaica), to focus on these particular parishes, communities and farming livelihood was based on two sets of information:

- First, HelpAge International (Jamaica) solicited information from the Office of Disaster Preparedness Emergency Management (ODPEM)¹, regarding communities with inherent vulnerabilities, most affected by natural disasters and were not recipients of public, private or other agencies' support for dealing with these problems.
- Second, the information provided by ODPEM regarding vulnerable communities/parishes and livelihoods were verified by comprehensive needs assessments that HelpAge International (Jamaica), conducted in these communities and parishes (Ogilvie, 2013; Francis, 2014).

In addition to the rich set of information in these needs assessments, this study has also benefited immensely from several relevant official statistical sources, reports and studies on the Jamaican economy, and in particular on these parishes, including surveys of living conditions, agricultural and population censuses.

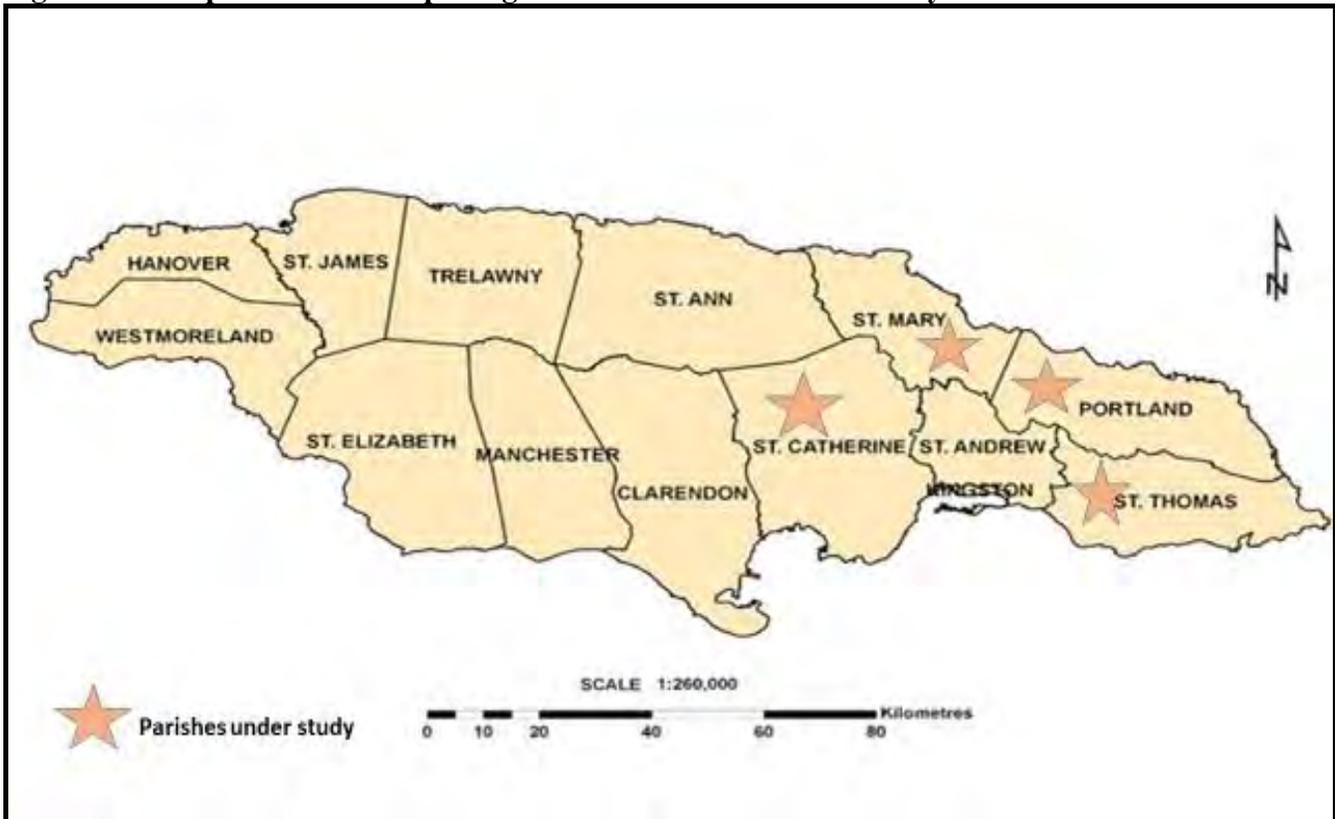
¹ ODPEM is the permanent national disaster preparedness and relief organization in Jamaica, responsible for coordinating, monitoring and educating the nation on disasters and disaster events.

1.4 Situational Analysis

Geological and Agro-Ecological Conditions of Study Areas

This Report presents the findings of a baseline survey among farming households in four parishes in Jamaica, viz., St. Thomas, Portland, St. Mary and St. Catherine. Figure 1.2 shows the geographical location of the four parishes under study. St. Catherine is the third largest parish of Jamaica (1197.2 sq.km), smaller only to St. Ann and St. Elisabeth, and occupies 10.9% of the country's land mass. Its population has increased by 7.1% over the 2001-2011 inter-censal period and currently stands at 516,218 (19.1% of the population), the second largest among the 14 parishes. The 2007 Agricultural Census ranks the parish second in terms of area in farmland (37,922 hectares, or 11.6% of the national total). Table 1.1 provides similar data on population, parish size and farm areas for the other three parishes under study.

Figure 1.2: Map of Jamaica Depicting the Four Parishes under Study



Source: <http://www.eoj.com.jm/content-69-188.htm> (Accessed November, 2014)

Table 1.1: Selected Parish-level Data, Jamaica.

| Parish | Population ¹ | Size of Parish (Sq.km) | Farmland ² (Ha) |
|---------------|-----------------------------|----------------------------|----------------------------|
| St. Catherine | 516,218 (19.1) ³ | 1197.2 (10.9) ³ | 37,922 (11.6) ³ |
| St. Mary | 113,615 (4.2) | 610.4 (5.6) | 22,257 (6.8) |
| St. Thomas | 93,907 (3.5) | 742.5 (6.8) | 20,890 (6.4) |
| Portland | 81,741 (3.0) | 815.1 (7.4) | 16,201 (5.0) |

Source: ¹ 2011 Population Census; ² 2007 Agricultural Census (Statistical Institute of Jamaica (www.statinja.gov.jm)). ³ Data in () represent percent of national total.

St Catherine is bordered by St. Andrew in the east, Clarendon in the west, St. Mary and St. Ann in the north and the Caribbean Sea on the South. The parish is home of two relatively large towns, viz., Portmore and Spanish Town and several other smaller towns all of which have easy access by modern highways to Kingston, the capital of Jamaica. The parish is characterized by fairly good water resources and relatively large expanses of flat plains, suitable for livestock-rearing and crop cultivation. Indeed, agriculture is the main source of livelihoods for many small farmers who practice mixed farming, which includes crops such as bananas, coconuts, pineapple, citrus, pumpkins, peppers, coffee and calaloo. Larger farms produce sugar cane, bananas, and some coffee and citrus, mainly for export.

Portland is known for its lush vegetation, multiple caves and rivers as well as the peak of the Blue Mountain range. It lies in the direct path of the prevailing northeast trade winds that bring rain, and its hilly terrain trap the winds and ensure almost daily rainfall. Portland contributes significantly to Jamaica's agricultural output, especially banana, coconut and breadfruit for both the domestic and export markets. Most of its coastal strip has been designated as land suitable for cultivation with almost no limitation. No other agricultural land has been attributed with this description in Jamaica.

The parish of St. Thomas sweeps down from the serene heights of the Blue Mountains to the pristine coastline of south-east Jamaica and also borders St. Andrew on the west, Portland on the north and the Caribbean Sea to the south. The land mass of St. Thomas ranges from the peaks of the Blue Mountains and John Crow Mountains down to sea-level. Subsidiary ridges of the Blue Mountain range, running from east to west across the island, come to their eastern end in St. Thomas. These include the Port Royal Mountain Range, which rises in some parts to 1,219.2m (4,000 feet) and stretches from above New Castle, in St. Andrew, to a point near the sea in the

Albion area of St. Thomas. Agriculture plays a vital part in the parish. Sugar and bananas are the main items produced for export. Most small farmers produce domestic and orchard crops and this is the main source of employment. Serge Island Dairies is located in the parish. St. Thomas also has many factories for food processing and electrical equipment. Farmers have resorted to planting and selling sugar as a way to cope with the fallout in the banana industry.

St. Mary borders Portland and both parishes are located on Jamaica's northeast coast. The parish is an agricultural-based parish and has a good variety of agricultural resources. The principal products are bananas, sugar, citrus, pimento, cocoa, coconuts, coffee, vegetables, breadfruit and annatto. Some farmers also do livestock farming. In recent years, however, agriculture in St. Mary has been on the decline, which may be due to the problems that Jamaican banana exports have been facing. St. Mary's parish, had once been listed as one of the poorest in Jamaica, but over the past 10 years there have been substantial improvements in the economy due to the influx of investments in infrastructure, including a new international airport (Ian Fleming International Airport), a new highway, and development of luxury resorts such as Goldeneye and Golden Clouds. The new inter-coastal highway constructed in 2005 has benefitted the parish and has brought a significant increase to tourism-related activities.

Macro-economy and Socio-Economic Conditions of the Parishes

At the national level, Jamaica's economy has shown wide fluctuations in economic growth over the past 14 years (Figure 1.3). The 3.7% and 2.9% growth observed in 2003 and 2006, respectively, were over-shadowed by low or negative growth in the other years: average annual growth of the Jamaican economy was 0.7% over the 14-years, 2000-2013. The economy is projected to have higher positive growth in the post 2013 period.

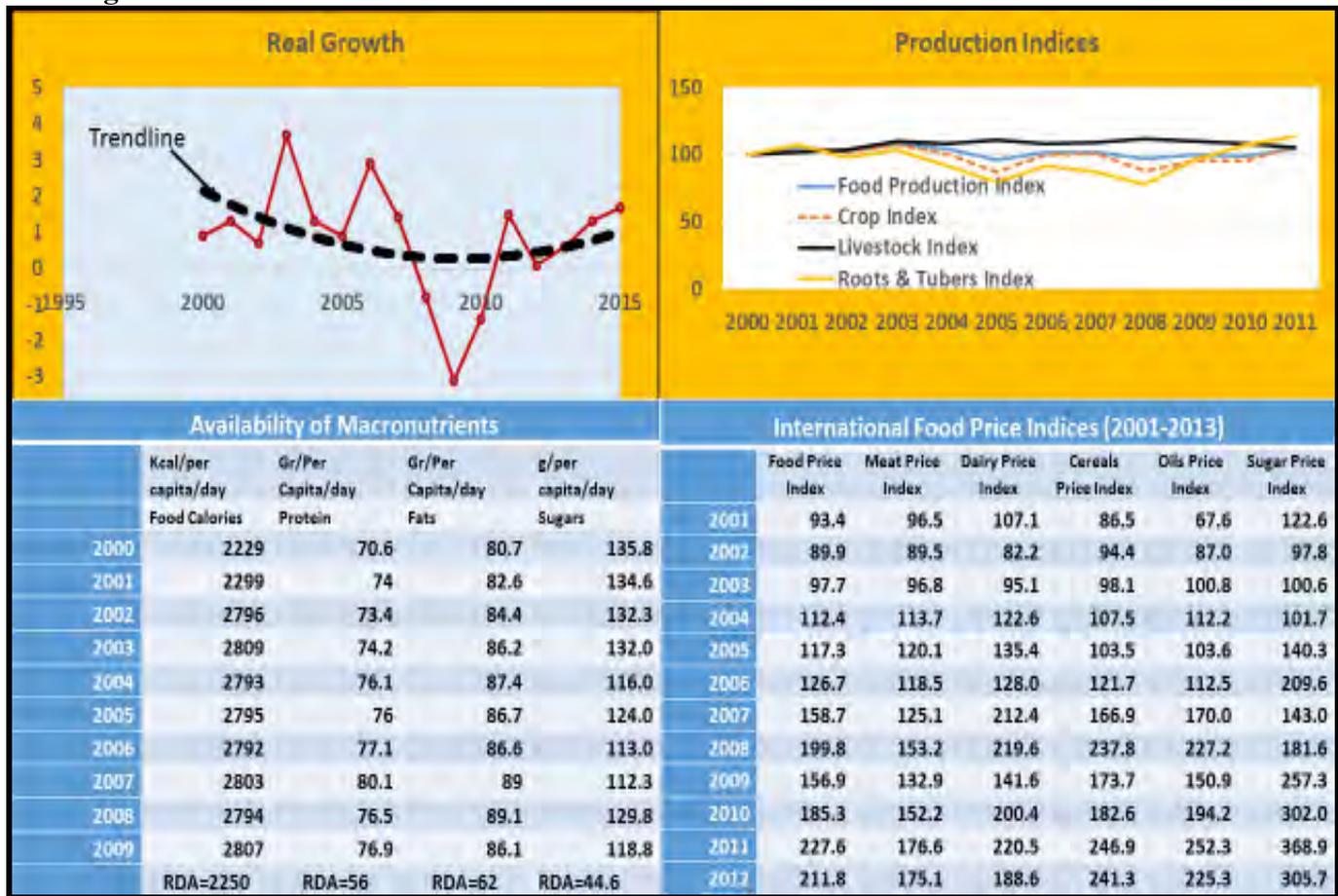
Although total food calories and other macronutrients (i.e., protein and fats), are available in excess of the Recommended Daily Allowances (RDA) (Figure 1.3), this should be viewed with caution in light of the following:

- Food production and other food-related indices in Figure 1.3 are either negative or reflect only marginal increases over the years. The short-fall in domestic food production is met by food imports which can displace the livelihoods of local farmers;

- In Jamaica, about 237,360 persons (8.6% of the population), are under-fed or hungry (undernourished¹), every day (FAOSTAT, 2014), due largely to poverty and income/consumption inequalities. In 2012, it was estimated that 19.9% of the population was below the absolute poverty line (Figure 1.5). Further, in 2010, the consumption-expenditure of the lowest 10 percent of the population was 12 times lower than that of the top 10 percent of the population (JSLC, 2010), with comparable levels of inequality in consumption-expenditures in previous years.
- Jamaica's food import bill is estimated in excess of US\$1 billion annually (FAOSTAT, 2014). High international food prices (Figure 1.3), have not returned to the pre-2003 levels. Moreover, the Jamaican dollar was devalued by 53% over the 2006-13 period, moving from J\$65.9=1US\$ in 2006 to J\$100.8=1US\$ in 2013 (BOJ, 2014). This has transmission effects into high domestic food prices which are reflected in the Consumer Price Index (CPI), particularly its food component, which is currently 147% above the 2006 base year (Figure 1.4). These high food prices constrain households' access to food.
- The excess of fats and sugar relative to the RDAs in Jamaica should be a cause for concern for health policy makers since over-consumption of these food energy can lead to over-weight and obesity, the main risk factors in chronic non-communicable diseases (diabetes, heart diseases, stroke, hypertension, some forms of cancers, etc.), which are currently the main public health problems in Jamaica and the rest of the Caribbean (Ballayram, 2009; Ballayram & Henry, 2010).

¹ Undernourishment, due to hunger and poverty, can lead to undernutrition, an anthropometrical indicator of nutritional status.

Figure 1.3: Selected Data on the Jamaican and International Economies.



Source: (1) Real Growth and International Prices (IMF, 2013); (2) Production Indices and Availability of Macronutrients (FAOSTATS, 2013). (Note: RDA=Recommended Daily Allowance).

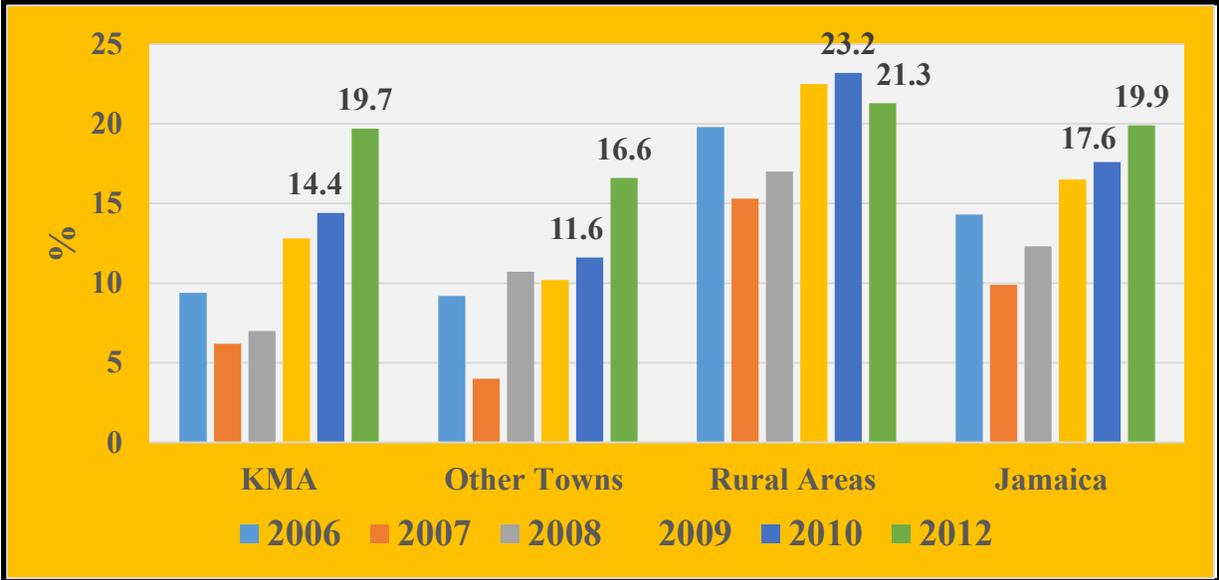
Figure 1.4: Food Component of the Jamaican Rural Consumer Price Index (Base Year=2006).



Source: BOJ, (2014).

Figure 1.5 shows the distribution of poverty¹ in Jamaica in the Kingston Metropolitan Area (KMA), Other Towns and Rural Areas. At the national level, poverty decreased in 2007 compared to 2006, but has increased every year since then, with the most recent estimates indicating that the poverty rate in Jamaica is 20%. This was also the pattern for the KMA. In the case of “Other Towns” poverty decreased very slightly in 2009 then increased in 2010 and 2012. While rural poverty declined by about 2% in 2012, poverty levels in that region have traditionally been higher than the other areas in all years for which data are available. Moreover, as shown in Figure 1.6, children (0-5 years), and youths were disproportionately represented among the poor in all six years for which data are available. This has serious consequences for the inter-generational transfer of poverty: it is well established that children from poor households have higher risks of undernutrition, poor performance in schools and other negative consequences in the life-cycle (Engle, Menon and Haddad, 1999; World Bank, 2006; Victora, et al., 2008; Wagstaff and Wantanabe, 2001; Gwatkin, et al., 2003).

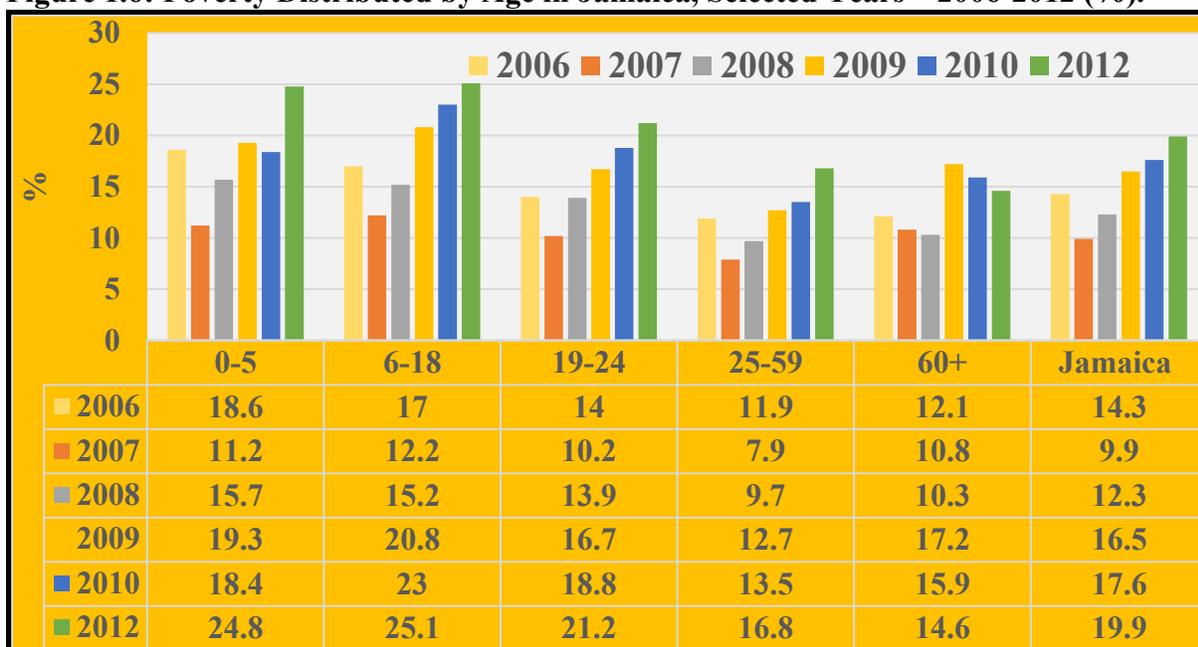
Figure 1.5: Poverty in Jamaica, Selected Years—2006-2012.



Source: Jamaica Survey of Living Conditions, Several Years.

¹ In Figures 1.3-1.7, poverty is defined in terms of the cost of a basket of food and non-food needs. Households that cannot meet these costs are considered poor. This consumption/expenditure approach is in contrast to the Unmet Basic Needs Approach which measures poverty in terms of a set of variables such as types of house, access to water, sanitation, education levels, number of persons in the households, etc. See PIOJ, 2014.

Figure 1.6: Poverty Distributed by Age in Jamaica, Selected Years—2006-2012 (%).

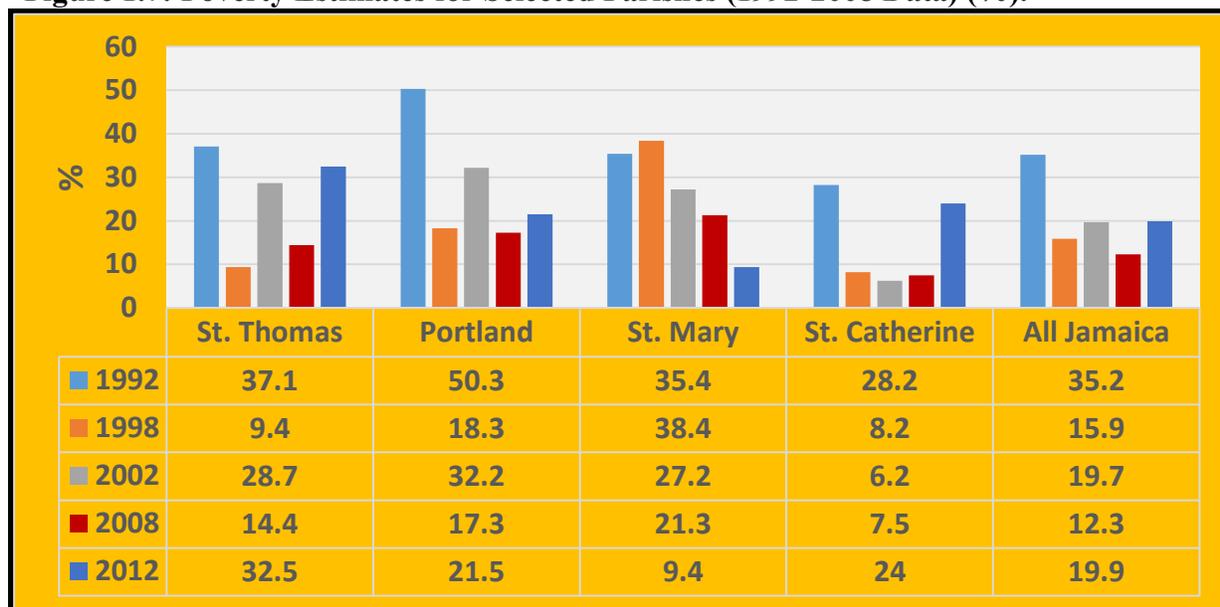


Source: Jamaica Survey of Living Conditions, Several Years.

Parish-level poverty estimates are available for selected years when large sample surveys are conducted for the JSLC report. Figure 1.7 presents parish-level poverty estimates for five years. The estimates for St. Mary show that poverty has been declining steadily since 1998, with the most recent (2012), estimate indicating that poverty in the parish is 9.4%. Poverty rates in Portland, St. Catherine and St. Thomas were above the national level. Although poverty rates in St. Catherine have been relatively low since 1998, there has been a sharp increase from 7.5% in 2010 to 24% in 2012.

