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Research Study on How Older People are Affected by Natural Disasters



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Disclaimer

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LIST OF ACRONYMS AND ABBREVIATIONS

CSGM	Climate Studies Group, Mona
DRR	Disaster Risk Reduction
HAI	HelpAge International
IFRC	International Federation of the Red Cross
MLGCD	Ministry of Local Government and Community Development
MLSS	Ministry of Labour and Social Security
MWAC	Mona Wellness and Ageing Centre
NCSC	National Council for Senior Citizens
ODPEM	Office of Disaster Preparedness and Emergency Management
PIOJ	Planning Institute of Jamaica
PAHO	Pan American Health Organization
RADA	Rural Agricultural Development Authority
SDC	Social Development Commission
STATIN	Statistical Institute of Jamaica
UNFPA	United Nations Population Fund
UNISDR	The United Nations Office for Disaster Risk Reduction
WHO	World Health Organization

KEY TERMS DEFINED

Exposure

People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Comment: Measures of exposure can include the number of people or types of assets in an area. These can be combined with the specific vulnerability of the exposed elements to any particular hazard to estimate the quantitative risks associated with that hazard in the area of interest.

23 Jan 2009 UNISDR

Vulnerability

The characteristics and circumstances of a community, system or asset that makes it susceptible to the damaging effects of a hazard.

Comment: There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors. Examples may include poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. Vulnerability varies significantly within a community and over time. This definition identifies vulnerability as a characteristic of the element of interest (community, system or asset) which is independent of its exposure. However, in common use the word is often used more broadly to include the element's exposure

30 Aug 2007 UNISDR

Disaster Risk

The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Comment: The definition of disaster risk reflects the concept of disasters as the outcome of continuously present conditions of risk. Disaster risk comprises different types of potential losses which are often difficult to quantify. Nevertheless, with knowledge of the prevailing hazards and the patterns of population and socio-economic development, disaster risks can be assessed and mapped, in broad terms at least.

23 Jan 2009 UNISDR

Disasters

A serious disruption of the functioning of a community or a society involving widespread human, material,

economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Comment: Disasters are often described as a result of the combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.

30 Aug 2007 UNISDR

Hazards

A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: The hazards of concern to disaster risk reduction as stated in footnote 3 of the Hyogo Framework are —..hazards of natural origin and related environmental and technological hazards and risks.” Such hazards arise from a variety of geological, meteorological, hydrological, oceanic, biological, and technological sources, sometimes acting in combination. In technical settings, hazards are described quantitatively by the likely frequency of occurrence of different intensities for different areas, as determined from historical data or scientific analysis.

See other hazard-related terms in the Terminology: Biological hazard; Geological hazard; Hydrometeorological hazard; Natural hazard; Socio-natural hazard; Technological hazard.

30 Aug 2007 UNISDR

Older People

An older person is defined by the United Nations as someone over 60 years of age. The 'oldest-old' refers to those over 80.

Capacity

The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions.

Comment: Capacity development is a concept that extends the term of capacity building to encompass all

aspects of creating and sustaining capacity growth over time. It involves learning and various types of training, but also continuous efforts to develop institutions, political awareness, financial resources, technology systems, and the wider social and cultural enabling environment.

23 Jan 2009

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Comment: Resilience means the ability to “resile from” or “spring back from” a shock. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organizing itself both prior to and during times of need.

30 Aug 2007 UNISDR

I. EXECUTIVE SUMMARY

Background

The increase in the population of older persons in Jamaica and the country's enhanced vulnerability to hazards with disastrous impacts has brought into sharp focus the matter of addressing the needs of older persons in disaster management and disaster risk reduction. Because of economic, physical and cultural factors, older persons are seen as a vulnerable demographic within the wider society. Jamaica's geographic location renders it prone to several hazards, a situation further amplified by socio-economic and political factors that cement the country's status as a Small Island Developing State (SIDS). Jamaica has been lauded for having an advanced disaster management institutional and policy framework; however, advocates for older persons argue that the framework largely excludes demographic, as it refers generally to vulnerable people without acknowledging the unique vulnerabilities of older persons. Experts argue that any effort to build an effective Disaster Risk Reduction (DRR) plan must integrate the needs of the fastest growing group of vulnerable people, i.e. older persons, whose vulnerability is amplified by physical and socio-economic challenges.

Objectives of the Study

The study, commissioned by HelpAge Jamaica International (HAJ-I), sought to address the situation of older people as it relates to DRR and disaster management in Jamaica. The main objective of the study was therefore to document the experiences and perspectives of older people affected by natural disasters, in order to understand the vulnerabilities and capacities of this age group at different stages of the disaster cycle. Information gathered from the study will be used as an advocacy tool in promoting changes in those critical systems that are of importance to the well-being of this group.

The following were the specific objectives of the study:

1. To assess response, coping and recovery capacity of older people during the four stages of the disaster cycle

2. To assess resources and capacities in place to assist older people at all/any stage of the disaster cycle

3. To assess resources and amenities in place at the national and zonal level to assist older people during all/any stage of the disaster cycle

4. To assess the level of vulnerability of older people and their environs and the factors which elevate the degree of risk and exposure faced by older people at all/any stage of the disaster cycle

The following research question was used to guide the study:

In what ways are the older population of the target study area vulnerable or capable in relation to a disaster, before, during and after its occurrence, and how are the factors of vulnerability and capability shaped by larger scale, exogenous factors?

Methodology

A mixed-methods approach was employed in data collection and analysis for this study to collect both primary and secondary data. Extensive desktop research was conducted to gather background information on the overarching themes, and primary data were collected through key informant interviews, large group discussions and a questionnaire survey. Respondents to the survey and large group discussions were drawn from six rural communities across the parishes of St. Elizabeth and Portland. These sites were purposively selected to exhibit the lived realities of older persons with varying socio-economic conditions and exposure to various environmental hazards. Other key informants were selected from organizations integrally involved in disaster management and relief. A rich body of data was collected and analysed in order to answer questions on challenges, experiences and responses of older people to disasters. Among the issues addressed were the challenges faced by older persons, the assets and resources of older persons, their experiences and perspectives on hazards and disasters and the response of relevant organizations to the needs of older persons.

The breakdown of the target sample is proportionate to the estimated number of elderly persons within each community. Qualitative and quantitative methods of analysis were applied to the data.

Key Findings

The results of the study revealed a range of interesting findings, which highlight the vulnerability of older persons. Key findings of the study suggest that older people's vulnerability cannot be defined simply by their ageing factors and income opportunity. Older persons have different assets and access to certain resources that enhance their resilience. Furthermore, their vulnerability increases with age in relation to variables such as health, mobility, and other psychosocial factors and are mainly defined by their level of income.

The study shows that as age increases from young-older (60-79) to old- older (80+) vulnerabilities increase not only in ageing disabilities but dependency on others to provide basic needs. Results show that a significant number of older people within the study make less than JMD\$5000.00 monthly. When compared with health related issues, housing conditions and access to daily resources, results indicate a significant higher risk of losses if the current trajectory continues based on climate change threats. The ability of older persons to bounce back from disastrous impacts of hazards is further impeded by psychosocial challenges.

Within the respective groups and at the parish level, the study also found that the vulnerability of males and females varied depending on their environment and situation. It was found that among the ageing population, more males are living in isolation than females however with regards to employment, males are employed for longer periods than females. The evidence suggests therefore that there are differential vulnerabilities between males and females and varying forms of exposure between the genders.

The investigations also revealed a lack of acknowledgment of older persons specifically as a vulnerable group in disaster policy. The literature and policy documents mention vulnerable persons but fail to highlight unique vulnerabilities of older persons. This grouping of all vulnerable persons makes it difficult to plan for individual groups and masks the challenges of older persons as a special group.

Recommendations

The recommendations span the themes **Research, Communication, Education, Policy and Inclusion** that can be applied at the individual, community or national level within the context of short or medium term time frames. Key recommendations for each area include:

Research

- Ensure the inclusion of 'older people' in future DRR studies
- Carry out further research on psycho-social issues of older persons
- Utilize geospatial tools and technologies for the
- Carry out hazards and risk analyses, and the utilization of pre-and post-impact data to support the design of targeted programmes for older people.

Policy

- Inclusion of older person's needs and capacities in Disaster Management policies and other policies.

Education and Capacity-Building

- Enhance the delivery of training for health professions that is tailored to the needs of older persons,
- Educate stakeholders to pay attention to older persons,
- Harness the local knowledge of older persons
- Increase the capacities of younger-older persons to utilize more modern communication technologies.

Other recommendation

- Enhance sensitivity to the traditional means of communication accessible by older persons for delivery of information about disasters,
- Recognize and validate the contributions of older persons,
- Identify and address the unique needs of sub-groups of older persons
- Establish funding mechanisms to provide aid for older persons.

II. INTRODUCTION

The world's ageing population coupled with the increase in extreme climate and disaster events demands a more robust response to addressing the needs of older people in disaster risk reduction. Older people are disproportionately affected by the natural increase in natural disasters and climate change (HelpAge 2015). The ageing of the Jamaican population means that in the near future the government will need to invest in schemes that address the unique needs of an older population. Older persons are beset with a range of challenges that include limited financial resources, restricted mobility and vulnerability to a series of chronic illnesses. Jamaica's increasing vulnerability to more extreme hydrometeorological events associated with climate change demands a more robust approach to integrating older persons in disaster management and risk reduction.

According to the WHO (2015), the pace of population ageing is much faster than in the past. The dramatic increase is evident in the projections which reveal that between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22% and that by 2020, the number of people aged 60 years and older will outnumber children younger than five years of age (WHO 2015). Jamaica's population of persons 65 years and older currently stands at 7.7% of the total population. Of this males account for 102, 377 and females 136, 363 pointing to a gender component as females are reportedly outliving males; the life expectancy for males is 71.8 years compared to 77.2 years for females (WHO 2013).

Jamaica, because of its location, geology and geography, is prone to several natural hazards. The major threats include landslides, hurricanes, floods, droughts and earthquakes. These hazards, when combined with situations of high vulnerability, usually result in disasters of varying severity (ODPEM 2008). The occurrence and resultant impacts of hazards has led to an increase in disasters nationally. According to the PIOJ (2013) the cost of disasters between 2001- 2010 amounted to Jamaica US\$111.81. There has also been loss of infrastructure, loss of life and productivity.

The Sendai Framework for Disaster Risk Reduction 2015–2030 was adopted at the Third United Nations

World Conference on Disaster Risk Reduction in March 2015. The Sendai Framework demonstrates a commitment on the part of world leaders to a people-centered, multi-sectoral approach to disaster risk reduction practices. The final output document of the gathering also specifically mentions older persons as a group of vulnerable persons that governments should engage with in the design and implementation of policies, plans and standards (UNISDR 2015). At the national level, there has also been recognition of the needs of older persons, honoring such international commitments but more importantly to promote sustainable development and fulfill national goals. *Charter 14 for older people in disaster risk reduction* devised by UNISDR provides further proof of the growing global recognition of the vulnerability of older persons to hazards and disasters.

The following study, commissioned by HelpAge Jamaica International (HAJ-I) is aimed at providing social statistics on root causes of vulnerability among older people in Jamaica, identifying capacities and resources within communities that builds resilience among older people and identifying the key threats affecting older persons in Jamaica. The findings of the study will be used to further lobby relevant organisations on the need for policies and programmes that explicitly address the vulnerabilities of older persons.

The report outlines the key findings of the study under selected social vulnerability themes inclusive of health, livelihood and income, social inclusion, and housing status. The report presents the results of a series of statistical tests and qualitative analysis to provide evidence of issues related to older persons and DRR. Further analysis will consider losses and impacts from natural disasters, opportunities and experiences for preparedness at the household/individual level and the parish and national levels based on available resources.

The study concludes with a discussion and recommendations based on the findings for addressing disaster risk reduction among vulnerable older people in Jamaica. The recommendations are based on the review of secondary data and identification of gaps in policy and programmes. Some recommendations were also informed by statements made by respondents based on their firsthand knowledge and experience of the situation in their own communities.

III. LITERATURE REVIEW

Climate change, the increasing risk of natural disasters and ageing are some of the biggest issues facing humanity this century (UNFPA 2012). The world's ageing population coupled with the increase in extreme climate and disaster events demands a more robust response to addressing the needs of older people in disaster risk reduction. Older people are particularly vulnerable to and face specific threats from disasters. Their needs are very different from other generations and population groups, such as children. Older age brings reduced mobility and strength, impaired sight and hearing, and greater vulnerability to heat and cold (HAI n.d.)

There is a growing body of literature on older persons and disaster management and risk reduction. The majority of information found was concentrated in 'grey literature' through technical reports by various organizations involved in Disaster Risk Reduction (DRR) and working on issues related to older persons. A few academic papers were found that present case-study-type findings on the themes in question. Many of the technical reports address the situation of older persons in places like Bangladesh whereas the academic literature speaks to developed countries. The reports provide valuable information on disasters and older persons generally with a few case studies of developing countries.

According to the WHO (2015), the pace of population ageing is much faster than in the past. The dramatic increase is evident in the projections which reveal that between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22% and by 2020, the number of people aged 60 years and older will outnumber children younger than 5 years (WHO 2015). The Caribbean has the fastest ageing population in the developing world. The United Nations estimates that the over-age-60 population in the Caribbean will increase from 11.1% of the population in 2005 to 24.6% in 2050 (PAHO 2012). According to the UNFPA (2015) those 65 years and older represent now the fastest growing segment of the Jamaican population (UNFPA 2015).

Disasters destroy lives and livelihoods around the world. Between the years 2000 and 2012, it is estimated that over 700,000 people lost their lives; more than 1.5 billion people were affected by disasters in various ways, with women, children, and several other groups impacted disproportionately. Disaster impacts also set back hard-won economic development gains and affect all socioeconomic strata, societal institutions, and sectors in one way or another. The total economic loss was estimated to have exceeded USD 1.3 trillion over the 2000–2012 period (UNISDR 2013a; Aitsi-Selmi et al 2015).

Disaster risk reduction is the concept and practice of reducing disaster risks through systematic efforts to analyse and reduce the causal factors of disasters. Reducing exposure to hazards, lessening vulnerability of people and property, wise management of land and the environment, and improving preparedness and early warning for adverse events are all examples of disaster risk reduction (UNISDR 2015). There have been several efforts recently to further integrate older people into disaster risk reduction and management.

Older people are disproportionately affected by the natural increase in natural disasters and climate change (HelpAge 2015). With current worldwide demographic trends, more and more older people will find themselves in harm's way, no matter what climatic trends may emerge, and specific planning is required for this group (Goldstraw, et al. 2012). Disaster related deaths are higher among older persons for various reasons, among which include their inability to move out of harm's way due to functional limitations, their being cut off from help and the rapid deterioration of chronic illnesses (Feather 2013). Vision, hearing and other sensory deficits and cognitive/neurological deterioration may make it more difficult for some older people to understand emergency warnings and directions. They may be unable to evacuate or seek safety, or they may become disoriented and confused in unfamiliar surroundings (WHO 2008)

Although older people are a very diverse group, many are especially vulnerable to emergencies and hazards (PAHO 2015). Older people are emerging as an at-risk group because of increasing numbers but also because of increased awareness of older people's needs (Duggan, et al. 2010). There will be older people that

do have sufficient resources to adapt, and there are differences between the vulnerability of the old and the very old. The oldest (aged 85 and over) will suffer the most negative health impacts. In addition, chronological age is just an approximation of actual condition of risk, physical decline, or frailty (ODI 2011)

According to HAI there are four key reasons explaining older people's heightened vulnerability in the face of climate-related shocks:

1. Physical decline that comes with ageing, which can include poor health, mobility, sight and hearing;
2. Lack of provision of adequate services for older people, both on a daily basis and in emergency situations;
3. Age discrimination, which serves to exclude and isolate older people, and often violates their rights.;
4. Poverty levels among older people, often exacerbated by lack of social protection mechanisms and livelihood opportunities.

The Disaster Risk and Age Index compiled by HelpAge captures the collision of two trends: ageing populations and the acceleration of risk in a world which is increasingly exposed to natural and technological hazards. The report helps to measure and assess countries' progress in supporting older populations in respect of disaster risk (HAI 2015). Of the 190 countries assessed, Jamaica ranks 101 with a fairly low overall risk of 3.4 (0= low risk, 10= high risk).

Former Acting Director General of the Office of Disaster Preparedness and Emergency Management (ODPEM), Richard Thompson, said the country's seniors have a critical role to play in building disaster-resilient communities. He said they possess extensive knowledge and experience that could be called upon in the disaster preparedness and response strategy (Jamaica Observer 2014). A 2011 joint study by HAI-I and UNPFA on the situation of older people in Jamaica posited that older persons are not often considered in disaster mitigation and management initiatives (UNPFA and HAI-J 2011).

The impact of various disasters in recent times and the impact on older persons have demonstrated the vulnerability of these persons. Following Typhoon Haiyan in the Philippines, Director of Strategic

Development at HAI, Mark Gorman cited that the older and poorer they are, the more likely they are to be isolated and vulnerable (Feather 2013). Based on studies in Sri Lanka, Duggan et al. (2010) posited that in addressing older persons in disaster management it was important to consult with them in disaster response and preparedness, protect their rights and prevent loss of independence in responding and preparing for disasters, reduce mistrust of government and provide access to resources and facilitate self-responsibility (Duggan, et al. 2010)

However, it is also evident that to overemphasize the vulnerabilities of older persons to disaster without recognizing the strengths is disempowering. Older people have a major contribution to make to disaster response and preparedness worldwide (Deeny, et al. 2010). Older people's experience of disasters and their knowledge of coping mechanisms can be critical to the development of local disaster risk-reduction and adaptation plans (UNFPA 2012). The Sendai Framework on DRR (2015) asserts that older persons have years of knowledge, skills and wisdom, which are invaluable assets to reduce disaster risk, and they should be included in the design of policies, plans and mechanisms, including for early warning (UNISDR 2015).

Climate change and the projected increase in extreme events add another layer of complexity to the matter of older person's vulnerability to disasters. For older adults, the changing climate brings heightened vulnerability to environmental risks, which include extreme weather events, exacerbated vector-borne diseases, compromised agriculture, reduced availability of fresh water, and decreased habitability of human population centers (Filiberto and Wethington 2011). The extent of these impacts will vary depending on social and economic factors, as well as on their physical condition. Filiberto et al. (2011) further argue that social and economic factors increase the vulnerability of some older people because socioeconomic disadvantages restrict the capacity of individuals to avoid the negative health impacts of climate change, mitigate those impacts, or cope with them if they cannot be mitigated or avoided. Any effort to build older persons' resilience to climate change must therefore address the root causes of their vulnerability of which poverty is a key component.

SECONDARY DATA

Extensive desktop research was conducted to gather background information on the overarching themes. Among the sources accessed were journals, articles, newspapers, magazines, and organizational websites. These sources were consulted at various stages of the research design and execution process to provide a frame for the assessment and a basis for analysis.

PRIMARY DATA

Primary data were collected through key informant interviews, focus group discussions and a questionnaire survey (Appendix I). These tools allowed for collection of detailed perspectives from technical persons, older persons and representatives of organizations involved in disaster management and relief.

Key Informant Interviews

During the interview sessions, both written and recorded instruments were used to document and collect key information during the sessions. During the interview sessions, information was recorded both by hand and with electronic audio devices.

Key informants were identified as representatives of select government and NGO groups involved in disaster management and relief at the national and local levels. Interviews were conducted with representatives of the eleven (11) organizations listed in Box A. Structured interviews, designed by the research team and reviewed by HelpAge International prior to use were administered to key informants. Information collected from literature reviews and key informant interviews were used to design the questionnaires.

Information was gleaned on experiences and perspectives on addressing the needs of older persons in disaster events. Focus group discussions with groups of critical stakeholders provided further data on the challenges of older persons and solicited input towards integrating older persons into DRR. Three focus group interviews were conducted among direct beneficiaries and groups within the targeted communities. Members of the communities (community mobilisers) assisted in coordinating focus group sessions by mobilising the select individuals for participation in the focus groups.

Questionnaire Survey

Sampling Methodology

The study was concerned with determining the experiences of a fairly representative sample of older persons throughout six communities in Portland and St. Elizabeth. All households with one or more persons aged 60 or over (deemed an older person) within the target communities were therefore considered as the sample population.

The target sample size was 400, with a confidence level of 98% and a margin of error of 4.20%. The breakdown of the target sample is proportionate to the estimated number of elderly persons within each community (Table A). The national average of 11% was applied to the total population of each community in order to derive the estimated number of elderly in each community.

BOX A: ORGANIZATIONS FROM WHICH KEY INFORMANTS WERE SELECTED

- **Mona Ageing and Wellness Centre-University of the West Indies, Mona**
- **Planning Institute of Jamaica (PIOJ)**
- **Social Development Commission (SDC), St. Elizabeth**
- **Council for Senior Citizens, Ministry of Labour and Social Security/MLSS**
- **Board of Supervision, Kingston**
- **Ministry of Labour and Social Security (MLSS)**
- **Poor Relief, Santa Cruz, St. Elizabeth**
- **Parish Council, Port Antonio, Portland**
- **Parish Disaster Coordinator, Portland**
- **Office of Disaster Preparedness and Emergency Management (ODPEM)**
- **Ministry of Health, Public Health Department, Port Antonio, Portland**

TABLE A: SAMPLE SIZE BASED ON ESTIMATE NUMBER OF OLDER PERSONS FOR EACH TARGET COMMUNITY WITHIN PORTLAND AND ST. ELIZABETH

Community	Parish	Population	Estimated No of Older Persons (11%)	Target Sample Size ¹	Actual Sample Size	Response Rate (%)
Spring Hill/ Tranquillity	Portland	1,839	202	53	71	
Bangor Ridge	Portland	1,359	149	39	41	
Fruitful Vale	Portland	2,366	260	69	50	
Bigwoods	St Elizabeth	1,859	204	54	30	
Southfield	St Elizabeth	4,323	475	125	120	
Holland	St Elizabeth	2,044	225	60	60	
TOTALS:			1515	400	372	93

With a response rate of 93%, 43.5 per cent (N=162) of the target sample within Portland were interviewed, and 56.5% (N=210) of the target sample were interviewed in St. Elizabeth. A total of 372 questionnaires were administered by 40 community volunteers who were selected by HelpAge International-Jamaica and trained in survey/interview techniques and how to communicate with older people. Each community was assigned a select number of volunteers based on sample size who were given 4 days in which to complete the surveys. Of the total sample (N=372), the largest sample size by

community is Southfield (32.3%) with the smallest sample drawn from Bigwoods (8.1%) also from St. Elizabeth.

The Survey Instrument

The survey instrument was administered in order to assess vulnerability factors. Questions consisted mostly of closed-ended questions, with open-ended questions included to allow room to gather further information and in order to derive insight on individual motivation in different forms of decision-making.

O Questions were designed to determine past disaster experiences and older people's level of access to critical services throughout the four stages of the disaster cycle.

o Further, survey instruments were designed to collect data on state of the social, physical, economic and other factors and how they contribute to older people's vulnerability.

Data Analysis

Qualitative Analysis

Content analysis of recorded data was carried out to identify trends and themes in the findings. NVIVO software was used to conduct further analysis through coding of the data.

QUANTITATIVE ANALYSIS

The primary tool used in the analysis of the quantitative data was SPSS. The data were coded, entered and cleaned prior to analysis and testing. A series of descriptive tests were run to assess frequencies, trends and correlations. Further testing of associations between different groups within the sample was explored through the application of the Chi-Squared testing.

Limitations to the Study

Data Collection

The measures used to collect the data are somewhat limited for the analysis of the results. For example, in discovering that remittances form a very important source of income, it would have been useful to include in the questionnaire, questions about sources of remittances, in order to better understand the geographical sources of

¹ *Proportionate to community population size

remittances, and the possible familial support networks that may exist for some older persons.

Self-Reported Data

As with all studies involving interviews and surveys, the researchers are limited in relying on the veracity of the responses of interviewees. The self-reported data shared by respondents are therefore subject to multiple sources of bias, including, selective memory and exaggeration.

Longitudinal Effects

The study was carried out as part of a project being implemented by HelpAge International (Jamaica). The time limitations that were imposed on the study as a result, meant that there was only sufficient time for carrying out the data collection, analysis and reporting, with very little room for adjustment, or opportunity for re-entry into the field. At the stage of data analyses, further avenues for exploration of the themes that emerged from the study could not be explored in the time and budget allotted for the study.

Access

Accessibility to a select sub-section of the population was required in order to carry out the study. The target population was older persons aged 60 and over; an age group that this very study has revealed is subject to a range of illnesses, vision, hearing and mobility issues. As such, this may have affected the ability of respondents to communicate and otherwise participate in the research.