Since this study focused on farming households it would be useful to review selected farm indicators that are relevant to this study. The latest Jamaica Agricultural Census (2007), reported that the total area in farming in Jamaica was 325,810 hectares, 30% of which were in the four parishes under study (Table 1.2). The census also indicated that there were 228,683 farmers in Jamaica in 2007, of which 5.3% (12,033) were in St. Thomas, 3.9% (8966) in Portland, 5.9% (13421) in St. Mary and 10.1% (23,025), in St. Catherine. The census also reported that the total farming area declined by 20% since the 1996 agricultural census. Among the four parishes under study, St. Mary reported the highest decline (-35%), compared to -13% (Portland) and -11% in St. Thomas and St. Catherine, respectively (Jamaica Agriculture Census, 2007).

Figure 1.7: Poverty Estimates for Selected Parishes (1992-2008 Data) (%).



Source: Jamaica Survey of Living Conditions, Several Years.

Table 1.2: Selected Farm Indicators.

| | Area in Farming (Ha) ¹ | Change in Area in Farming 1996-2007 (%) | Aver. Farm Size (Ha) | Change of Farm Size 1996-07 (Ha) | Total Farms | Change of Total Farms 1996-07 (%) | Landless Farmers |
|---------------|-----------------------------------|---|----------------------|----------------------------------|-------------|-----------------------------------|------------------|
| All Jamaica | 325810 (100) | -20 | 1.42 | -0.75 | 228683 | 21.8 | 28070 |
| St. Thomas | 22257 (6.8) | -11.4 | 1.85 | -0.81 | 12033 | 27.2 | 1221 |
| Portland | 16201 (5) | -13 | 1.81 | -0.97 | 8966 | 33.8 | 831 |
| St. Mary | 20890 (6.4) | -35.2 | 1.56 | -0.99 | 13421 | 6.1 | 990 |
| St. Catherine | 37922 (11.6) | -11.1 | 1.65 | -0.82 | 23025 | 33.2 | 2847 |

Source: Jamaica Agricultural Census, 2007. ¹Figures in () denote percentages of total.

At the same time, the number of farms have increased nationally by 22% over the 1996-2007 period, with higher proportions recorded for St. Thomas (27.2%), Portland (33.8%), and St. Catherine (33.2%). The reduction in total farm area and the increase in the number of farms were accommodated by a reduction in the average size of farms over the 1996-2007 period. The average farm size in Jamaica was 1.42 hectares in 2007, but declined between the 1996-2007 intercensal period, nationally by 0.72 hectares, and by approximately one hectare in St. Mary and Portland, respectively, and by 0.80 hectare in St. Thomas and St. Catherine, respectively.

Finally, two additional features of Jamaica's agriculture that should be noted are the relatively large proportions of landless farmers and farmers with small holdings (less than 1 hectare). Figure 1.8 shows that 12% (28,070) of all farmers in the country were landless of which 21% (5889) were in the four

parishes under study. In particular, 12% (2847) of farmers in St. Catherine were landless, 10% (1221) were in St. Thomas, 9% (831) in Portland and 7% (990) in St. Mary. Finally, 66% of all farms in Jamaica were less than one hectare. In the four parishes under study, the proportions of farms that were less than one hectare ranged from 53% in Portland to 65% in St. Catherine.

Figure 1.8: Distribution of Farm Size in Four Parish of Jamaica (%).



Source: Jamaica Agricultural Census, 2007.

Background information (Ogilvie, 2013; Francis, 2014), indicates that all four parishes are impacted negatively by several types of natural disasters including:

- Hurricanes
- Storm surges
- Landslides
- Fires (bush, homes)
- Drought (likely to occur in future)

Chapter 2 will provide empirical data on the frequency and impact of these natural disasters on livelihoods in the four parishes.

Chapter 2

Analysis of Livelihoods in the Four Parishes

This Chapter provides a rigorous diagnostic analysis of the livelihoods in the four parishes, with a focus on livelihood activities, assets and vulnerability factors impacting the livelihoods. The data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS), and results are based on measures of central tendency, dispersion, frequency distributions, cross-tabulations and contingency tables at the household and parish levels. A total of 642 interviews were conducted mainly among farming households⁶ in targeted communities in four parishes. The respondents comprised 67.2% males and 32.8% females ages 19 and over (Table 2.1).

Table 2.1: Distribution of Survey Respondents by Age Group (%).

| Age Group | Percent |
|-------------|---------|
| 19-30 | 9.7 |
| 31-49 | 33.8 |
| 50-59 | 27.4 |
| 60-74 | 23.9 |
| 75 and over | 5.2 |

The sample included 36% of respondents from Portland, 29% from St. Thomas, 8% from St. Mary and 27% from St. Catherine. The communities from the respective parishes represented in the survey are shown in Table 2.2.

⁶ The survey targeted mainly farming households in selected communities in the four parishes. A total of 642 questionnaires were administered, of which 620 respondents were from households whose main livelihood was farming; the other 22 respondents were from non-farming households in St. Thomas (19) and Portland (3).

Table 2.2: Distribution of Sample by Communities and Parishes.

| Parish | Community | Households in Sample | Total Households in Sample | Percent |
|---------------------|----------------|----------------------|----------------------------|------------|
| St. Thomas | Lloyds | 49 | 199 | 31 |
| | Duckenfield | 50 | | |
| | Port Morant | 50 | | |
| | Bath | 50 | | |
| Portland | Windsor Castle | 51 | 223 | 35 |
| | Long Road | 30 | | |
| | Fair Prospect | 49 | | |
| | Bybrook | 52 | | |
| | Reach | 41 | | |
| St. Mary | Castleton | 51 | 51 | 8 |
| St. Catherine | Ginger Ridge | 49 | 169 | 26 |
| | Princessfield | 50 | | |
| | Riversdale | 50 | | |
| | Content | 20 | | |
| Total Sample | | 642 | 642 | 100 |

2.1 Livelihood Activities

More than half of the sampled farming households (56.1%), engaged in mixed farming (i.e., both livestock and crop production), while 32% concentrated on only crop farming and 12% on livestock rearing (Table 2.3). There were variations among the parishes. Thus, for mixed farming Portland and St. Catherine had higher proportions than the sample proportion; a similar situation existed for St. Thomas and St. Mary with respect to crop production. Also, more farming households in St. Thomas were engaged in livestock rearing compared to the other three parishes and the overall sample.

Table 2.3: Types of Farming across Parishes (%).

| Type of Farming | St. Thomas | Portland | St. Mary | St. Catherine | Total Sample |
|-----------------|------------|----------|----------|---------------|--------------|
| Crops | 41.1 | 26.4 | 54.9 | 22.5 | 31.9 |
| Livestock | 17.8 | 9.1 | 5.9 | 11.2 | 11.9 |
| Mixed Farming | 41.1 | 64.5 | 39.2 | 66.3 | 56.1 |

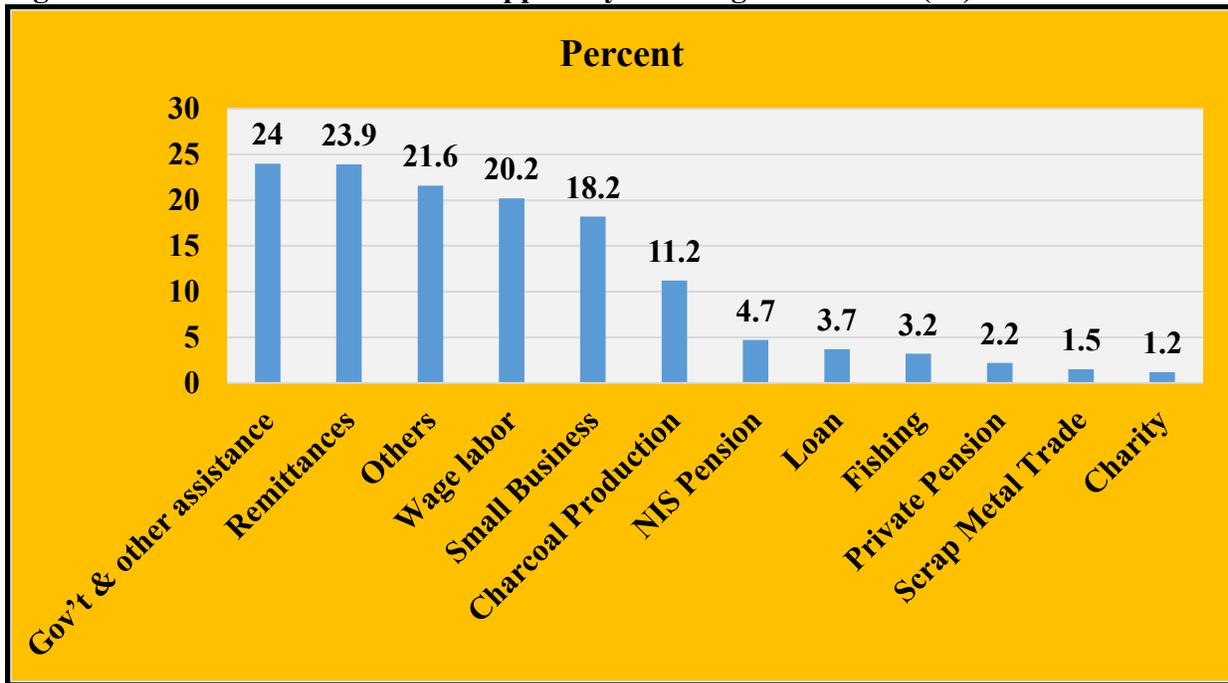
Among the respondents who characterized themselves as farmers, 74.4% indicated that agriculture was their main source of income while 26.6% derived their main incomes from other sources (Table 2.4).

Table 2.4: Main Source of Income across Parishes (%).

| Main Income Source | St. Thomas | Portland | St. Mary | St. Catherine | Total Sample |
|--------------------|------------|----------|----------|---------------|--------------|
| Non-Agriculture | 31.1 | 22.3 | 43.1 | 22.5 | 26.6 |
| Agriculture | 68.9 | 77.7 | 56.9 | 77.5 | 73.4 |

In addition to farming activities, farming households in the communities/parishes under study engaged in a range of other economic activities to support their livelihoods, including wage labor, operating small businesses/vending, fishing, income-support from friends/families, etc. Figure 2.1 shows the proportion of farming households’ various forms of additional livelihood support.

Figure 2.1: Additional Livelihood Support by Farming Households (%).



2.2 Livelihood Assets

Livelihoods assessments focus on five main livelihood assets, viz., human capital, social capital, physical capital (private and public), financial capital and natural capital. The survey solicited information on private physical capital, financial capital, social and human capital.

Private Physical Capital

Private physical capital includes land, houses, tools/machinery, standing tree/cultivated crops, etc. The survey solicited information only on crops and livestock physical capital. Farming households in the communities sampled in the four parishes produced 53 different crops, including vegetables (tomatoes, roots and tubers, etc.), fruits (oranges, star-apples, etc.), and tree-crops (e.g., coffee, breadfruit, ackee, coconut, etc.). Among these 53 crops, the highest proportions of farming households were in the production of the 20 crops shown in Figure 2.2. Moreover, 85% of farming households were engaged in the production of these 20 main crops. Figure 2.2 also displays two sets of ten crops that were produced by the highest and second highest proportions of farming households. The first set of ten crops were produced by 65% of farming households compared to 20% of farming households that produced the second set of crops. Despite the relatively large number of crops that were produced, the five crops that appeared to attract the highest proportions of farming households were banana (54%), plantain (49%), yam (33%), pumpkin and peas (17%, respectively), with variations at the parish levels.

Figures 2.3 and 2.4 compare the highest ten proportions of farming households engaged in the production of specified crops by parish (Figure 2.3), and by specific crops (Figure 2.4), respectively. The following observations can be noted from these charts:

- (i) Both charts revealed that, among the 20 crops shown, the highest proportions of farming households were in the production of three main crops, viz., bananas, plantains and yams (except in St. Thomas where the third highest proportion of farmers were in the production of peas);
- (ii) In all four parishes farming households were engaged in other crops although there was no systematic pattern in the variations of the proportion of farming households in these crops;

(iii) While there are several advantages to banana and plantain cultivation, these are the crops that are most vulnerable to hurricanes and natural disasters, which do occur frequently in Jamaica with adverse effects on farming communities.

Figure 2.2: The Highest Percentages of Farming Households in 20 Specific Crops (%).

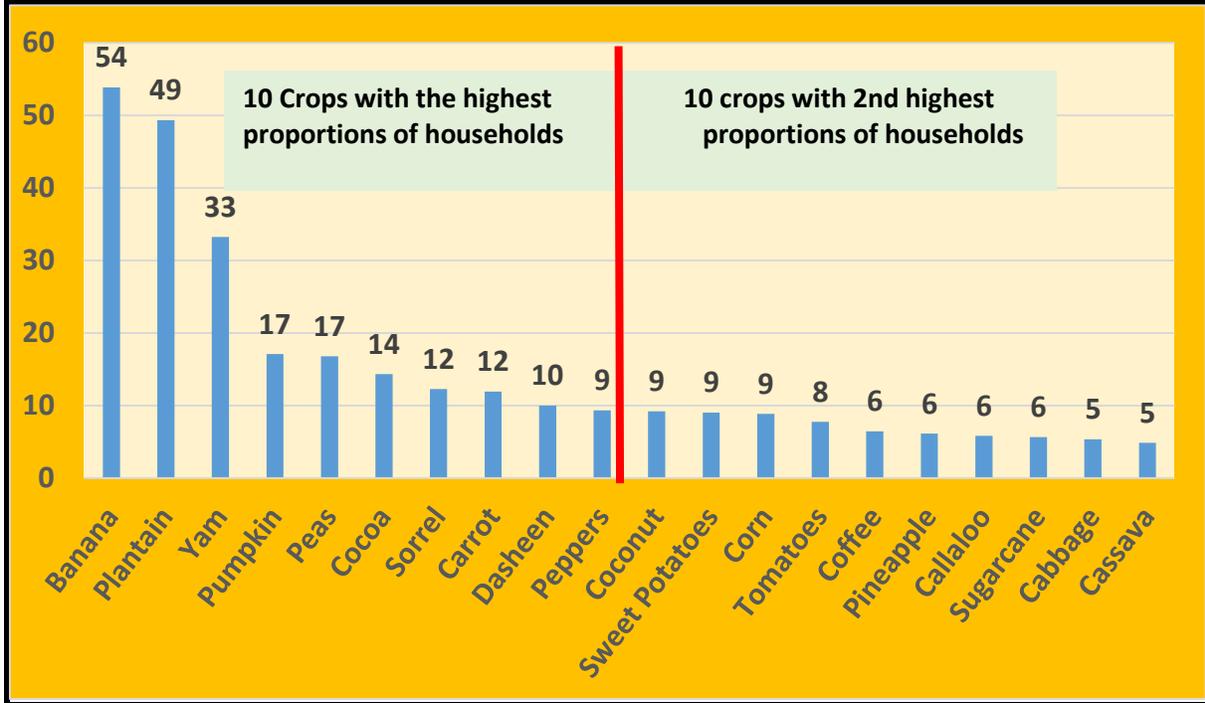


Figure 2.3: Comparison of Parishes according to Proportion of Households in Top 10 Ten Crops (%).

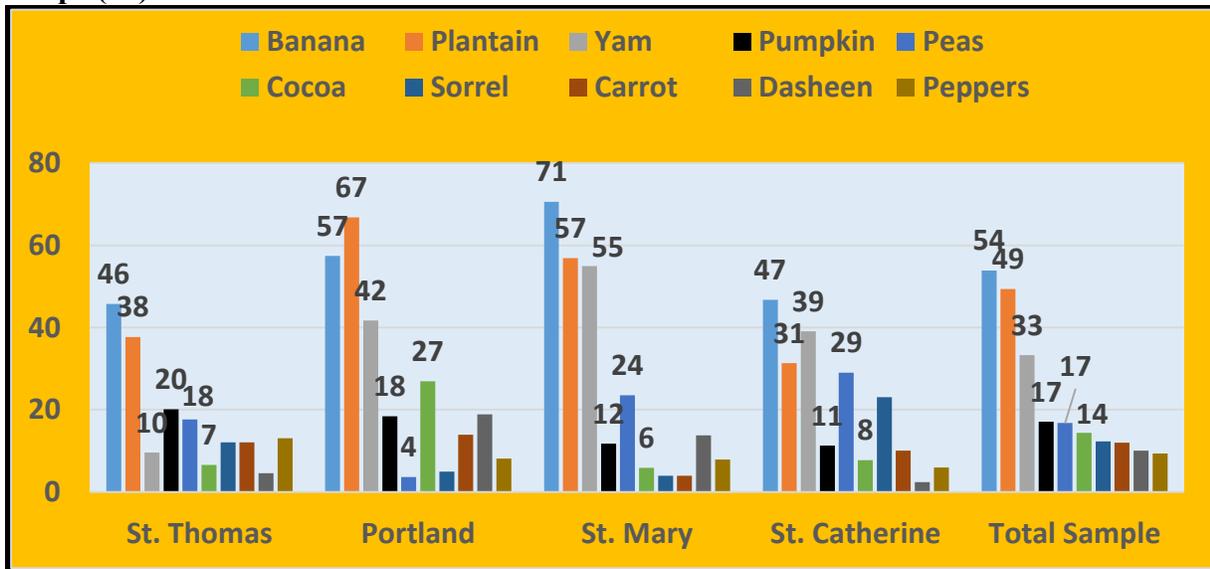
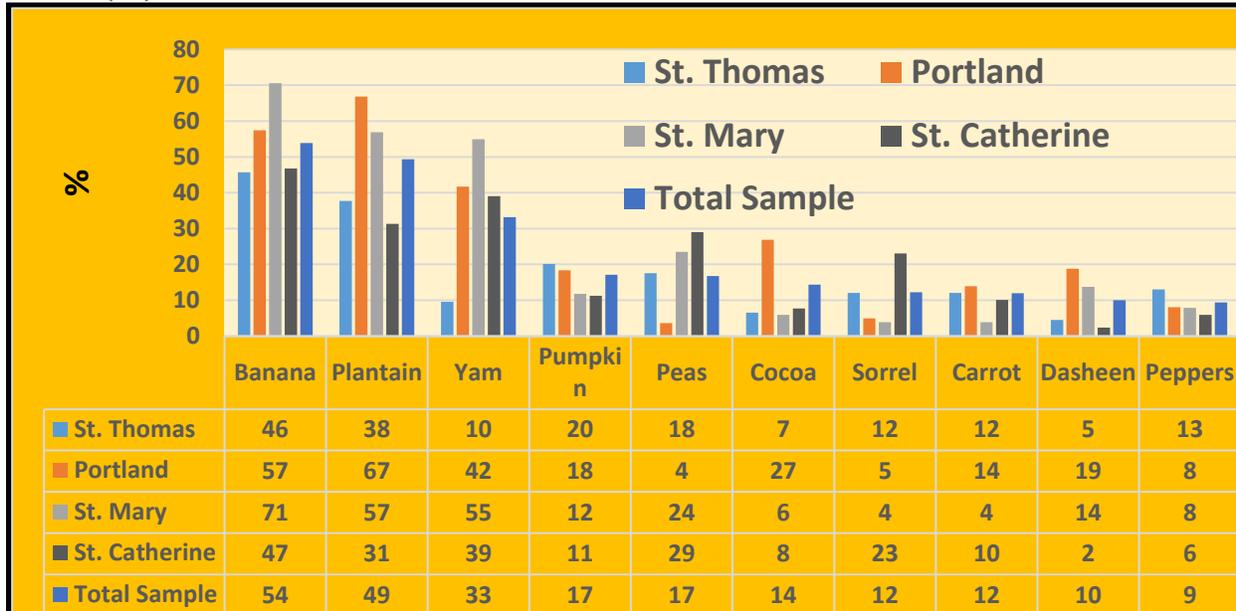


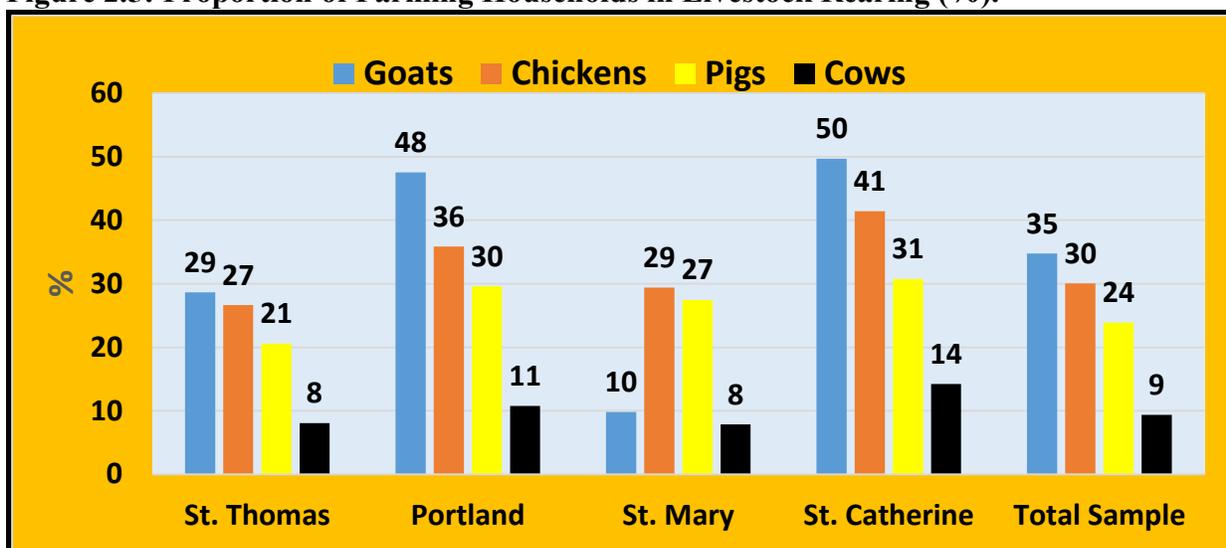
Figure 2.4: Comparing the Proportion of Farming Households in the Top 10 Ten Crops by Parish (%).



Goats, chickens, pigs and cows were the main livestock that 98% of the farming households reared in the communities/parishes under study. The other 2% of farming households reared donkeys, pigeon, bees, turkeys, fish and rabbits. In the three parishes of St. Thomas, Portland and St. Catherine, the highest proportions of farming households were in goat rearing, followed by chickens, pigs, and cows (Figure 2.5). In the case of St. Mary, only 10% of farming households reared goats compared to the sample proportion of 35%.

Farming households in the communities under study produced crops and livestock both for own-consumption and for marketable sales. Only 10% and 12.3% of the respondents consumed over 75% of crops and livestock produced, respectively. However, 53.8% and 27.7% of the respondents, respectively, consumed 25% or less of their crops and livestock. Section 3.1 will elaborate on these findings and implication for households' food and nutrition security.

Figure 2.5: Proportion of Farming Households in Livestock Rearing (%).



Financial Capital

Financial capital include income, savings, debts, expenses, etc. Figure 2.6 shows that 63.3% of farming households earned \$50,000 or less per month from farming activities, while 15.6% farming households earned between \$30,001 and \$50,000 and 21% earned in excess of \$50,000 per month. In St. Mary, 58.8% of the farming households earned \$10,000 or less per month from farming activities. This is more than twice the proportion of farming households earning the same income from farming in the other three parishes.

Although livelihoods are defined by the main economic activity that supports them (e.g., farming activities define farming livelihood), livelihoods analysis recognizes that poor and vulnerable households derive livelihood support from many activities. Table 2.5 shows the range of additional income support of the farming households in the communities under study. Government and other assistance provided an average of \$818 per month for 24% of the farming households. Similarly, remittances⁷ are an important safety-net and provided on average \$2836 per month to 24% of farming households. The “miscellaneous” category includes (irregular), day labour, support from friends/relatives, vending, etc.

⁷ It is estimated that remittances into Jamaica amount to over US\$2 billion annually (FAOSTAT, 2014),

Figure 2.6: Farming Households' Income (J\$) from Farming Activities (%).