1. PROFILE OF RESPONDENTS

SOCIO-ECONOMIC PROFILE OF RESPONDENTS

The population of older persons (60+) represents 11.9% of the total population of Jamaica (ESJ, 2014). Older persons represent 7.7% of the Jamaican population. Their participation in decision-making and productive enterprises is limited due to poverty, chronic illnesses and exclusion. Just over 55.5% of the respondents were females (n=186) while 44.5% were males. The male-female distribution of the sample closely resembled Jamaica's general male-female breakdown as females represent 51% of the country's population with men accounting for 49%. The majority of respondents were between 60-69 years (45%) followed by those in the 70-79 age group (33.5%), while 21% were >80 years. Females exceeded males in all age groups. The greatest disparity in the male-female ratio was in the >80 age group at almost one male to every two females. The overwhelming majority of persons who live with someone live with a child (48.6%), followed by those who live with husband or wife (25.9%). Smaller percentages of respondents live with another relative, siblings, parents or pets. Males were more likely than females to live alone- a factor that enhances the level of exposure to males to some impacts at every stage of the disaster management cycle. Despite there being no statistically significant relationship between age and whether or not people live alone, as the ages of those in the sample increased, there is an increase in the percentage of persons that live with relatives, caregivers or friends.

ECONOMIC PROFILE OF RESPONDENTS

Poverty is a combination of wants and needs; basic human needs such as functional living environments, financial security and foods are requirements that determine the overall social and economic vulnerability of an individual. Poverty and exclusion remain the greatest threat to older people (UNHCR n.d.). Since the Caribbean - and Jamaica, to be more specific - is

constantly threatened by natural hazards, it is only reasonable to conclude that without a good economic foundation many older persons will be vulnerable to the impacts of hazards.

The study collected data on employment, income, livelihoods and other forms of financial security. The data gathered provides insight into the extent to which older people may be vulnerable due to low material or financial assets. The data also provides a lens on the resources that older people depend on for daily needs.

Employment

The overwhelming majority of respondents (81.9%) were unemployed. The 18.1% employed consisted of chiefly fishers, farmers, businesspersons and artisans. A cross-tabulation of gender and employment revealed that males were more likely than females to be employed. This observation is in keeping with the general trend in Jamaica's labour market, where according to the UNFPA (2012), males are more widely represented than females. Among older persons, this trend is likely to have far-reaching socioeconomic impacts in terms of access to pension schemes and other benefits.

Livelihoods and income of older people

In keeping with general assumption and some studies which shows significant number of people are farmers and earn their primary income from farming, the study endeavored to analyze monthly income by householder and categories of income, i.e. primary source of income, secondary sources of income and tertiary source of income. Results show that more than 50% (n=163) of the total respondents (n=301) who indicated the sum of earnings or gifts received each month receive less than JMD5000 monthly, 24.3% (n=73) receive JMD5000-15000 monthly, and 7% (n=21) receive JMD25000-35000 monthly. Less than 1% (n=2) receive a sum of JMD75000-100000.

Further analysis of the data collected from householders showed a number of income sources by which older people gain financial security. The most respondents (32%) cited remittances as their main source of income received for older people, while the second highest number of respondents (21%) cited crop production and the sales from those as their primary means of earnings. Pension was the third most-cited source of primary

(19.4% of respondents), while 12.7% list crop production

engaged in farming activities while the remaining

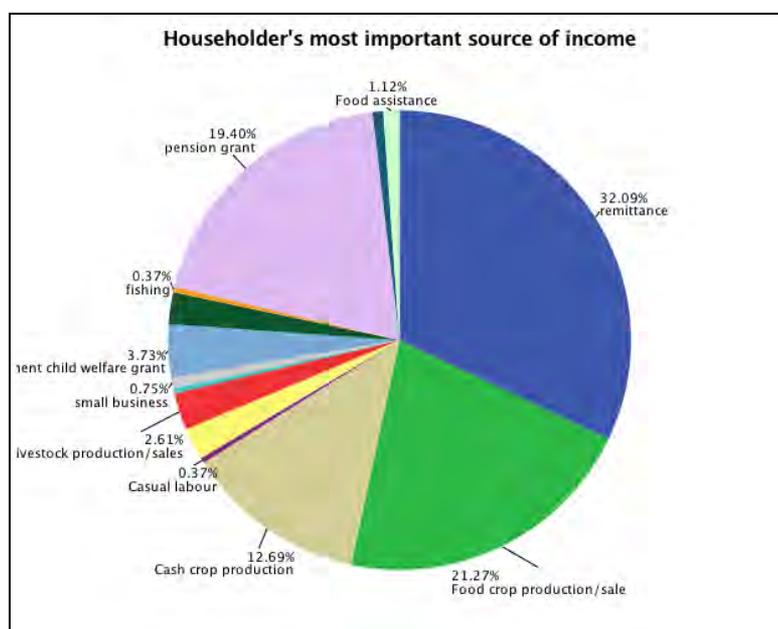


FIGURE 1 MOST IMPORTANT SOURCE OF INCOME FOR OLDER PEOPLE

as the primary income source (figure 1). Persons surveyed were also asked to indicate their second most important source of income. Remittances were most frequently cited (27.8% of respondents), followed by

food crop production and sale (16%), crop production (11%), then livestock (8%). At least another 8% of respondents cited pension as their second most important source of income, and 5.6% cited small businesses. Other secondary sources of income that respondents cited include fishing, skilled trade, petty trade and begging. At least 1.4% did not share their specific source of income but listed it as "Other".

Persons surveyed were also asked to indicate their third most important source of income. Remittances are the third most important income source for 21% of respondents, while agricultural production (vegetable, cash crop, food crop) was cited as the third most important income source by 40.4% of respondents. Older people are also dependent on the government and welfare grants and begging (2.1%) as additional sources of earnings.

Although remittances appear to be the most important source of income for respondents, more respondents depend on various forms of farming, including crop production and livestock rearing, than any other source of income. According to the analysis 73.12% said they are

26.88% listed alternate sources of livelihood for earnings (Figure 2). The level of participation in farming activities as an income earner varies according to community. The study reveals that of the 32.3% (n=120) of respondents from Southfield, 28.8% (n=107) are not involved in any farming activities, and only 3.5% (n=13) (Figure 3) are involved in farming. Of the number of respondents involved in farming as an important livelihood option, Spring Hill (Portland) had the highest percentage of farmers (9.7%) within the farming category.

A Chi Squared test showed a strong association between communities involved in farming and those not involved in farming ($p=0.00$). This result helps to dispel the widely held view that older people are predominantly involved in similar livelihood activities within all rural communities, particularly in St. Elizabeth.

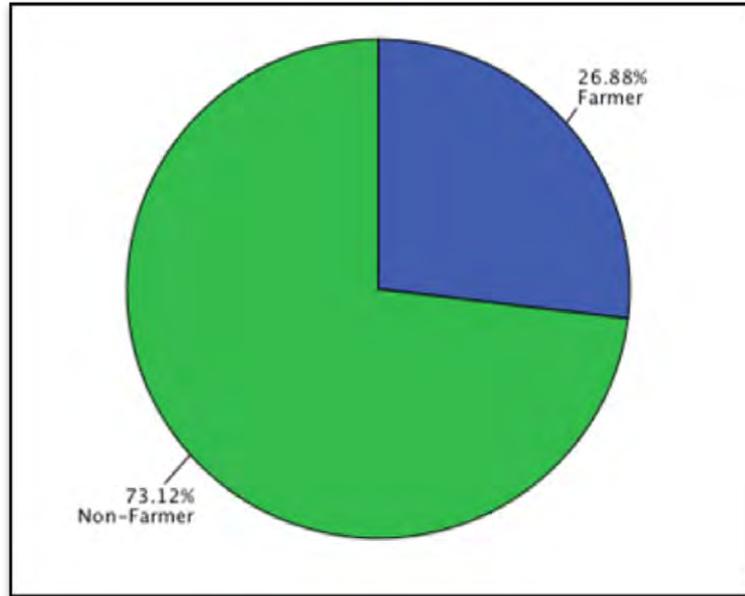


FIGURE 2 PROPORTION OF OLDER PERSONS WHO ARE FARMERS VERSUS NON-FARMERS

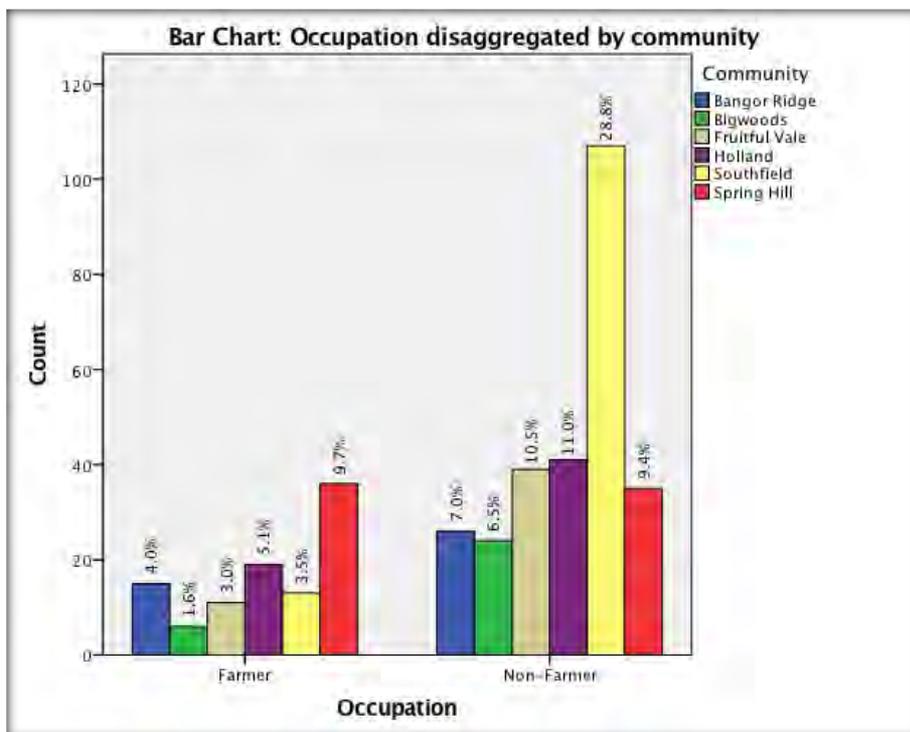


FIGURE 3 RELATIONSHIP BETWEEN FARMERS AND NON-FARMERS INDICATED BY COMMUNITY

Based on the Chi Square results for occupation and community, further analysis was carried out to determine other significant relationships among communities and their primary source of income. For this analysis, primary and secondary sources of income were tested.

The analysis of the secondary source of income showed an even greater association between community of residence and primary and secondary sources of income amongst respondents.

Observations showed that of the 19.4% of respondents who are pensioners, 8.2% are from Southfield, St. Elizabeth. In terms of salary and wages, residents of

Southfield have amongst the highest percentage of salaried older persons; 2% of the total 2.2% of respondents who said they receive a salary are from this community.

Holland, St. Elizabeth is the only other community where respondents continue to receive a salary. Southfield appears to have more residents that engage in what can be considered livelihoods associated with the middle-to upper-class strata than those within the other five communities within the study.

Among the respondents, remittances, food crops and pension are highest on the list of most important primary source of income (Table 1). Thirty-two per cent (n=86) of the 268 respondents indicated remittances as the primary source of income except for Southfield (where pension was the most frequently cited primary source of income) and Spring Hill (where food crop production was the most frequently-cited primary source of income).

TABLE 1: MOST IMPORTANT LIVELIHOOD BY NUMBER AND PERCENTAGE

Income	No. respondents	% Respondents
Remittance	86	32.1%
Food Crop	57	21.3%
Cash Crop	34	12.7%
Casual Labour	1	0.4%
Begging/gifts	6	2.2%
Livestock	7	2.6%
Skilled trade	1	0.4
Small business	2	0.7%
Government/child welfare	10	3.7%
Formal salary/wages	6	2.2%
Fishing	1	0.4%
Pension	52	19.4%
vegetable	2	0.7%
Food assistance	3	1.1%
Total	268	100%

In the second most important source of income, the results also show a high degree of significance between southern (St. Elizabeth) and eastern (Portland) communities. Table 2 show the percentage of respondents (n=144) most reliant on a select income.

TABLE 2: SECOND MOST IMPORTANT INCOME BY NO. AND PERCENTAGE

Income	No. respondents	% Respondents
Remittance	40	27.8%
Food Crop	23	16.0%
Cash Crop	16	11.1%
Casual Labour	2	1.4%
Begging/gifts	8	5.6%
Livestock production/sales	12	8.3%
Skilled trade	1	0.7%
Small business	8	5.6%
Petty trade	1	0.7%
Government/child welfare	6	4.2%
Formal salary/wages	1	0.7%
Fishing	1	0.7%
Pension grant	12	8.3%
Vegetable production/sales	6	4.2%
Food assistance	5	3.5%
No other source	2	1.4
Total	144	100

Table 3 serves to highlight the significance of dependency on a select income type by grouping income based on categories of stable, unstable, and stable but variable based on environmental or economic changes. The table highlights the communities most at risk of environmental transformations and those whose resources remain static or dynamic, (row 3). It highlights seasonal vulnerability by community. For example, row three (3), (under stable but variable income) includes agriculture; dependency on agriculture can be stable during times of normalcy, but can be varied and unpredictable under the threat or impact of a natural hazard. In the table, communities are ranked based on how important a particular source of income is to the community, as determined by the percentage of persons in each community that have this form of income as their primary source of income.

Analysis was conducted using cross tabulation and a chi square test in order to determine age and gender association with income (primary most important income). While the chi squared test revealed no significant association between gender and age ($p > 0.05$), the comparison of variables nonetheless indicated which group and/or gender is most dependent on specific means of income or livelihood support.

TABLE 3: INCOME TYPE AND COMMUNITY RATED BY STABILITY INCOME SUSTAINABILITY²

Income stability (1)	Income type (2)	Communities ranked according to how important source of income is to community (3)	No. of respondents per Community. (4)
Stable	Pension Salary	1. Southfield	120 (32%)
		2. Holland	60 (16%)
		3. Bangor Ridge	41(11%)
		4. Fruitful Vale	50 (13%)
		5. Spring Hill	71(19%)
		6. Big Woods	30 (8%)
Unstable	Begging/gifts Food assistance Government assistance/grants Petty trade/skilled trade	1. Big Woods	30 (8%)
		2. Bangor Ridge	41(11%)
		3. Fruitful Vale	50 (13%)
		4. Spring Hill	71 (19%)
		5. Southfield	120 (32%)
Stable but variable Env.economic variability	Livestock production Crop production Fishing Remittances	1. Spring Hill	71 (19%)
		2. Holland	60 (16%)
		3. Fruitful Vale	50 (13%)
		4. Southfield	120 (32%)
		5. Bangor Ridge	41 (11%)
		6. Big Woods	30 (8%)

Figure 4 shows that as it pertains to the primary important livelihood/income sources, i.e. remittances, food crop production, crop production and pension grants, all three age groupings (60-69, 70-79 and 80+) are comparatively dependent, with the 60-69 age group most frequently citing these income sources.

Less than 1% of respondents across age groups relied on begging/gifting. Notably, less than 1% of the 80+ respondents were still involved in livestock production. No respondents 80 and over appeared to gain from skills trade, small businesses, fishing or vegetable production.

As it pertains to the secondary income/livelihood source (figure 5), among respondents 80 years and over, the most important income/livelihood sources were gifting/begging (4%, n=144) and remittances (6%). Remittances (6%), food crop production (2%) and cash crop production (3%) were the main tertiary sources of income for those aged 80 years and over. Only 1% of respondents in the 80 years and over age group indicated pension grant as an important secondary source of income.

Gender and livelihood/income source

Figure 6 shows that the majority of older females have access to pension/grants (11% of 268 respondents) as opposed to older males on pension (7%). Older females were also recipient of remittances over older males; approximately 22% (n=64) of older female respondents said remittances were their main income source as opposed to 11% (n=28) of males. Similarly, in terms of grants received (government/welfare grants) there were more female recipients 3% while only 1% of males listed government/welfare grants as a primary income source.

Concerning income from livelihoods, the percentage of males in each primary income category, with the exception of cash crop and livestock production, was relatively high, though not significantly so. One observation that associates livelihood to gender is that no females were occupied in fishing, and petty trade. Notably, there were more females (5% of total respondents, n=144) involved in begging/gifts as an income option than males (1% of total respondents, n=144).

Health, mobility and frailty among farmers vs. non-farmers

While similar proportions of farmers report some form of health condition to non-farmers³, farmers appear to be more mobile and less frail than non-farmers.

In terms of mobility, Farmers generally indicate that they can move very well without obstacles, with only 7.07% of farmer reported needing assistance to get around, compared to 17.55% of non-farmers. In terms of frailty, 12.77% of farmers exhibit signs of physical frailty, compared to 22.98% of non-farmers.

² Data drawn from statistics in figure 14a (cross tabulation) and inferences from Chi Square results which shows association among communities and most important income (Chi = .0000, p-value is 157.528, with 5df.

³ 80% of farmers report some form of health condition, while 82.7% of non-farmers report some form of health condition.

FIGURE 4: PRIMARY MOST IMPORTANT INCOME BY AGE

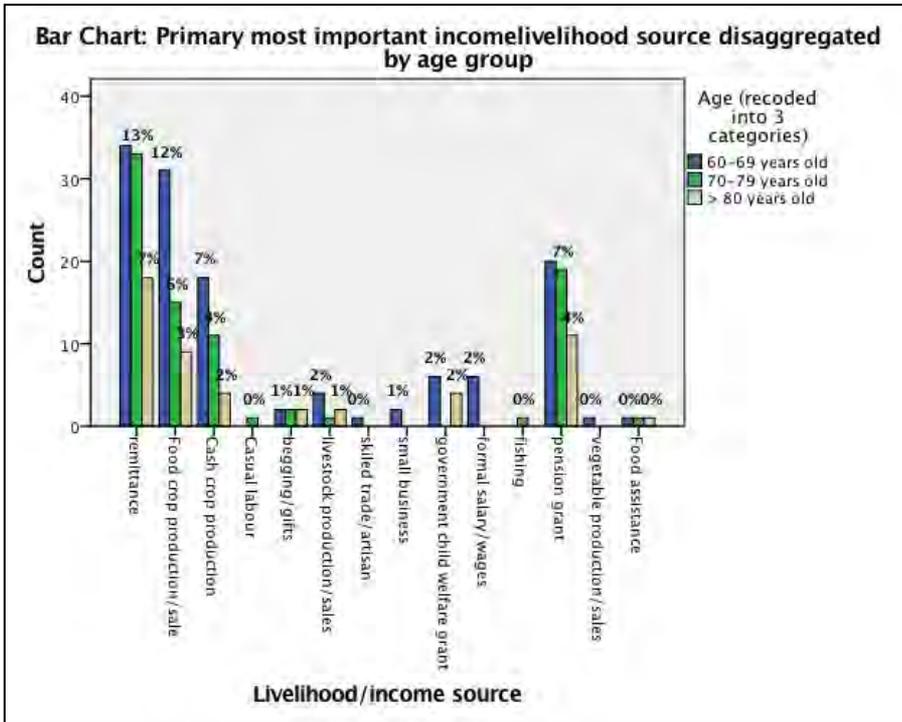


FIGURE 5: SECONDARY MOST IMPORTANT INCOME BY AGE

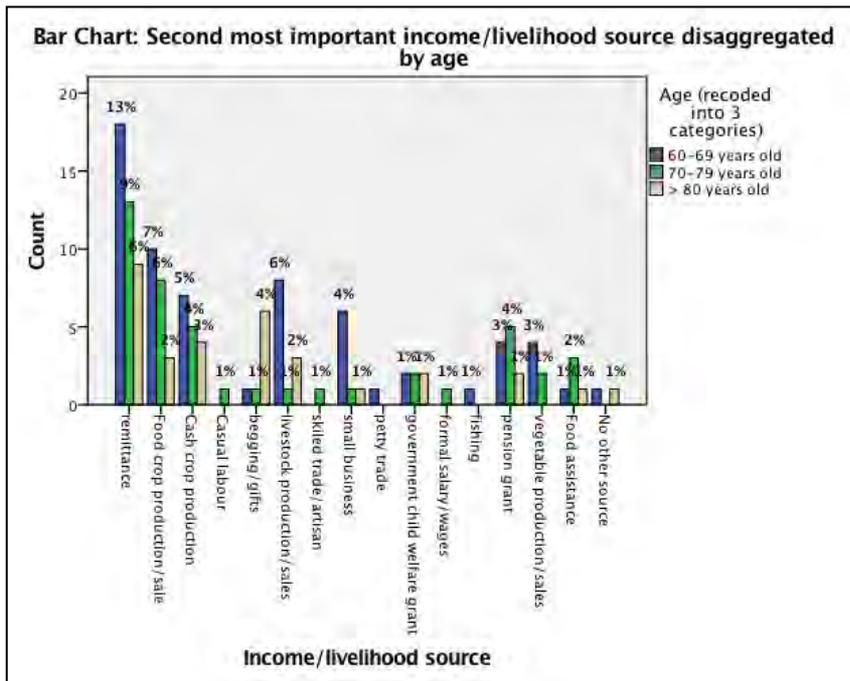


FIGURE 6: GENDER AND PRIMARY MOST IMPORTANT LIVELIHOOD

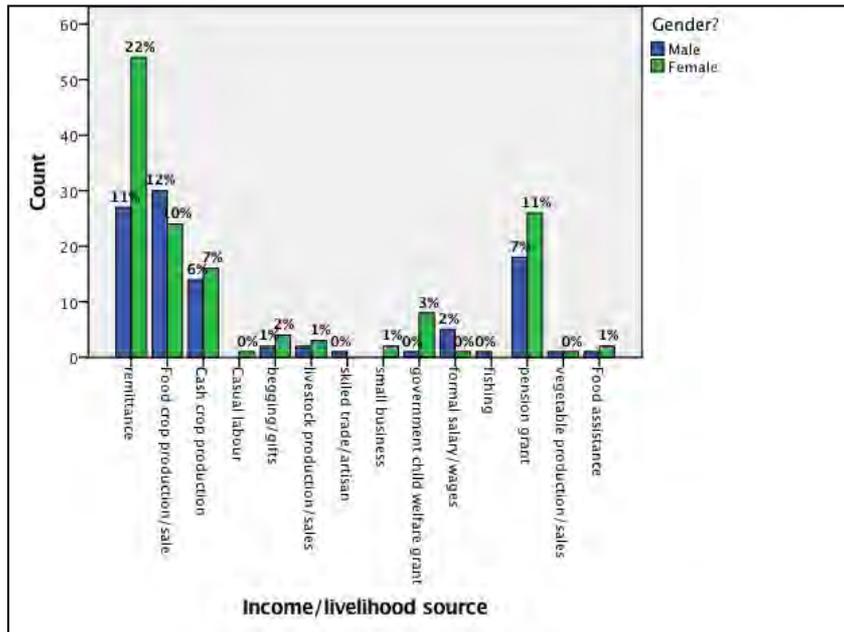
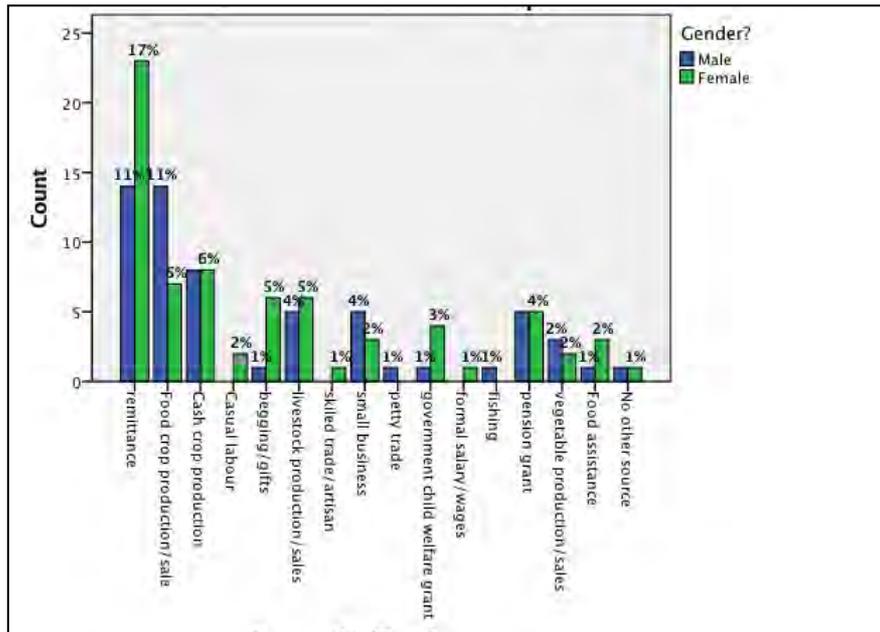


FIGURE 7: GENDER AND SECONDARY MOST IMPORTANT LIVELIHOOD SOURCE



Many older persons rely on farming as their main source of livelihood. In the aftermath of a disaster, many farmers' first response is to tend to their plots (Bangor Ridge focus group, September 2015; Fruitful Vale focus group, September 2015). In leaving their homes, many

times, they miss opportunities to receive benefits, because the damage assessment team may not find anyone at their location. This situation has been echoed amongst the farmers interviewed during focus group sessions in Fruitful Vale and Bangor Ridge.