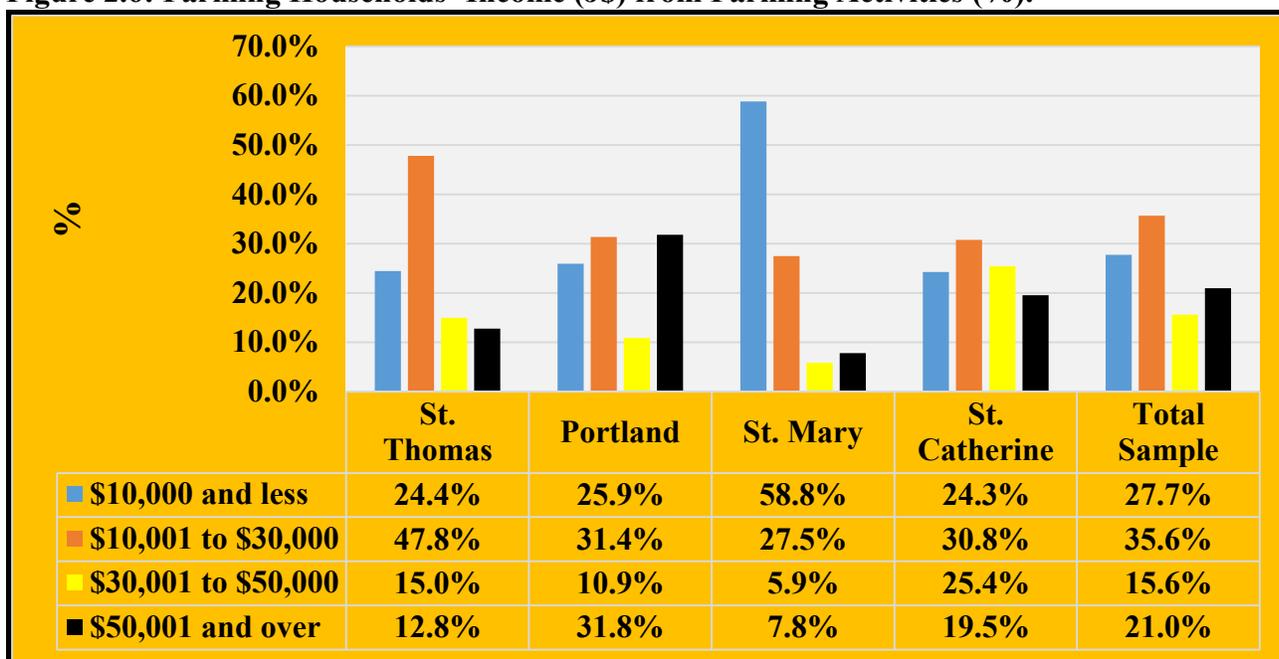


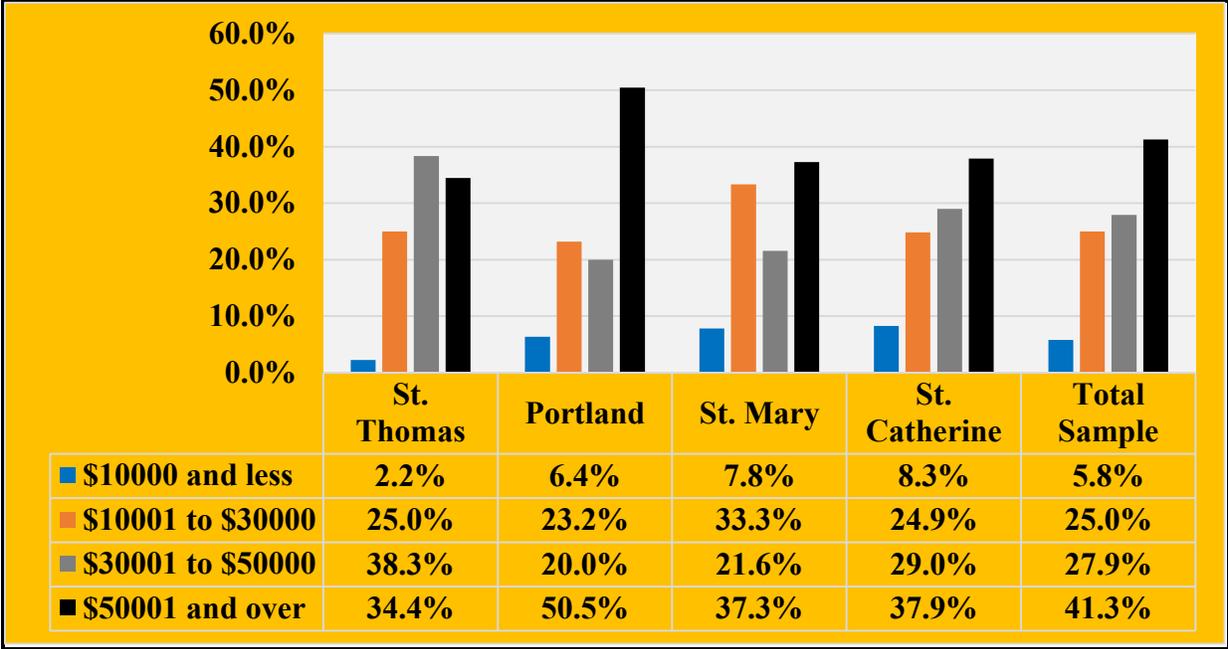
Table 2.5: Other Sources of Income (\$J/monthly).

| Other Sources of Income | Percent | Mean (\$) | Other Sources of Income | Percent | Mean (\$) |
|--------------------------|---------|-----------|-------------------------|---------|-----------|
| Gov't & other assistance | 24.0 | 818 | NIS Pension | 4.7 | 347 |
| Remittances | 23.9 | 2,836 | Loan | 3.7 | 57 |
| Miscellaneous Sources | 21.6 | 3,199 | Fishing | 3.2 | 712 |
| Wage labour | 20.2 | 3,574 | Private Pension | 2.2 | 426 |
| Small Business | 18.2 | 1,968 | Scrap Metal Trade | 1.5 | 99 |
| Charcoal Production | 11.2 | 1,183 | Charity | 1.2 | 57 |

Figure 2.7 summarizes information on total monthly incomes of farming households across the four parishes. The mean and median monthly incomes of the entire sample were \$49,570 and \$40,000, respectively. About 6% of all the farming households had monthly incomes of \$10,000 or less, although at the parish levels only St. Thomas had a smaller proportion compared to the sample proportion. More than half of the farming households had a monthly income in the \$10,001-\$50,000 range, with some noticeable variations at the parish levels: in St. Catherine and Portland, respectively, 63% and 43% of farming households were in this income range. The data also indicated that 41.3% of farming households had monthly incomes in excess of \$50,000, with

a higher percentage in Portland (51%), compared to 34% in St. Thomas and just over 37% in the other two parishes.

Figure 2.7: Total Monthly Income of Farming Households from All Sources by Parish (%).



The monthly median farming households’ expenses are shown in Figure 2.8. School expenses account for 16% of total monthly median expenses, followed by savings, healthcare, farm inputs, and food, each representing about 13% of total expenses. Together, these five items accounted for 76% of the households’ monthly claims on incomes. It should be noted that savings are not an expense but rather an instrument for coping, especially in emergency situations. The data indicated that 58.5% of the farming households did not save on a monthly basis, with higher proportions in the three parishes of Portland, St. Mary and St. Catherine (Table 2.6). Conversely, 40.5% of the sample saved on a monthly basis with only St. Thomas having a higher proportion than the entire sample.

Figure 2.8: Farming Households’ Monthly Median Expenses (\$,%).

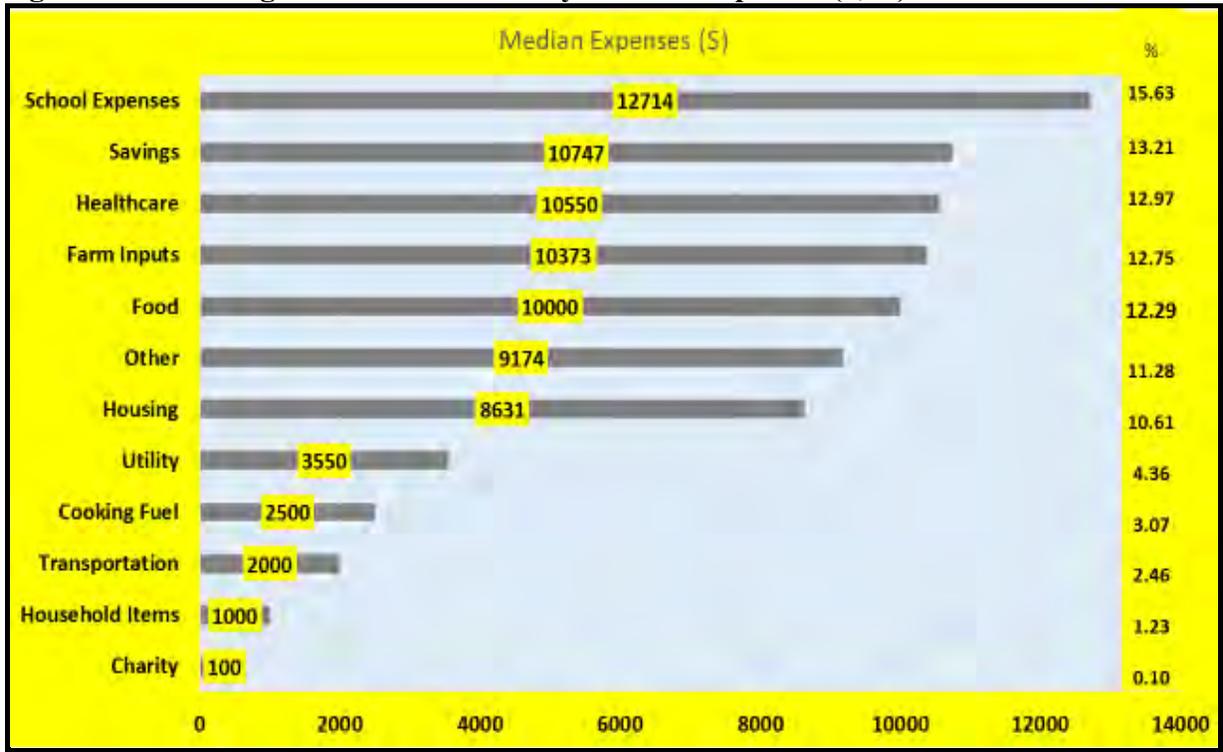


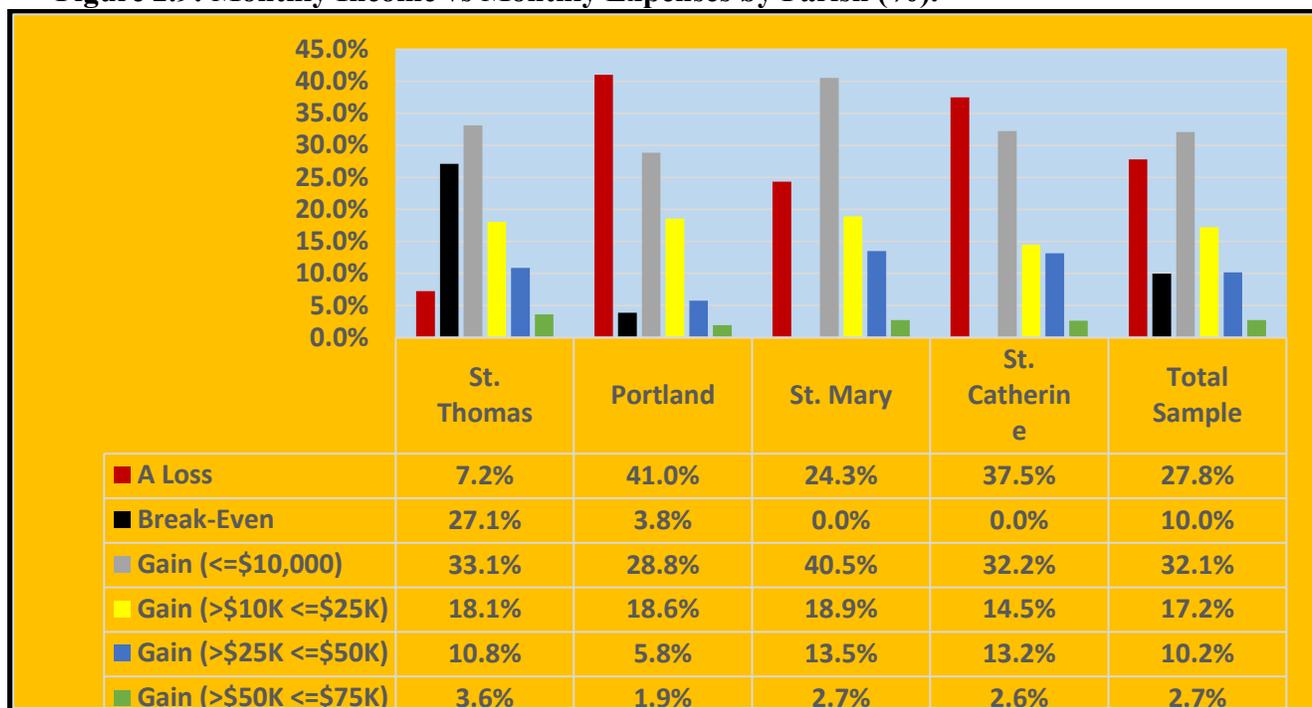
Table 2.6: Information on Savings of Farming Households (%).

| Savings | St. Thomas | Portland | St. Mary | St. Catherine | Total Sample |
|---------|------------|----------|----------|---------------|--------------|
| No | 40.6% | 66.4% | 60.8% | 66.9% | 58.5% |
| Yes | 59.4% | 33.2% | 29.4% | 33.1% | 40.5% |

Figure 2.9 shows estimates of the difference between the reported monthly total incomes and monthly total expenses. The data revealed that for the entire sample, 28% of farming households’ monthly expenses were in excess of their monthly incomes, with higher percentages in Portland and St. Catherine compared to the sample proportion. Only 10% of the sample achieved the break-even point for monthly incomes and expenses, and these were mainly in St. Thomas. A marginal gain of less than \$10,000 per month was observed for 32% of the entire sample, with slight variations at the parish levels. About 37% of the sample reported a gain between \$10,000 and \$25,000 per month with only Portland reporting less than the sample proportion. Finally, a small proportion of farming households (2.7%), showed a gain in the income range \$50,001 ≤

\$75,000 per month, with the proportion on farming households in St. Thomas and Portland showing some variation to the sample proportion.

Figure 2.9: Monthly Income vs Monthly Expenses by Parish (%).



Social Capital

Social capital refers to the level of community support given to livelihood groups. Historically, local communities are noted for strong bonds of community cohesion, support and general community-caring. These kinds of support are usually much more visible during periods of disasters and emergencies, such as during the aftermath of hurricanes, sickness, or death of the main income-earner of a family. Studies on vulnerable livelihoods and communities in Jamaica have reported that although social capital does exist, there has been a noticeable reduction over the years and that these types of community-level support are much more prevalent among friends and close relatives (Ballayram, 2009; PIOJ, 2014).

The survey instrument administered for this study solicited only partial information on social capital. About 42% of the respondents have some skills in areas such as carpentry, masonry, painting (houses), fishing, etc., and 96% reported that they were willing to share these skills with other members of the community. More than 85% of respondents in these communities at some

time were affected adversely by a natural disaster. However, only 6.8% indicated that they received any recovery-support from relatives, friends or community members. This of course does not necessary reflect low social capital since during and immediately after a natural disasters most members of the community by necessity are focused on their own individual recovery.

Human Capital

The average size of the farming households in the sample was four persons, which is higher than what is reported in the 2011 Jamaica population census for both the national average (3 persons), and for the four parishes under study. On average, the parishes that recorded the highest proportions of persons living within any one household were St. Thomas and St. Catherine (Table 2.7).

Table 2.7: The Number of Persons in Farming Households across Four Parishes (%).

| No. Persons in Farming Household | St. Thomas | Portland | St. Mary | St. Catherine | Total Sample |
|----------------------------------|------------|----------|----------|---------------|--------------|
| 1 | 21.7 | 17.5 | 17 | 19 | 19 |
| 2 | 22.7 | 13.5 | 17 | 19 | 18 |
| 3 | 14.6 | 15.7 | 12.8 | 20.2 | 16 |
| 4 | 13.6 | 14.3 | 21.3 | 10.7 | 14 |
| 5 | 12.1 | 14.3 | 8.5 | 14.3 | 13 |
| 6-8 | 13.7 | 20.1 | 17.1 | 12 | 16 |
| 9 and over | 1.5 | 4.2 | 6.4 | 4.8 | 4 |

Of the 642 targeted households, 19% had no females residing in those households (Table 2.8). The mean number of females per household was two and the highest proportion (36.4%), of females in a household in the sample was in the 2-3 females group, with noticeable variations at the parish levels. There were two outliers in the data: two households with 10 and 12 females, respectively in St. Mary and St. Thomas.

Table 2.8: Females in Households in the Sample across the Parishes under Study.

| # of Females in Households | St. Thomas (%) | Portland (%) | St. Mary (%) | St. Catherine (%) | Total Sample (%) |
|----------------------------|----------------|--------------|--------------|-------------------|------------------|
| 0 | 19.2 | 16.6 | 12.8 | 22.5 | 18.8 |
| 1 | 37.9 | 29.1 | 34.0 | 32.5 | 32.8 |
| 2-3 | 35.3 | 39.4 | 40.4 | 32.6 | 36.4 |
| 4-5 | 6.0 | 12.1 | 6.4 | 7.4 | 9.4 |

| | | | | | |
|------|-----|-----|-----|-----|-----|
| 6-12 | 1.5 | 2.7 | 6.3 | 2.4 | 2.6 |
|------|-----|-----|-----|-----|-----|

A little over half of the households surveyed (55.4%), had no persons age 60 years and over residing in those households (Table 2.9). The sample revealed that 44% of households had 2-3 persons age 60 years and over, with a higher proportion (50%), in St. Catherine. Within the parish of St. Mary, there was one household with five persons age 60 years and over. None of the households surveyed in St. Catherine and St. Thomas, had more than two persons in this age-group.

Table 2.9: Persons 60 years and over in Households across the Parishes under Study.

| # of Persons 60 and over in Household | St. Thomas (%) | Portland (%) | St. Mary (%) | St. Catherine (%) | Total Sample (%) |
|---------------------------------------|----------------|--------------|--------------|-------------------|------------------|
| 0 | 63.1 | 53.2 | 51.1 | 50.3 | 55.4 |
| 1-2 | 36.9 | 45.5 | 44.7 | 49.7 | 43.8 |
| 3 and over | 0 | 1.4 | 4.2 | 0 | 0.8 |

There were 278 households (43% of the sample), with no children under the age of 18 years (Table 2.10). For households with children under 18 years, 41% had between 1-2 children, and 12% had between 3-4. The maximum number of children under the age of 18 years residing in any one household was nine; this was reported in three of the parishes, viz., St. Thomas, St. Mary and St. Catherine.

Table 2.10: Children under 18 years in Households across the Parishes under Study.

| # of Children under 18 years in Household | St. Thomas (%) | Portland (%) | St. Mary (%) | St. Catherine (%) | Total Sample (%) |
|---|----------------|--------------|--------------|-------------------|------------------|
| 0 | 48 | 36.9 | 37.5 | 49.1 | 43.6 |
| 1-2 | 38.4 | 45 | 47.9 | 36.7 | 41 |
| 3-4 | 13.1 | 13.1 | 6.3 | 11.2 | 12.1 |
| 5 and over | 0.5 | 5 | 8.4 | 3 | 3.3 |

A relatively large proportion of the households (46%), in the survey reported that no one in the household was employed. Portland and St. Catherine reported proportions of unemployment that were 4% and 6%, respectively, higher than the sample proportion (Table 2.11). About 40% of the households had one employed person and 13% had 2-3 employed persons. Less than 1% of households had 4-5 persons in employment, even though 27% of the households had 4-5

household members (see Table 2.7), which is another indication of high household dependency-ratio.

Approximately 48% of respondents reported they had skills training in areas other than agriculture. Masonry was the most pre-dominant of the skills set (12%), while sewing and construction were the next prominent skills (7% each), and followed by plumbing and carpentry (6% each). Of those persons who possessed skills in other areas, 39% were from St. Thomas, 30% from Portland, 25% from St. Catherine and 7% from St. Mary.

Table 2.11: Household Employment Situation across the four Parishes under Study (%).

| # of Employed Persons in Household | St. Thomas (%) | Portland (%) | St. Mary (%) | St. Catherine (%) | Total Sample (%) |
|------------------------------------|----------------|--------------|--------------|-------------------|------------------|
| 0 | 38.3 | 50.0 | 38.3 | 51.2 | 45.8 |
| 1 | 48.7 | 37.0 | 46.8 | 32.7 | 40.3 |
| 2 | 8.3 | 10.1 | 8.5 | 12.5 | 10.1 |
| 3 | 4.1 | 2.9 | 4.3 | 2.4 | 3.2 |
| 4-5 | 0.5 | 0.0 | 2.1 | 1.2 | 0.7 |

2.3 Analysis of Gender and the Elderly Issues

Analyses of issues related to gender and the elderly are particularly important in vulnerability assessments. Within vulnerable livelihoods, females and the elderly are usually found to have limited assets; they do not benefit from external risk management; they engage in livelihood activities that are affected negatively by shocks, trends and seasonality; and they lack the resilience to sustain their livelihoods. This section will present the findings of the data analysis on some of these issues as they relate specifically to females and the elderly in the parishes under study.

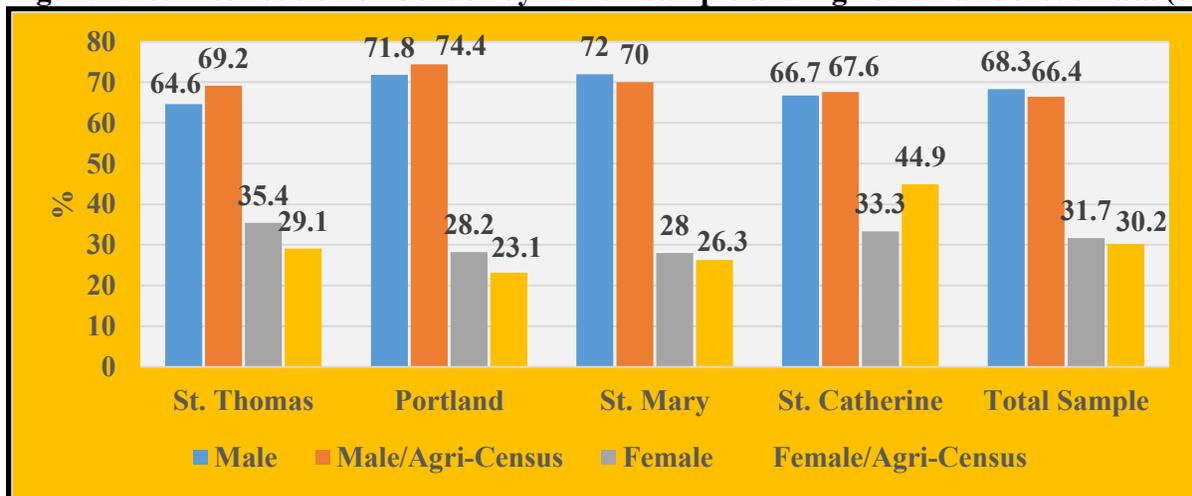
Gender Analysis

The proportion of males and females respondents as heads of household was 68% and 32%, respectively. At the parish level, specifically in Portland and St. Mary, the proportions were higher than the sample (Figure 2.10). Notably, the sample proportions for males and females were fairly similar to those reported in the 2007 Jamaica Agriculture Census. At the parish level,

however, there were discernible differences between the two sets of data for males and females, notably in St. Thomas (4.6 and 6.3 percentage points difference between the two data sets for males and females, respectively), and Portland and St. Catherine (5.1 and 11.6 percentage difference, respectively, for females).