2. DETERMINANTS OF VULNERABILITY

PHYSICAL ATTRIBUTES OF VULNERABILITY

Housing

Housing condition was most frequently cited as a vulnerability factor of older persons amongst stakeholders interviewed (National Council for Senior Citizens, September 2015; Ministry of Health interview, September 2015; SDC St. Elizabeth interview, September 2015; ODPEM interview, September 2015; Parish Council interview, September 2015)

Many older persons are homeowners, and are therefore responsible for the maintenance of their homes. Pre-existing conditions such as poor income status, mobility issues and living alone result in the homes of many older persons ending up in a state of disrepair and deterioration (National Council for Senior Citizens, September 2015). One concern raised is that the homes of older persons were not built to be as strong as newer homes, and were likely to be made of wattle and daub (SDC St. Elizabeth interview, September 2015; Board of Supervision interview, September 2015). Additionally, the age of some of these buildings may not have been constructed when the Building Code and Regulation Act was in effect (SDC St. Elizabeth interview, September 2015).

The homes of some older persons are older structures that have weathered numerous past hazards, and have become progressively structurally unsound with each event, especially if funds to carry out extensive repairs are limited (SDC St. Elizabeth interview, September 2015). A chi-square test for association between housing conditions and worst damage to home due to past disaster confirmed this. There was a statistically significant association between housing conditions and worst

damage to home due to past disaster, $\chi^2(1) = 27.943$, $p = .006^4$.

In some cases, houses constructed by relief agencies such as Food for the Poor go a long way to temporarily restore housing and normal functioning family life. However, the housing is of such a quality that they are likely to be impacted by another hazard.

Housing condition varied according to parish, with Poor to very Poor housing being associated with 24.2% of persons surveyed living in Portland, versus 10.4% of persons surveyed in St Elizabeth. Southfield, St Elizabeth had by far the highest percentage of housing stock in good or very good condition (69.3%), confirming indications by the SDC St. Elizabeth representative. Bangor Ridge had the highest percentage of Poor to Very Poor housing (28.8%); along with Bangor Ridge, all the Portland communities had >20% of Poor to Very Poor housing stock, while all of the St. Elizabeth communities had <14% of Poor to Very Poor housing stock.

Roofing material was predominantly zinc in both Portland and St Elizabeth, and the material of outer walls is predominantly concrete. However, St. Elizabeth has a much higher percentage of homes made of concrete (72.9%) than Portland (46.3%), and Portland has a notably high percentage of the outer walls of homes made out of wood/timber and mixed wood.

⁴ 50% of expected cell frequencies were greater than five.

Using frequency distribution, the researcher attempted to determine the vulnerability of older people based on their ownership of assets and role in the home. Of the total number of respondents (n=352), 67.6% (238 respondents) indicated that they owned the home in which they lived without the burden of mortgage payments. Nine per cent of respondents (n=31) own their house with mortgage, another 13.4% (n=31) said they live in their houses rent-free. Fourteen per cent of respondents did not provide the conditions under which they either live, owned or leased the homes they resided in. Less than 8% (n=32) of respondents either leased, rented furnished or unfurnished homes or received/rented government homes. Approximately 1.1% (n=4) indicated that they were informal residents (figure 8).

Results of the sample showed that many older people do not only own their houses, but also their land. Sixty-nine percent (n=242) of respondents claimed to own the land they occupy without the burden of mortgage, only 6.6% (n=23) are still paying mortgage on their land

(figure 9). Another 10.9% (n=38) are living rent-free and 4.3% (n=15) are leasing the land they occupy. Renters and informal settlers account for 1.4% (n=5) and 1.1% (n=4) of respondents (figure 8).

To determine house and land ownership among older people and the category of vulnerability with regards to age, further analysis was conducted to determine the relationship between home or land ownership and age. The results from a chi-squared test showed that there is no significant association between house or land tenure and age groups. However, the analysis of assets by age indicated which group of older people were still paying mortgage, renting and/or leasing of property and those living as informal settlers.

Ownership of homes disaggregated by age showed that 28.4% belong to the 60-69 age group, 24.3% belonged to the 70-79 age group and 15.2% owning homes with mortgage belonged to the older age group, i.e. 80 years and over (figure 10).

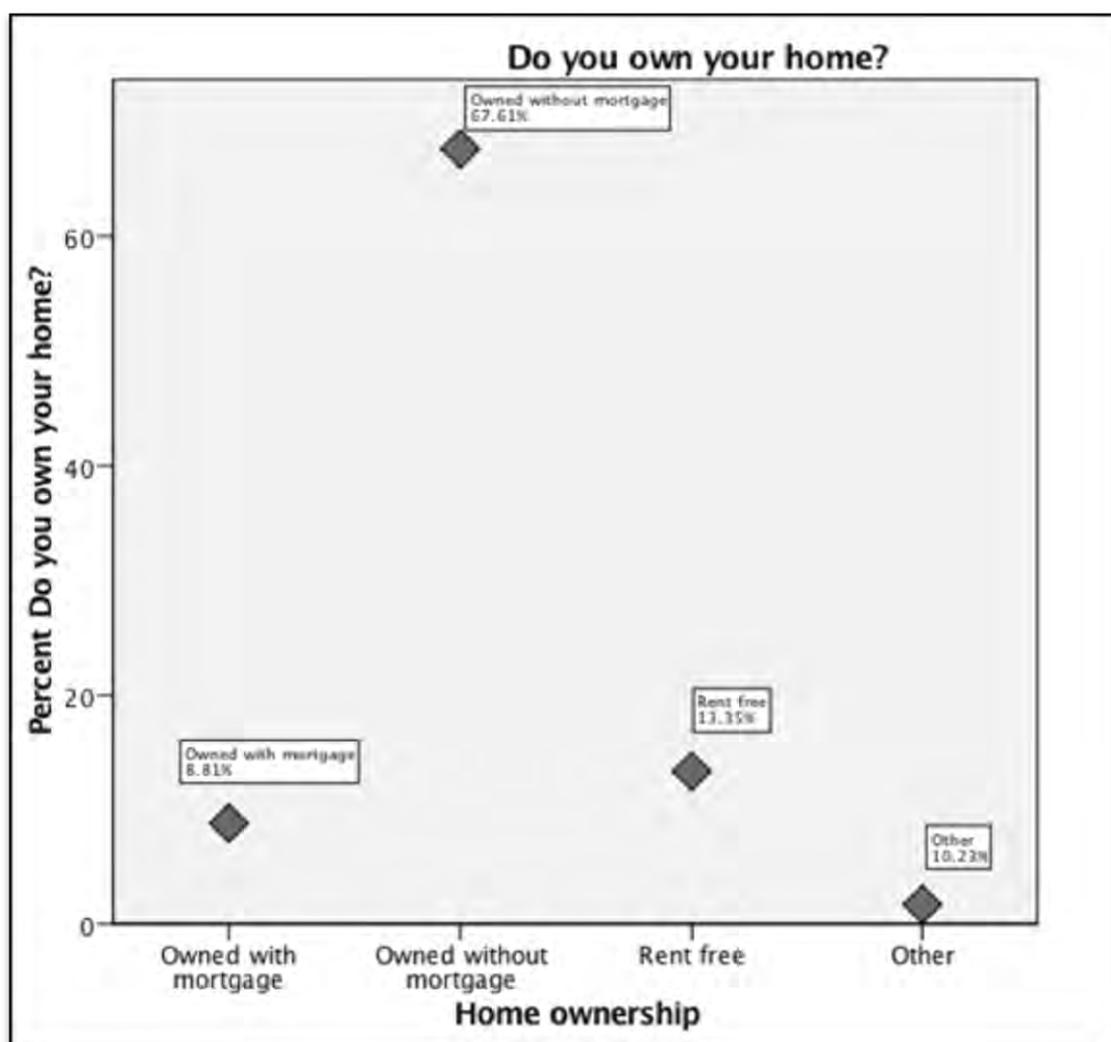


FIGURE 8 OWNERSHIP OF HOMES BY PERCENTAGE

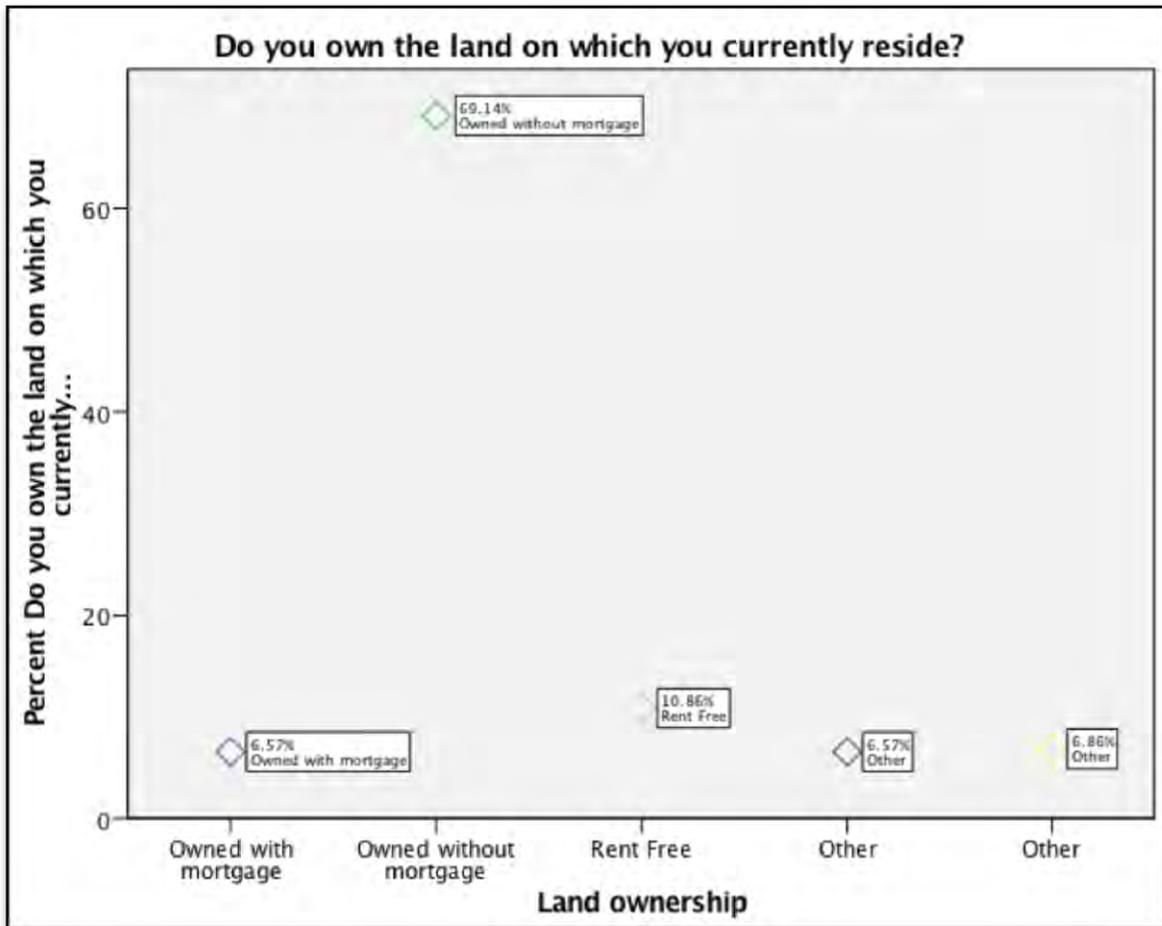


FIGURE 9 OWNERSHIP OF LAND BY PERCENTAGE

Older people living rent-free were the second-highest grouping in terms of house tenure. Approximately 2% of the 44 respondents living rent-free belonged to the 80 years and over age group, another 4% belonged to the 70-79 group while the largest percentage for this group (7%) belonged to the 60-69 age range.

The results further showed that no older person 80 years and over were informal settlers, or private or government renters and less than .03% in this age grouping rented an unfurnished house. 1.2% of respondents (.06 respectively) in the 60-69 and 70-79 age group were occupiers of homes/lands owned illegally. Only the 60-69 age group 1.2% (4 respondents) rented the homes they live in from other homeowners.

The results of housing and land tenure support the claims of key stakeholders who were interviewed. The percentage of older home owners is high; based on the interviews home ownership amongst the elderly can be considered a vulnerability factor, as being the owners, they are responsible for the maintenance, protection and any necessary repairs to be done to their homes. This can present a financial burden to these persons who already

generally have limited income, and health-related priorities.

While the concept of older homeowners experiencing greater vulnerability seemed to be a potentially valid one, the data did not support this concept. Chi-Square tests did not reveal any significant association between housing tenure and the following factors:

Pre-Impact factors:

- a. Preparedness, expressed as a score composed of 17 preparedness factors.

Post Impact factors:

- a. Long term disaster effects
- b. Greatest damage to home
- c. Obtaining relief

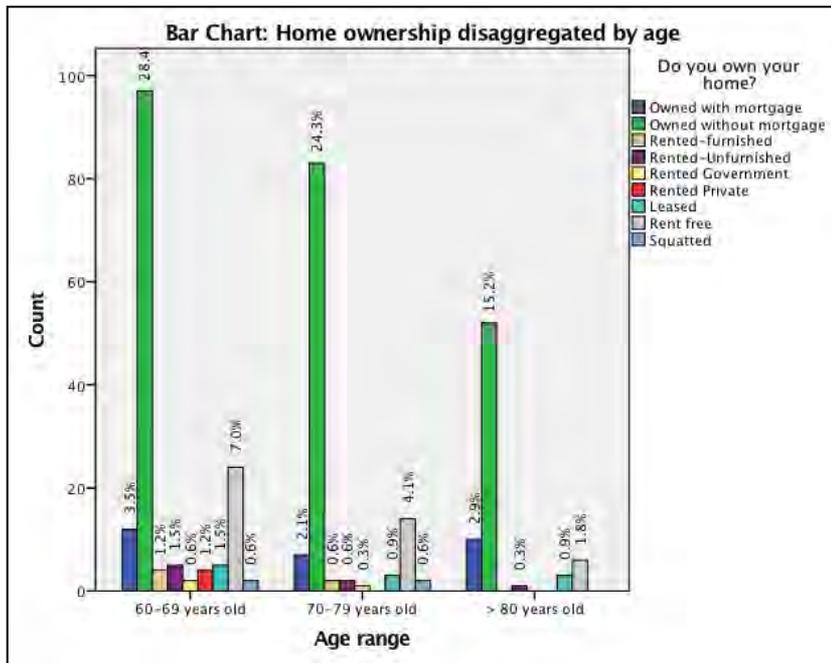


FIGURE 10 HOME OWNERSHIP BY AGE GROUP

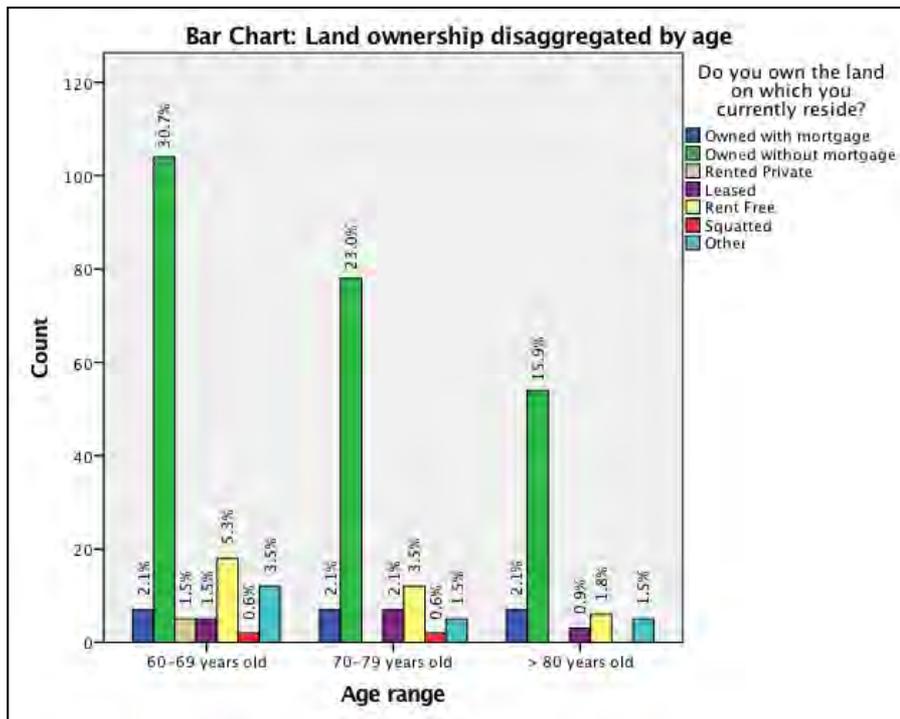


FIGURE 11 LAND OWNERSHIP BY AGE GROUP

SOCIAL DRIVERS OF RESILIENCE

Support Group or Services Affiliation

Awareness of older people and their activities as well as needs are often monitored through involvement in various groups and registration by government agencies. While medical statistics are provided by how often and how any older people utilize public health clinics based on the Jamaican system, other information on older people including poverty level is carried out by assessing their numbers through Senior Citizen's Groups and Community Development Agencies (CDC). Representative in the Office of Disaster Preparedness and Emergency Management (ODPEM) noted that respective public education and preparedness initiatives are conducted in communities through CDC and Community Emergency Response Teams (CERTs). CERTs work at varying levels in their communities and with all groups including the SDC. Effective preparedness and awareness initiatives will only reach those older people who participate and are registered members of such groups.

Similar information was shared regarding interventions and relief or poor relief assistance by representatives of the Council for Senior Citizens, the Board of Supervision, Parish Council (Port Antonio, Portland) and Poor Relief (Black River, St. Elizabeth).

Despite awareness of the groups that may exist in communities; not all community members are associated with or have knowledge of the varying groups in the communities. Of the total respondents who are aware of social organizations in the community, only 60% (figure 12) indicated awareness of a church group, and only 52.3% noted they were members of the church (figure 13). Further, 13.7% indicated being aware of the farmers group, but only 9.7% are registered members of the group. This was an interesting finding, which is consistent with information shared during the group discussions with farmers in Fruitful Vale. Not many people are active members of farmers groups (Fruitful Vale and Bangor Ridge focus groups).

The group discussion was conducted in Fruitful Vale during the month of September 2015. Over 30 farmers

within the age range of 60-90 years attended the meeting. Less than 10% of the farmers attending the focus group meeting said they were not members of the farmer's groups and gave varying reasons which included that not being recipients of benefits from the group or the Rural Agricultural Agency (RADA).

The Senior Citizens Group is one of the key groups from which information on older people within communities are gathered, (National Council for Senior Citizens interview, September 2015; Portland Parish Council interview, September 2015; MLSS interview, September 2015); however, while 5.3% of total respondents (n=338) are aware of the SCG in their communities, only 3.3% are members in their respective communities.

Respondents had a tendency to favour church than most other groups as indicated by the survey results, which show that 52.4% of respondents are members of churches while 33.1% of respondents were not active members of any group.

Since vulnerability, preparedness and relief efforts are driven mainly by the names on a list (membership of SCG, CDC, farmers group), further analysis was conducted to determine whether participation in groups were subjected to gender, age or other dynamics at the community level.

Survey results show that while all communities have indicated that they have access to churches, not all communities surveyed have access to critical groups, such as SCG and RADA/farmers groups (figure 15). Among the six communities surveyed, only respondents in Spring Hill (less than 1 percent) and Bangor Ridge (1%) indicated association with their CDC group (figure 14). Further analysis showed that except for Bangor Ridge, Spring Hill and Fruitful Vale, all in Portland, respondents from none of the communities was aware of a CDC group in their community.

Consequently, government organizations conducting interventions by association will not likely interact with a significant number of older people due to the complete absence of inactivity of the select organizations in the respective communities across the island.

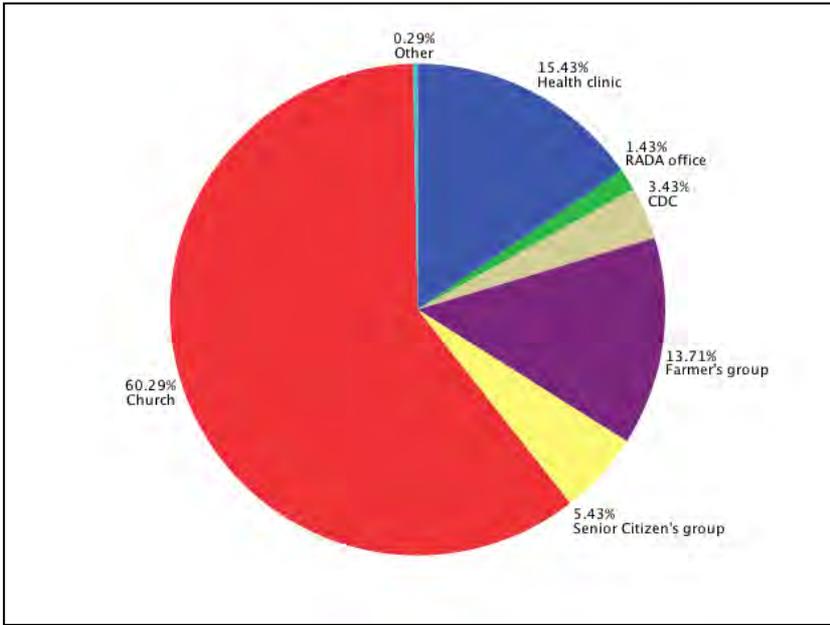


FIGURE 12 RESPONDENTS' AWARENESS OF COMMUNITY BASED GROUPS

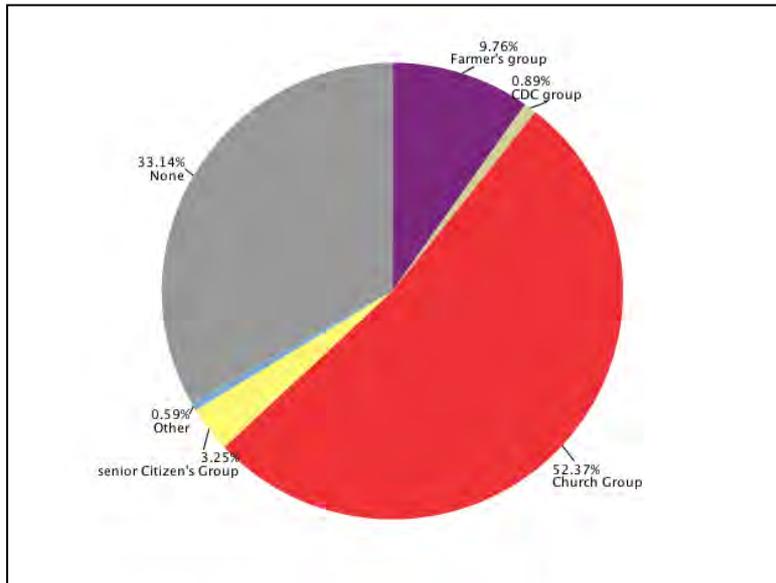


FIGURE 13 RESPONDENTS' GROUP MEMBERSHIP

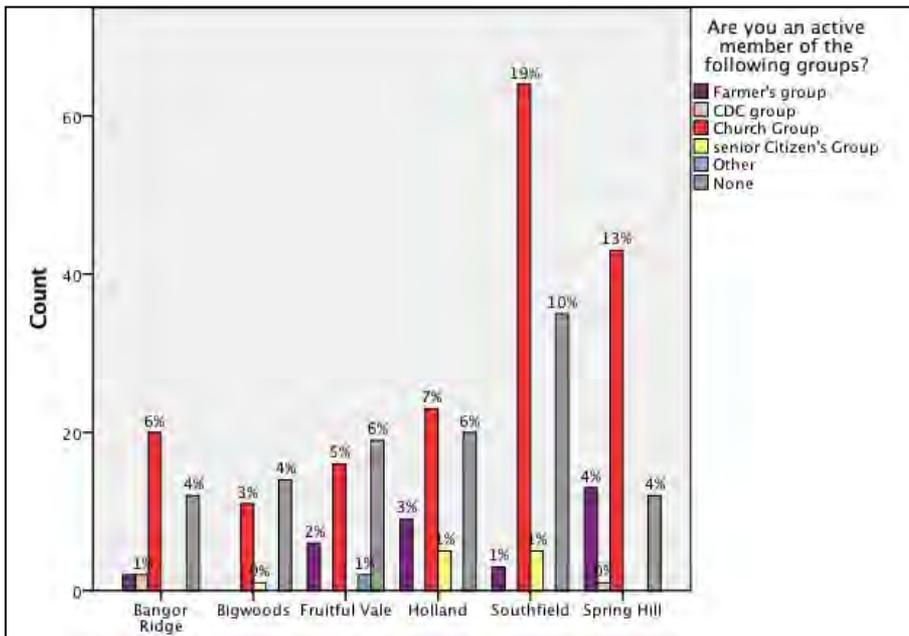


FIGURE 14 RESPONDENTS' GROUP MEMBERSHIP BY COMMUNITY

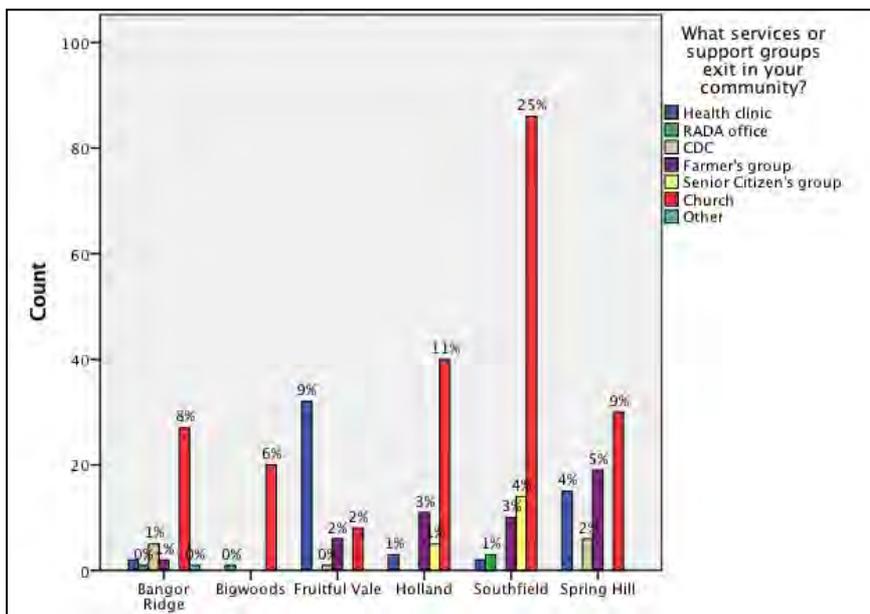


FIGURE 15 EXISTING GROUPS IN SELECTED COMMUNITIES

Another key finding regarding access to and association with groups is the fact that among the six communities, no farmers group exists in the community of Big Woods, despite there being a small group of women farmers operating in the community. Most of the women in Big Woods farm cash crops, (legumes and vegetables) according to response from focus group interviews conducted in Big Woods, (September 2015). As there is no farmers group, vulnerability to farming is a principal issue for female farmers in the community. Based on respondents, SCG exist only in Southfield and Holland, St. Elizabeth, nevertheless only 4 and 1 percent of respondents from each community respectively indicated an awareness of the existence of the SCG. Despite 4% of respondents in Southfield being aware of the SCG, only 1% indicated membership. In Holland, 1% of respondents were both aware of and were members of the SCG. While no respondents acknowledged awareness of the SCG in Big Woods, less than 1% of respondents indicated membership of this group. No communities in Portland reported being aware of or being a member of the SCG.

The local health centre was listed as a service or support group. While all communities, except Big Woods, St. Elizabeth noted that they had access, none of the respondents indicated that they were registered with their health centres. President and doctors at the Port Antonio Public Health Centre, Portland stated during the key informant interview that both Fruitful Vale and Spring Hill had clinics in their communities, while residents of Bangor Ridge may visit the clinic in Fruitful Vale or Buff Bay in the parish. Doctors at the centre also noted that some members of the respective communities in the parish will visit the Port Antonio Health Centre for clinical appointments, in the event that

1. They were once living in Port Antonio and express the desire to continue their appointments there;
2. They are visiting relatives in Port Antonio and during the period have a clinical appointment;
3. They are not able to access medications at the clinic in their community, the clinic in Buff Bay, or pharmacies in Buff Bay due to limited supply or availability.

Social Groups and Gender Dynamics

The survey revealed a commonality among older males and females, indicating that females are more likely to participate in church settings as oppose to males. Results indicate that more than 50% the number of male to females (1:2) will participate in church activities. Based on the survey it was found that 35% (n=107) of female respondents attend churches while 16% (n=50) of males attend churches.

We also see where slightly more males are supporters of farmers group, (7% of sample respondents) than female farmers, (3%). Notwithstanding the disparity between male and female farmers attending farmer's group meetings is directly proportionate to the number of males and female farmers interviewed. More females are associated with SCG (3%) while less than 1% males are active members of SCG. More males responded to being non-members of groups (18%, n=54), in direct comparison to females (16%, n=48).

When measured by age, statistics show that in terms of church membership, the numbers declined across age groups (figure 11). Twenty-four per cent (n=78) of respondents between age 60-69 participate in church, and 18% (n=61) in the 70-79 age cohort. There was a further decline of church attendance by 7%; at the over 80 years, only 35 respondents are associated with church groups. Group association among church members and members of farmer's group showed a similar trend, with the numbers declining with age. Between the 60-69 years, 7%(n=22) respondents indicated being members of farmers group, by the age of 80 years and above, only one respondent indicated being a member of the farmer's group. Only 2% and 1% respectively between the 60-69 and 70-79 age groups indicated being members of the CDC. There were no respondents in the 80 years and over being members of the latter group.

3. CHALLENGES TO RESPONSE & ADAPTATION

Older age brings reduced mobility and muscle strength, impaired sight and hearing, and greater vulnerability to heat and cold (HAI, 2015). Older people with a history of economic instability could be considered more vulnerable due to limited resources to partake in a healthy, affordable lifestyle. In these situations, older persons with varying degrees and forms of instability are considered more vulnerable as age itself does not increase vulnerability but rather the problems of increased age *i.e.* chronic diseases, deteriorating physical and mental ability, decreased strength, low tolerance for physical activity, functional limitations and decreased sensory function (Eldemire-Shearer 2012).

The situation of vulnerable older people and particularly those affected by poverty includes a list of challenges and associated conditions. Older people in poverty can be exposed to a number of extreme social conditions. Deteriorating health is one challenge but health risk increases when their limited resources prevent the ability of older people to access medical care and treatment. Lower income not only has the potential to impact on health but also on the ability of older people to secure their environment and maintain a secure environment. Poor health can impact an older person's ability to work and increases early retirement and dependency. Consequently, challenges increase based on preparedness for ageing and family condition.

Another challenge among older people is the condition of their mental health. Older people may live with family members who are not financially able and are not in a position to assist their older relative. The migration of younger relatives may result in isolation of older persons who are left with no one to assist their immediate needs. Studies have shown that migration can have negative impacts on the psychosocial well-being of older persons (HAI 2010). While migration of relatives is a challenge among older people, there are positive outcomes, particularly as it relates to meeting the immediate

financial needs of older people through the provision of remittances.

Previous studies on vulnerability and vulnerable older people health as a condition of vulnerability among the older persons. The present study on older people in Jamaica and how they are impacted by natural disasters attempts to identify the state of wellbeing among older people and their accessibility to health care. The objective is to determine how health is linked to the vulnerability of older persons in six (6) communities (Portland and St. Elizabeth).

Older people generally suffer from a range of illnesses. Amongst the respondents who indicated that they do experience some form of illness (72%), high blood pressure, vision, breathing and hearing problems, arthritis, and headaches were most frequently reported.

Despite the challenges older persons face, the findings indicate that older people generally adhere to their schedule of check-ups, with 82% of respondents who need to see the doctor often (once per month or more often) actually honoring their check-up requirements. A minority however reported their access to health services and the pharmacy is often affected by a disaster mainly of the nature of a tropical storm.

MOBILITY

A fair number of respondents reported that they are not affected by mobility issues. Results show that of the 372 respondents, 97 percent (361) responded to questions associated with mobility. More than half (53%) of respondents said they can move very well, while 31% said they are only able to move short distances. The remaining 16% of respondents said they either need help to move about or require the use of mobility aid (figure 16).

As we looked at mobility challenges among older people and wellness across the parishes of St. Elizabeth and Portland, it was important to determine how factors such as wellness, mobility and ageing affect the response of older persons in disasters. Using cross tabulation to analyse association based on Pearson Chi Square, the results showed that there is very strong relationship between mobility challenges and aging.

Among the ages 60-69, 70-79 and >80, respondents who stated that they are able to move well without obstacles varied. There is a difference of 13.14% in the 60-69 and 70-79 and a difference of 10.28% between the 70-79 and those 80 years and over do not have mobility challenges.

Among the respondents who indicated that they are able to move short distances, 14% belonged to the age group 70-79, while 11.43% belonged to the younger older group 60-69. Where respondents needed the assistance of a mobility aid and/or someone to assist them in moving around, the highest percentage belonged to the group 80 years and older. From the 80 and over, 6 percent needed aid to move around as opposed to the 2.86% and the 1.71% in the younger older (60-69) and middle older (70-70) age groups. Only older persons in the over 80 years old had higher than 1% needed someone to help them to move from one place to another.

Respondents were asked to further explain the reasons for their mobility challenges. Results confirmed that age related complications is responsible for mobility loss among 56 % of the respondents. Stroke was noted as the third highest cause of mobility loss among respondents, accidents accounted for another 6.6%, while amputation and birth defects was noted as the primary cause among 2.7% of respondents. 22.7% of respondents did not list the cause for their limited mobility (figure 17). With respect to immobility, the study did not identify if accidental defects were conditions of ageing or occupation.

Further analysis highlighted the variations in mobility between male and female respondent, with the latter displaying greater mobility challenges as they aged. The histogram in figure 19 explains further the relative difference between gender and mobility. Here we see that males who are able to move without obstacles is 25.8% of the respondents, while females in the same category are only 1.2% more than males. Similarly, both male and female respondents who need mobility aid to move around are 4.9% and 4.6% respectively. Where females were slightly higher than males in the category of movement within short distances without the aid of a person for mobility equipment. Here we see that males in this category is 12.2% while the number of female respondent in the same category is 20.67%.

These results were in keeping with studies conducted by

researchers in other parts of the world. Females are more likely to suffer from disaster impacts due to exacerbated health inequalities due to biological differences and gender roles (ODI, 2011). Zunzunegui et al. (2015) in their role assessing the mobility gap between older men and women found that the gap was further widened by existing socio-economic disparities for men and women where women were further disadvantaged. The research found that gender was a risk factor that explained poorer physical conditions on women as suggested by the findings of this survey.

When examining the association between mobility and potential vulnerability factors, the survey results were analyzed. Chi-Square tests did not reveal any significant association between mobility and the following factors:

Pre-Impact factors:

- a. **Preparedness**, expressed as a score composed of 17 preparedness factors. Each mobility category reflected a general pattern of their being a higher proportion of unprepared, the somewhat prepared, the very prepared persons.

Post Impact factors:

- a. Long Term Disaster Effects
- b. Greatest Damage to home
- c. Obtaining relief; generally, the pattern of accessing relief was consistent across the board, with the majority of respondents across the mobility categories electing not to access relief.

ILLNESSES

While ageing does not cause disease, it is associated with longer exposure to the risk factors causing disease. Increases in age therefore mean more exposure and potentially more disease (Shearer and Mitchell-Fearon 2014). One of the leading causes of illness and death among older persons in Jamaica is chronic diseases (UNFPA, 2011). Other major health issues affecting older people were primarily linked to stress and ageing. Among the respondents, hypertension (high blood pressure), arthritis, heart problems, diabetes (high blood

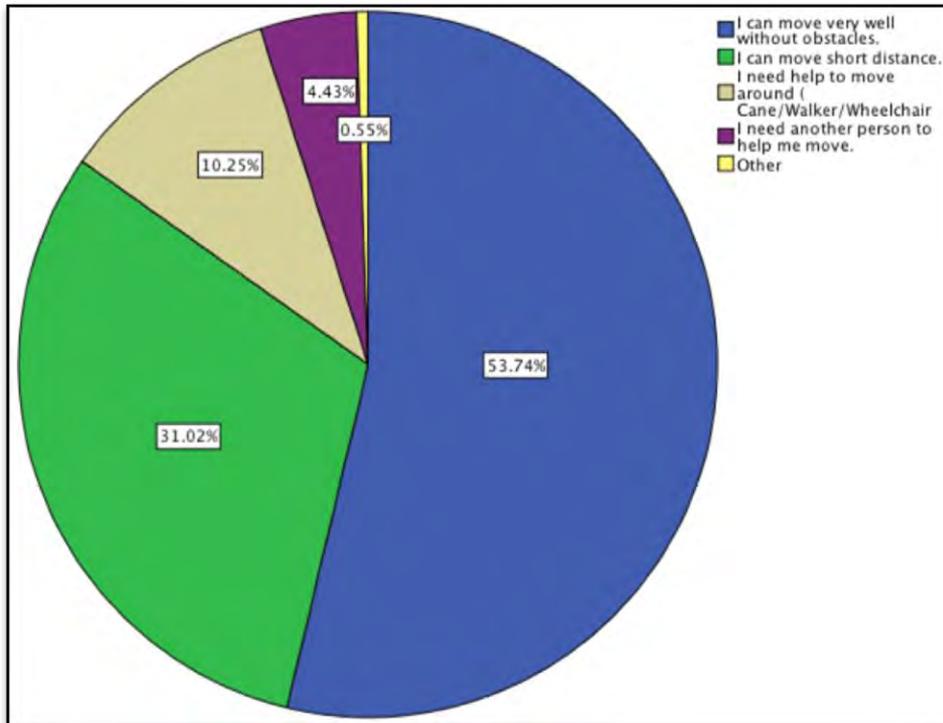


FIGURE 16 OLDER PEOPLE STATE OF MOBILITY

glucose levels), hypotension (low pressure), hearing and vision impairment, symptoms of depression were among the most frequently occurring illnesses/complications.

On the basis of associated illnesses, the respondents were asked to rate their illness based on primary (most treated or difficult to manage), secondary (controlled or treated) and tertiary (less threatening at the time of the survey). 361 respondents were able to note illnesses in the manner described above (figures 20-22).

A gendered analysis of illnesses and mobility issues was carried out among persons surveyed to determine if males and female had differing realities. The health status of older males and females, and how it relates to vulnerability between genders within the same age range, was therefore measured. The resultant analysis also identified which illness was more common among which gender (figures 23-25). Further studies in medical psychology will determine causal factors that will assist policy makers to plan strategies that will address the unique health challenges of males and females and how it impacts their ability to respond in times of disasters.

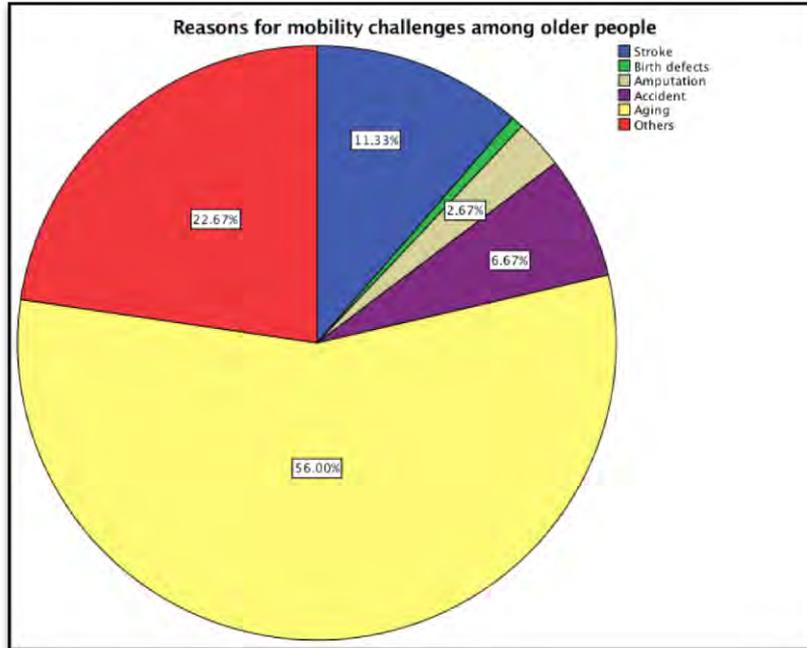


FIGURE 17: REASONS CITED FOR LACK OF MOBILITY

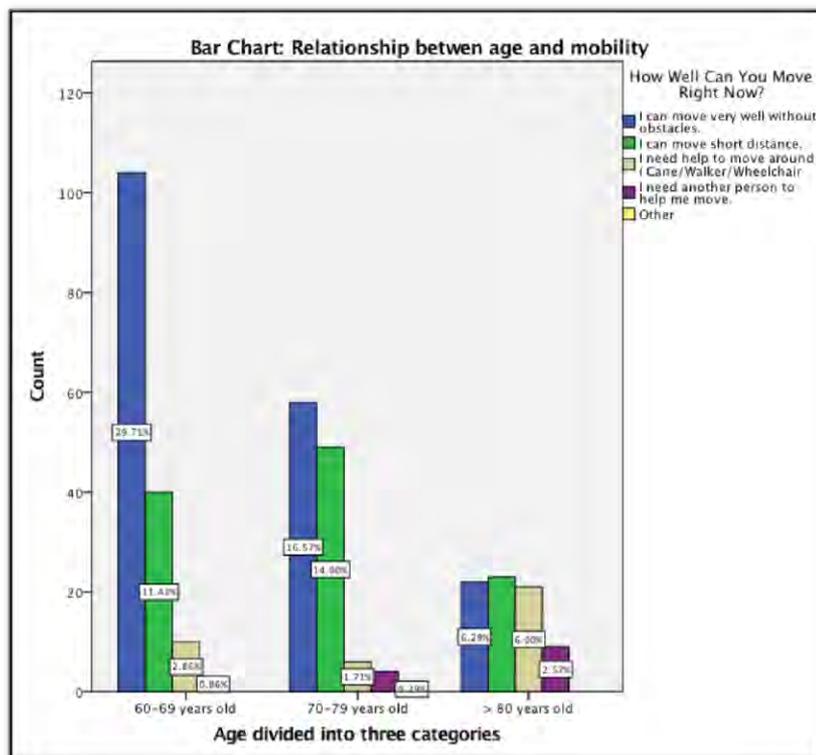


FIGURE 18 RELATIONSHIP BETWEEN AGE AND MOBILITY

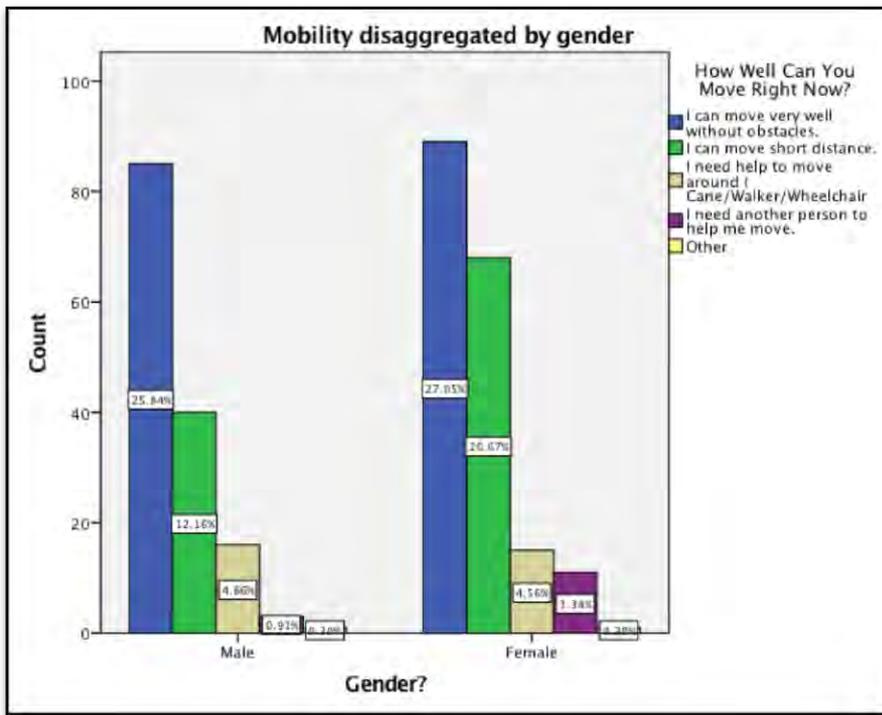


FIGURE 19 HISTOGRAM SHOWING RELATIONSHIP BETWEEN GENDER AND MOBILITY

Categories of Illnesses Reported by Respondents (Primary)

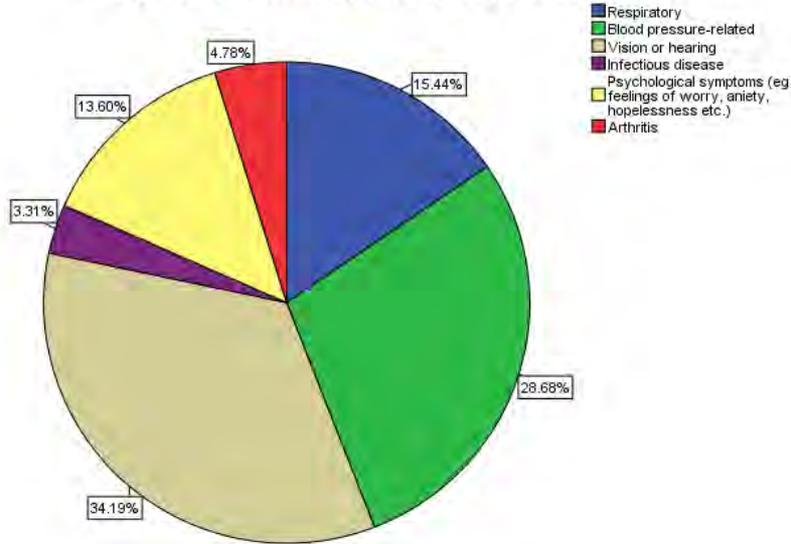


FIGURE 20 PRIMARY ILLNESS

Categories of Illnesses Reported by Respondents (Secondary)

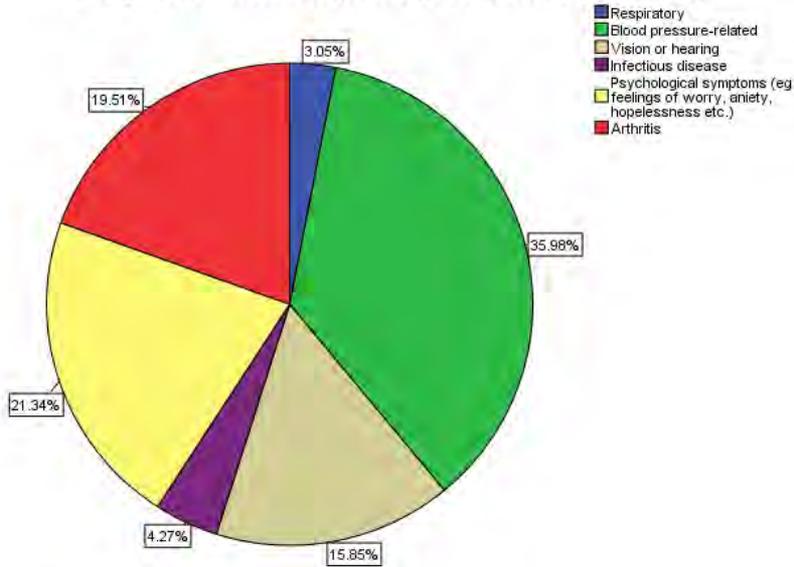


FIGURE 21 SECONDARY ILLNESS

Categories of Illnesses Reported by Respondents (Tertiary)