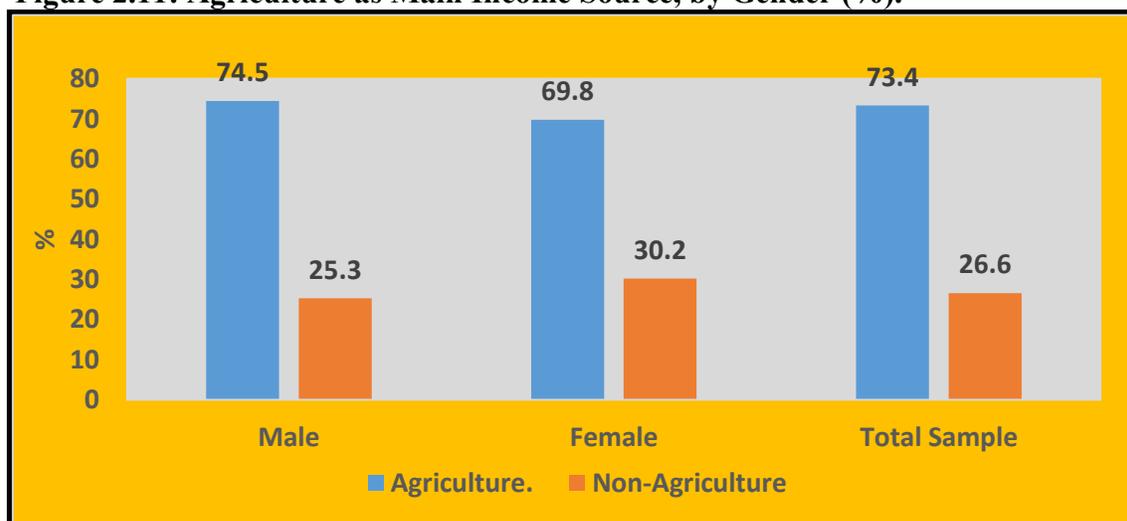
Agriculture was the main source of income for 73.4% of the sampled households while 26.6% of households' main income source was non-agriculture. More males (75%) relied on agriculture as their main income source compared to females (70%) (Figure 2.11).

Figure 2.10: Distribution of Gender by Parish-Sample and Agricultural Census Data (%).



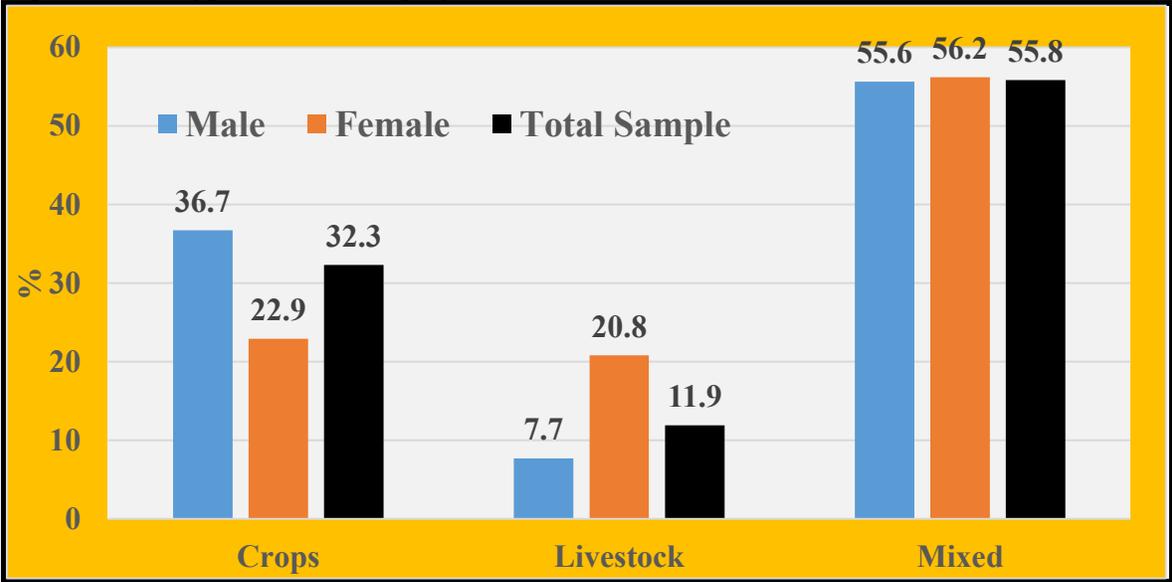
Note: The data for “Male/Agri.-Census” and “Female/Agri.-Census” are from the Jamaica Agriculture Census, 2007.

Figure 2.11: Agriculture as Main Income Source, by Gender (%).



The proportions of males and females in mixed farming were almost similar (about 56%, respectively), but males dominated crop production (36.7%), compared to 22.9% for females (Figure 2.12). In the case of livestock rearing, 20.9% of the farmers were females compared to 7.7% for males. According to the 2007 Jamaica Agriculture Census, landless farmers occur mostly in cases where livestock and or poultry are being reared. Persons with one head of cattle or one dozen poultry for example need not be in possession of any land and may be landless farmers/holders. Thus, given the relatively high proportion of females in livestock this may indicate that they were disproportionately represented in the landless class of farmers.

Figure 2.12: Types of Farming by Gender (%).



The survey also solicited information about household employment. Figure 2.13 shows that a higher proportion of females (58.7%) was employed compared to 52.7% for males. Similarly, unemployment among females was lower (41.3%) compared to 47.3% for males.

Figure 2.13: Employment Status by Gender (%).



Figure 2.14 shows that, in terms of monthly income derived from agriculture, the proportion of females were higher (by about 3%), than males for the two lower monthly income intervals \$10,000 and less, and $\$10,001 \leq \$30,000$. However, more males (22.1%) than females (15.1%), were represented in the upper monthly income interval level of \$50,001 and over. These overall sample results by gender were generally similar at the parish level (Figure 2.15), with the notable exception of St. Mary where, at the lower end of the income interval, more males (63.9%) were represented compared to females (50%), and at the highest income interval with more females (14.3%), than males (2.8%).

Figure 2.14: Monthly Income from Agriculture by Gender (%)

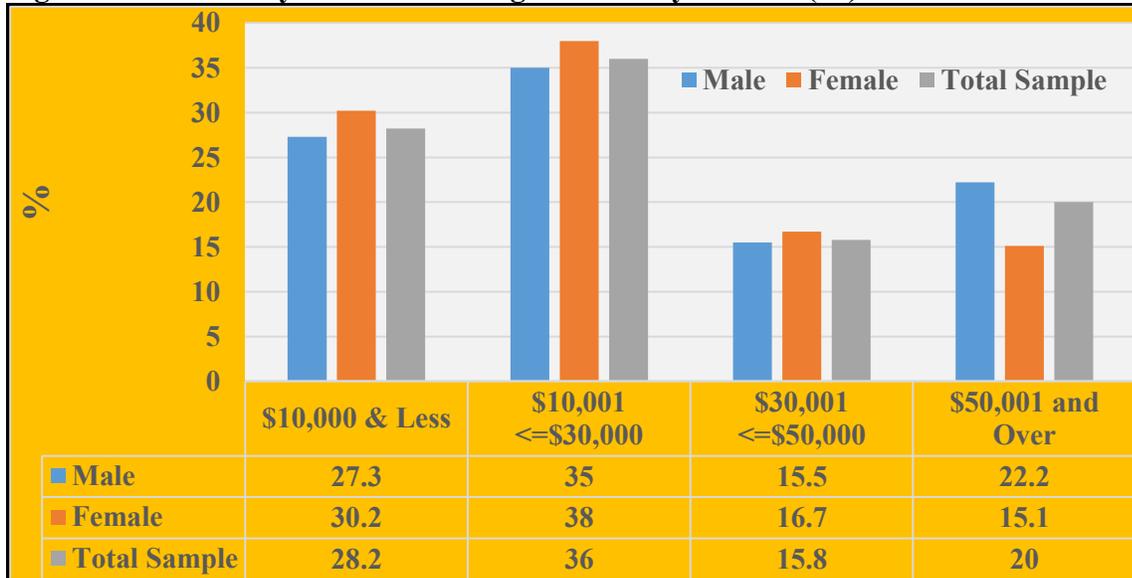


Figure 2.15: Monthly Income from Agriculture by Parish and By Gender (%).

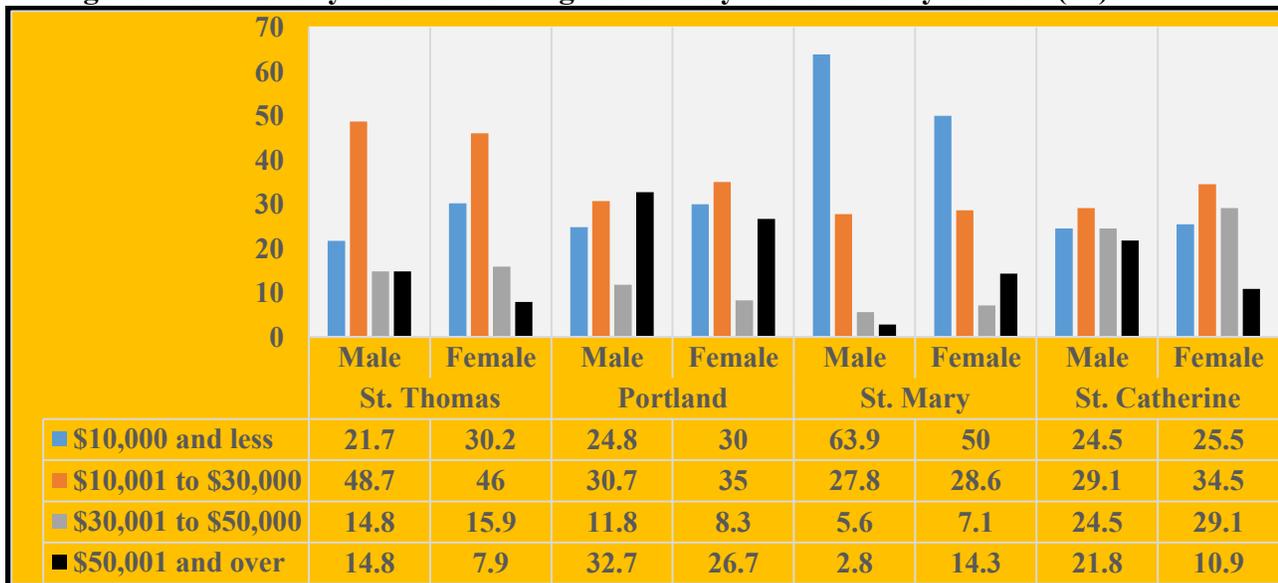
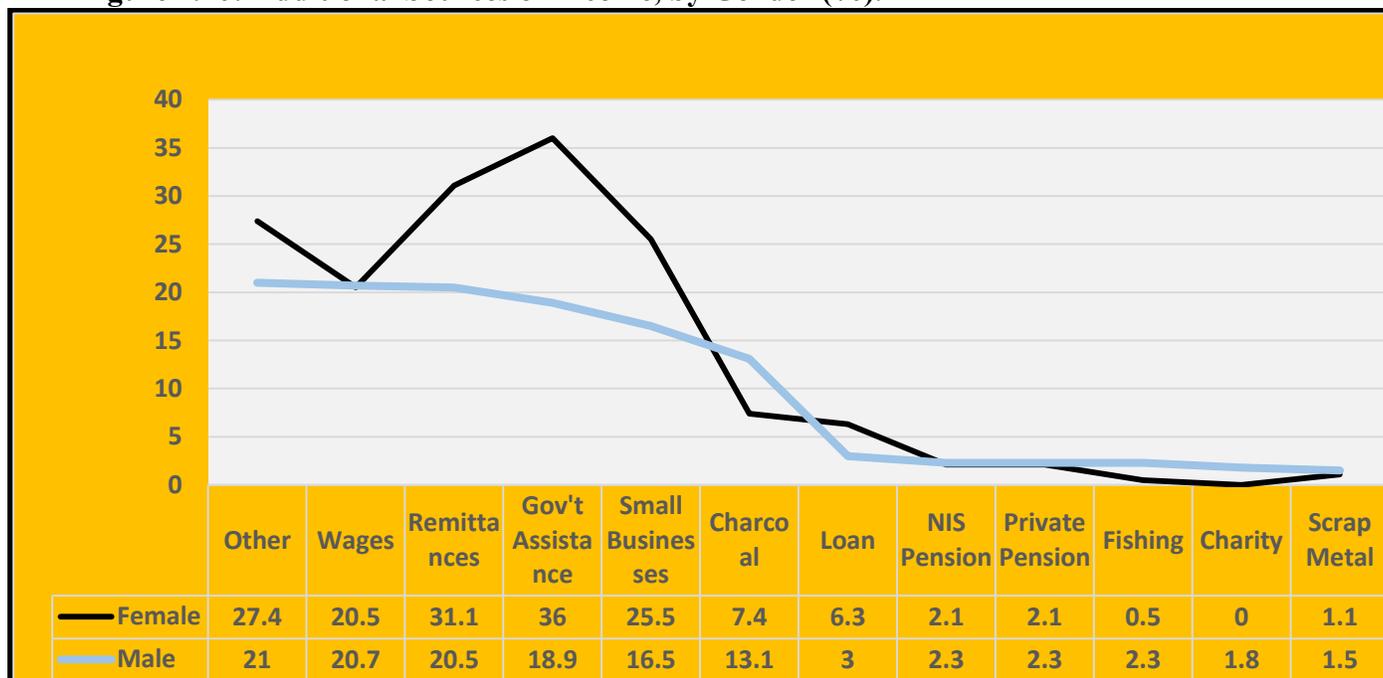


Figure 2.16 shows the sources of additional income (other than agriculture) by gender. As indicated earlier in Figure 2.11, 30% of females and 25% of males derived income from non-

agricultural sources. For females, the highest non-agriculture income sources were Government Assistance (36%), Remittances (31.1%), Small Businesses (25.5%), wage-labour (20.5%) and a range of other activities (general wage labour, vending, assistance from relatives, masonry, painting, etc.), captured in “Other” sources. These main non-agriculture incomes sources were also the same for males, although at lower proportions compared to females.

Figure 2.16: Additional Sources of Income, by Gender (%).



In terms of monthly total income, Figure 2.17 shows a relatively small proportion of the sample (6%) with monthly incomes of \$10,000 and less, a quarter of the households were in the income range $\$10,001 \leq \$30,000$, and 68% were in the two upper income intervals. Both males and females were equally represented at the first two lower income intervals. However, at the two higher income intervals more females were represented in the penultimate income interval, $\$30,001 \leq \$50,000$, whereas more males were represented in the highest income interval $\$50,001$ and over. At the parish level, the proportions of males and females in the lowest income interval were relatively low although the proportions for both sexes were higher in St, Mary and St. Catherine and lower in St. Thomas compared to the sample proportions at this income interval (Figure 2.18). At the three higher income intervals there were some discernible gender difference worth noting:

- There were more females than males in the income interval $\$10,001 \leq \$30,000$ in the three parishes, St. Thomas, Portland and St. Mary, whereas more males than females were in this income interval in St. Catherine;
- In the income interval $\$30,001 \leq \$50,000$, females outnumbered males by about 9% in all the four parishes;
- In the highest income interval, $\$50,001$ and over, males outnumbered females on average by 8% in all the parishes.

Figure 2.17: Total Monthly Income by Gender (%).

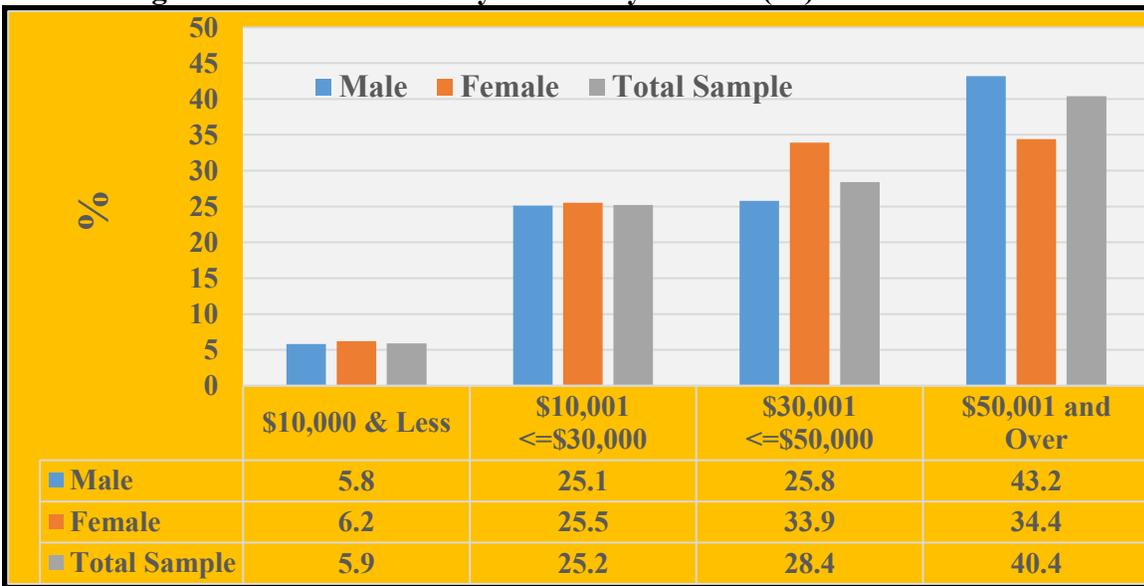
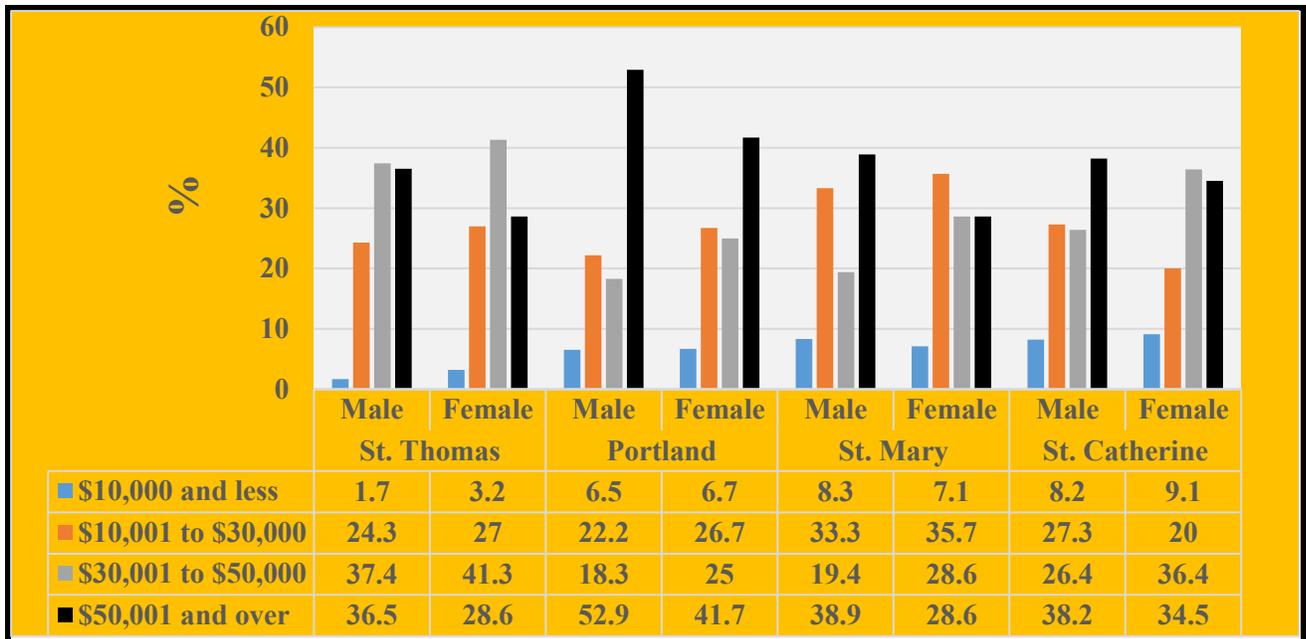


Figure 2.18: Total Monthly Income from all Sources by Parish and by Gender (%).



Finally, Figure 2.19 shows the results of net income (i.e. monthly income minus monthly expenses), by gender. Just over 27% of males and females had monthly expenses in excess of monthly incomes and 10.1% of both sexes were at the break-even point (i.e. incomes equal expenses). Thus, about 38% of males and females, respectively, lived in a situation of “hand-to-mouth” or worse on a monthly basis. Net gains (i.e. monthly income in excess of monthly expenses), were recorded for the other 62% of males and females, respectively, with females represented fairly well in the three upper gain intervals.

Figure 2.19: Monthly Income vs. Expenses by Gender (%).



Natural Disasters & Gender

A large proportion of males (87.2%) and females (83.3%) reported that they were adversely affected by natural disasters (Figure 2.20). Among males, 28.7% reported extreme damage compared to 23.4% for females. For males, 20.5% suffered crop damage compared to 13% for females. Recovery ranged from less than six months to two years or more with no note-worthy differences in the recovery period between males and females. More than 80% of males and females, respectively indicated that they did not receive any external assistance following a damage by a natural disasters. There were no discernible differences in the proportions of the 18% of males and females who did received any external assistance.

Following natural disasters, about 62% males and females, respectively, did nothing to protect themselves from similar future events. The other 38% initiated a range of initiatives to protect crops, livestock and property (Table 2.12). However, there were no observable differences in the proportions of males and females that took these initiatives.

Figure 2.20: Households Impacted by Natural Disasters, by Gender (%)

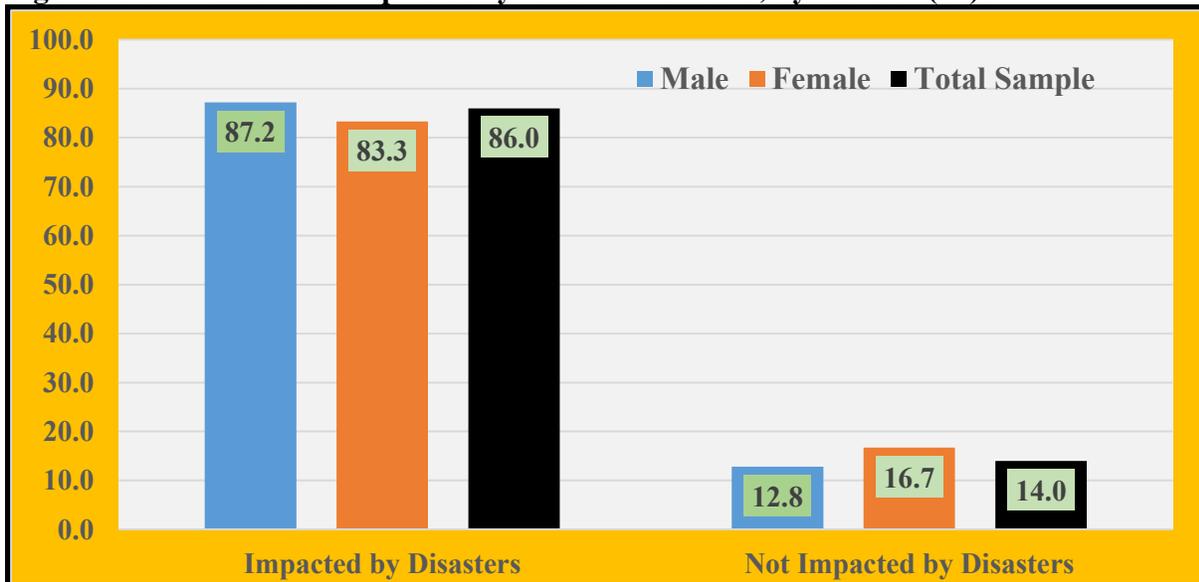


Table 2.12: Steps Taken To Protect Against Natural Disasters.

| Initiatives Taken to Secure Crops, Livestock and Property Against Natural Disasters | |
|---|---------------------------------|
| • Build stronger pen for pigs/animals | • Hurricane strap |
| • Move plants/plant them higher up | • Do more planning |
| • Get proper drainage/ dig trench / plant mart grass | • Ensure roof is properly fixed |
| • Plant less and buy less animals | • Move animals to higher ground |

| | |
|--|---|
| • Baton-down and cut large trees | • Set loose the animals |
| • Reap before hurricane | • Staking plantains |
| • Plant cash crop | • Use sand bag on roof |
| • Prepare as advised by ODPEM | • Diversify |
| • Could not do much just replanted crops | • Allow the wind to blow through house |
| • Plant more ground food | • Bring animals to a shelter |
| • Make a farm house /Lock away animals in safe place | • Contouring |
| • Get drums for water in case of drought | • Try to water crop with pipe water |
| • Plant more trees/Wind-breakers | • Acquire dogs |
| • Build back better | • Clean up and start all over |
| • Self-protection and God | • Put inside the house during hurricanes/floods |
| • Try to secure some plants/livestock | • Avoid livestock rearing |
| • Take boat to safe location | • Plant in non-hurricane season |
| • Went to RADA | • Maintain a savings account for emergency |

There were more females (56%) than males (49%) who reportedly that they had no skills or training in areas outside of agriculture (Figure 2.21). Moreover, even in the context of living in disaster-prone areas and engaging in main economic activities that are frequently impacted negatively by natural disasters, 82.4% of males and 79.4% of females did not receive any training in crop and livestock protection against natural disasters (Figure 2.22).