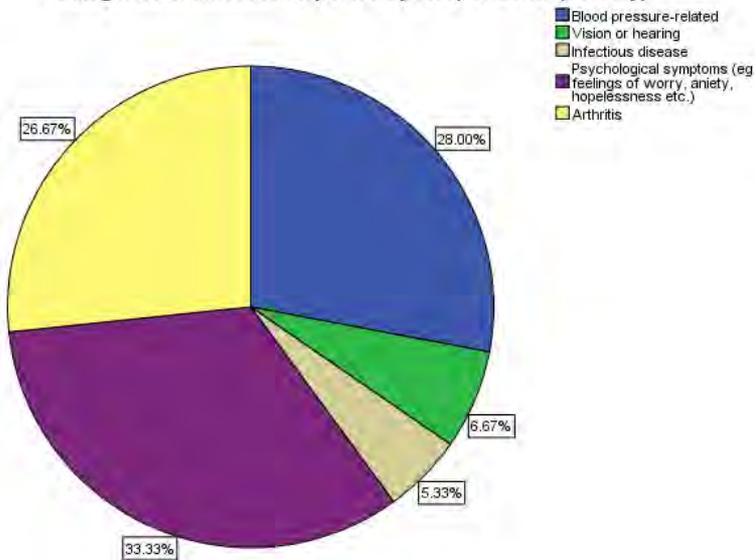


FIGURE 22 TERTIARY ILLNESSES

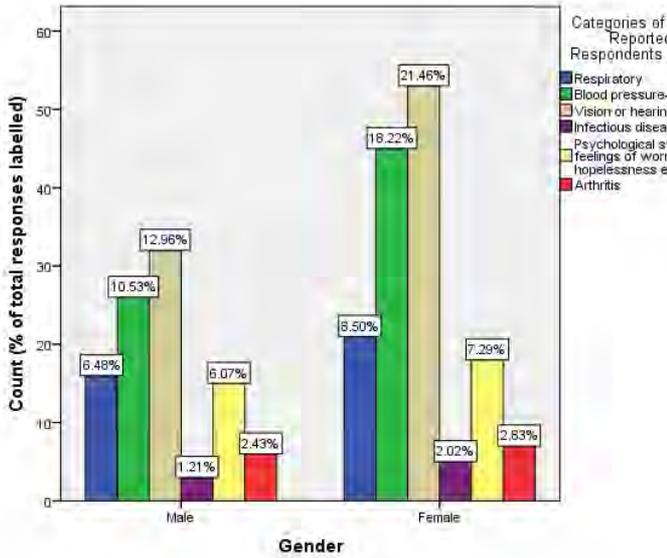


FIGURE 23 PRIMARY ILLNESS BY GENDER

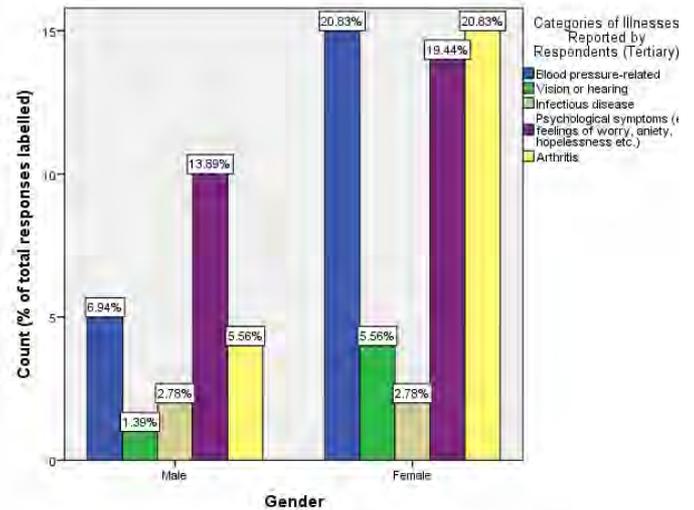


FIGURE 25 TERTIARY ILLNESS BY GENDER

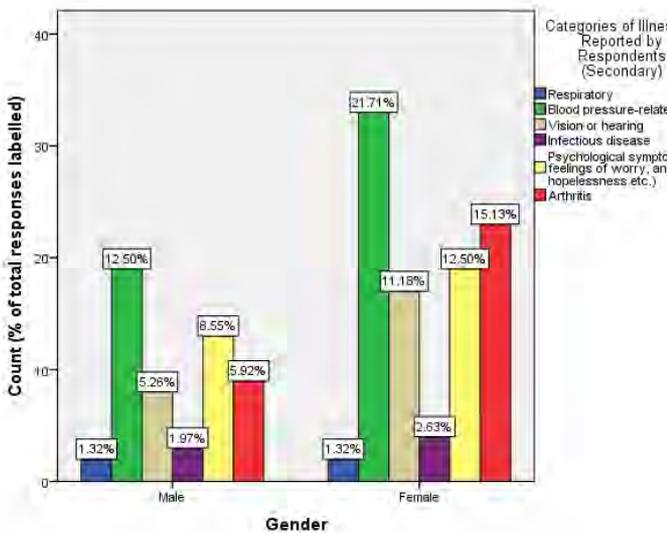


FIGURE 24 SECONDARY ILLNESS BY GENDER

According to the results of analysis of the relationship between gender and illnesses, females are far more susceptible to illnesses than males. In all three responses related to primary, secondary and tertiary illnesses affecting older males and females, high blood pressure and hearing problems are the two most prevalent ailments affecting older males and females. Thirteen percent of females and 7.5% males listed high blood pressure as their primary health concern, while 11.9% females and 7.5% males listed problems with sight as the highest health issue. In the secondary category of illnesses affecting older people, high blood pressure is listed about 16% of the female respondents as the second most problematic ailment, 9% of the males agree. Arthritis was named by 12.3% as their second most problematic ailment, while only 4.1% males listed arthritis as a secondary problem. Hearing problems was listed again as another major problem with 6.4% females indicating that they have problems with hearing. Another concern among older female is feelings of worry as (4.2%) said worry and only 1.6% of the males indicated worry as a health problem.

Among the list of ailments that affect older females than they do males in the tertiary list of illnesses are; high blood pressure, problems in controlling blood glucose levels (AIC), unusual stress, headaches and arthritis. In no instance in the primary, secondary and tertiary health related conditions impacting on older people was there a

higher percentage of males suffering from any one category of illness over females.

The main illnesses which affect the resilience of older persons are considered stress related. Women are especially susceptible to these diseases due to an overload of stress hormones as they age (Woolston 2015). Further studies are necessary to determine the significance of stress related illnesses among males and females, the reasons for females being more vulnerable to stress and how stress affects vulnerability to disasters.

Since all six communities across the two parishes have micro-environments and socio-economic factors which cause some variability in the results, an analysis was also conducted to determine the mobility challenges across the two parishes, (Portland, St. Elizabeth).

The stark reality is that people with long-term health conditions and chronic illnesses get sicker during disasters (Evans 2009). As such the fact that so many respondents admitted to having one or more chronic illness indicates they may be even more vulnerable to disaster impacts.

DIFFERENCES IN HEALTH STATUS BETWEEN FARMERS AND NON-FARMERS

While similar proportions of farmers report some form of health condition to non-farmers⁵, farmers appear to be more mobile and less frail than non-farmers.

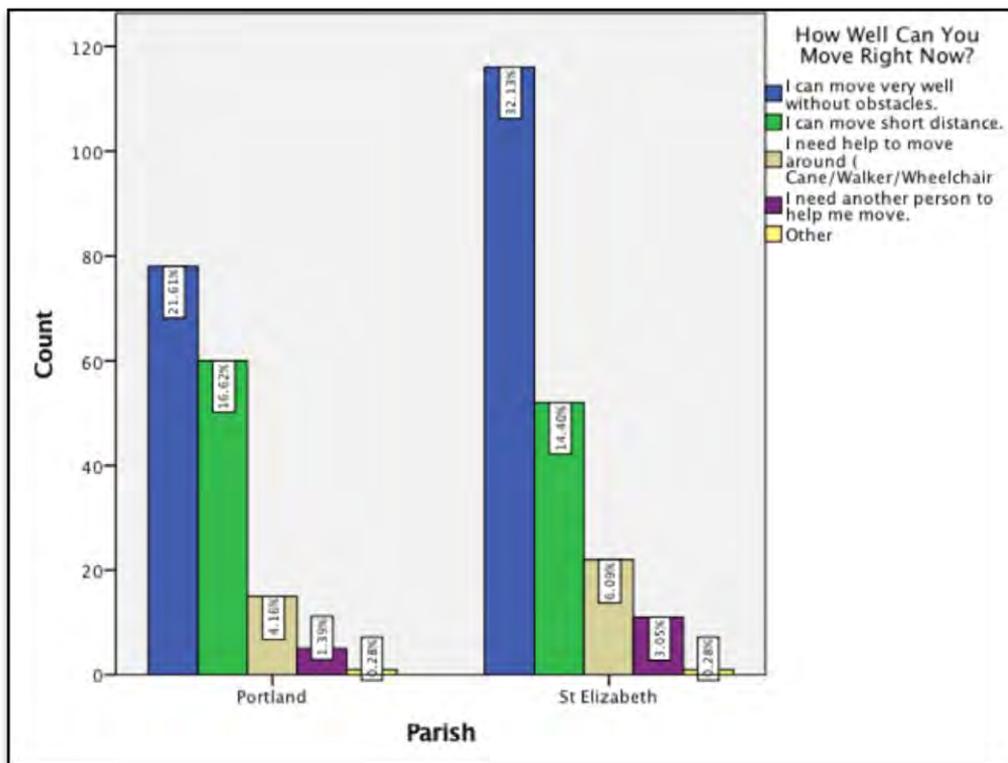


FIGURE 26 MOBILITY ACCORDING TO GEOGRAPHY

Chi Square results showed no interesting significance between the geographic ideals and mobility. Figure 26 shows this correlation and we see where the difference in mobility from one parish to the other is not significant to make an inference that frailty differs between the two. Despite not seeing a distinction between location and

⁵ 80% of farmers report some form of health condition, while 82.7% of non-farmers report some form of health condition.

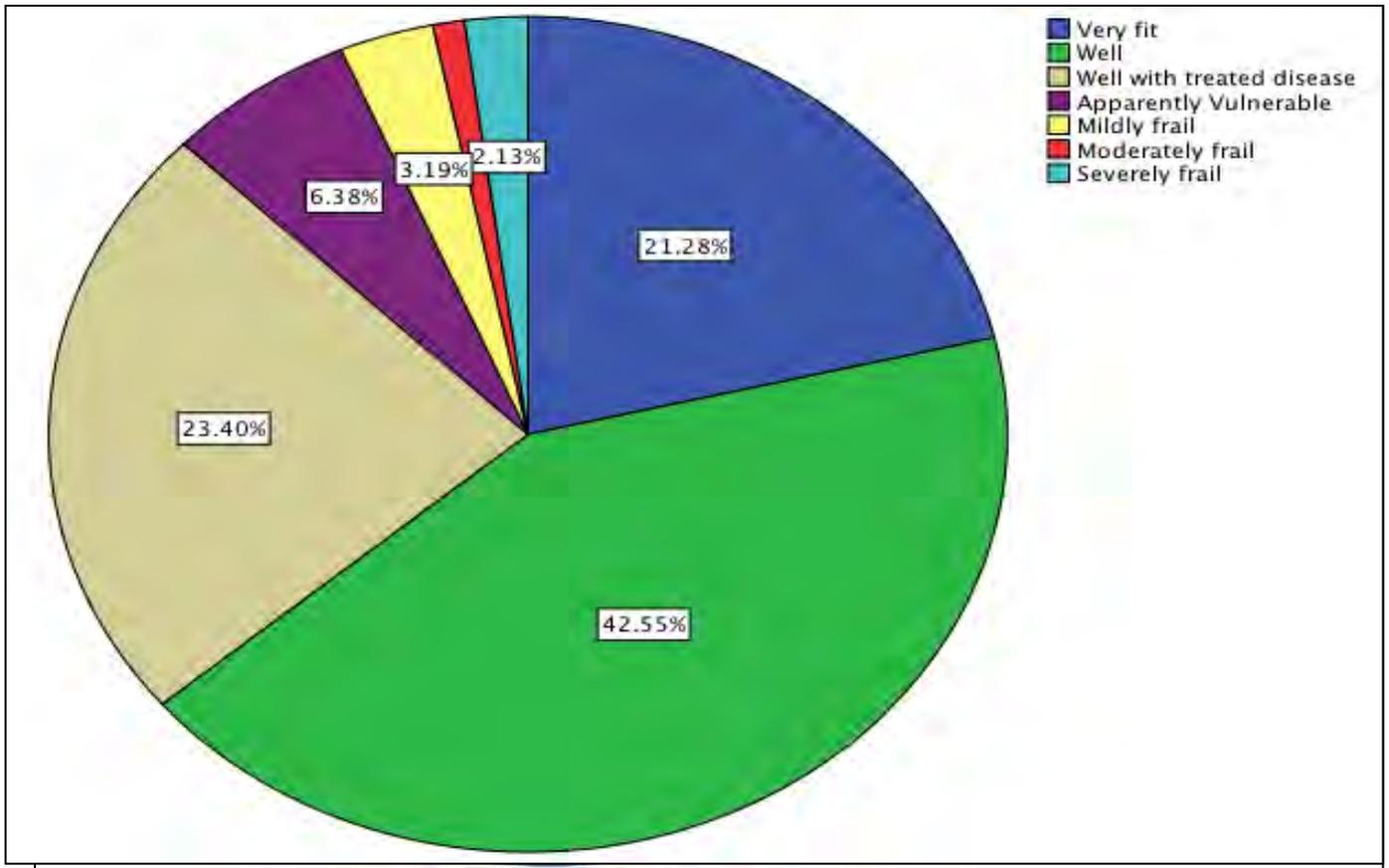


FIGURE 27 DISTRIBUTION OF MOBILITY AMONGST FARMERS

FIGURE 28 DISTRIBUTION OF FRAILTY AMONGST FARMERS

In terms of mobility, farmers generally indicate that they can move very well without impediments; only 7.07% of farmer reported needing assistance to get around, compared to 17.55% of non-farmers (figure 27).

In terms of frailty, 12.77% of farmers indicate that they are apparently vulnerable to severely frail, compared to 22.98% of non-farmers (figure 28).

ISOLATION

Amongst respondents interviewed, 69.9% of those who responded indicated that they live with one or more persons. Amongst those indicating that they live alone, 52.4% of respondents indicated that they receive family visits, 23.8% of respondents indicated that they make cell phone calls, and 12.9% cited that they visit relatives a means of keeping in touch with family member living outside of the home.

Living alone emerged as a persistent theme of vulnerability amongst those interviewed. In St. Elizabeth, the SDC representative indicated that a significant number of older persons live alone in some communities, and that less than 3% of the population of St. Elizabeth lives as couples. This statement was confirmed via the survey, when it was determined that 21.4% of older persons surveyed in St. Elizabeth live alone while 29% of persons in Portland live alone.

Based on the interview, the main concerns associated with living alone for older persons include, inability to care for themselves daily and to prepare or respond to a hazard. These statements were evaluated through the survey

A higher proportion of females than males lived within someone else in both St. Elizabeth and Portland, whereas a higher proportion of males than females lived alone

While it is concern that a higher percentage of persons who live alone have reported health conditions and mobility issues (Portland only), what is equally concerning is the results as it pertains to those who do live with another family member.

The majority of those who reported that they need help to prepare for hazards do not live alone.

Isolation is possibly the most important factor in creating vulnerability (HAI, 2000). In Portland, respondents who lived alone, indicated that they need help to prepare for hazards due to: inability to prepare on their own (30%), requiring assistance to protect their home (17.5%), and financial need (17.5%). Financial need (26.8%), requiring assistance to protect their home (18.6%), and inability to prepare on their own (13.4%) were also reported as reasons amongst those who did not live alone.

In St. Elizabeth, inability to prepare on their own was the top reason amongst both those who live alone (37.5%) and those who live with someone else (26.5%).

Further analysis showed that when looking at feelings of loneliness amongst older persons, the pattern was distinct between persons living alone and persons living with one or more persons in Portland. A chi-square test was conducted to determine association between feelings of loneliness and persons live alone. Zero expected cell frequencies were greater than five. There was a statistically significant association between feelings of loneliness and whether persons live alone, $\chi^2(1) = 11.686, p = .001$. Persons who lived with someone were less likely to feel lonely.

For St. Elizabeth, a chi-square test for association did not yield statistically significant association between feelings of loneliness and whether persons live alone ($\chi^2(1) = 2.015, p > 0.05$). However, it should be noted that more than half (50.7%) of those who live with someone else indicated that they felt lonely at times. In Portland, the proportion of those who live with someone and feel lonely at times is also notable (32%).

Neglect of older persons by relatives or children was cited as a key vulnerability factor by several stakeholders interviewed (National Council for Senior Citizens interview, September 2015; MLSS interview, September 2015; Poor Relief interview, September 2015; Parish Council, Portland interview, September 2015). The National Council for the Older persons representative, shared that

“...what you find for many of the older persons that I see out there that are most vulnerable are those that are neglected by their relatives or children and then they may have PATH program or the pension and yes that is government support. The family is not playing their roles, children are gone, they may

have said my daughter is a doctor, they are away and they spend all their money and do so many things for them and they are forgotten.”

Children of older persons have also been cited as having their own families and economic burdens, thereby preventing them from providing the necessary support for the older persons (Bangor Ridge Focus Group; MLSS Marlene Miller Interview). Other sources indicated that migration of youth from some communities to seek education and work opportunities could be responsible for the notable set of —Empty nesters” (SDC St Elizabeth Interview; Big Woods Focus Group).

4. ACCESS TO CRITICAL SERVICES & RESOURCES

ACCESS TO HEALTH SERVICES

One measurement of vulnerability is potential for vulnerable populations to access key services. The IFRC lists six criteria for a resilient society, which include access to infrastructure and services (IFRC 2014). To determine the attitude to health among vulnerable older people and the degree of accessibility to health services, the study also assessed individual responsibility and the infrastructure employed by the government to serve the residents within given communities.

Rating the access to health care and pharmaceuticals based on three levels of difficulty *easy*, *normal* and *hard* it was determined that with the exception of Southfield (St. Elizabeth) with 29.77% (n=89) of the n=299 respondents who said access to health centres was easy, the majority of respondents in all other communities described health centre access as hard. Fruitful Vale had the second percentage of *easy* ratings (10.4%) while Spring Hill, also in Portland had a maximum of 5.35% respondents indicating that they had easy access to health clinics (figure 29).

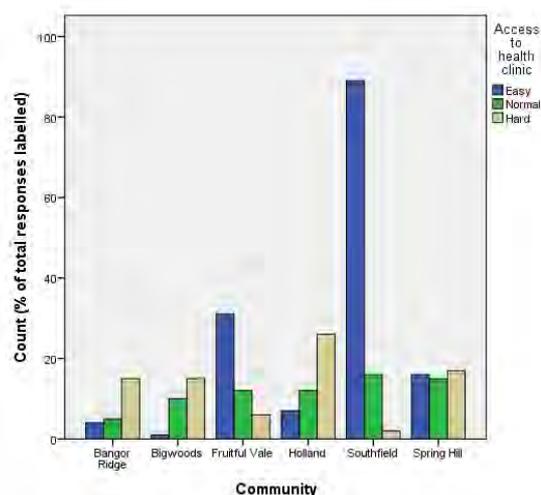


FIGURE 29 ACCESS TO HEALTH CLINIC RATED BY LEVEL OF DIFFICULTY

As it relates to *normal*, all six communities had less than 6% of respondents with this ranking. Southfield, Spring Hill and Fruitful Vale had between 5.4% and 4% of respondents saying it was *ok* getting to health centres. In terms of *most difficult (hard)* 8.7% of the 15.1% of Holland's (St. Elizabeth) respondents said it was hard for them to access health clinics. 4% of Holland's respondents said it was *normal (ok)* while only 2.4% said it was *easy* for them to access health clinics.

Eldermire-Shearer (2012) in her research on challenges of ageing in rural Jamaica and Grenada reported that cost and access to medication was a major issue for older persons. Access to pharmaceuticals seemed more within the reach of some respondents than access to medical care and specialists. In St. Elizabeth, 38% (n=76) of the 144 respondents in the parish indicated that access to the pharmacy was *relatively easy* for them (figure 30). However, for Holland and Bigwoods in the same parish, only 1.5% and 1% of the total respondents (n=54) said access to pharmaceuticals was *easy*.

Only Spring Hill in the parish of Portland with a respondent percentage of 10.7% said access to pharmacy was *normal* for them, the remaining 5% of the 31 respondents from Spring Hill's said it was *relatively hard* for them to access the pharmacy.

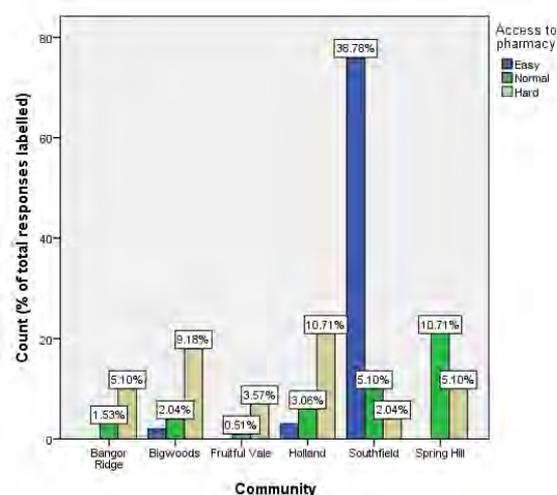


FIGURE 30 ACCESS TO PHARMACY RATED BY DIFFICULTY

The community with the highest percentage of respondents with the greatest challenge to access pharmacies for medical supplies is Holland (St. Elizabeth) with 10.7% of the total respondents to the question saying it was hard for them to access the pharmacy. All other communities (except Spring Hill) had the majority of their respondents indicating that access to pharmacies was difficult (Table 4).

TABLE 4: LEVEL OF DIFFICULTY WHEN ACCESSING CRITICAL SERVICES

Critical system	No. respondents	% easy	% normal	% hard
Water	361	41.6%	15.2%	43.2%
Post Office	335	58.8%	25.1%	16.4%
Access to pension services	198	49.5%	15.7%	34.8%
Access to financial services	162	38.3%	20.4%	41.4%
Access to garbage disposal	306	40.5%	24.2%	35.3%
Access to food	308	50%	34.4%	15.6%

ACCESS TO TRANSPORTATION

Transportation impacts on commuting and the ability of older people to leave their place of residence to access critical services such as health care, pharmacy and other essentials such as foods. A study commissioned by UN

Habitat on sustainable urban mobility showed that in urban Jamaica ‘pushing and shoving was a problem for older [persons] at bus stops and while boarding buses’ (Frye, 2013). The transportation factors in rural communities include road access and potential public transportation. Access to and from the community also impacts on the ability of families supporting older people and the older people themselves to access markets and raw materials for farming and businesses. In the event of a disaster, road conditions lead to communities being marooned for lengthy periods. When this occurs, affected populations in some communities are prevented from receiving relief items. Instances of roads being destroyed by floodwaters causing communities to be cut off are often reported in St. Mary and Portland (ODPEM, 2009).

Transportation access is dynamic across parishes and communities, but generally a significant number of respondents says it takes 16-30 minutes (23%) for transportation and > than 1 hour (22%) (figure 31). Only 13% (14) of the 361 respondents indicated that they are able to get a taxi or bus to and from their community within 1-5 minutes. Twenty-two percent (22% (n=24)) are able to access transportation between 6-15 minutes on their route.