Figure 2.21: Proportion of Sample that Have Training in Areas other than Agriculture, by Gender (%).

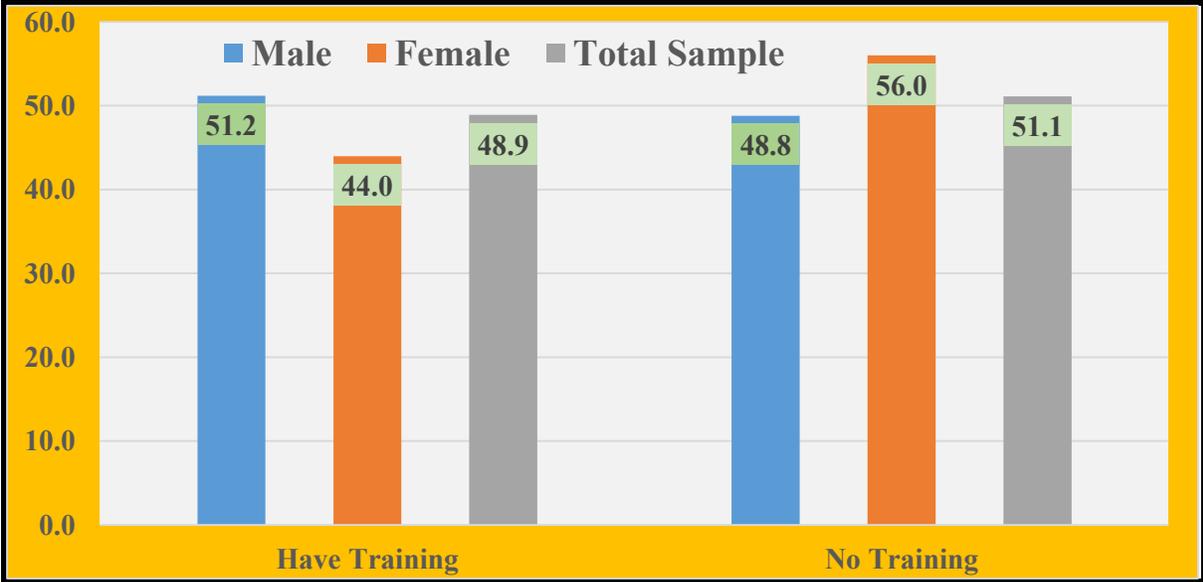
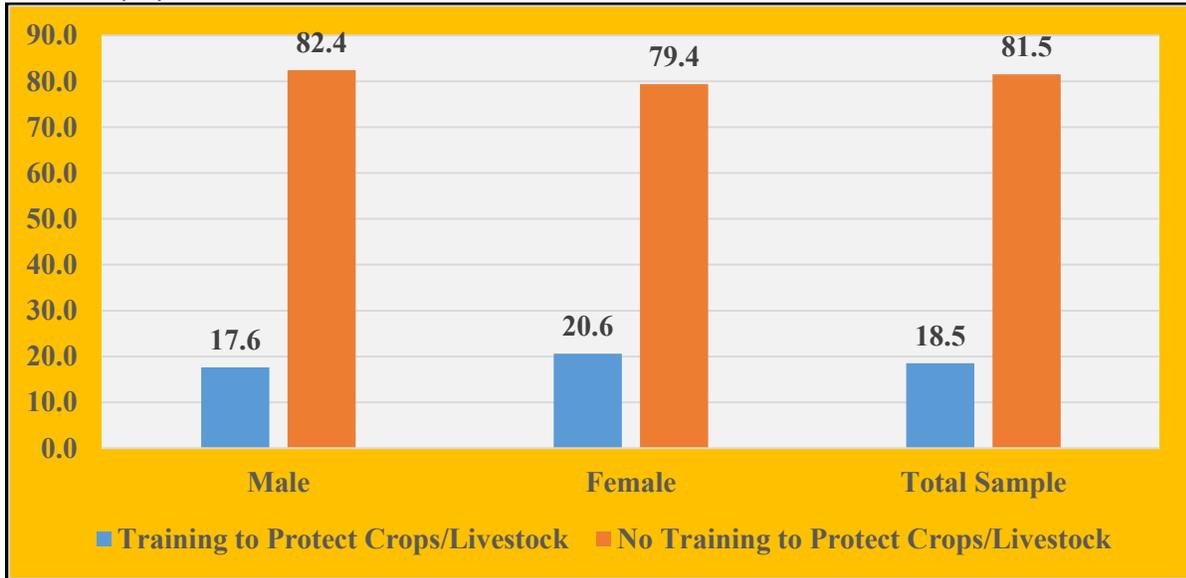


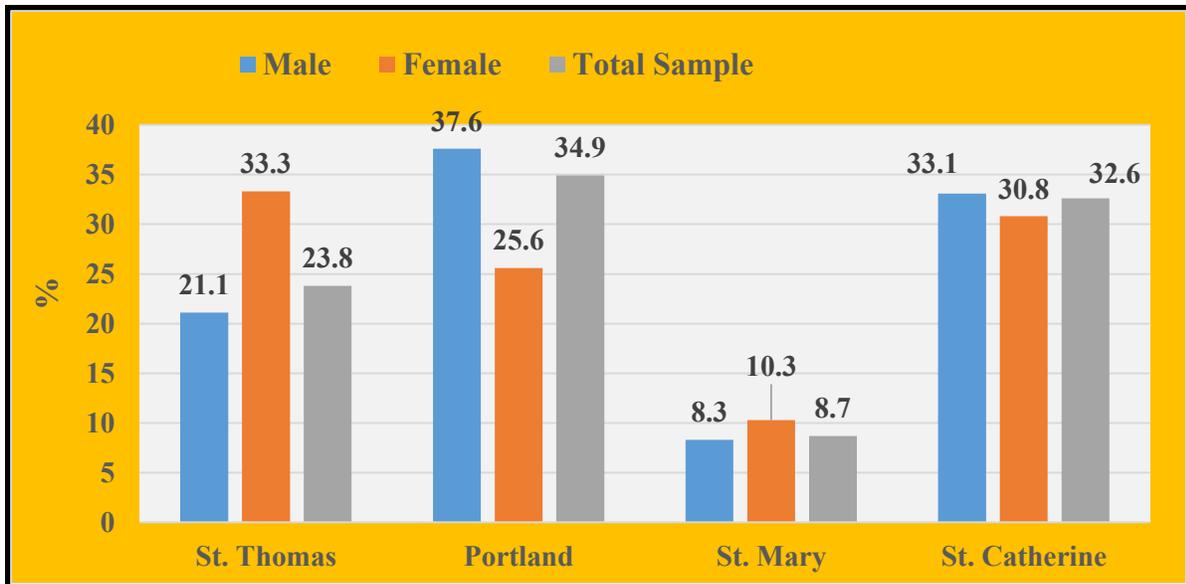
Figure 2.22: Proportion of Sample that Received Training in Crop/Livestock Protection, by Gender (%).



Analysis of the Elderly Issues

This Report categorized the elderly as persons in the sample who were 60 years and over. The sample comprised 29% of persons in this age group, with males constituting 77% and females 23%. Figure 2.23 shows the distribution by gender of this age-group of farmers across the parishes under study. The highest proportion of the elderly were in Portland (34.9%), St. Catherine (32.6%) and St. Thomas (23.8%). The small sample size for St. Mary account for the relatively small proportion (8.75%) of the elderly in that parish. Elderly males and females were relatively evenly represented in St. Catherine, but a 12% differential between the sexes existed in Portland and St. Thomas.

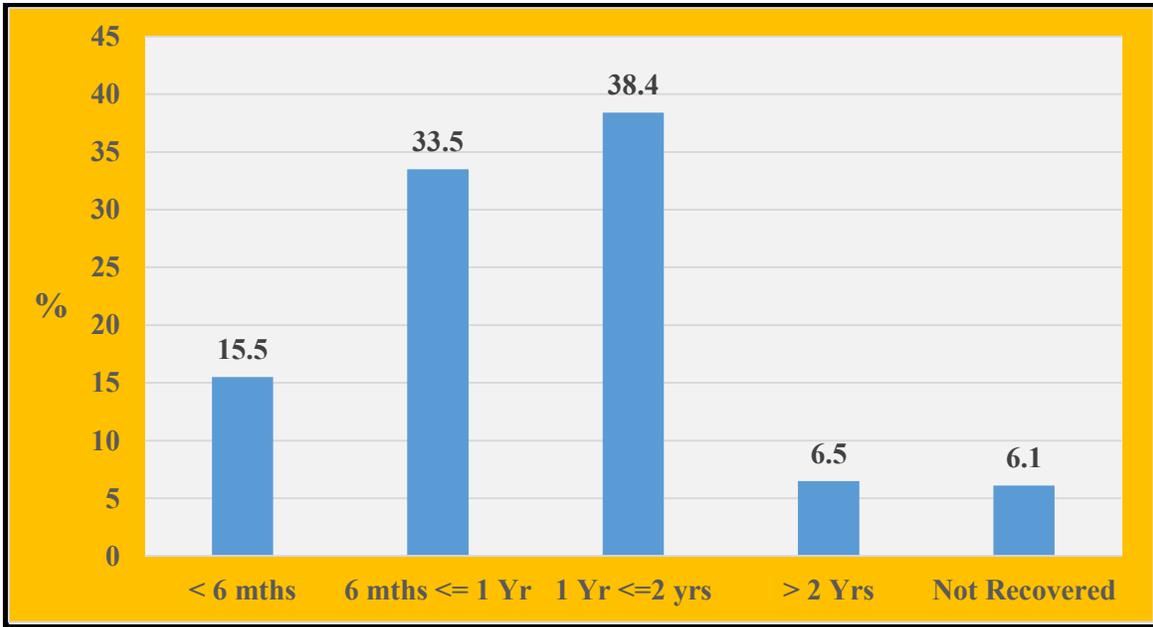
Figure 2.23: Distribution of Elderly Farmers by Sex and by Parish (%).



Among the elderly, 31.6% were employed and 68.4% unemployed, an observation that is not unusual for this age group. Among the elderly, 80.2% and 19.8%, respectively, identified agriculture and non-agriculture as their main sources of incomes. The elderly farmers were engaged in crop production (33.7%), livestock (8.4%) and mixed farming (57.9%). Most (87.6%) reported that they were impacted negatively by natural disasters, and 89% identified hurricanes as inflicting the major damage on their livelihoods. There were no noticeable differences in the proportion of males and females who were impacted.

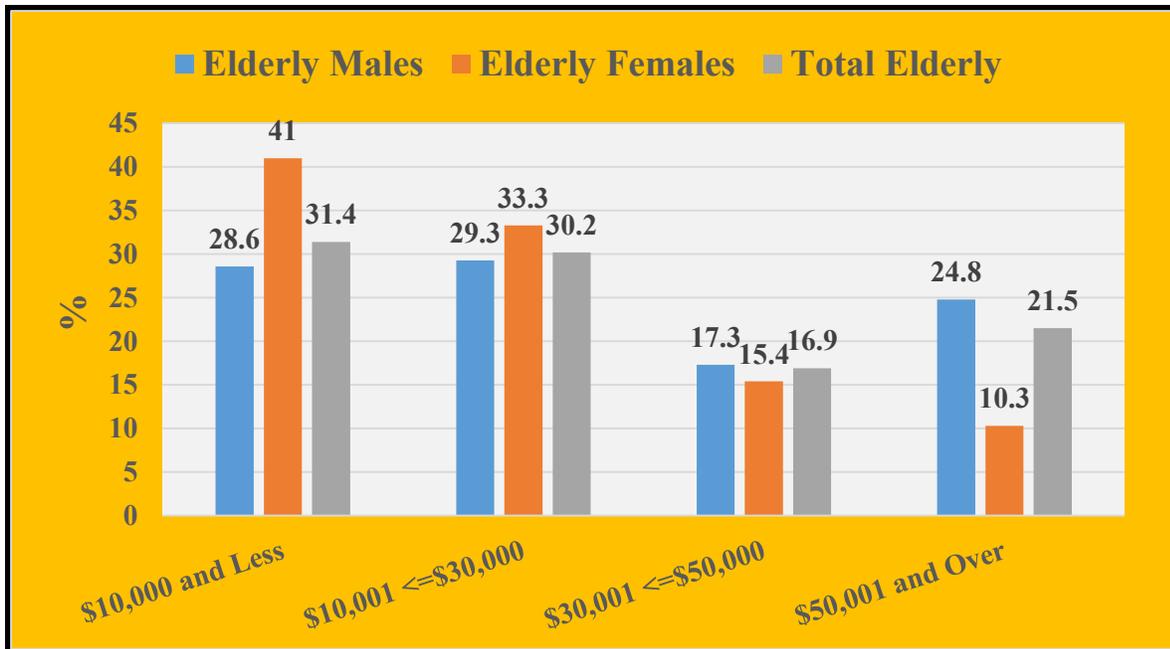
With respect to the recovery period after a natural disaster, 50% of the elderly recovered within one year (compared to 56% for the sample), 38% took between one to two years (compared to 33% for the sample), and 6% never recovered (Figures 2.24). About 81% of the elderly did not receive any external assistance to rebuild/repair after a natural disaster; instead 64.2% used their personal resources. Among the 19% who did receive some assistance, 13.3% received it from relatives and friends, 9.3% from “Other Sources” and 5% from government. Finally, only 19% of the elderly received any training in crop/livestock/ property protection.

Figure 2.24: Length of Recovery Period for the Elderly after a Disaster (%).



On a monthly basis 31.4% of the elderly derived \$10,000 or less from agriculture (Figure 2.25). More elderly females (41%) were in this income interval compared to males (28.9%). Another 33.3% elderly females and 29.3% elderly males derived monthly incomes in the range $\$10,001 \leq \$30,000$ from agriculture. At the higher monthly income intervals, elderly males were more represented compared to elderly females. This pattern was generally similar at the parish level (Figure 2.26).

Figure 2.25: Monthly Income of the Elderly from Agriculture, by Gender (%).



In terms of total monthly income, 56% of the elderly were in the two middle income intervals, viz., $\$10,001 \leq \$30,000$ and $\$30,001 \leq \$50,000$, with elderly females outnumbering their male counterparts in both income intervals (Figure 2.27). However, at the highest income range ($\$50,001$ and over), elderly males outnumbered elderly females by 18%. At the parish level, elderly males were more represented in the higher income intervals (Figure 2.28).

Figure 2.26: Monthly Income of the Elderly from Agriculture, by Parish and Gender (%).

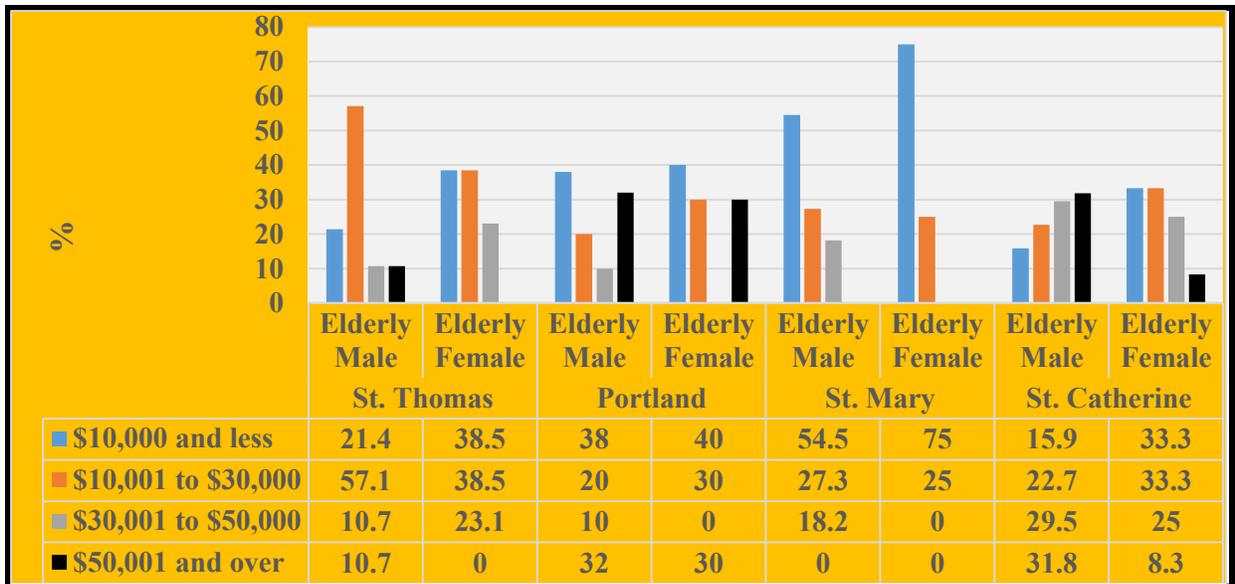


Figure 2.27: Total Income of the Elderly by Gender (%).

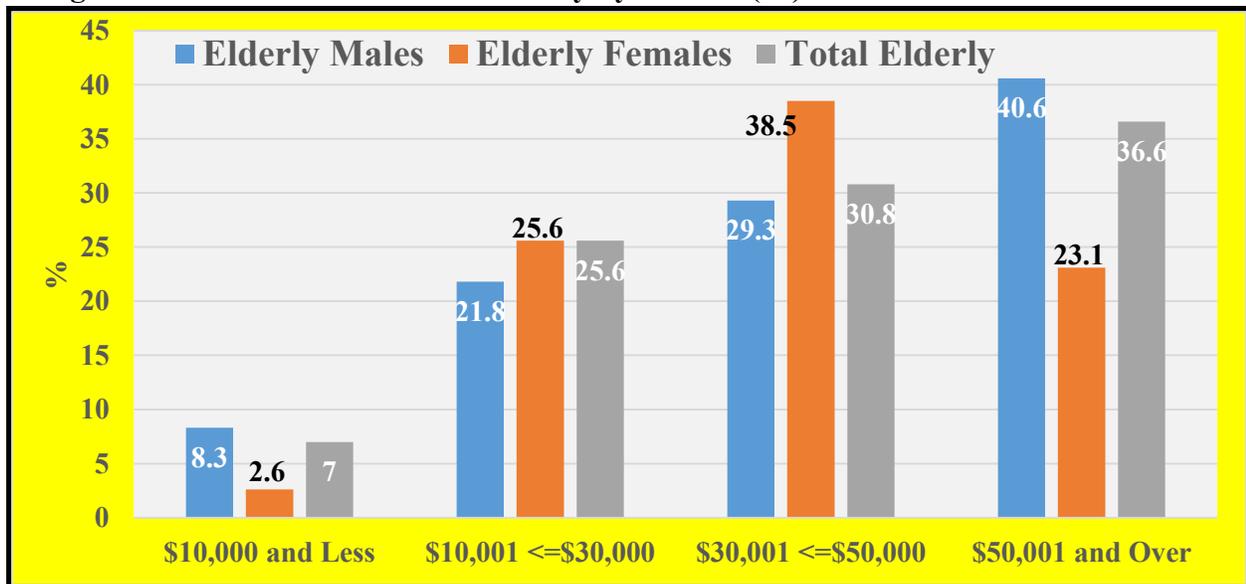
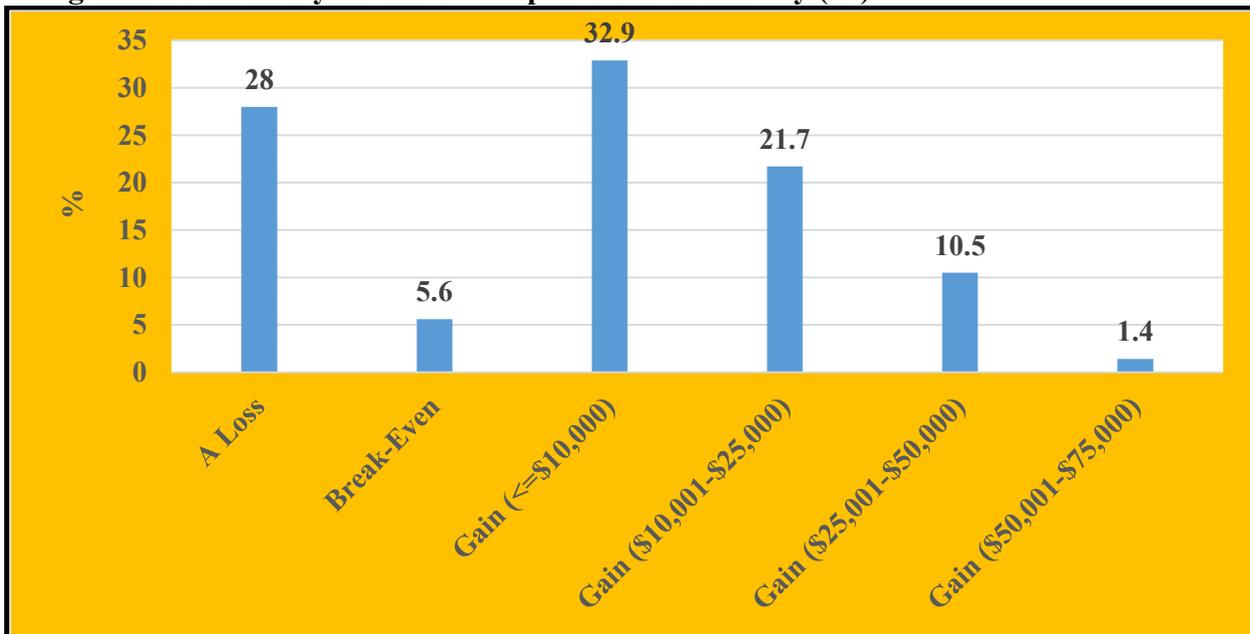


Figure 2.28: Total Monthly income of the Elderly, by Gender and Parish (%).



Figure 2.29 shows net income (i.e. monthly income minus monthly expenses), of the elderly. A third of the elderly had a net gain (income in excess of expenses), of \$10,000 or less per month, while 22% had a net gain in the range $\$10,001 \leq \$25,000$ monthly. However, 28% of the elderly had a loss (incomes less than expenses) on a monthly basis, and only 6% managed to break-even. Thus, 34% of the elderly lived in a situation of “hand-to-mouth” or worse on a monthly basis.

Figure 2.29: Monthly Income vs. Expenses of the Elderly (%).



Chapter 3

Livelihood Outcomes in the Four Parishes

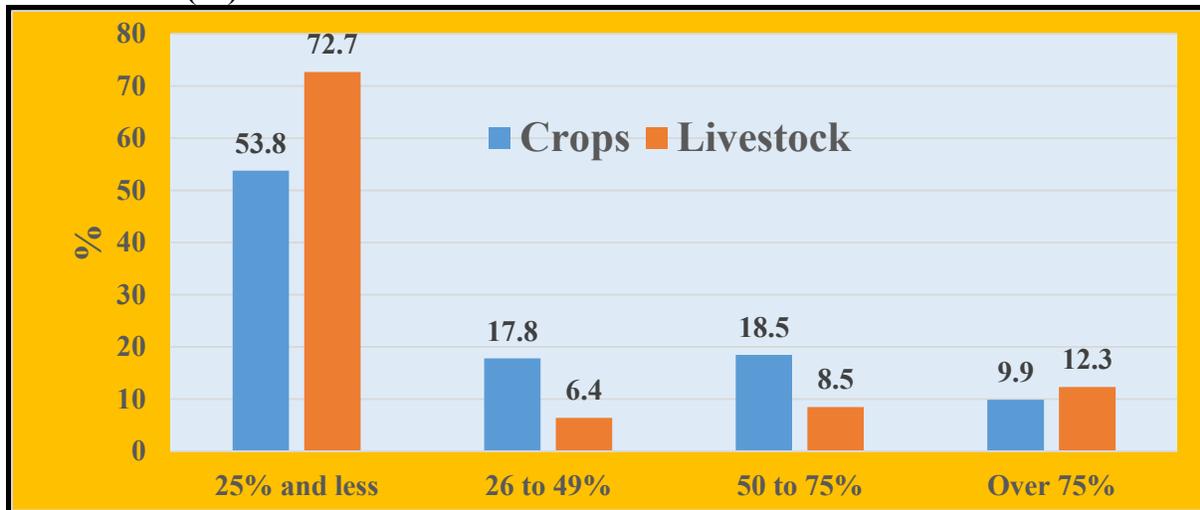
This Chapter reports on selected livelihood outcomes (outcomes gleaned from the survey data), such as food availability and access, crop production and own consumption, impact of forces of change, and attempts and assistance at building resilience against vulnerability factors.

3.1 Food Availability, Access and Utilization

There is consensus in the literature that *food and nutrition security exists when all individuals, families and the general population, at all times, have access in terms of quality and quantity to the food that they need for adequate intake and biological utilization to ensure a healthy and socially productive life* (World Food Summit, 1996). This definition integrates several inter-related dimensions, viz., availability, access, the biological utilization of food (the nutritional dimension), and the stability of these components. The survey data collected for this study provide information on only some aspects of food and nutrition security among the farming households under study.

In terms of food availability, the data revealed that farming households produced crops and livestock both for own consumption and for marketable sales. Figure 3.1 shows the proportion of crops and livestock that these households consumed from total production. Only 10% and 12.3% of the respondents consumed over 75% of crops and livestock produced, respectively, compared to 54% and 73% of the farming households that consumed 25% or less of crops and livestock, respectively, which is produced. It is quite possible that those who consumed more than 75% of farm produce are the very small, quasi-subsistence farmers who produced mainly for own-consumption and any excess is sold in the market. These farmers may be drawn from the pool of approximately 5,889 landless and 35,206 small farmers who cultivate less than 1 hectares of land in the four parishes.

Figure 3.1: Proportion of Produced Crops and Livestock Consumed by Farming Households (%)



In addition, national-level data indicated that food energy available is above the Recommended Daily Allowance (RDA) for the population (FAOSTAT, 2014). In terms of the nutritional dimension of food security, the fact that farming households consumed some of the crops and livestock produced augers well for food consumption and utilization at the household level. Roots, tubers and fresh vegetables are good sources of complex carbohydrates, fibre and antioxidants, all of which are integral to good diets. A good sign too is that 73% of farming households consumed 25% or less of the livestock they produced: good diets have lower intake of foods from animal origins.

However, the survey data revealed that the monthly median food expenses of farming households was \$10,000, or 13% of monthly household expenses. Although the types of food purchased are not known, studies done elsewhere suggest that household food purchases are increasingly on food items that are caloric dense (high in refined carbohydrates), high in fats, sweeteners and sodium. Over-consumption of these foods leads to over-weight and obesity and fuels the nutrition transition away from indigenous staples, fruits and vegetables. The shift in nutrition ultimately drives the epidemiological transition away from infectious diseases to non-communicable chronic diseases such as diabetes, hypertension, heart diseases, etc., the current

main public health problems in developing countries such as Jamaica and the rest of the Caribbean (Ballayram, 2010; Haddad, 2003).

Finally, the survey data revealed that the communities under study were frequently impacted by natural disasters, thereby disrupting the stability dimension of households' food security: crops and livestock were destroyed; income sources were lost/adversely affected; savings and future incomes were directed to re-building homes and farms; food availability and consumptions were affected.

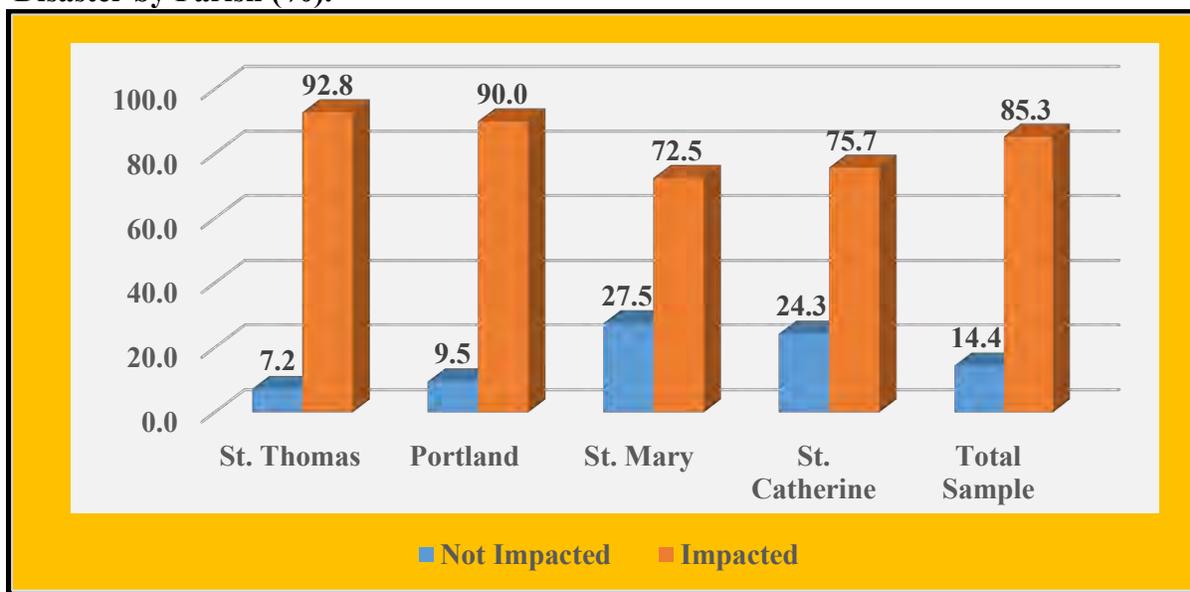
In effect, then, in all probability it would appear that some food is available at the farm household level but that high food prices (see discussions related to Fig. 1.3), and natural disasters impact negatively on food security. However, no conclusion could be made regarding whether this food is sufficient to meet the RDA for total food energy and the nutrition criterion of food security.

3.2 Vulnerability Factors and their Impacts

Vulnerability refers to the risk that some aspect(s) of an individual's or household's livelihood would be impacted adversely by unanticipated shocks, trends, seasonality, etc. Events such as hurricanes, floods, droughts, national and/or international economic recession/depression/financial crises, etc., have known to adversely impacted households' food security, main livelihood support, overall welfare, etc. Generally, households that are vulnerable: (i) have limited assets; (ii) do not benefit from external risk management; (iii) engage in livelihood activities that are affected negatively by shocks, trends and seasonality; and because of (i) and (ii) lack the resilience to sustain their livelihoods should an event such as a natural disaster or economic shock were to occur. In this section, the focus on vulnerability is an assessment of farming livelihood's exposure and resilience to natural disasters. In Jamaica, much attention has been given to the natural disasters such as hurricanes, floods, droughts due to climatic, geological and geographical factors (e.g., mountainous terrain, in the path of the Atlantic storms and hurricanes, etc.).

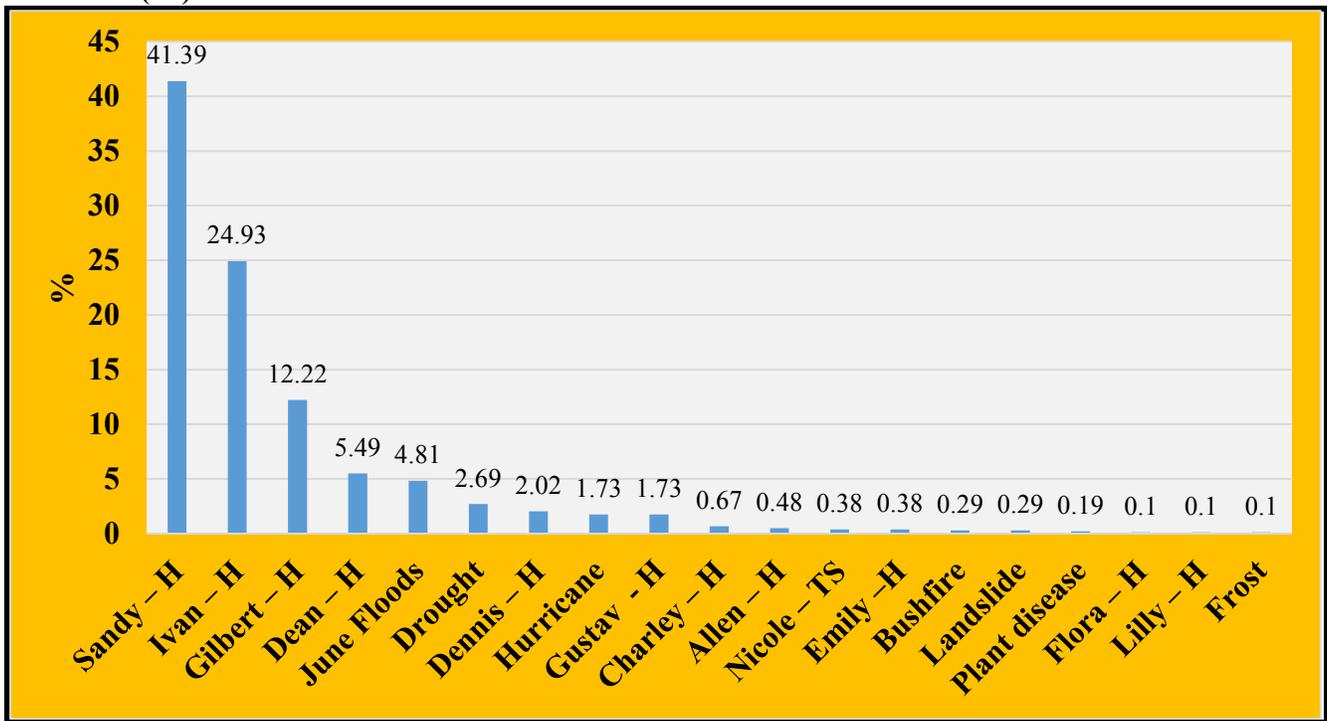
From the survey data collected for this study, approximately 86% of the respondents reported that their livelihoods were impacted by natural disasters at some time, while 14% indicated they were not impacted (Figure 3.2). The proportions of farming households that were impacted in St. Thomas (93%), and Portland (90%), were higher than the sample proportion (86%), St. Catherine (76%) and St. Mary (73%). The converse is also true—about 25% of the respondents who were not impacted were from St. Mary and St. Catherine, respectively, higher than the sample proportion.

Figure 3.2: Farming Households that were Impacted/Not Impacted by a Natural Disaster by Parish (%).



The events remembered by most respondents who were affected by natural disasters are shown in Figure 3.3. Most persons recalled three major hurricanes that landed in Jamaica, viz., Hurricanes Sandy (2012), Ivan (2004), and Gilbert (1988). Further, these hurricanes were considered to have had the greatest negative impact on the farming households, followed by floods and droughts (Figure 3.4). Figures 3.5 and 3.6 depict the sweep across the parishes of Jamaica by two recent major hurricanes that landed in the island, viz., hurricanes Sandy (2012) and Ivan (2004).

Figure 3.3: Natural Disasters Remembered that Affected Farming Households in Study Areas (%).



Notes: H=Hurricane; TS=Tropical Storm.

Figure 3.4: Natural Disaster Events with Greatest Impact on Farming Households (%).

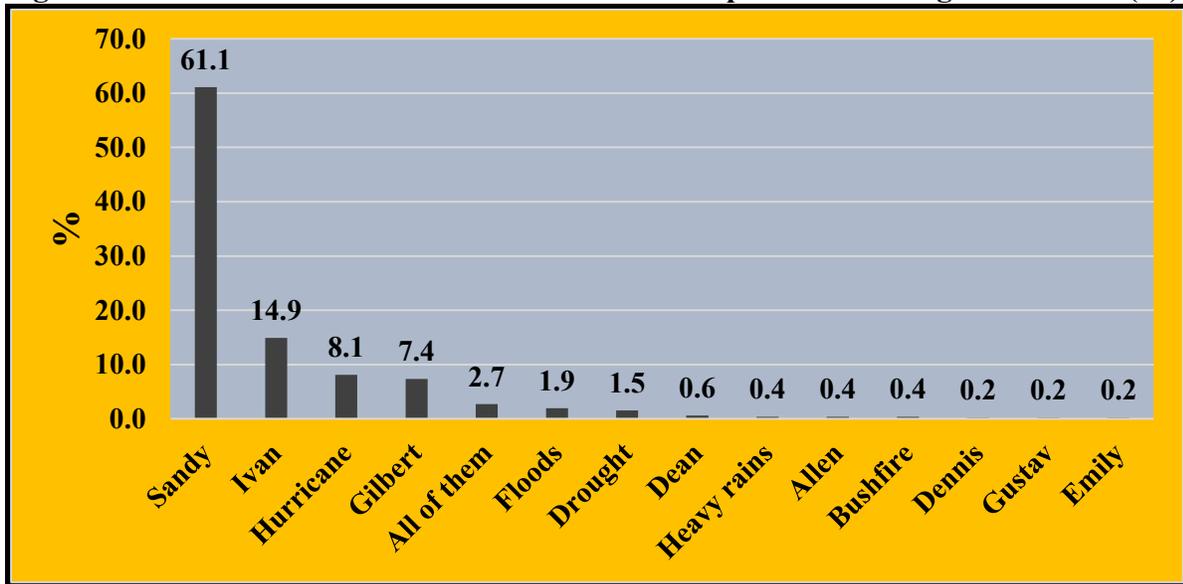
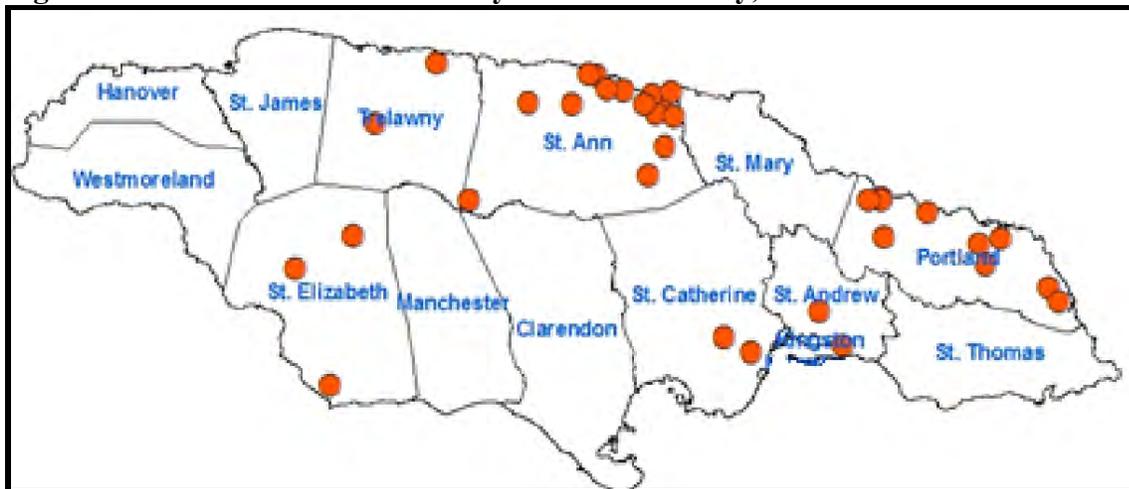


Figure 3.5: Communities Affected by Hurricane Sandy, 2012.



Source: PIOJ, 2013. Note: the small red circles in the map above indicate areas affected by hurricane Sandy. The hurricane inflicted serious damage in St. Mary and St. Thomas (PIOJ, 2013), though this is not indicated in the map, due possibly to an oversight of the PIOJ’s editors.

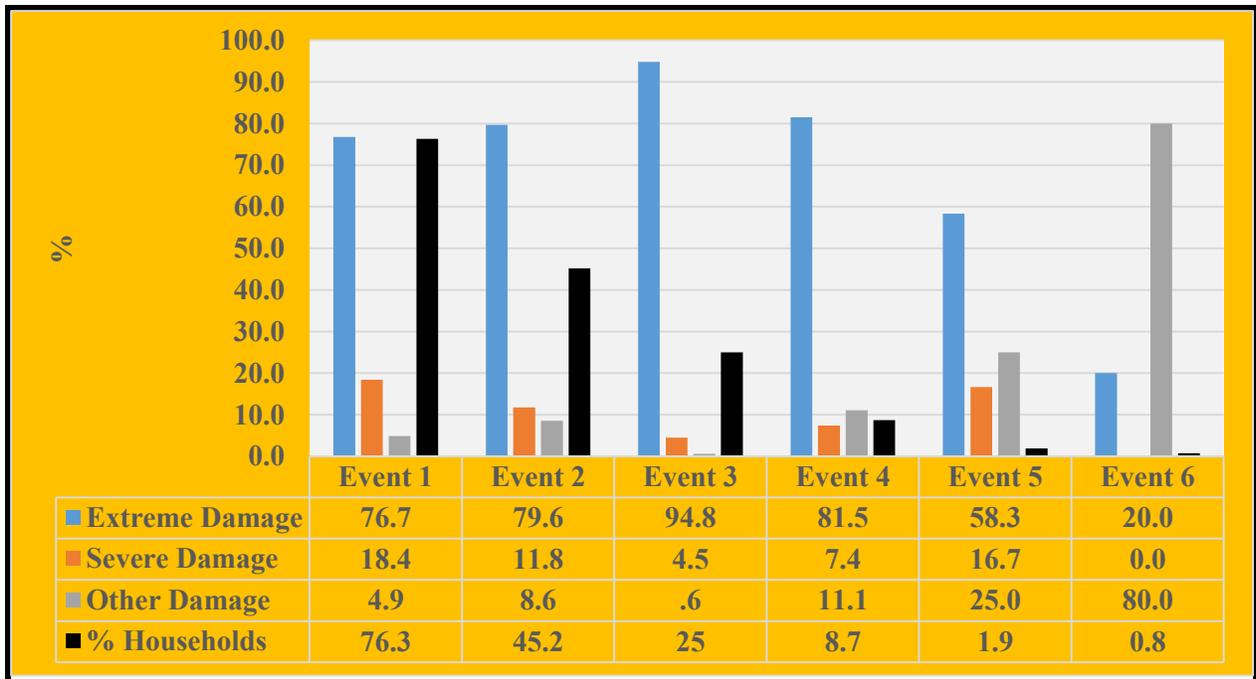
Figure 3.6: Communities Affected by Hurricane Ivan, 2004.



Source: ECLAC, 2004.

The survey did not solicit the dollar value of loss incurred by the natural disasters that impacted the farming households under study. Instead, respondents were asked to identify six events, the type of event and the level of damage they suffered from each event. The highest responses were for events Sandy, Ivan and Gilbert, and for hurricanes (the type of event). The levels of damage from the events are reported in Figure 3.7. For Event 1, 76.3% of households were affected at different level of damage, viz. Extreme damage (76.7%), Severe Damage (18.4%) and Other Damage (4.9%). A similar pattern of damage was observed for Events 2-5. For Event 6 (suffered by only 0.8% of households), 80% suffered “Other Damage”, compared to 20% that suffered Extreme Damage. At the parish level, the damage suffered under Events 1-3 were similar to the patterns in the overall sample, but no clear pattern for the damage levels sustained in Events 4-6.

Figure 3.7: Level of Damage Suffered from Natural Disasters among Farming Households (%).



For comparative purposes, Tables 3.1 and 3.2 provide information on the impact of hurricanes Ivan (2004), and Sandy (2012), on households in the four parishes under study. As a proportion of the national damage inflicted by Hurricane Ivan, 23% of the households that were affected, and 26% of number of households that suffered total damage, were from the four parishes under study. Hurricane Sandy was more devastating to these four parishes: 90% of the total number of persons whose household items were affected, 88% who suffered severe damage, and 86% whose homes were totally destroyed were from these parishes (Table 3.2).

Table 3.1: Impact of Hurricane Ivan in Four Parishes of Jamaica, 2004.

| Parish | Households Affected (%) | No. of Households Totally Damaged | No. of Households Severely Damaged | Households With Minor Damage |
|--------|-------------------------|-----------------------------------|------------------------------------|------------------------------|
| | | | | |

| | | | | |
|----------------------------|-----------|-----------|-----------|-----------|
| St. Thomas | 6 | 318 | 2580 | 846 |
| Portland | 3 | 130 | 1324 | 533 |
| St. Mary | 7 | 353 | 3397 | 966 |
| St. Catherine | 7 | 654 | 4735 | 801 |
| % of National Total | 23 | 26 | 26 | 36 |

Source: ECLAC (2004).

Table 3.2: Impact of Hurricane Sandy in Four Parishes of Jamaica, 2012.

| | Household Items | Minor Damage (Roof) | Severe Damage | House Totally Damaged | Total |
|----------------------------|------------------------|----------------------------|----------------------|------------------------------|--------------|
| Portland | 178 | 3385 | 1384 | 243 | 5191 |
| St. Catherine | 25 | 200 | 127 | 18 | 370 |
| St. Mary | 467 | 3722 | 1173 | 157 | 5519 |
| St. Thomas | 97 | 2165 | 1931 | 278 | 4471 |
| % of National Total | 90 | 92 | 88 | 86 | 90 |

Source: PIOJ (2013).

3.3 Building Resilience for Sustainable Livelihoods

The majority of respondents (36%) indicated that they used personal efforts and savings to recover their livelihoods after experiencing a disaster (Figure 3.8). Approximately 32% of respondents indicated that they had to extensively replant crops. Of the respondents who were affected by a disaster, 82% reported that they did not receive any external assistance for disaster recovery, i.e., assistance from sources other than friends, relatives or community members. Of the 18% that received external assistance, the sources/types of these external support are shown in Figure 3.9, and are mainly from government, its agencies or the Member of Parliament (39%) and NGOs (30%).

Figure 3.8: Initiatives taken to Recover Livelihoods after Natural Disasters (%).

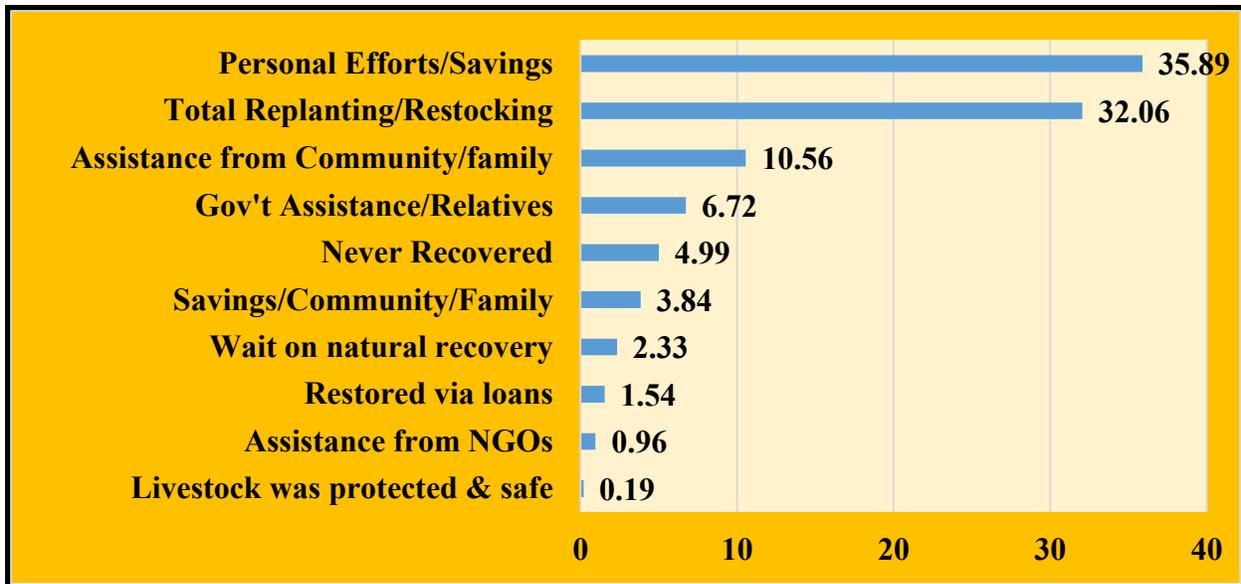
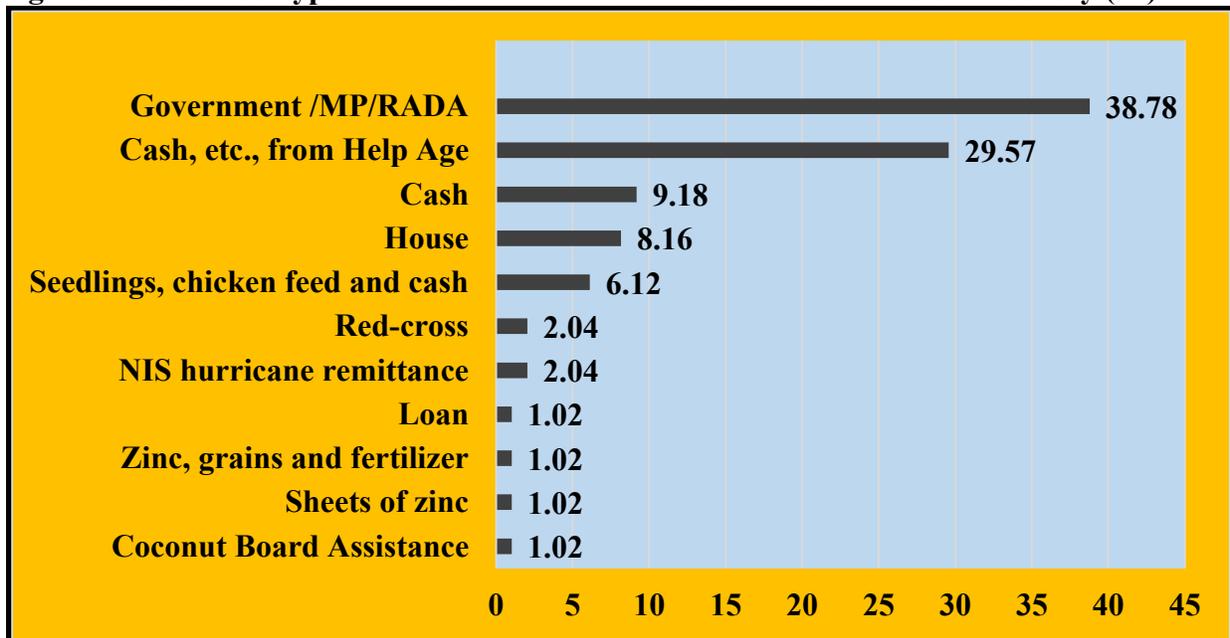


Figure 3.9: Sources/Types of External Assistance Received for Disaster Recovery (%).