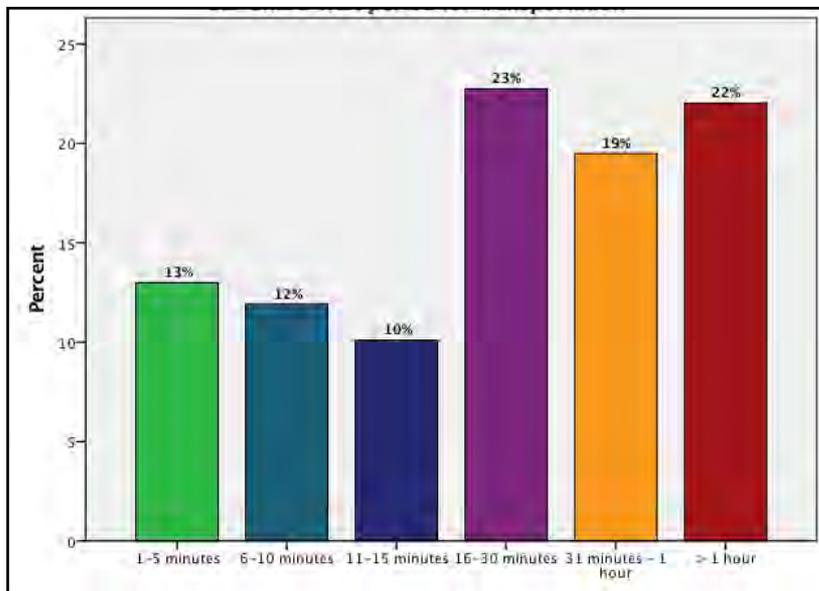


FIGURE 31 DISTRIBUTION OF WAIT PERIOD FOR TRANSPORTATION AMONGST RESPONDENTS

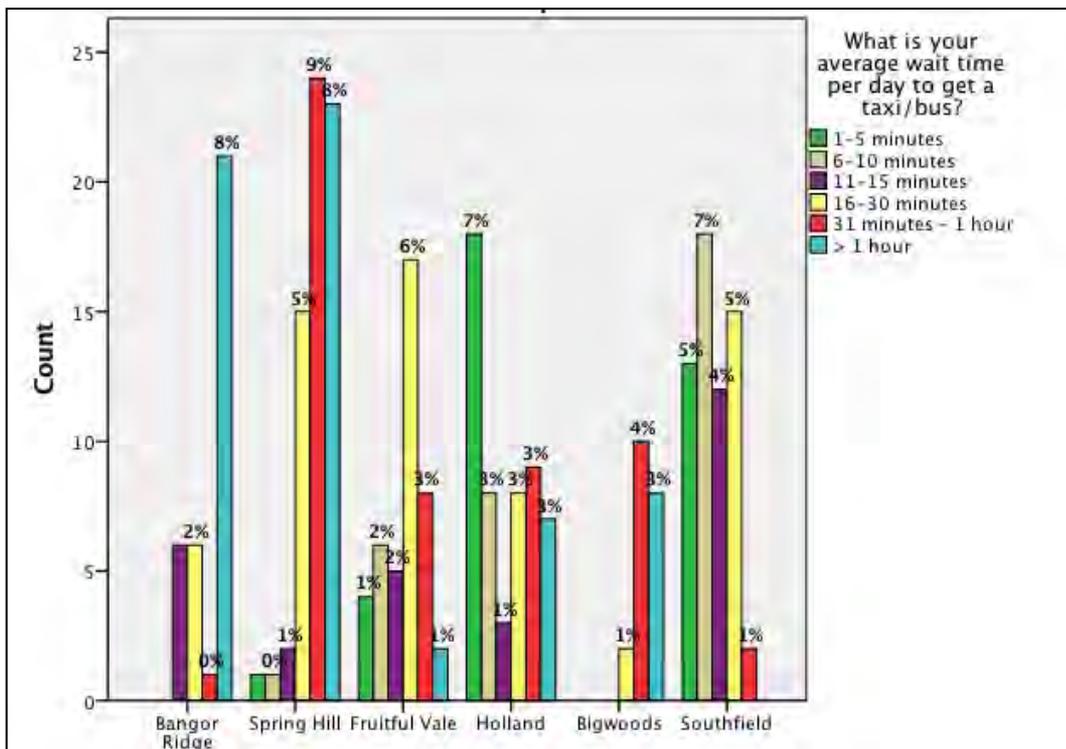


FIGURE 32 ACCESS TO TRANSPORTATION ON SELECTED ROUTES ACCORDING TO COMMUNITY

Further evaluation and cross tabulation of results showed that 7% of respondents in Holland have greater access to transportation than other communities of transportation within parishes and communities, including Southfield

and Big Woods in the same parish (figure 32). Five percent of respondents in Southfield indicated that average wait period for transportation is 1-5 minutes. Big Wood’s respondents are not as privileged and will wait

for longer, anywhere between 15 minutes to over an hour. During focus group interviews with women in Bigwoods, they also lamented that their challenges increased post Hurricane Ivan because they were not able to leave the community as easily. Some respondents said they had to walk for up to 1 mile. A respondent said she had to walk for more than a mile to access transportation when she was called for a relief cheque in Black River, which she received as a result of her home being completely flooded after the heavy rains caused by Hurricane Ivan.

Residents in Portland have a longer wait period accessing transportation from their communities. A higher percentage of residents in Spring Hill (8%) and Bangor Ridge (8%) and one percent of respondents in Fruitful Vale will wait for over an hour for transportation to and from their communities. Respondents in Spring Hill (9%) have indicated to have waited between 30 minutes to one hour before accessing transportation (figure 32).

ACCESS TO WATER

Water is one of the most critical resources to a community- both the quality and quantity of water determine quality of health and prosperity. In rural communities' water is not only needed for domestic use but as a means of supporting livelihoods.

Interviews with key informants in Port Antonio indicated that authorities were not fully aware of the realities at the community level. While focus group meetings in both Bangor Ridge and Fruitful Vale revealed access to water was at a crisis level, authorities suggested that Fruitful Vale always has access to water, even if not for agricultural purposes, they would have access for domestic use due largely due to the reservoirs in that community. Among respondents, access to water was described as difficult by 41.6% of respondents surveyed, 43.2% of respondents described water availability as easy. Nonetheless 15.2% of respondents neither viewed access to water as easy nor hard.

In Portland, water access in two of the three communities (Fruitful Vale and Spring Hill) appears to be accessible to a greater percentage of the population (figure 33). Nine per cent (n=31, n=30) of respondents in each community stated that they were able to access water easily. In

Bangor Ridge water access seems to be a challenge for many as only 1% (n=3) respondents said they had easy access to water, on the contrary, 9% (n=34) respondents indicated that accessing water was hard for them, while another 1% (n=4) respondents said it was neither easy nor hard. One farmer in Bangor Ridge described the water situation as follows:

“Wherever it is we have to go fetch it, sometimes as far as three quarter or four miles. At this moment it have been four weeks since we have been living without running water but yet still the hike up the cost on our water bill.”

While 12% (n=43) of respondents in Southfield, St. Elizabeth stated that access to quality water was easy for them, a greater percentage in the same community (15%, n=53) indicated a difficulty in accessing water, 5% (n=19) of respondents in Southfield said it was neither easy nor hard to access water.

Holland (St. Elizabeth) was the only community in the parish where more residents had easy access to water as opposed to those who had challenges. 8% of respondents in Holland, (n=30) had easier access to water than the respective 3% (n=10) and 4% (n=16) of respondents who either found it hard to access water services or and those who said it was a normal process for them.

ACCESS TO PENSION SERVICES

During the interview with key informants of the Planning Institute of Jamaica it was noted that older people access their pension via post offices. In the event of a disaster, such as floods or other damages resulting from hurricanes, and strong winds, access to post offices may be cut off for short or prolonged periods. While references were made to impacts from disasters and inability to access pension services, the study also collected information on routine services and older people's access to pension services during non-disaster periods.

Of the total number of respondents, 59.5% (n=98) says they can access pension services easily, and while 15.7% (n=31) says it is neither an easy or difficult process for them, approximately 34.8% (n=69) of the respondents accessing pension services says it is hard for them to do so.

A closer analysis of respondents who have difficulties accessing pension services was conducted using cross tabulation. Results show that of the 59.5% of respondents who have easy access to pension services, 36% (n=72) are living in Southfield, St. Elizabeth (figure 34). The remaining 14% (n=26) with easy access are divided across communities in St. Elizabeth and Portland, with percentage access being between 2-4% across parishes.

Among the top three communities with the highest percentage of respondents lacking easy access to pension services are those in the communities of; Spring Hill, (10%), Holland and Big Woods, (8% respectively). Except for Southfield, there are more respondents who have difficulties accessing pension services that those who do not.

ACCESS TO FINANCIAL SERVICES

Access to pension services are not the only financial limitations impacting on older people within the respective communities. A cross tabulation of accessing to other financial services by community, indicated that only 39% (n=62) of respondents have easy access to financial services, meaning financial institutions are within the community or transportation to the institutions are readily available. Of the 39% of respondents with easy access, 38% are respondents in the community of Southfield with 1% in the community of Spring Hill. In addition, Spring Hill community remains the only community where a significant percentage (10%) of respondents relative to the other communities say it's neither easy nor hard but a normal process to access financial services. Among respondents from other communities in St. Elizabeth and Portland, many respondents (42%) noted a great degree of difficulty when accessing financial services (figure 35).

The Chi- Square test determined a possible root cause of inability to access financial services easily and transportation.

Where respondents had greater access to transportation; 0-5 minutes, 6-10 minutes, or even 16-30 minutes, they indicated access to financial services as easy. However as transportation wait period increased, more respondents indicated that it was hard to access financial services, (figure 36). Result also indicate that there are other

possible variables impacting on access to financial services, however cross tabulations indicated that transportation access is perhaps the variable presenting the greatest obstacles to a significant number of older people, (approximately 53%, n=58).

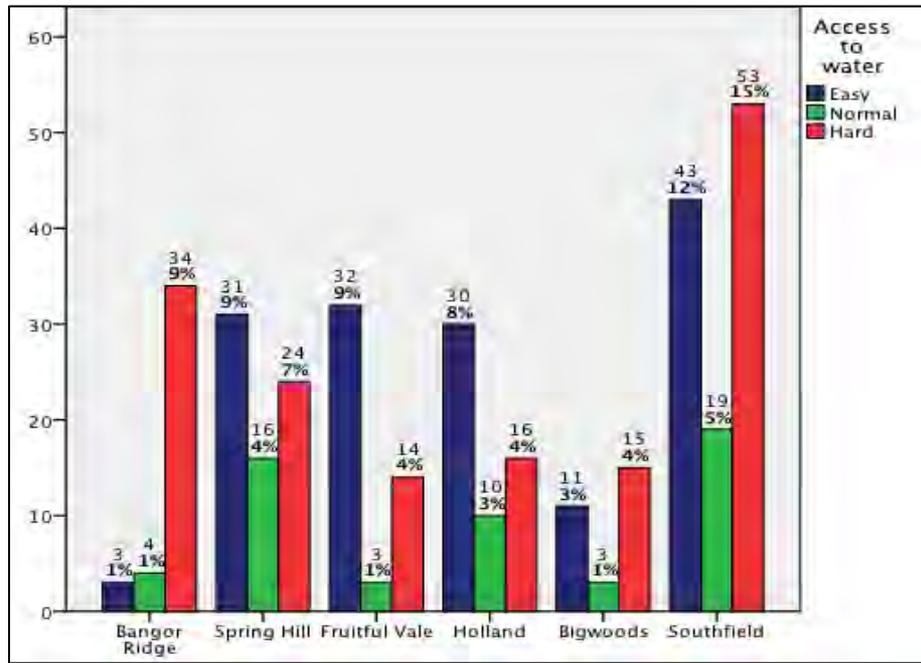


FIGURE 33 ACCESS TO WATER DISAGGREGATED BY COMMUNITY

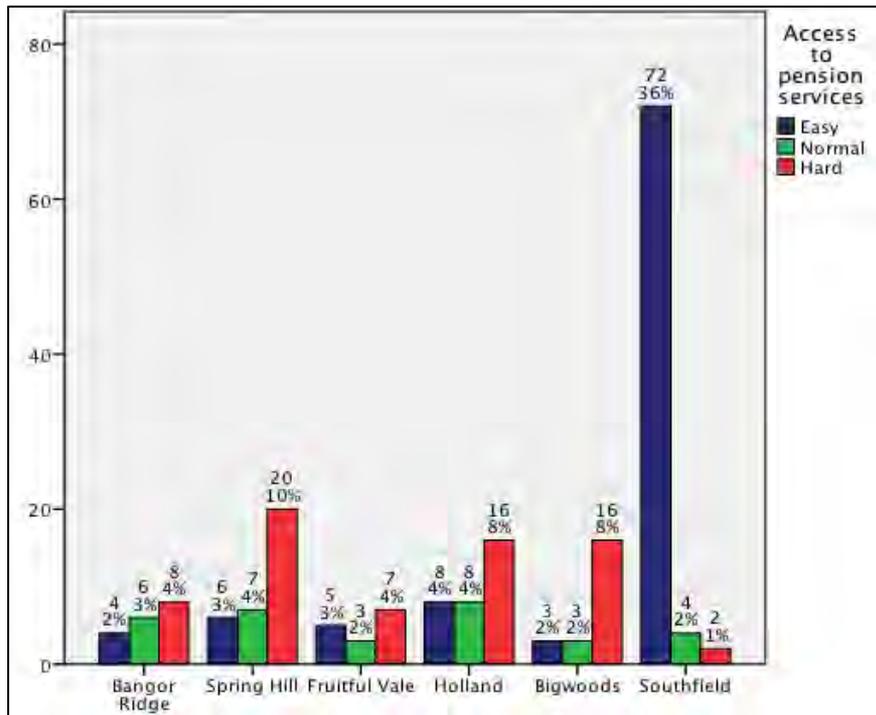


FIGURE 34 ACCESS TO PENSION SERVICES DISAGGREGATED BY COMMUNITY

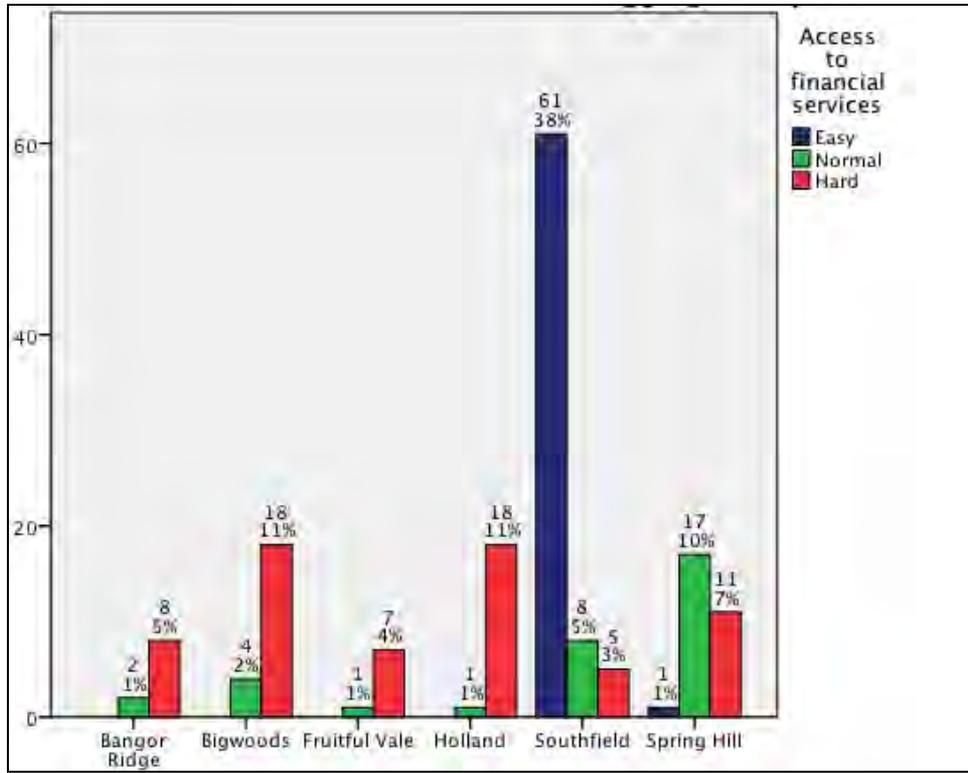


FIGURE 35 ACCESS TO FINANCIAL SERVICES DISAGGREGATED BY COMMUNITY

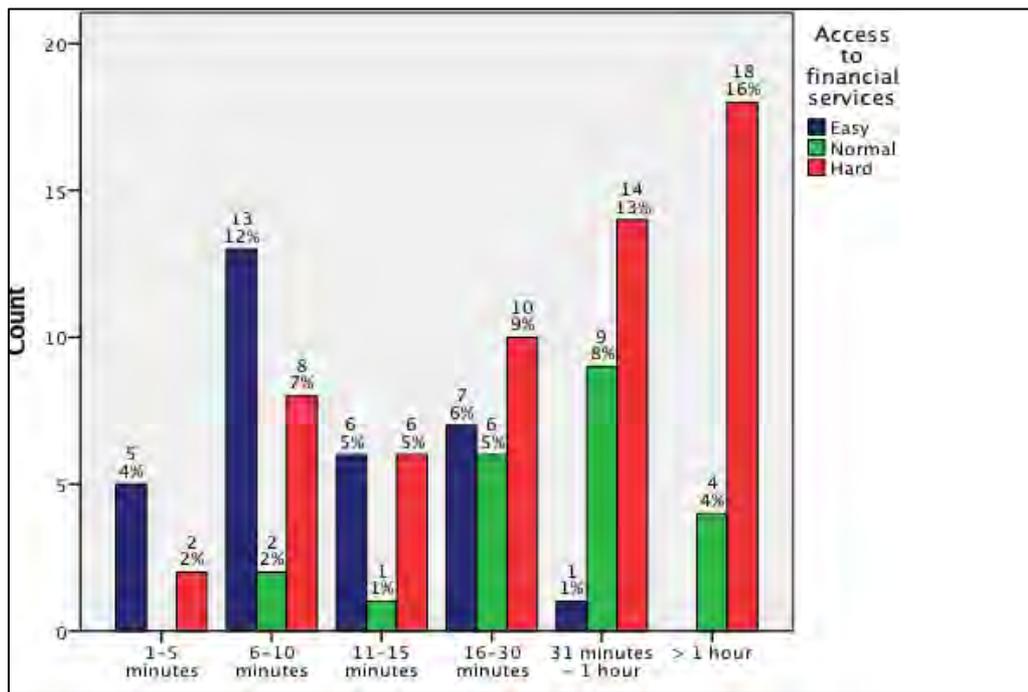


FIGURE 36 ACCESS TO FINANCIAL SERVICES WEIGHTED BY AVERAGE WAIT PERIOD FOR TRANSPORT

5. ECONOMIC & ENVIRONMENTAL VULNERABILITY

Natural environment: Respondents proximity to potential hazards

The poor is subjected to availability of resources in choosing where to live. These include availability of land, and financial resources.

While lack of financial resources is a key deciding factor among vulnerable people and consequently vulnerable older people, other factors such as cultural practices and historical socio-economic dynamics play a role in static or dynamic vulnerability and exposure to hazards. Based on the assumptions of social vulnerability and in order to determine the level of vulnerability and root cause based

Of the total respondents (n=263), 46.8% (n=123) percent live in an area exposed to wind hazard, 21% (n=57) are exposed to flood damage due to location within drainage area (riverbed), 15.2% (n=40) are exposed to slope failures (land slippage), another 15.2% (40) said they live in an area exposed to potential bush fires. Approximately 1% (3) of respondents live in an area with close proximity to the sea: further investigation would determine if the latter 1% are at risk to sea level rise and wave action.

Pearson Chi Square was applied to determine correlation between potential hazard and communities in Portland and St. Elizabeth.

- 4% (10) in **Southfield** are living close to a potential bush fires (figure 37).
- In **Bigwoods**, three hazards threatened the location of residents, strong winds, land slippage and flooding. At least 6% (17) of respondents living in a windy area are from Bigwoods.
- **Holland** has 5% (14) of its respondents being

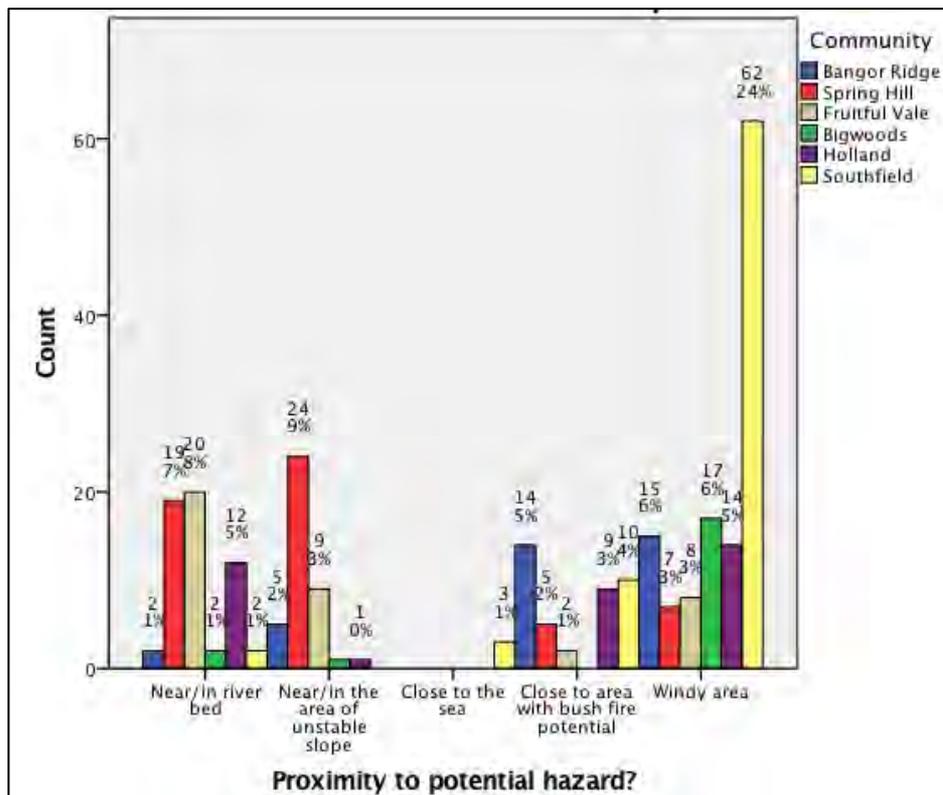


FIGURE 37 COMMUNITIES EXPOSED TO POTENTIAL HAZARD BY PROXIMITY

on natural environment and choices, the study collected data on location of older persons homes, condition of houses and impact of hazards.

exposed to an area with strong winds, 3% (9) in proximity of uncontrolled bush fire, less than 1% exposed to land slippage and 5% (12 respondents) living close to a river bed.

- Varying percentages of respondents in **Bangor Ridge** explained that sections of the community are

marginal, and therefore hazard-prone lands (Board of Supervision). Given the small proportion of respondents

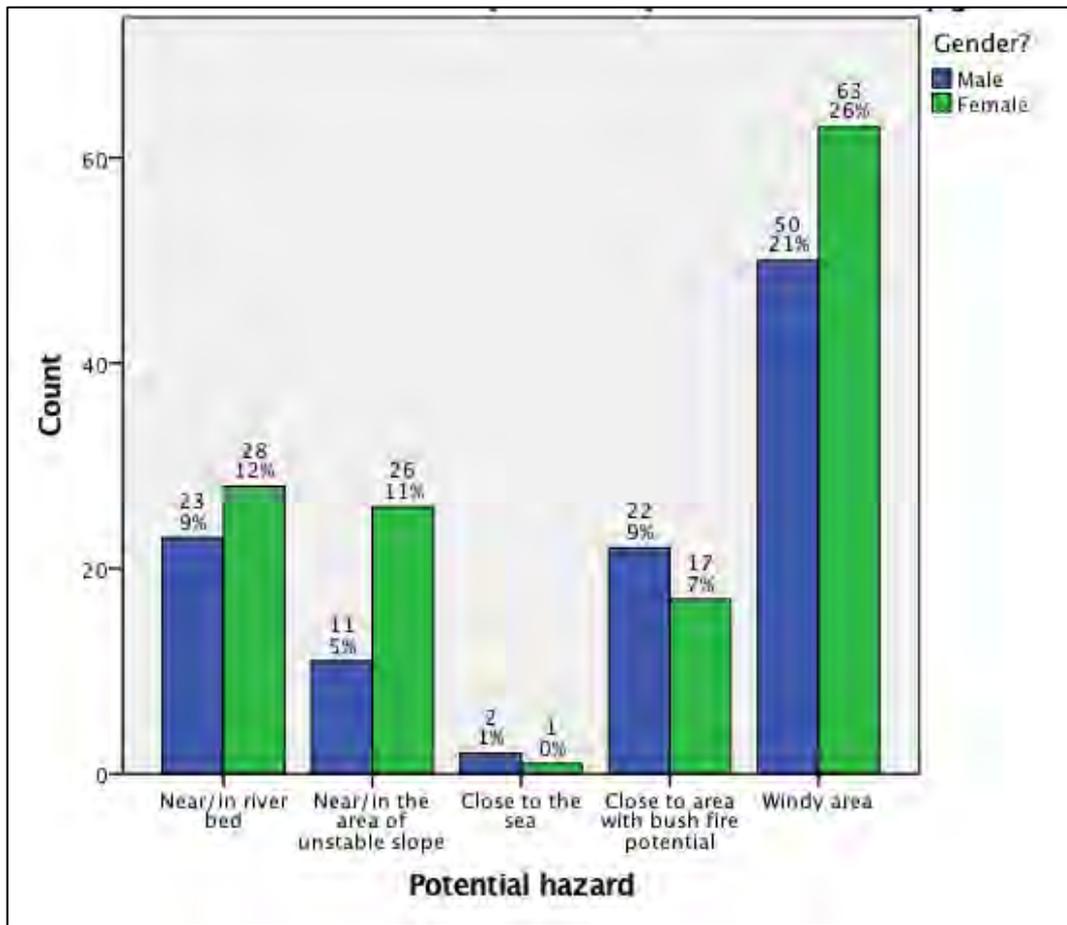


FIGURE 38 GENDER EXPOSURE TO POTENTIAL HAZARD

exposed to different hazards- strong winds (6%), bush fires (5%), land slippage (2%) and flood risk (1%).

- However, of the 263 respondents vulnerable to land slippage, Spring Hill has the highest percentage (9%), and the second highest number of respondents exposed to flooding due to by proximity to river. At least 4% (9 respondents) in indicated that Spring Hill is exposed to strong winds and bush fires.