In terms of the length of the recovery process for persons affected by a disaster, over one third (36%) of the respondents indicated that it took more than 6 months but less than one year to recover, and one-third (33%) took more than one year but less than two years to recover (Table 3.3).

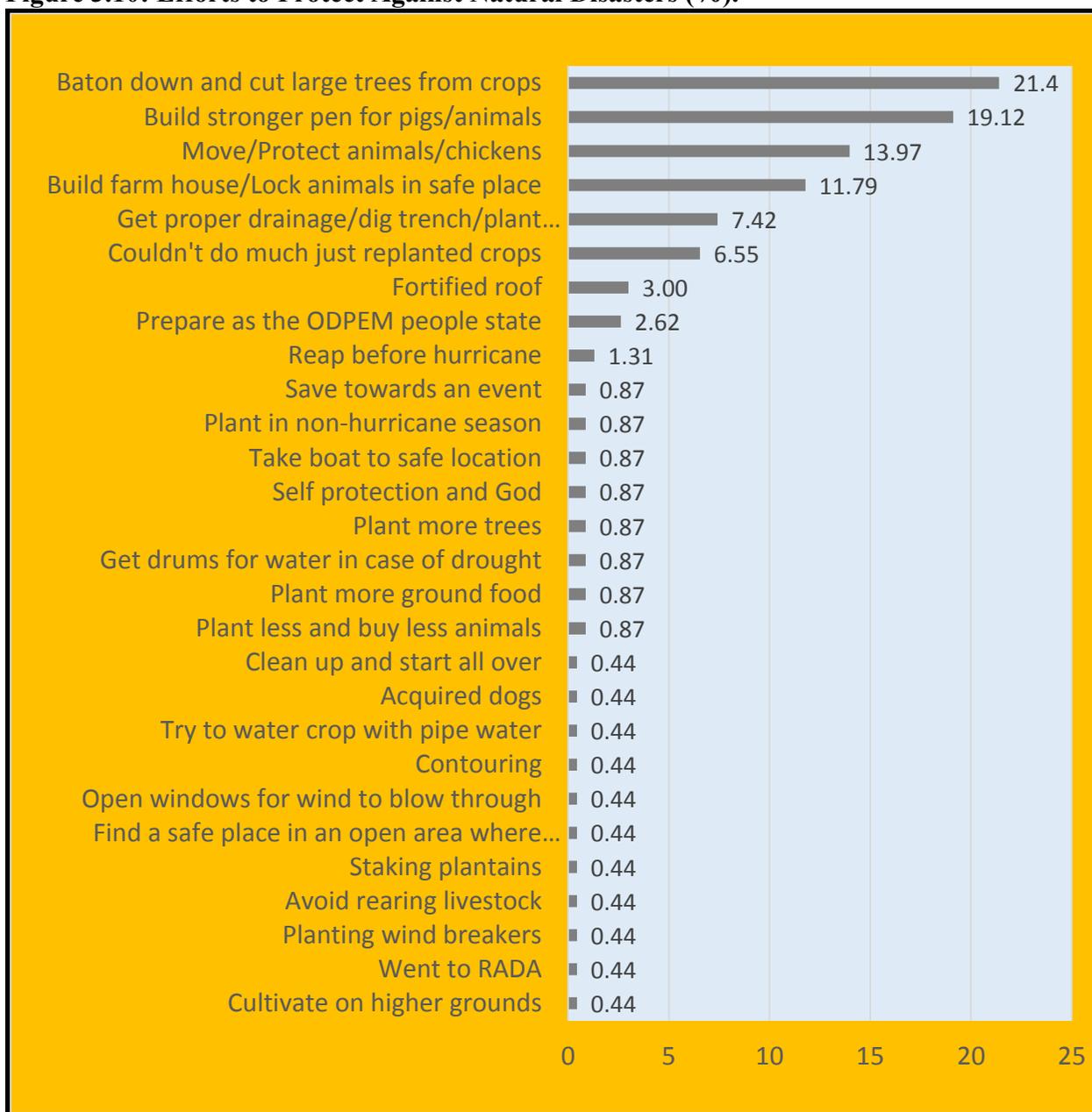
Table 3.3: Length of Recovery Period after a Disaster.

| Length of Recovery Process | % |
|-----------------------------------|--------------|
| Less than 6 months | 19.8 |
| 6 months < 1 Year | 36.0 |
| 1 year < 2 Years | 33.0 |
| Over 2 years | 6.5 |
| Still not recovered | 4.7 |
| Total | 100.0 |

Of the respondents who were affected by a disaster, 63% indicated that they took no steps to protect their livelihoods. The other 37% listed several actions to cope with natural disasters, the main ones included (Figure 3.10):

- Move/Protect animals/chickens
- Build farm house/Lock animals in safe place
- Get proper drainage/dig trench/plant mart grass
- Replanted crops
- Fortified roof
- Prepare as instructed by the ODPEM

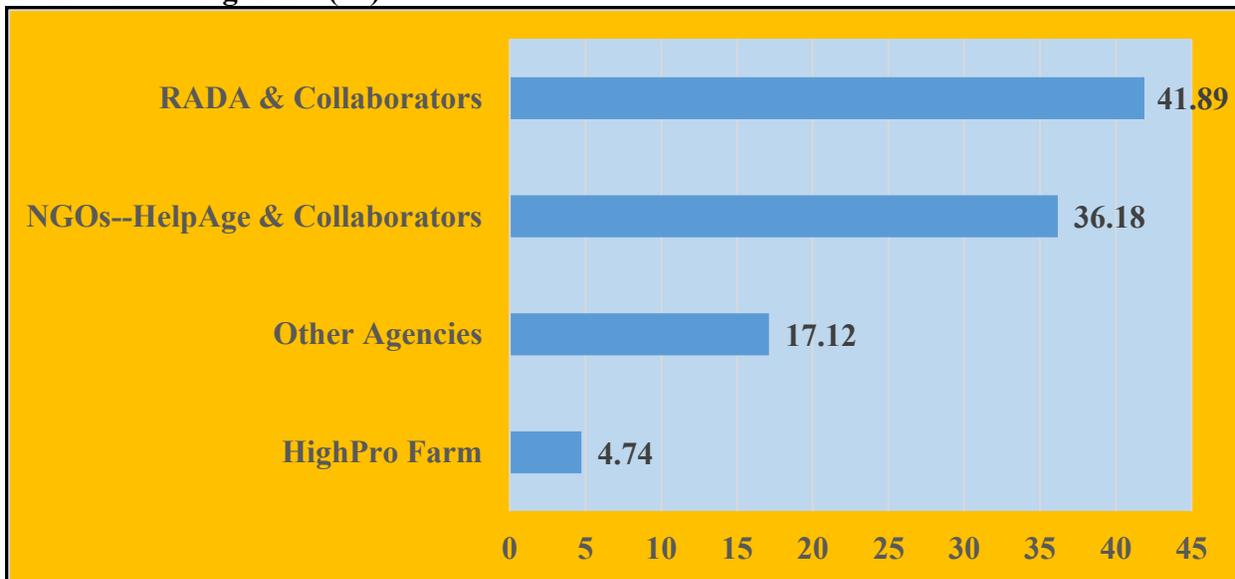
Figure 3.10: Efforts to Protect Against Natural Disasters (%).



Only 18% of the respondents indicated that they received training in protection of crops/animals and property before, during and after natural disasters. Although the majority of respondents could not remember the exact dates of their training, they identified HelpAge International and the Rural Agricultural Development Agency (RADA), and their collaborators as the main agencies that provided the training (Figure 3.11). The training provided on natural disaster preparedness varied but the main areas/topics included:

- Protection of crops & livestock
- Drainage, Soil Conservation/Erosion
- Land Husbandry/Soil Protection
- Water conservation & Landslide Prevention
- Poultry & Goat Rearing
- Banana Cultivation & Maintenance
- Climate Change

Figure 3.11: Proportion of Farming Households that Received Natural Disaster Training from Selected Agencies (%).



Respondents were asked to indicate the support that would be required to better assist them in protecting their livelihoods during a disaster. Approximately 62% of respondents reported that support in the form of training and awareness building sessions would be important, so too was support in the form of extension services (58%) (Table 3.4).

Table 3.4: Preferred Means of Support by Farming Households.

| Types of Support Requested | Yes (%) | No (%) |
|--|----------------|---------------|
| Training and awareness-building sessions | 62 | 38 |
| More assistance through extension services | 58 | 42 |
| Pamphlets, leaflets provided with relevant information | 25 | 75 |
| Other - Financial help, seeds, fertilizers, marketing | 8 | 92 |

Table 3.5 lists additional types of support requested by the farming households in the communities under study.

Table 3.5: Additional Support for Farming Household

| Agency/Types of Support | % |
|---|----------|
| Government's Support <ul style="list-style-type: none"> • Gov't assistance with the drains and rivers • Gov't assistance with local and int'l markets for small farmers • Build gutter for farm drainage • Better infrastructure • Clearing of farm roads after a hurricane • Need irrigation • Need land space • Need good treatment and a better policy • Need more representatives for our community | 34.9 |
| Support from NGOs & Collaborators <ul style="list-style-type: none"> • Need more intervention and programs like HelpAge Disaster risk reduction • Help Age its collaborators to give more assistance • Encourage HelpAge for continued support | 6.3 |
| Training Needs <ul style="list-style-type: none"> • Training sessions for farmers • Training for other crops when carrot is out • Need help for breeding animals | 9.5 |
| General Assistance <ul style="list-style-type: none"> • Want help in getting seeds, chicken, fertilizer and tools for farming • Need money for farm expansion • Policy makers/other agencies show more interests in farmers • Thieves steal animals • Need wholesale buyers • Faster assistance during disasters | 48.6 |

Chapter 4

Programing Priorities and Recommendations

This Chapter is both a synthesis of key findings of Chapters 1-3 and a discussion of the critical policy issues for enhancing livelihood outcomes among farming households in the four parishes. Table 4.1 summarizes some key characteristics of the faming livelihoods that were derived from the data analysis. These livelihood characteristics of farming communities were also observed in the needs assessments that HelpAge International conducted in these communities (Ogilvie, 2013; Francis, 2014).

Table 4.1: Key Characteristics of Farming Livelihoods in the Communities under Study.

| Characteristics of Livelihoods | Characteristics of Livelihoods |
|---|--|
| 1. Livelihood activities | 4 Livelihood Needs |
| <i>Main livelihood activity</i> | <ul style="list-style-type: none"> • Training and awareness-building sessions |
| <ul style="list-style-type: none"> • Mixed farming | <ul style="list-style-type: none"> • More assistance through extension services |
| <ul style="list-style-type: none"> • Crop agriculture | <ul style="list-style-type: none"> • Pamphlets, leaflets provided with relevant information |
| <ul style="list-style-type: none"> • Livestock rearing | <ul style="list-style-type: none"> • Financial help, seeds, fertilizers, marketing |
| <i>Additional Livelihood support</i> | 5. Other Livelihood Needs |
| <ul style="list-style-type: none"> • Gov't & other assistance | <ul style="list-style-type: none"> • General Assistance |
| <ul style="list-style-type: none"> • Remittances | <ul style="list-style-type: none"> • Government's Support |
| <ul style="list-style-type: none"> • Other | <ul style="list-style-type: none"> • Support from NGOs & Collaborators |
| <ul style="list-style-type: none"> • Wage labor | 6. Vulnerability factors |
| <ul style="list-style-type: none"> • Small Business | <i>Natural disasters</i> (descending order) |
| <ul style="list-style-type: none"> • Charcoal production | Hurricanes |
| | <ul style="list-style-type: none"> • Floods/Storm surges |
| 2. Vulnerable sub-groups | <ul style="list-style-type: none"> • Droughts |
| <ul style="list-style-type: none"> • Children | <ul style="list-style-type: none"> • Fires (bush, homes) |
| <ul style="list-style-type: none"> • Females | <ul style="list-style-type: none"> • Landslides |
| <ul style="list-style-type: none"> • Elderly | <ul style="list-style-type: none"> • Fires (bush, homes) |
| | <ul style="list-style-type: none"> • Plant diseases |
| 3. Livelihood resilience | <i>Socio-economic</i> |
| <ul style="list-style-type: none"> • Inadequate livelihood assets/capacity | Unemployment |
| <ul style="list-style-type: none"> • Need for more training | <ul style="list-style-type: none"> • Low incomes |
| <ul style="list-style-type: none"> • More Gov't assistance | <ul style="list-style-type: none"> • Landless farmers |
| <ul style="list-style-type: none"> • NGOs have a role to play | <ul style="list-style-type: none"> • Large proportion of very small farmers |

The programming priorities listed in this chapter are derived from the survey data analysis, and are informed by the needs analyses mentioned earlier as well as secondary information available on these communities. The data analysis clearly revealed that many farming households maintained an existence that hovers around subsistence levels, a situation that is at variance both with the level of Jamaica's development and desires for better living standards expressed by members of these communities. Limits of family labor, landlessness, small holdings, unemployment, frequent damage from natural disasters, etc. are some of the constraints to advancing the overall welfare of the farming livelihood. The programmatic recommendations advanced in this chapter are in response to these challenges and are in tandem with the findings of the needs assessments that were conducted in these communities.

4.1 Diversify Agricultural Portfolio

Most farming households in communities in the parishes under study engaged in mixed farming, but there are households that focused only on crops or livestock production. Farming is the main income source for 73% of the families while 27% of the households derived their main incomes from non-agricultural sources. As characteristic of livelihoods that are poor and vulnerable, the farming households in this study derived income supports from a range of activities, including government assistance, remittances, wage labor and small businesses. While the data revealed that these farming households produced 53 crops, the highest proportion of households (5-54%) produce 20 crops. Within these 20 crops, the six crops that attract 17-54% of the farming households were: banana (54%), plantain (49%), yam (33%), pumpkin (17%), peas (17%), and cocoa (14%).

During a natural disaster, all farming activities are adversely affected, but tree crops such as banana, plantain, and cocoa are usually hardest hit, with devastating effects on livelihoods, largely because most resources are in these crops. Moreover, it takes 6-8 months after resuscitation for these crops to provide any incomes (ECLAC, 2004), compared to fresh vegetables which can be harvested within three months of cultivation. The survey data indicated that recovery took longer: among those who were adversely affected by natural disasters, 20% recovered within 6 months, 36% between 6 months-1 year, and 33% between 1-2 years. A small proportion (4%) never recovered.

The programming prescription that emerges from these observations is the need to build capacity among the farming households to spread the risks of natural disasters over a wider range of livelihood activities. In the debate on agricultural diversification it is not the statistical preponderance of crops that should be the focus but rather on the relative concentration of resources in particular crops/activities. In particular, however compelling it may be for the households to concentrate on a few crops, it is important that they understand: (i) the risks that this poses in light of natural disasters; and (ii) the advantages for building sustainable livelihoods by diversifying resources into other crops and income-generating activities. Given the limited resources of farming households, embarking on this course of action will require support from government, private sector and other agencies to:

- Source and sustain markets for the new products;
- Ensure that transportation and distribution networks are in place;
- Assist with increasing efficiency and productivity at the farm level;
- Encourage and facilitate the use of small-farming equipment such as mechanical sprayers, grass/brush-cutters, small tillers, etc. (e.g., reducing the cost through waivers on customs-duty);
- Training in animal and plant safety, e.g., strengthening animal pens, reducing loss from pests, etc.

4.2 Strengthen Food & Nutrition Security

Although there were data limitations in the analysis of food and nutrition security, it would appear that food is generally available to farming households. However, it is possible that some components of food security are compromised:

- A relatively large pool of approximately 5889 landless and 35,206 small farmers who cultivated less than 1 hectares of land in the four parishes;
- The survey data revealed that the communities under study were frequently impacted by natural disasters, thereby disrupting the stability dimension of households' food security: crops and livestock are destroyed; income sources are lost/adversely affected; savings

and future incomes are directed to re-building homes and farms; food availability and consumption are affected;

- Given that at least 13% of households' expenses are on food purchases—noted in other research for caloric-dense, high fat, high sweeteners and sodium content—this report cautions about these purchases in light of the prevalence of nutrition-related chronic diseases in Jamaica and other Caribbean countries.
- Finally, the data revealed that for 28% of households, their expenses are higher than incomes every month, and a further 10% live “hand-to-mouth” (i.e., break-even).

Against this background an urgent priority must be on ensuring food and nutrition security of farming households. Some specific recommendations would include:

- A fully funded strategy to promote more fruits, vegetables, roots and tubers in household diets;
- The promotion at the rural/community level of Jamaica's Food-Based Dietary Guidelines which have valuable information about balanced diets, salt, fat and sodium intakes, etc.;
- Urgent governmental action to regularize the situation among landless farmers, providing them with secured tenure to support their livelihoods.

4.3 Increase Financial Security

The survey data on incomes from farming and non-farming activities suggested some optimism about the financial resources accessible to farming households: 25% earn about \$10,001-\$30,000 per month; 28% make \$30,001-\$50,000 per month and 41% earn in excess of \$50,000 per month. However, when households' incomes and expenses are juxtaposed, the data revealed that 28% of households make a loss every month and 10% live “hand-to-mouth” (i.e., break-even). The survey data did reveal that about 41% of households saved on average \$10,000 per month (which is included as monthly expense), but this should be viewed as building resilience and coping strategies against vulnerabilities. Households should be encouraged to save on a regular basis, and programmatic actions should be directed at financial management and entrepreneurial training to:

- Reduce monthly expenses;

- Increase incomes—via rural employment opportunities, productivity increases, more diligence in seeking additional income sources, etc.

4.4 Rebuild Social Capital at the Community Level

Post-colonial societies in the Caribbean have demonstrated strong tendencies on social capital for the benefit of the communities. Much of this had dissipated over the years as conveyed by the needs assessments conducted in the communities under study. The survey data analyzed for this report revealed that 82% of farming households that were affected by a natural disaster did not receive any external recovery assistance. Instead, they relied mainly on personal resources (36%), while 11% received assistance from relatives and friends. Partly because of this low-level of recovery assistance, 40% of households took between one to over two years to recover. As a programmatic action to address this issue, community leaders and development agencies must be pro-active in sensitizing the communities about the utility of social capital and implement programs to mobilize community members towards this goal via:

- Community-level activities, e.g., cultural, sports, educational, etc.;
- Community infrastructural rebuilding—self-help in building retaining walls to prevent land-slides/erosions; building/repairing community centers, etc.

4.5 Strengthen Human Capital and Increase Employment Opportunities

The survey data revealed several characteristics of farming households' human capital that should be of concern to policy makers:

- Over 50% of the households did not have any skills other than in agriculture;
- The average size of households in the communities is 4 persons, which is larger than the national average of 3. There were also 33% of the households that had 5 or more persons;
- Moreover, 48.4% of all household have two or more females. Females are an asset to households—they exercise judicious choices in the allocation of households' budgets, provide children with good health, child-care and nutrition, in addition to the usual household chores of cooking, washing, shopping, etc. However, females and children in vulnerable livelihoods are disproportionately affected in times of natural disasters (ECLAC, 2004).

- Among the farming households sampled, 44% had 1-2 persons over the age of 60 years. Further, 41% of the households had between 1-2 children, while another 15% had 3 or more children 18 years or younger in their households. Moreover, 46% of households had no one who was employed, while 40% had one employed person and 14% had 2 or more persons who were employed. These observations suggest that the households' dependency ratio is relatively high, i.e., those in the households who are earning incomes have to support a disproportionately large number of “dependents”;

Against this background, the programmatic actions that seem logical are:

- Establish more income-generating activities in the communities;
- Develop and implement a training program in targeted areas (masonry, carpentry, painting, etc.); and
- Embark on an entrepreneurial program (including training in developing business plans and small business operations), that provides small grants to members in the community to engage in productive activities.

4.6 Programs to Build Resilience

In terms of livestock, 98% of the farming households were engaged in varying proportions in the production of goats, chickens, pigs and cows. Chickens are particularly vulnerable in natural disasters and the entire stock is usually lost to adverse temperatures, floods, heavy rains, and storm surges. Similarly goat and pig stocks are affected by landslides, damage to pens and floods. A little over half of the respondents (55%) who reported being affected by a disaster indicated that they took no steps to protect their livelihoods. Only 18% of the sample received training in natural disaster preparedness. Moreover, 36% of farming households indicated that they used personal efforts and savings to recover their livelihoods after experiencing a disaster. Approximately 32% of respondents indicated that they had to extensively replant crops. Of the 18% of households that received external assistance after a natural disaster, the sources/types of these external support were mainly from government, its agencies or the Member of Parliament, and NGOs.

Starting from the observation that the communities under study can be characterized as resource poor, and are exposed to several vulnerability factors (both natural and socio-economic), the programmatic priority must be on:

- Training
- Providing opportunities to the landless and the small/subsistence farmers
- Implementing a targeted national poverty reduction program
- Creating employment opportunities at the community level
- Developing and implementing a focused rural/community development policy

4.7 More Efficient and Sustained Mitigation Efforts

The survey data as well as background information from the needs analyses revealed that farming households in these communities shared a strong and genuine desire for sustainable livelihoods and community development. Livelihoods are sustainable when they can cope with and recover from stress and shocks, maintain or enhance their capabilities and assets, provide opportunities for the next generation, and contribute net benefits to other livelihoods in the short and long term. Among the households who were affected by natural disasters in the communities under study, 82% indicated that they did not receive external assistance, other than from friends and relatives and community members, with their recovery efforts. While 20% of those affected recovered within six months, and another 36% within 6 months-1 year, 40% took between 1-2 years and a small proportion (5%) never recovered. The programmatic action that could address this issue is more efficient mitigation efforts:

- Identify those who are affected;
- Transmit relief assistance in a timely manner;
- Monitor how funds are used and progress that is made

The programming priorities listed above should not be seen as a discrete set of projects but rather pursued as a program aimed at achieving sustainable livelihoods among the farming households and communities under study. Such a programmatic approach would achieve policy coherence and reap mutual benefits.

Chapter 5

Summary and Conclusions

This report is based on an analysis of survey data that were collected from 642 mainly farming households in selected communities in four parishes of Jamaica, viz., St. Mary, St. Thomas, Portland and St. Catherine. The farming livelihood and communities were selected because high levels of vulnerability due to natural disasters and socio-economic factors. Much of the findings that were reported in needs assessments conducted on these communities were verified by the survey data analysis. The report throws light on some key vulnerability analysis questions, viz., who are vulnerable, where they are located, how many, why are they vulnerable and what can be done to address this vulnerability situation.

Several factors combine to drive the vulnerability of farming households, including but not restricted to:

- Exposure to and adverse impact from natural disasters, mainly hurricane, storm-surges, floods and droughts;
- Concentration of household resources in a few crops which are themselves affected adversely in the event of a natural disaster;
- For many households the incomes earned are insufficient to meet monthly expenses and many others are just able to break-even in terms of incomes and expenses;
- There were many landless farmers in these communities and a large proportion of farming households that farm on less than one hectare of land;
- High unemployment was a characteristic feature of these communities with many households without a wage earner;
- Women, children and the elderly are particularly at risk during natural disasters;
- The mediating forces (e.g., government assistance, policies etc.), have done very little to assist these communities to build resilience against vulnerability factors; moreover, the farming households are themselves too resource poor to embark on this task.

To address these and other challenges these farming households experience routinely, this report lists several programming areas for priority action. These include:

- Diversify Agriculture Portfolio
- Strengthen Food & Nutrition Security
- Increase Financial Security
- Rebuild Social Capital at Community Level
- Strengthen Human Capital & Income/Employment Opportunities
- Programs to Build Resilience
- More Efficient Mitigation Efforts

The programming areas should not be seen as a discrete set of projects but rather pursued as a program aimed at achieving sustainable livelihoods among the farming households and communities under study. Further, these recommendations are indicative of what must be done, at the very minimum, to advance sustainable livelihoods and development in the communities under study. They reflect prescriptions for specific courses of action that are essential for building sustainable livelihoods, enhancing living standards, and building resilience against natural disasters. The responsibility to implement these recommendations rests ultimately with the communities, but they will need to engender strategic partnerships and collaborations with governmental, private and donor agencies for critical technical, investment and overall development support to achieve this task.

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Appendices

Appendix 1: Livelihoods Baseline Survey Instrument (Double click on PDF icon)



Livelihoods baseline
assessment questionr

Disaster & Livelihoods

Disaster & Livelihoods

Issue 03

September 2014

Community members take part in the Building Disaster Resilient Communities in Jamaica project's Livelihood Baseline Assessment Training in St. Catherine. (Story on page 3)



Inside:

- 2 Climate change through the eyes of an older person (OP)
Roger that! CERTs reps benefit from Radio Telecomms Training
- 3 Farmers explore the business side of farming
- 4 Summary of project achievement to date

Project background: Building Disaster Resilient Communities in Jamaica

The 'Building Disaster Resilient Communities in Jamaica' project is a 12-month intervention, covering the period March 26, 2014 to March 31, 2015 and is being implemented by HelpAge International in Jamaica. The project builds on the gains made through the implementation of the 'Building the Resilience of Vulnerable Communities, through community-based Disaster Risk Management in Jamaica' project which was implemented by HelpAge International from 2011-2013 with funding from United States Agency for International Development (USAID)/Office of Foreign Disaster Assistance (OFDA).

The main aim of the project is to strengthen the resilience of vulnerable communities and populations, in the parishes of Portland, St Catherine, St Thomas and St Mary in Jamaica, to natural hazards

According to Regional Director for HelpAge International, Jeff James, "the programme provides an opportunity for community members to work together to reduce risk and to develop a culture of safety. It fosters development on varying levels that will see communities being better prepared and able to respond appropriately to disasters."

The project, is being implemented across twelve (12) communities in the 3 parishes –



Participants in the Livelihood Baseline Assessment Training look over notes as part of a workshop exercise.

Nicholas Pandohie/
HelpAge

Portland (2 communities); St. Thomas (2 communities); St. Catherine (7 communities); and St. Mary (1 community). The intervention is expected to reach a total of 2,525 direct beneficiaries. It will seek to strengthen preparedness and response capabilities of families with children and older persons, farmers and the communities at large through capacity building, training in crop protection, seed selection and post harvest storage and livestock protection.

The project is operating under two sectors:

1. Agriculture and Food Security. The main objective under this sector is, "Farmers and other at-risk populations are equipped with knowledge, skills and resources to protect their livelihoods from natural disasters".

2. Natural and Technological Risks. The main objective under this sector is, "Twelve (12) local communities are better prepared to respond to natural hazards".



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Environmental change through the eyes of an OP

When I was given the assignment to interview Mr. Cuthbert Carby, little did I know it would take me to the top of a small hill overlooking the tree in the quiet community of Bybrook in Portland. Known for its coffee farming, the community is blessed with natural beauty and an abundance of green areas and I must mention the fresh, clean air that provides relief for someone living in the city.

On the journey into the community, one thing that stands out is how untouched and off the beaten path the community really is.

Having moved back to Bybrook in 2001 after living 30 years in Kingston, 66-year-old farmer Cuthbert Carby demonstrated his extensive knowledge of the area and pointed to pollution as the main reason for climate change in the area. Of note, this is the same year that the community was flooded which led to many residents being relocated to Endfield in the parish.

According to Carby, "In the last 30 years, we've been having so many hurricanes in this wooded area so there's a greater profusion of green and brown flies called 'grudgeful'. Any fruit it goes on, it goes funny (bad). The birds that feed on them get less so the flies get more."

In what can be best described as a chain reaction that has ultimately sent nature into chaos, Carby testifies that "we are now getting less rainfall. The rainy season is really October but January is the wash whey month". The change in weather pattern has also impacted the average rainfall, a precious commodity on which farmers rely heavily to irrigate their lands. "The clouds just pass and people say it going to rain but it just bounces off the mountains and go, and within 30 minutes sun kills us. So if you see, the river it's full of water but it's not from rain here," Carby said while pointing to the mountains.

The decline in rainfall and the destruction of wildlife habitats have led to the loss of birds and bees that pollinate flowers. "So if you look around, the trees would be filled with mangoes now but there is none," Carby said.

He went on to further explain that "Any fruit that comes from blossoms – grapefruit and coconut are much less. So the yield is less, much less. In terms of other diseases, the coconuts are not producing like they use to."

As we took a seat on the stump of a tree on the premises of the Bybrook Primary School to rest our tired legs and backs, Carby pointed to the mountains in the distance to give what would be a history lesson. "The river, the Mabesse, it use to have a lot of fish – mullet, hog nose, sand fish, mud fish. It had lot of shellfish also," he said.

Carby believes, the absence of life in the Mabesse River is as a result of the actions taken by government and investors in the 1960s and '70s. The leasing of land to large developer led to the introduction of pesticides and fertilizers that saturated the soil and eventually the river. "In the '70s, we had a great thrust into coffee production on top of those mountains we (are) looking at. Government leased out the land, not to local farmers, cause they couldn't afford it. They lease it to doctors, lawyers and big contractors," Carby stated. He noted that a overseas firm gave the Jamaican government money to plant pine because the country was importing too much. This led to the establishment of a local agency, that according to Carby, "bought up a lot of land

with the claim they were going to plant many lumber trees. So they cleared acres and acres of natural forest, saying they were going to plant but they never plant any or very little. Portland, St. Thomas and parts of St. Andrew – Mount Charles and those areas were used"

Carby continues: "In the 80s, the pines matured and now when they reaped them the soil is left bare. So they came in with their trucks and grabbers – every bird have to fly!"

With the land left bare, government invited investors yet again, further resulting in what Mr. Carby described as government "literally giving them the land and finance them because the small farmers had nothing to put up." He went on to posit that with the introduction of the new investors, the major "throwback with the coffee planting is the pesticide. These coffee farms were on the water table". According to Mr. Carby "it was after we finished polluting the place with this pesticide that we learnt it takes 500 years to break down. So if you have the right equipment down by the sea you could catch everything. So you see why there's no fish in the river, cause the chemical goes right back down in it."

Despite all the pollution that has taken place over the years, residents in Bybrook still continue to do farming as a means of earning a living.



A section of the hill Mr. Cuthbert Carby said was over fertilised, resulting in the pollution of the Mabesse River.

Through the Building Disaster Resilience in Vulnerable Communities in Jamaica project, farmers and communities are being equipped with the technical know-how to aid them in continuing to earn a living and protect their livelihood.

Kawain Fearon/HelpAge

Roger That! CERT reps benefit from Radio Telecomms Training

Roger That! HelpAge International Jamaica in partnership with the Office of Disaster Preparedness and Emergency Management (ODPEM) handed over emergency affiliated radio service valuing US\$14,250 (J\$1,610,000) to three parish councils – St. Thomas, St. Mary and Portland. Among the items presented are 36 Portable VHF-FM Transceivers, seven Base Dual-crossband Radio (VHF) Transceiver/ Repeater and seven Disaster Emergency Power Packs.

The radios were funded through ECHO.

The initiative marked the culmination of a three-month Radio Telecommunications Training for members of Community Emergency Response Teams from 10 communities in the three parishes in which 50 persons received training - 12 representing HelpAge International funded under USAID/OFDA and ECHO.

The project aims to facilitate communication in disaster-prone communities, allowing for quicker

recovery following natural disasters. Not only will the training benefit communities involved in the project but can also have national impact as there is a need for persons with this skillset in Jamaica.

The facilitation of communications in time of disaster is critical to saving lives and averting danger as persons are better able to respond to the needs of communities to provide services such as evacuation of older persons and vulnerable persons, clearing roads and channeling resources to areas they are most needed.

Farmers explore the business side of farming



Nicholas Pandohie/HelpAge

Baseline Survey

HelpAge International (Jamaica) Project Officer Tracey Edwards has a one-on-one discussion with a senior member of the Princessfield community in St. Catherine as part of the Building Disaster Resilient Communities in Jamaica' project. The project is being executed by HelpAge International through funding from the United States Agency for International Development/ Office of U.S. Foreign Disaster Assistant (USAID/OFDA).

Usually, when farmers go to the field they go to reap or sow. However, this was not the case for the many farmers that turned out as part of the HelpAge International executed farmer's Field School training which is a co-funded activity under the USAID/OFDA Building Disaster Resilient Communities in Jamaica and the ECHO funded, Mainstreaming Vulnerable Populations in Disaster Risk Reduction. The training is currently being undertaken in two target communities of St. Thomas (Aelous Valley/ Lloyds and Golden Grove/Dalvey). The training is being conducted by staff of the Rural Agricultural Development Authority. The topics being covered under the training include: understanding of markets; financial management; record keeping; land preparation and nutrition; land husbandry best practices and pre and post harvesting practices. A livestock component will also be taught during the course of the training.



The topics are covered with the objective of having participants view farming as a business investment from which they can derive financial benefits, and impacting the income of the community through job creation.

The breakdown of the beneficiaries is presented in the table below:

The breakdown of the beneficiaries is presented in the table below:

| Community | Number of males | Number of females | Total |
|----------------------|-----------------|-------------------|-------|
| Aelous Valley/Lloyds | 17 | 8 | 25 |
| Golden Grove/Dalvey | 18 | 18 | 36 |
| Totals | 35 | 26 | 61 |

IDDR Conference to focus on older people

With the tagline 'Resilience is for Life, this year's staging of the International Day of Disaster Reduction Conference will focus on older people and how they manage in disasters. The conference which will be held on October 13 and 14, and will be held at the Jamaica Conference Centre in downtown Kingston.

During periods of disaster, older people are challenged with safeguarding themselves and recovering from the damage that has occurred. They are often forced to rely on the kindness of strangers in effecting repairs to their dwelling and being safe.

Due to their age, older persons are overlooked in these times. However, they can play a critical role in helping communities to mitigate against disaster, as they are able to share the experience of past events. With this knowledge, they can help to better coordinate efforts which can result in safety measures being taken to secure life and property. Be Resilient ... For Life!

Livelihoods Baseline Assessment Training

Knowing how to coordinate is an asset in times of disaster, as persons need to be accounted for and their loss recorded in order to receive benefits and compensation. This is exactly what members of the communities participating in the 'Building Disaster Resilient Communities in Jamaica' learnt through the Livelihoods Baseline Assessment Training, funded by USAID/OFDA.

trained as data collectors, as well as, provided with the relevant skills needed to create simple flash reports in the event of a disaster. Since the project began two training sessions were carried out in St. Catherine (six of the seven target groups in the parish were trained) and one in Bybrook.

For this activity, community members are

The table below outlines the achievements thus far:

| Communities | Number of persons trained | Status of data collection |
|---|-----------------------------|---------------------------|
| Springvale/Giblatore/Content ¹ | 4 (3 females and 1 male) | Not yet started |
| Bybrook | 15 (10 females and 5 males) | 100% Complete |
| Riversdale | 12 (9 females and 3 males) | 100% Complete |
| Ginger Ridge | 4 (1 females and 3 males) | 100% Complete |
| Princess Field | 3 females | 100% Complete |
| Browns Hall | 0 | Not yet started |

Summary of Overall Project Achievements

Since the start of the project on March 26, 2014, the following were achieved:

Sector: Natural and Technological Risks

Trainings were conducted in First-Aid and CPR, as well as, Light Search and Rescue.

Task 4: Capacity Building Disaster Management Structures and Mechanisms at the community level

Sector: Agriculture and Food Security

Task 6: Farmer Field School

The Farmer's Field School training is a co-funded activity under the USAID/OFDA Building Disaster Resilient Communities in Jamaica and the ECHO Funded, Mainstreaming Vulnerable Populations in Disaster Risk Reduction. The training was undertaken in the two target communities in St. Thomas (Aelous Valley/Lloyds and Golden Grove/Dalvey). Training was done by RADA

Task 7: Training in Seed Selection and Post Harvest Storage

A stakeholder engagement was carried out to determine the best approach to be employed for this activity. It was projected that a curriculum will be developed in August, followed by sensitisation sessions with farmers' groups.

Task 8: Livelihoods Baseline Assessment Training

This activity was co-funded by ECHO. For this activity, community members were trained as data collectors, as well as, provided with the relevant skills needed to create simple flash reports in the event of a disaster. Since the project began, two (1) training session was carried out in St. Catherine (6 of the 7 target groups were trained) and 1 in Bybrook. The other communities under the project started the activity under the current ECHO project.



Nicholas Pandohie/HelpAge

Participants in the Livelihood Baseline Assessment training completing a task.

HelpAge International helps older people claim their rights, challenge discrimination and overcome poverty, so that they can lead dignified, secure, active and healthy lives.

You can obtain more information on the project and other work being done by HelpAge International (Jamaica) by contacting the office

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Disaster & Livelihoods

Disaster & Livelihoods

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A team from HelpAge International surveys the house of an older person. Poor housing conditions caused by poverty continues to an issue for older people, making them vulnerable to natural disasters.



Inside:

- 2 Community members 'ACERTing' ability to manage disasters
- 3 Meet Marlene Martin - Disaster Resilience ambassador
- 4 Farmers schooled in seed selection, animal rearing

Keeping the link during disasters

Downed power lines, trees, and overflowing rivers and gullies, coupled with loss of cell-phone service is often the trademark of a disaster which leaves communities, especially rural ones marooned. The frustration of residents is usually directed at government agencies, who themselves lack adequate resources to provide the necessary help.

However, thanks to the Emergency Radio Telecoms Training carried out under the project, residents of communities in St. Mary, St. Catherine, St. Thomas and Portland can better manage the recovery effort and communicate with the 'outside' world if marooned.

According to Karen Gyles, advanced emergency radio telecoms trainee, "I know the programme will enhance the ability of Community Emergency Response Team (CERTs) to raise awareness and relay important information about



Participants in the Basic Radio Telecoms Training conduct an exercise, while trainer Valrie Thompson looks on.

emergency activities in the community". This is especially important as communities in rural areas are plagued with poor cell-phone reception and distance between homes and neighbouring communities.

The Emergency Radio Telecoms training focuses on imparting selected community volunteers with skills to operate two-way radios. This will allow them to communicate with each other and members of other communities regarding emergencies and requests for help, as well as

government agencies, should the need arise.

Tanya Huggins, another participant in the project, also hails the programme as an important element for communities. She stated that "It benefits us during times of disaster, because you can get a response more rapid. Sometimes you don't have any credit so you can't call but with the radio you can call out and get assistance."

To her and for many community members, it may be the answer to their prayers if they should be marooned.

Project Summary

The Building Disaster Resilient Communities in Jamaica project focuses on equipping and imparting knowledge-based solutions regarding disasters in 12 communities from four parishes. The project is funded by the United States Agency for International Development and the Office for Disaster Assistance (USAID/OFDA).

The project is aimed at providing assistance to farmers and community volunteers in areas most affected by disasters on a yearly basis. Approximately 40%-50% of participants were 50 years and older.

Participants in the project receive training in farming and seed-selection techniques, as well as are taught post-harvest techniques and how to mitigate against disasters in an effort to increase yield. Each Community Emergency Response Team is also bolstered with equipment and first-aid training. This results in a community that is able to sustain themselves and add to the overall economy of Jamaica.



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Community members 'ACERTING' ability to manage disasters

Disaster periods in Jamaica are often characterized by slow response by the authorities, usually frustrating residents, especially those in the rural areas. However, 12 communities in St. Mary, Portland, St. Catherine and St. Thomas may not be entirely reliant on government services for rescue thanks to the Building Disaster Resilient Communities in Jamaica project being executed by HelpAge International (Jamaica) and funded by the United States Agency for International Development and the U.S. Office of Disaster Assistance.

According to Valrie Thompson of the Springvale CERT, "before the training, person didn't take disaster seriously. But now after we were sensitized about it and we go out and try to inform them. When people hear about it, even if it is not coming to Jamaica, you see people make preparation People, they look up to us. If anything they call us and say 'unu a di response team in the area.'"

Through the project, these 12 communities are given equipments such as shovels, chain saws, reflector vests, hard hats, water boots, axes, among other things in order to provide assistance to their neighbours, prepare for disaster and maintain their communities. In addition to receiving equipment, members of the CERTs are trained in first-aid and search and rescue.

Springvale team leader, Joan Douglas, recalled how she was forced to put her first-aid skills into practice after a resident received a cut, "Because of the first-aid training, I was able to help my brother who got a cut and received 18 stitches. I was able to stop the bleeding and send him to the hospital." Her assistance was of critical importance as Springvale is located in the hills of St.

Catherine; and the narrow, winding roads prevent vehicles from moving quickly. There are no ambulances and the nearest medical facility is located many miles away.

Another community, Princessfield, has also benefitted from the programme and has had their own experiences using the skills and equipment they received to help members of their community.

Members of the CERT in Princessfield have had to put their training in search and rescue to the test when they had to rescue one of their very own member's father. The deputy team leader, Sandra Gordon's father went missing last year, causing the team and other members of the community to comb the surrounding woodlands and neighbouring communities in search of him. He was eventually found at 4 a.m. the following morning wandering in bushes.

According to Sandra, "At first, when I see it getting serious, I call one and two members, but when I see things getting out of hand, I called the team and tell them we need the team out. We split up and go in the bushes and we make plans. We get the equipments and we search. We were in the bush all night." The team has attributed their success in finding Sandra's father to the training and equipment they received under the project. At the end of the properly coordinated search, approximately 80 persons from the community were a part of the effort.

In expressing her delight in working with the group Marlene Martin, community mobilizer for St. Catherine stated, "this is what happens when you have a community that is organized. You start with one and the community spirit chips in. Once something is happening people are going to join in."



Community volunteers and CERT members Michelle Harris (left) and Lovina Rowland demonstrate how to tie an ordinary armband during the First Aid Training session in January 2015.



Kawain Fearon/HelpAge

Leleith Powell (second left) of HelpAge International and Desmond Huslin (right), president of the Aeolus Valley CERT, discuss the importance of the emergency supplies donated to his community, as community mobilisers Kavi Harris (left) and Kevin Wilson look on.

Older people in the community are chief beneficiaries of the CERT team, as they receive help with clearing of land around their homes and minor repairs to roofs. Sandra noted that "the older people in the community are well aware. Those that are shut-in we try to visit them and tell them what we are about, do some bushing, and clean up for them. They don't wait on us, they will call and say 'when yuh

a come help mi out!'"

Proud of their contributions, team members from the Springvale and Princefield CERT have expressed satisfaction with the help they have received in establishing their teams. They have also highlighted the need to train new members as other community members have expressed interest in being a part of the team.

Things to consider when preparing for disasters

Involving the community

What are the hazards that we are most vulnerable to?

Which areas of the community are more likely to be affected and why?

What resources can the community use to reduce unsafe conditions and improve the ability to cope with a disaster before it strikes?

What assets does the community have to cope with disasters and to assist the particularly vulnerable residents?

Assisting older people

Appoint someone to coordinate disaster preparation in your community, taking special note of the older people and other vulnerable members in the community.

Contact local agencies that deal with the problems of older people and request an input in disaster preparedness plans.

Locate older people in the community whose needs might go unanswered because of their inability to help themselves.

Locate older people who are homeowners. If their homes are not safe or if they live in flood-prone areas or where they can be affected by a storm surge, remove them to a shelter or a home where they will be comfortable and safe.

Determine what resources are in the community to aid older people in the event of a hurricane, for instance, transportation for evacuation, food, nursing home facilities, and volunteers to help with evacuation or to stay in the homes of older people during the hurricane.

Establish disaster education programmes for older people.

Identify proper shelters for older people who may need to be evacuated from their homes or area.

5. Check for special medication that may need refilling.

- Courtesy of ODPEM

Meet Marlene Martin - Disaster Resilience Ambassador

"Mobilisation is a skill and should always be recognized as such but, in many instances, it is taken for granted ... I must say, I love working with people and hence mobilization gave me the opportunity to do so every day", these are the sentiments that keep ace community mobiliser Marlene Martin going.

Marlene Martin has been a part of the HelpAge International (Jamaica) mobilisation team for the last seven years. Over the period, she has been confronted, loved and has had to get down and dirty with community members who she likens to "extended family".

During the course of the Building Disaster Resilient Communities in Jamaica project, Martin has interact with community members for different aspect of the project. So much so, that she has gained knowledge about the different areas. "My knowledge base is so broad as a result of mobilizing. If I so desire I could go into farming, poultry or crop, knowing I



Kawain Fearon/HelpAge

Marlene Martin (second right) on the job while in a Capacity Building workshop in St. Catherine.

have the requisite understanding of how to do so the right way," Martin said.

She continued: "Working with the CERTs and farmers means constant contact as the farmers would seek my advice on any or everything; while the CERTs will update on every activity within the community. My text inbox is full of messages - re-planned activities of which I will have to attend, fundraising, drain cleaning or just a general meeting."

Martin enjoys her work so much she is undaunted by the job description of long treks through communities. "First, I had to get to know

the communities fast - the terrain, people, culture, political divide and stigmas. Long days spent walking through meeting and introducing myself and the agency and project to residents," she said.

No doubt Martin has enjoyed her stint under the project and is "grateful for the opportunity to work with these communities", as her contact with community members will continue. According to her, "The calls will still come for meetings funerals all those "extra" activities are staple on a mobilizer schedule".



Participants in the Basic Radio Telecoms Training held in Golden Grove, St. Thomas.

Hear beneficiaries of the Building Disaster Resilient Communities in Jamaica tell how the project has helped them and their communities.



Watch the video via our Facebook page **HelpAge International Jamaica** or YouTube channel **HelpAge Jamaica**

Farmers schooled in seed selection, animal rearing

Agriculture in Jamaica is not usually a popular career choice; however, in farming communities in Jamaica it is the means by which families are fed and income is generated. Through the Farmers' Field Schools and the Seed Selection Training under the Building Disaster Resilient Communities in Jamaica, beneficiaries had the opportunity to understand the science and technical underpinnings of farming.

Through the project, farmers were exposed to a number of planting, harvesting and storing methods aimed at protecting crops and increasing yields. By increasing yields farmers are best able to generate more income.

Subsistent farmer Tyrone Mitchell of the Princessfield community in St. Catherine is looking to increase his output by venturing more into farming, "Yeah mi farm, but a likkle farming. Mi nuh too do big farming. But yuh see, now it sound like mi can do likkle more farming wid the information. Is not a water area, now a drought, so yuh know yuh naw depend pon nuh rain, a pipe water," he said.

A mason by trade, Tyrone armed with new information about farming is looking at the option of trading in his masonry equipment for those of farming which he thinks is a better fit for him. "Mi is a mason man now enuh, builder. Suh inna mi free time mi do likkle farming. So right yah now, if mi can do likkle more farming and avoid the mason work, it likkle bit better fi mi. Mi only want know seh mi have



Kawain Fearon/HelpAge

Farmer Field School participants register for the training session.



Consultant/Trainer for the Seed Selection Training, Sheldon Scott (right), is in an animated discussion with participants in Castleton, St. Mary.

somebody fi buy the things dem," Tyrone said.

Knowledge proves to be power in Tyrone's case as he is now able to identify the different types of soils and how to use fertilizer to increase his yield. He states that, "Everything sounds nice. You know you get fi know how fi fertilize the thing dem, yuh have certain lan' wey drain so di thing dem a go come different, different things when you plant.

According to another Farmers'

Field School participant, Mr. Simeon Lewis, Springvale in St. Catherine, "... In chicken raring it helps because it minimize the amount of feed I buy. Feeding the chicks day and night they eat too much and die. In the farming (school) they tell you when disaster coming you can cut down things like cassava trees and leave the root in the ground. So when the storm comes it coming like no storm come. I gain great, great benefit," he said.

HelpAge International helps older people claim their rights, challenge discrimination and overcome poverty, so that they can lead dignified, secure, active and healthy lives.

Disasters & Livelihoods is published to highlight the impact of the Building Disaster Resilient Communities in Jamaica project. It focuses on the involvement of older people and farmers in preparing for natural disasters.

You can obtain more information on the project and other work being done by HelpAge International (Jamaica) by contacting the office

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