Housing constructed in marginal locations and other hazard prone areas is a persistent problem (SDC St. Elizabeth; Portland Parish Council; PIOJ; Board of Supervision). Land availability has been cited as reason behind the selection of hazard-prone locations; New market Development, while not part of the study area, was provided as an example of a flood-prone area since 1979 (SDC St. Elizabeth). Poverty was identified as a factor determining settlement on marginal lands; stakeholder interviews have revealed that poverty has driven informal settlements which are located on

living on “quarter” land (1.1%), it is difficult to explore this particular line of reasoning. indicated. In some cases, homes were constructed in hazard-prone areas, whereas for other, environmental changes over the years resulted in once safely located homes to be located in hazard zones (PIOJ interview).

The survey explored the exposure of houses to various hazards. Results varied significantly according to parish. In Portland, 80% of older people surveyed live in some form of exposed area, whereas in St. Elizabeth, 63.3% of persons lived in some form of exposed land. In St. Elizabeth, persons who are exposed primarily live close to windy areas (69.9%), close to area with bush fire potential (14.3%), or near/in a riverbed (12%). In Portland, persons who lived in exposed areas lived close to a river bed (31.5%), close to an area of unstable slope (29.2%), windy area (23.1%) and close to areas of bush fire potential (16.2%)- a man-made hazard fueled by environmental conditions.

GENDER AND ENVIRONMENTAL VULNERABILITY

Based on the assumptions that females are generally more cautious than males, an analysis was conducted to determine the relative percentage of males and females living in close proximity to a hazard (figure 38). Results show that there is no correlation between males and female respondents and their choice of location in proximity to a hazard.

With respect to threat from flood risk, 12% (n=28) females and 9% (n=23) of males are vulnerable by exposure. Threats by strong winds sees 26% (n=63) of females and 21% (n=50) of males are exposed. Similarly, more females (12%) are at potential risk to land slippage as opposed to 5% males.

In an effort to understand the location dynamics and whether or not choice of location is dependent on group dynamics such as gender and livelihood,, further analysis was conducted using Pearson Chi Square of Association.

ECONOMIC VULNERABILITY

Based on previous findings and relationship with vulnerability and the natural physical environment, a second analysis was conducted to determine the risk of exposure among older people whose most important primary income is agriculture and which hazard are they most exposed to based on percentage (n=204). Of the livelihood categories listed, all respondents involved with food crop production, (n=42), cash crop production (n=30) are potential at risk to floods, landslide, strong winds and uncontrolled bush fires (table 5). Respondents whose primary income/livelihood is livestock production (4) are at potential risk to uncontrolled bush fires and strong winds.

TABLE 5: NO. OF RESPONDENTS WITH MOST IMPORTANT SOURCE OF INCOME/LIVELIHOOD BEING AGRICULTURE WITH PROXIMITY TO HAZARD

Livelihood	No. Total	%	No. living near potential
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			hazard
Food crop production/sales	57	21%	42
Cash crop	34	13%	30
Livestock production	7	2.6%	5
Fishing	1	.4%	1
Vegetable production	2	.7%	1
Total	101	37.7%	79 (78.2% of total)

Analysis using Pearson Chi Square for livelihood and proximity showed no association when income categories such as gifting, grants and remittances were included. However, excluding all other categories of main livelihood source and showing results based only on livelihoods such as agriculture indicated that respondents exposed to natural hazards were involved in agriculture practices. Table 8 below shows the frequency of respondents whose primary income/livelihood sources included agriculture (n=268) of that total number of respondents (n=268), 101 (37.7%) received their main livelihood source from various agricultural practices.

The results from table 8 indicate that of the 57 respondents whose main livelihood source was crop production and sales, 42 (73.6%) are exposed to different types of hazards, (figure 39).

Thirty (30) 88.2% of the 34 respondents who named their main income/livelihood source as cash crops are located in close proximity to a named potential hazard (figure 18). Similarly, 5 (71.4%) the 7 respondents gaining from livestock production and sales are located in an area exposed to strong winds or with the potential of being impacted by bush fires.

Results show that of the total number of respondents (n=204 of 372) who live in close proximity to a potential hazard and whose income includes external sources, e.g. remittances there are 58% who have access to remittances, 5% receive government/welfare grant, 23% are pensioners, and 5% receive a salary. Approximately 3% respectively receive income labour and food assistance while another 6% depend on begging and gifts (figure 40).

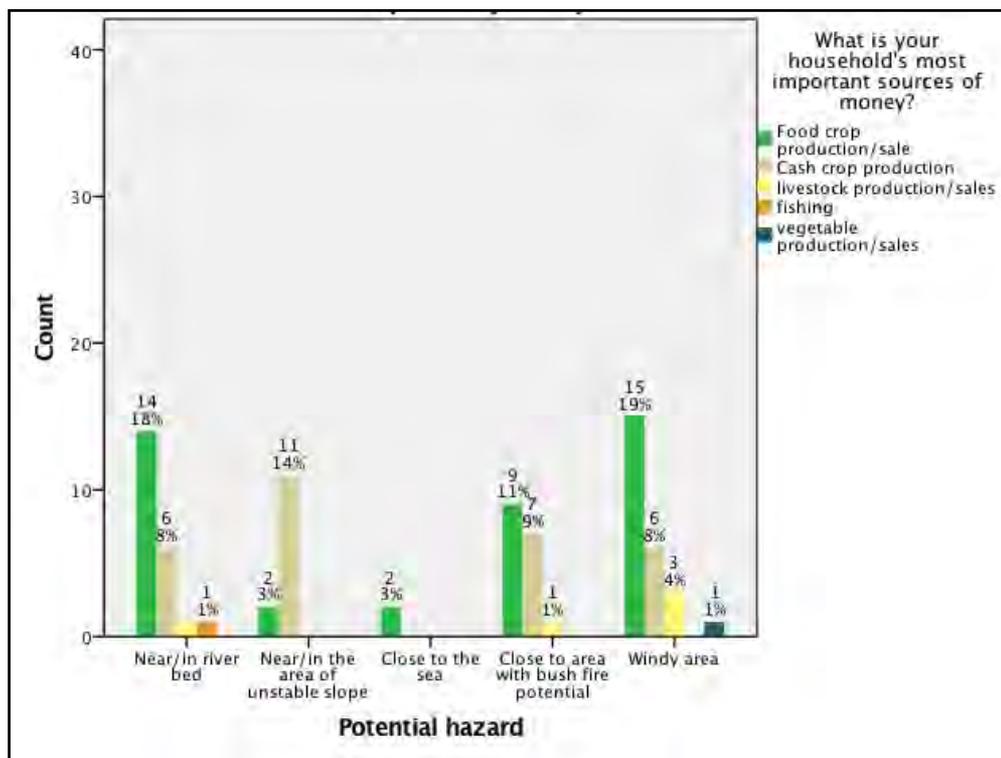
Stakeholder interviews have revealed that poverty has driven the development of informal settlements which are located on marginal and hazard-prone lands (Board of Supervision). Given the small proportion of respondents

living on “quatter” land (1.1%), it is difficult to explore this particular line of reasoning. In some cases, homes were constructed in hazard-prone areas, whereas for other, environmental changes over the years resulted in some areas now being deemed unsafe. (PIOJ interview).

The survey explored the exposure of houses to various hazards. Results varied significantly according to parish. In Portland, 80% of older people surveyed live in some form of exposed area, whereas in St. Elizabeth, 63.3% of persons lived on some form of exposed land. In St. Elizabeth, persons who are exposed primarily live close to windy areas (69.9%), close to area with bush fire potential (14.3%), or near/in a riverbed (12%). In

Among the 372 respondents, 363 responded to the question relating to the general quality of their homes. The largest contingent (36.64%) of our sample said their houses were in fair conditions 30% said it was good and 16.25% said their houses were in very good condition, (16.25%). Only 16.5% of our sample said their homes were either in poor conditions or very poor conditions.

Building on the earlier response, further analysis was conducted to determine if the condition of houses were associated with a select parish or community, if income reflected quality of houses and the individuals who may be at potential risk to hazards based on their housing quality and their ability to recovery. Further analysis was



Portland, persons who lived in exposed areas lived close to a river bed (31.5%), close to an area of unstable slope (29.2%), windy area (23.1%) and close to areas of bush fire potential (16.2%).

Across Jamaica the damaged most feared is damage to housing and roofs. The Ministry of Labour and Social Security (MLSS) prioritize housing under their post disaster relief efforts. To assess the level of vulnerability among respondents and most specifically their vulnerability as it relates to housing conditions, respondents were asked about the conditions of their homes, materials of roofing and materials of outer walls.

conducted to identify the relationship with roof material or material of outer structure of house.

With respect to roofing materials, 48% of our respondents in St. Elizabeth had roofing made of Zinc, while 39% of respondents in Portland also had their roofing material made of zinc. St. Elizabeth had 6% of their respondents noting that their roofing material was made of concrete while 3% in Portland had their roofing materials made of concrete. Across both parishes (St. Elizabeth and Portland, less than 1% respectively in each parish had their roofing materials made of shingles, wood, or tile.

Respondents who said their houses were in very good condition were 10% more than those in Portland where only 3% said their houses were in very good condition (figure 41). Similarly, St. Elizabeth had 19% of the respondents with good housing condition while Portland had 12%. Both parishes showed similar percentages for fair housing (18%). However while Portland had more people living in houses they considered poor conditioned (6%) as oppose to 1% in St. Elizabeth, St. Elizabeth had 5% of its respondents who lived in homes that rated as very poor while Portland had a percentage rating of 4%.

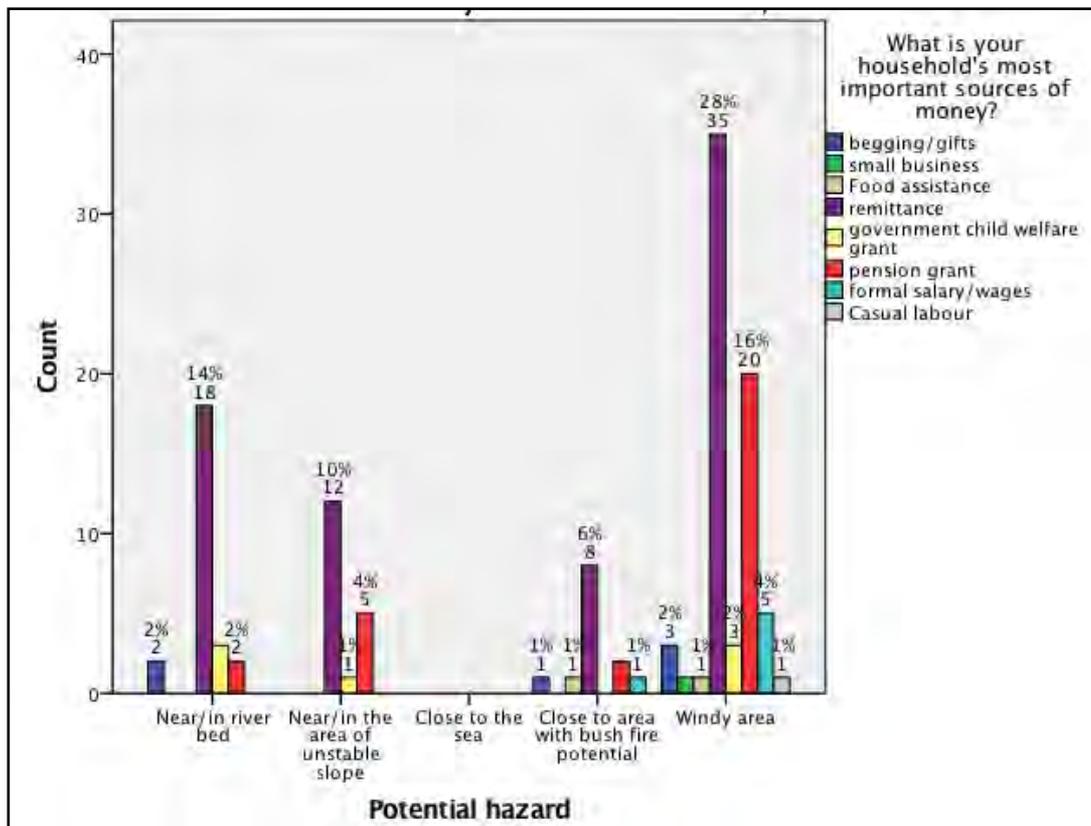


FIGURE 40 RESPONDENTS LIVING IN PROXIMITY TO POTENTIAL HAZARD WITH ACCESS TO EXTERNAL SOURCES OF INCOME

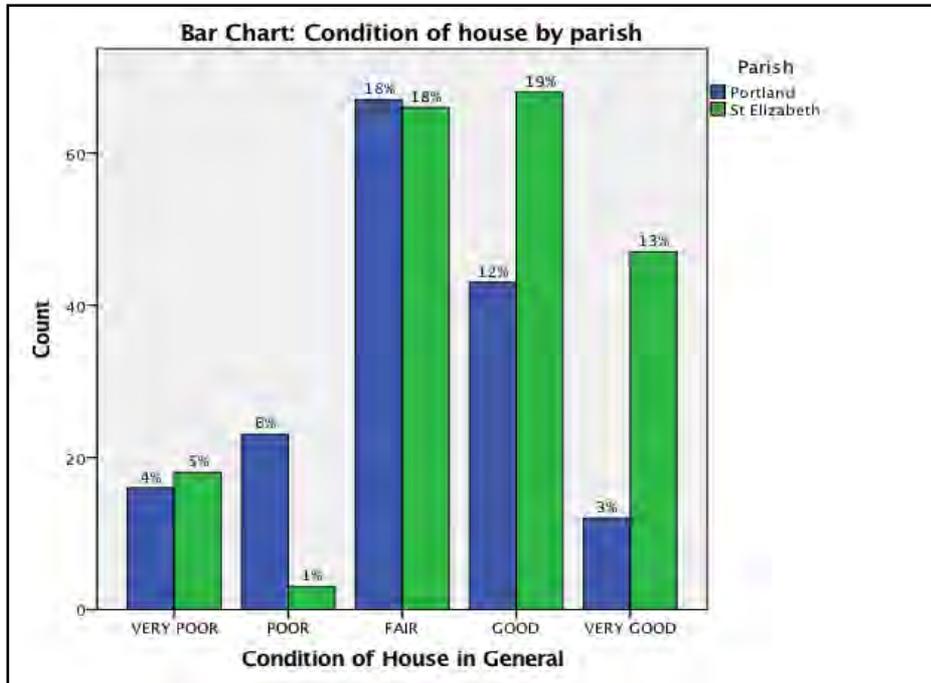


FIGURE 41 HOUSING CONDITION BY PARISH

Southfield, with all other communities in St. Elizabeth and Portland having only 1% of respondents with very good housing conditions.

Among the respondents with good housing conditions, 10% are in Southfield, while Holland and Bigwoods in the parish have 9% respectively. All the communities in Portland (figure 42) below have 6% and less of respondents with homes that are in good condition. Communities with house in very poor condition (2%) include Southfield and Holland in St. Elizabeth and Spring Hill in Portland. The remaining three communities (Bangor Ridge, Fruitful Vale-Portland and Bigwoods- St. Elizabeth) has 1% and less than 1% of respondents with very poor housing.

Key informant at the Mona Ageing and Wellness Centre posited that the older persons that considered vulnerable are mainly those that

“are living in homes without any younger persons to assist. The homes may be broken down to a point beyond repairs for some and they may have other challenges; some are visually impaired or laid up with some chronic illness and they might not have any one to assist them.”

Her statement highlights the multi-faceted nature of vulnerability. It also reiterates the role of isolation, illness

and housing conditions in amplifying the vulnerability of older persons.

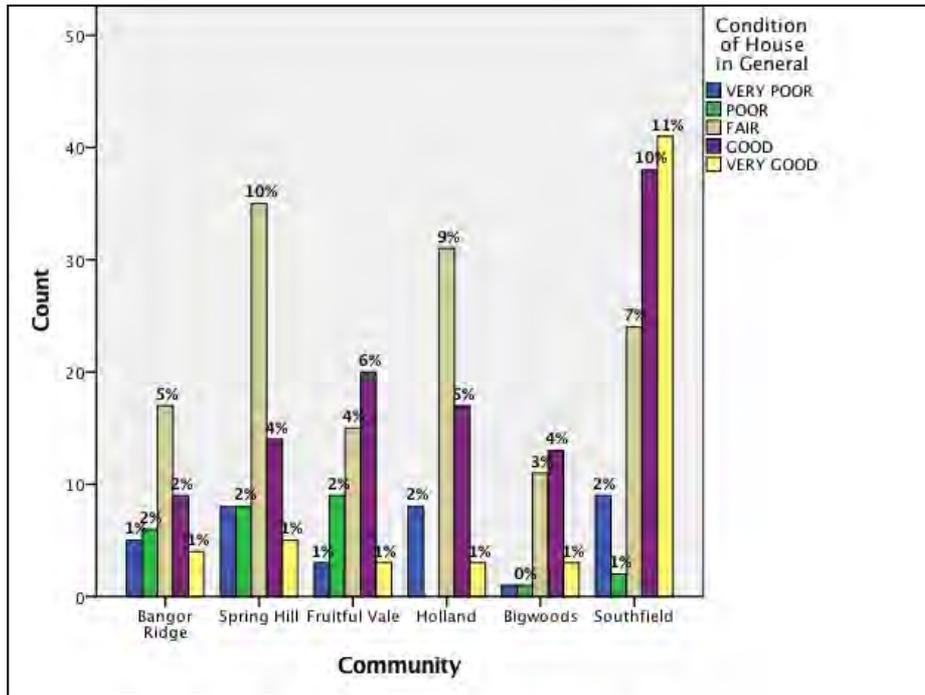


FIGURE 42 HOUSING CONDITION ASSESSED BY COMMUNITY

6. PAST DISASTER EXPERIENCE

Amongst older persons interviewed, 72.8% indicated that hurricane produced the greatest impact; 4.3% cited landslides and 1.9% cited floods.

POST DISASTER HEALTH IMPACTS

Post disaster health impacts varied across age groups. Respondents were asked about what ailments newly emerged or worsened after the passage of a disaster. Both physical and mental/emotional health impacts were strongly reported by respondents. Diarrhoea (N=32), high blood pressure (N=19) and breathing problems (N=14) emerged most frequently as the physical ailments after the occurrence of a disaster. Mental and emotional health impacts such as feelings of depression (N= 26), worry (N=29), anxiety (N=17) and hopelessness (N=20) factored strongly amongst the reported health impacts after disaster occurrence. In terms of health effects that worsened after a disaster, high blood pressure (N=43), vision problems (N=17), feelings of depression (N=19), headaches (N=17), and arthritis (N=18) were most frequently reported.

RELIEF & RESPONSE

Almost 50% of respondents reported that their assistance came from family and friends following the disaster. More than one-third of respondents reported that they received no help post-disaster. Governmental agencies provided assistance to 6.5% of respondents with church groups and farmers' groups accounting for the other kinds of assistance. Assistance from friends and family came mainly in the form of money and food, building materials and clothing. Respondents indicated that they were completely dissatisfied with the assistance from friends and family.

The main form of assistance from RADA was in the form of farming and fishing tools, followed by monetary assistance. Respondents reported being completely satisfied with the assistance from RADA.

NGOs and church groups provided assistance primarily with food and to lesser extent money. Most respondents were by their own admission, completely satisfied with this assistance.

Females were more likely than their male counterparts to receive assistance from family, church groups and NGOs following disasters.

Among the suggestions made by respondents as to what can be done to improve aid following disasters were:

- Provision of housing assistance
- Improved flow of information and communication
- Better organization and coordination of response

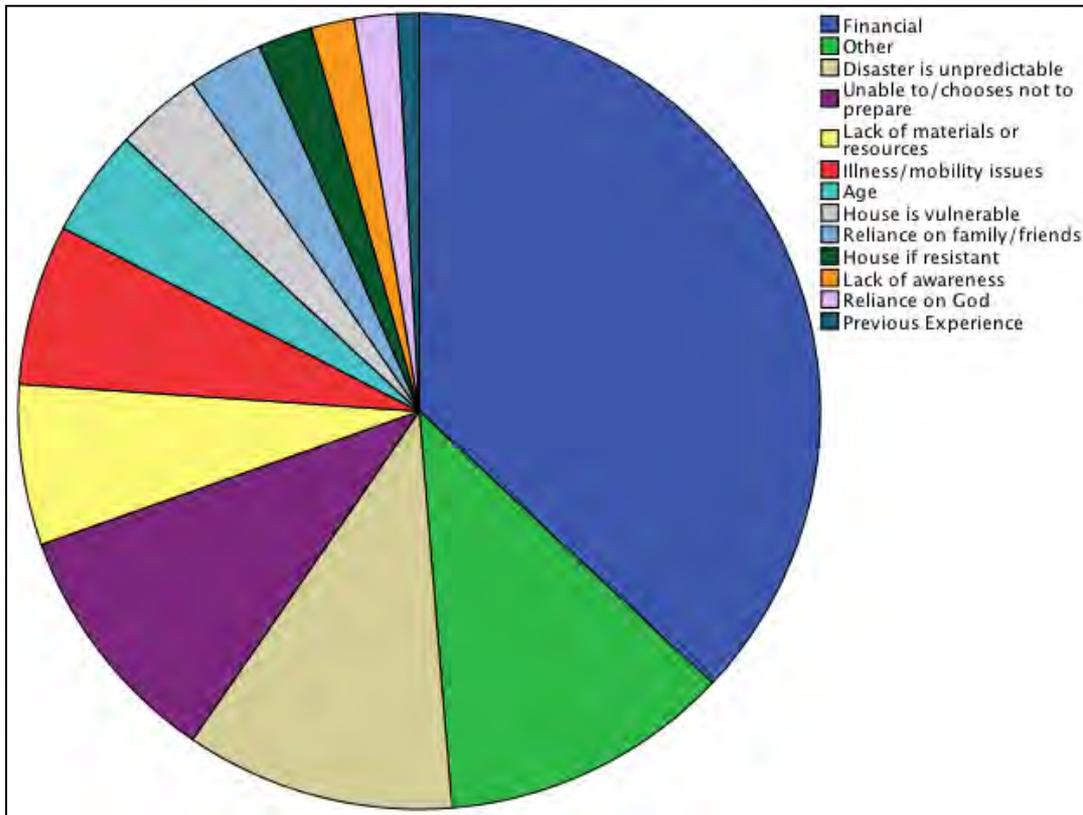


FIGURE 43 REASONS CITED BY RESPONDENTS FOR NOT PREPARING FOR THE NEXT DISASTER

FACTORS AFFECTING POST-HAZARD RESPONSE

Lack of awareness of benefits in post-disaster situations emerged as a strong theme underlying vulnerability amongst older persons. In stakeholder interviews, there are divergent views. Some stakeholders were of the view that information can simply be accessed by contacting the necessary agencies such as the Red Cross, the ODPEM, and the MLSS and the National Council for Senior Citizens.

Other stakeholders recognize that there is simply a lack of awareness of the benefits that older persons can receive (PIOJ), and lack of understanding of the process for accessing any grants and benefits. Agencies such as the Council for the Senior Citizens have indicated that they conduct awareness programmes to educate persons about resources they can access.

Amongst older persons who indicated that they did not apply for assistance after a disaster (N= 206) the highest percentage indicated that lack of awareness, followed by lack of trust in the system, no reason to apply and no help received in the past (St. Elizabeth). It should be noted that lack of awareness was cited as the reason amongst 14.8% of respondents from St. Elizabeth, compared to 34.0% of Portland respondents.

The thorough identification of older persons has been cited as a problem amongst key stakeholders (Council for the Senior Citizens; PDC). Issues associated with this include the fact that some government agencies with the responsibility to assist older persons do not reside within the community and therefore have no knowledge of all who need assistance. Strategies that have been employed to address this include resource persons from within the community being tasked to conduct damage assessments and relying on senior citizens group members to identify other older persons.

Equipping community-based persons to conduct damage assessment within their own community emerged as a potential risk factor for identification of those who are most in need, as favoritism and other forms of political biases affect fair distribution of resources (MLSS Marlene Miller; ODPEM; Bangor Ridge Focus Groups; Fruitful Vale Focus Group). The problem persists, even amongst damage assessors who are from outside of the community, as they still have to rely on community members, who may or may influence these persons. ODPEM cited the strategy of mixing the teams between community and non-community groups as an effective strategy to reduce bias involved in identifying persons with most need. The need for strong community-based networks is strongly promoted by the PDC Coordinator, who indicates that she reminds Senior Citizens Group members that they need to know each other.

In some cases, the problem of identification is linked to the issue of how data is collected; Ms. Parsons from the Board of Supervision indicated that older persons are grouped with the younger folks, which create limitations in terms of targeted assistance for persons within this age group.

Many older persons rely on farming as their main source of livelihood. In the aftermath of a disaster, many farmers' first response is to tend to their plots (Bangor Ridge Focus group; Fruitful Vale focus group). In leaving their homes, many times, they are excluded from opportunities to receive benefits, because the damage assessment team may not find anyone at their location. This fact was reiterated by the farmers interviewed during focus group sessions in Fruitful Vale and Bangor Ridge.

The Portland PDC relayed a situation involving an encounter with an older farmer, who spends most of the daylight hours working his farm several miles away from his home. The older farmer was spotted by the PDC making the miles-long journey from his farm to his home on foot in the night. Upon further discussion with the older person, she discovered that the man was apparently vulnerable, due to his age, heavy dependence on farming for his survival and his housing condition. However, she has not been able to locate the man after the first encounter to provide him with assistance, because he was hardly home and spends the majority of his waking hours on his farm.

Remoteness has been cited as another major factor inhibiting the provision of relief for older persons (Poor Relief; PDC Big Woods). Remoteness can result in persons being disconnected from road and communication networks, being bypassed in post disaster assessments and limits access to services. Access to services such as water, health clinic and pharmacy, financial services, disaster insurance, and garbage disposal received very high responses of hard (> 60%) from Bangor Ridge compared to other communities.

In Portland, where quite a few communities have been cut-off due to their remoteness and the complex topographical landscape, the PDC has indicated that measures have been put in place in the past to provide persons with access to medicine and medical care. She cited a case in 2001, where, the Parish Council purchased kerosene oil, water, foodstuff and medicines and paid the JDF to transport the items via helicopter to Bangor Ridge.

More than 50% of respondents indicated that they were not prepared for the next disaster, should one occur. Amongst the reasons cited amongst the unprepared, illness and associated mobility issues was the fourth most cited reason, after financial, the unpredictability of the disaster and lack of ability to prepare. Women reported higher levels of ill preparedness.

7. GOVERNMENT AGENCY INVOLVEMENT IN DRR

The Government plays a strong role in ensuring the well-being of older persons at all stages of the disaster cycle. Strong inter-agency collaboration serves as a vehicle for effective programme delivery despite financial and human resource constraints.

During the pre-disaster cycle, government agencies are expected to provide standard services, such as health care services, preparedness training and development of disaster plans.

PRE-DISASTER

Training, Education and Awareness

Training and education programmes are delivered at the —grassroots” community level on various aspects of disaster preparedness. Public education forms part of the mandate of agencies, such as the National Council for Senior Citizens, the Parish Council, PIOJ and the Ministry of Health. The National Council for Senior Citizens designs and collaborates with other ministerial and private sector agency representatives to deliver⁶ awareness programmes via seminars amongst the older persons, particularly as it relates to disaster preparedness, health issues and chronic illness. The Ministry of Health also carries out their own interventions, where community members are advised on how to treat water, and other health considerations prior to and during disaster. The Parish Council conducts zonal meetings, where the Parish Disaster Coordinator (PDC) in Portland engages seniors, and provides encouragement for them to look out for each other as a group (Portland Disaster Coordinator Interview). Other modalities for training delivery by the Parish Council include seminars targeted at businesses, schools and hotels.

In St. Elizabeth, technical preparedness training is delivered to local builders on rebuilding structures, and retrofitting with hurricane straps etc. The seminars, facilitated by the Master Builders’ Association have been

⁶ The Council works at the community level through “Organizers”, one of whom is assigned to the parish.

cited by the Social Development Commission, St. Elizabeth as contributory to the quality of housing stock since (SDC Interview).

Awareness programmes are developed in order to inform residents of the options available in terms of post-disaster relief (PIOJ Interview). In terms of the delivery of awareness programmes, it was noted that a balance is required between providing adequate, relevant information and providing excess information that could enable —unsavory” persons to abuse the process (ODPEM Interview).

An important element of effective delivery of programmes is community engagement. This means exploring and utilizing various modalities for getting to the community members. The PDC of Portland pointed to the transect walk as one of the ways a greater number of community members can be reached. It was noted that, whereas meetings capture some of the people required, the transect walk, which involves walking through the community along with community members is an effective means of engaging the wider community, and also for identifying some of the more vulnerable older persons.

Training does not only take place amongst the older persons, but also to the service providers, such as the Matron, ODPEM, Mental Health officers on the role that they are expected to place during and in response to a disaster (Board of Supervision Interview)

Search and Rescue (SAR) and Radio Operator training also take place as a part of the training offering of the Parish Council. Simulation exercises are carried out in collaboration with various agencies, such as Red Cross, Police, and Fire Department (Portland Parish Council Interview).

Plan Development Support

Support for the development of disaster actions plans is provided at the community level, where the role of stakeholders is determined and documented at the various stages of a disaster. This work is carried out by the Parish Council, and in some cases, the Board of Supervision provides this support, and channels the output to the Parish Council. Community disaster response plans are driven and lead by communities with the support of the ODPEM. The process involves identifying risks to the

community and looking at measures that they can take as community members to mitigate and respond and recover from any event (ODPEM Interview).

DURING DISASTER

Shelter Management

Older persons who are unable to stay in their homes, either due to the poor housing structure or their inability to care for themselves, or location in a potentially cut-off areas, or simply for precautionary reasons, are removed by the emergency response teams, and placed in shelters ahead of the hurricane event. Priority is given to the older persons, disabled and sick, as they are considered to have the biggest mobility issues and have limited capacity to get to themselves to the shelter. One farmer described his experience in the shelter as:

“The school was big so a lot of people were upstairs and some down stairs, some have kids. Some had food and some did not. Some had money and some did not, I had to cook and give to the little kid.”

The PDC emphasized that in the public outreach and education work that is carried out older persons are encouraged to go to the nearest shelter if they feel that their home is not safe enough. The high level of understanding demonstrated by residents in the Bangor Ridge focus group of the need to go to a shelter should their homes appear unsafe, is evidence of greater awareness (Bangor Ridge focus group).

One of the major concerns during a disaster and in a post-disaster situation for older persons is their health; the Ministry of Health has indicated that community health aides (CHA) and public health nurses can be available in shelters in order to provide medical care, conduct health checks such as blood pressure, and blood sugar (Ministry of Health Interview).

In terms of level of satisfaction with shelter facilities, focus group interviews in Bangor ridge yielded fair to good results, with one person who indicated that he had to go to a shelter due to structural reasons, indicated their experience was a good one, reporting good levels of privacy, male-female bathrooms. In fact, some felt so comfortable that they were reminded that they had to leave.

Nonetheless, PIOJ indicated that base don't heir work in the parishes, they find that the ODPEM can put in greater measures to ensure that shelters are convenient more accommodating to the older persons.

Social capital played an important role in ensuring that persons were well taken care of, whether or not they had; older persons cited sharing their food with younger children.

In terms of transitioning back to their homes after the disaster, the Ministry of Labour and Social Security indicated that they provide support to older persons to ensure that their homes are safe, as a means of ensuring that the shelters are depopulated after the hazard. They maintain that the shelters will remain open for up to a week to facilitate this transition.

The government has in place infirmaries that provide food, shelter, medical, and psychiatric care to the destitute poor in the parish who are unable to care for themselves. These institutions are funded and supported primarily by the Ministry of Local Government. During the disaster, infirmaries need to remain operational, and as a contingency, suitable shelters are identified in the event that the infirmary sustains any damages (Boss Interview).

POST DISASTER

Initial Damage Assessment

One of the key elements of the disaster response process is the carrying out of Initial Damage Assessments (IDA) in the immediate aftermath of the disaster.

IDA takes place in the immediate aftermath of a disaster impact. IDA Teams are usually sent out after the disaster event, and are usually led by ODPEM or local team members and consist of ODPEM, and donor agencies and volunteers. IDA is carried out as a means of collecting information on the numbers and extent of damage and priority needs within the localities.

Information from the IDA is brought to the MLSS, who then prepare relief based on the outcomes of the preliminary priority needs assessment.

The IDA forms a key means by which persons most severely impacted can receive aid and relief in the aftermath of a disaster. However, not in all cases does the

requisite assistance reach those who need it the most. Focus group sessions have revealed that despite damage assessment taking place, they have not received post disaster relief. Reasons given for this include:

- Assessors did not come directly to the home, and were informed that their home was not affected
- Probable political interference may result in biased assessment that is skewed along partisan lines.
 - One interviewee has maintained that this perception is not necessarily true in all cases, and indicated that in some communities, the collective wellbeing of the community and its members would come before any political affinity (ODPEM Interview).
 - Limited funding has also been cited as reason why not all persons affected would receive assistance; many variables are considered when assistance is given, a key one being extent of damage.

Stakeholder interviews yielded the following:

- Volunteers conducting IDA in the communities in which they reside have provided biased information, as opposed to MLSS officers. (MLSS Interview)
 - This has been addressed by ensuring that a mixed team goes into a particular community; one that consists of volunteers from another community, agency representatives, etc.
- Centralized distribution of relief supplies; this can preclude older persons without family or friend to collect on their behalf to be left out.
 - Generally, this can be remedied after the Welfare Assessment, where more detailed assessment and more targeted distribution can be provided.

Post-Disaster Relief

Relief in a post-disaster scenario is coordinated by the MLSS, and delivered by the MLSS and other agencies. Based on IDA and more detailed damage assessment, the MLSS and other agencies respond with, *inter alia*, the following goods and services:

- Cash benefits
- Food packages
- Mattresses/bedding
- Sanitation packages
- Clothes

- Tarpaulin (temporary housing protection)
- Repair of toilet facilities and water supplies (MoH)

During the impact and response phase, the Parish Council provides bleach to put in drinking waters, food (known as food baskets), and they assist in supplying medications. The Health Ministry also provides bleach and oral rehydration salts. Relief supplies are generally provided up to 2-3 weeks post-impact (PDC Interview).

Lack of awareness of benefits in post-disaster situations emerged as a strong theme underlying vulnerability amongst older persons. In stakeholder interviews, there are divergent views.

Amongst some stakeholders, there view that many older persons would have been informed of benefits, and even if there is no knowledge of specific benefits, information can simply be derived by contacting the necessary agencies such as the Red Cross, the ODPEM, and the MLSS and the Parish Council (Council for the Older persons; MLSS Marlene Miller). ‘Not paying attention’ due to lack of trust in the public system has been cited as a reason for older persons not receiving benefits.

Conversely, strong family networks that support older persons have been cited as a significant source of resilience for these older persons. The reasoning behind this includes social pressure to promote and sustain family networks, and the existence of extended family arrangements for protecting and caring for the older persons, even those who live by themselves (SDC St. Elizabeth interview; ODPEM Interview)

Amongst those who live alone, it was indicated during the interviews that many are the heads of their households (SDC St. Elizabeth interview); this has been confirmed in the survey with 76% and 79% of older respondents in Portland and St. Elizabeth respectively being the head of the household. Many older persons have heavy responsibilities for not only maintaining themselves, but also the other family members who may or may not be employed. The SDC representative indicated that there is a significant trend of low achievement among youth in St. Elizabeth, which has resulted in many younger persons resorting to live with their older persons relatives. The result many times, is a mutually beneficial relationship, whereby younger persons serve as de facto caregivers, and older persons

serve as de facto breadwinners, or as a source of rent-free housing.

Unfortunately, the concept of younger relatives living with older homeowners is not a panacea and lack of support for the older persons is seen as a notable problem persons. The Portland Disaster Coordinator stated "... those who live with family members can still be challenged because they don't care for them. Sometimes they are still on their own to cook and wash, and so on—because the younger ones don't care about them that much.", and even indicated that some younger household members have gone as far as to utilize the benefits of their older relatives.

There are a range of plans in place to provide support to vulnerable groups at each stage of the disaster cycle. The research showed that despite the efforts of the various organizations, the plans are not fool proof. Generally respondents demonstrated a basic awareness of the process and based on their experience were satisfied with the support. Others indicated that more needs to be done in the way of coordination and provision of resources such as food.

MULTI-AGENCY COORDINATION: A KEY ELEMENT OF GOVERNMENT RESPONSE

Inter-Agency collaboration is a key driving element of the pre-disaster programmes and post-impact response. MLSS serves as the coordinating agency responsible for the identification of priority needs, and putting persons in reach of the assistance that is needed post-disaster. The MLSS, directly, or through the several agencies that fall under the umbrella works with the other government and non-government agencies to conduct post-damage assessments.

Pre-disaster training initiatives are usually carried out in collaboration with other agencies, within which specific areas of expertise may lie. For example, the SDC in St Elizabeth has cited that they work with RADA to deliver support for backyard gardening within target communities.

The work of shelter inspection and post-disaster assessment is done as a team, consisting of the

government agencies reps, volunteers, community-level responders, and non-government entities.

CHALLENGES AND STRATEGIES TO ADDRESS

1. Data/Information Gathering

The existence of active community groups can facilitate the collection of information on older persons (National Council for Senior Citizens Interview; SDC, St. Elizabeth Interview).

2. Non-Older persons Centred Programmes

Another key limitation that emerged is that the programmes supported by the various agencies and Ministries were not explicitly or functionally targeted to older persons. The key findings of this study suggest that older persons have several vulnerabilities that make them distinct as a group; however, stakeholder interviews determine that older persons are considered to have the “same vulnerabilities” as the rest of the population (ODPEM Interview).

3. Funding Limitations

Limited funding remains a persistent challenge to the delivery of the multitude of programmes run by the government to address the needs of the older persons before during and after a disaster occurrence (ODPEM Interview; Parish Council Interview).

During and after a disaster, limited funds have to be split between carrying out infrastructural works and providing relief to persons; in many cases, the priority typically lies with restoring infrastructure and communication networks (MLSS Interview). Thus, if there is extensive damage to infrastructure, this may have some bearing on the amount of available funds for other forms of relief and post-disaster assistance.

Several programmes that serve to ensure the well-being of those most in need are funded by the MLSS. Much of the time, such programmes, serve not only the older persons, but also younger persons who have demonstrated need. One stakeholder who was interviewed is of the view, however, that programmes such as PATH should prioritize the older persons over

other age groups, as they are considered to be in the majority in terms of persons who are in most need, and that the existing offering of benefits per persons is insufficient (Poor Relief Interview). During the pre-disaster phase, several activities require the participation of community residents during working hours; a stipend and transportation allowances are commonly used means of compensating persons for their time (ODPEM Interview).

Many interventions rely on funding through projects, which ensure that specific objectives are met within a specific span of time. The ODPEM, however provide guidance to communities that may not fall under a particular intervention to replicate activities, albeit with a reduced budget and perhaps over a longer period. ODPEM pointed to the benefits of national level entities such as themselves providing capacity support to develop and seek funding for their own projects through funding mechanisms such as the Community Disaster Risk Reduction Fund (CDRRF) and the Canada Caribbean Disaster Management Fund (CCDRMF).

4. Insufficient Personnel

The lack of personnel has been cited as a key inhibiting factor to the delivery of disaster risk reduction programmes (National Council for Senior Citizens Interview; MLSS Interview; ODPEM Interview). At the parish level, only one person is designated to handle disaster preparedness at the Parish Council. The delivery of home care services for the older persons by the National Council for Senior Citizens is relegated to Kingston and St. Andrew. In terms of post disaster needs assessment, lack of personnel has inhibited the verification of information provided via the MLSS relief form.

According to one respondent, a pool of trained volunteers provided a source of manpower in post-disaster scenario; their participation in recovery efforts dwindled as they are coerced to return to their sources of employment (MLSS Interview).

Agencies have managed to function despite the persistent human resource challenges through inter-agency collaboration.

8. DISCUSSION & CONCLUSION

Jamaica is vulnerable to a number of hydrometeorological hazards due to its geography and size- the potential for these hazards to have disastrous impacts is amplified by the country's socio-economic situation which hampers the rate and pace of relief and response. There is an element of dynamic vulnerability which is based on geography and socio-economic situation that renders some places and persons more vulnerable than others do. Social, economic and bio-physical factors contribute to making older persons one of the most vulnerable groups to disasters. Despite a growing population of older persons and projected increase in the number of potential disastrous hazards to affect Jamaica, the country's policies and programmes fail to explicitly acknowledge older persons as a vulnerable group for special consideration. The study underscores the range of factors affect the vulnerability of older persons to disasters while also addressing the factors that hinder their resilience.

The evidence shows that older persons are disproportionately vulnerable to disasters. Their vulnerability is a function of social, economic and physical factors which are inextricably linked. The vulnerability of older persons to disasters is therefore a complex issue influenced by an interplay of factors, and solutions to build adaptive capacities require an equally comprehensive approach.

Natural hazards and disasters have had various impacts on the residents studied. Among the impacts reported are damage to homes, extensive damage to farms and loss of crops, loss of incomes and worsening of some illnesses. The scale of impact of the hazards was influenced by several economic, bio-physical and economic factors.

Physical health is a crucial factor in determining vulnerability of older persons to disasters. Many of the older persons studied as a part of this research are affected by one or more chronic illness. The illnesses, which include hypertension, diabetes and arthritis, limit their mobility and affect their mental well-being. The financial cost associated with treating these illnesses present another strain compounded by the high levels of

unemployment and economic exclusion among respondents. Where older persons live alone, the degree of exposure physically is increased.

While older persons as a group display a high level of vulnerability, closer analysis reveals the varying levels of vulnerability within the group. There were differences for example in the situation of young-old and old-old as it relates to health and economic status. The physical conditions of both groups directly influence the adaptive capacity as the more degraded physical health of the old-old and higher levels of immobility predispose them to more severe impacts. Older persons with disabilities are almost more at risk than persons those who were able bodied. Older persons are not a homogenous group. Any plan to address older persons in DRR must take into account the various sub-grouping of older persons.

Gender also emerged to be an important determinant of vulnerability. Females showed higher levels of vulnerability than males, due to greater occurrences of chronic illnesses among other factors. The fact that females live longer than males also expose them to more risks as the fact that might be older might make them more prone to illness and therefore more at risk of various impacts. The disadvantageous financial situation of women places them in more unfavorably economic circumstances. The high level of unemployment among women mean they have less money to invest in mitigation and adaption. Additionally, as they were less likely to have been employed in former years, females are less likely to have the benefit of pension plans. As a result, they rely heavily of remittances. This dependence on external sources means that they are exposed to the volatility of current national and global economy changes in market forces will affect the frequency and amount of money remitted. For all persons dependent on remittances or other financial services, where they cannot access them after a disaster they are left with no alternative income. While women were overwhelmingly more vulnerable, the fact that men were more likely to live alone means their isolation can place them at risk of being impacted by disasters. Gender is therefore important in assessing vulnerability of older persons. There are differential vulnerabilities between men and women, and hence while women might be more vulnerable overall, the unique vulnerabilities of older men should not be discounted as some factors enhance their vulnerability.

Social capital is an important asset among older persons. In post-disaster scenarios, respondents reported that farmers' groups and church groups were among those that offered the most satisfactory response. Social capital emerged as one of the most meaningful forms of local level assets. This underscores the importance of encouraging and creating conditions to support the formation of community-based groups. There was a gender component to this issue as well as males were more likely to be in farmers' groups as women were more likely to be involved in churches. It therefore means that any assistance, financial or otherwise, being offered to women is more likely to reach them if channeled through church groups. Assistance geared towards men can be channeled through farmers' groups.

The nature of the job that older persons are currently involved in or were involved in the past can also influence their vulnerability. Farmers and fishers for example whose jobs rely more heavily on elements of the natural environment, are more exposed to some hazards. Interestingly however, the evidence showed that more physical demanding jobs such as farming were beneficial to the persons physical health as they were less frail and more mobile.

There is a dimension of spatial variation in the vulnerability of older persons across Jamaica. As seen in the results, persons in Portland were more susceptible and vulnerable to flooding and hurricane

Older persons must be adequately planned for at every stage of the disaster cycle- from preparedness to relief. Their needs and challenges must be duly considered in order to stave off the most devastating impacts to their life and property.

Based on the results of the research, special attention must be paid to older persons in the *preparedness stage*. At this stage, effective planning can significantly reduce losses and injury. Proper planning in the early stages of the process will also enhance the success of the relief and recovery process. A database or record of the names, ages and disabilities or illnesses of residents would serve as a useful tool in all other stages of the cycle. This information can be collect in the preparatory phase and used to guide other interventions. GIS mapping of their locations or places of residence and the specific hazard that he/she is vulnerable to would also serve to guide the allocation of resources. A record of illnesses would be

very useful to help disaster managers determine what medication residents require and which residents may possibly have to be evacuated in order to be in closer proximity to a hospital or health centre. The value of social capital was clearly demonstrated in the study. Taking a record of the groups to which older persons are registered would help in the later stages where relief assistance is being allocated.

Mitigation intervention must be done with the inclusion of older persons. They can assist as resource persons to help clarify what measures might be most useful in certain locations based on the history of disaster impacts. Such measures as evacuation routes and tools to facilitate lifting older persons could be designed in areas that might potentially be affected. In other areas walk ways may be widened and other supportive structures put in place.

In the relief and recovery stage, specific considerations again need to be made for older persons. Early response mechanisms must give preference to older persons with illnesses and disabilities.

The results prove that progress has been made in terms of integrating older persons in DRR. The various organizations responsible for disaster management and those with a mandate to address issues affecting older persons have been working together to improve the situation. There is still room for improvement in the level of synergy among these organizations. While at the programmatic level there is an attempt to integrate older persons, this can be strengthened and the same need to be done at the policy level. The idea that older persons are at an asset to DRR must be emphasized and their expertise harnessed in developing policies and plans to reduce vulnerability and build resilience.

9. RECOMMENDATIONS

The recommendations outlined below reflect collective views out forward by various stakeholders and based on the desk review of older persons and disasters in Jamaica.

The recommendations span the themes Research, Communication, Education, Policy and Inclusion that can be applied at the individual, community or national level within the context of short or medium term time frames. The successful application of these recommendations demands a people-centered, multi-sectoral approach. Such recommendations have the potential to significantly improve the situation of older people and reduce their vulnerability to disasters.

Research

- Better feeding-in of pre-impact data to the design programmes targeted to the older persons
- Use digital tools to conduct spatial analysis of hazard vulnerability and areas of populations of older persons to determine where specific resources and DRR strategies should be allocated
- Conduct further studies on psychosocial issues such as isolation and loneliness that affect older persons and enhance vulnerability
- Pre-and Post-impact information is vital to the effective delivery of the response mechanism throughout communities. Of utmost importance is the how the information is collected, and whether age is accounted for in the data gathering process.
- Older persons should be included in the research and data collection process to encourage trust among respondents and enhance their visibility as stakeholders in all aspects of the DRR process

Policy

- Ensuring that policies, strategies, and activities take into account the needs, capacities, vulnerabilities and perspectives of all ages.
- Provide channels for the voice of older persons to be included in disaster risk reduction policies to create ownership and allow for unfiltered participation

Education & Capacity Building

- Increase awareness and knowledge about disasters and how older people experience and respond to them. This includes specific training for health professionals working in disaster risk management and for older persons at all levels of society.
- Educate disaster stakeholders, relief staff and other first responders of the need to pay attention to the needs of older persons
- Continue to build capacity in communities that will allow communities to articulate their needs in relation DRM and seeking funding through existing mechanisms
- Establish community based response teams comprised of representatives of all stakeholders, including older persons to serve as point persons
- Harness local knowledge and expertise of older persons and integrate it into local DRR strategies for all
- Enhance the capacity of the younger old to utilize more modern communication tools to access information and communicate challenges at the community level

Communication

- Provide timely, accurate, and practical information that is easy to understand.
- Develop critical response systems specifically for older persons which address areas such as nutrition, health and mobility
- Even with the proliferation of social media and other technology dependent tools, traditional media and other forms of communication accessible to older persons, particularly those with visual or hearing impairments, must be utilized to communicate DRR messages

Inclusion

- Recognise and applaud the contributions of older persons to stem the negative views associated with ageing
- Treat older persons as partners and enlist their assistance in training and mobilizing others in DRR processes
- Acknowledge the heterogeneity of older persons and identify and address unique needs of sub-groups of older persons- young old versus old-old or older persons with disabilities and women
- Adopt a gendered approach to programme development to ensure the unique vulnerabilities of women are met and strategies are implemented to build their resilience to respond at all stages of the disaster process
- Address societal exclusion of older people to curb disempowerment and disrespect which enhance vulnerability in other spheres, including DRR
- Empower older persons by employing them as resource persons and team leaders to harness expertise while allowing other stakeholders to see them as resourceful and worthy of respect
- Include older persons at national, parish and community level boards and committees for disaster preparedness and management to represent the needs and vies of older persons

Funding

- Set up funding mechanisms to provide aid to older persons to rebuild post-disaster
- Provide opportunities to help older persons gain financial independence through appropriate livelihood strategies which enhance resilience to disasters

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APPENDIX 1: HOUSEHOLD QUESTIONNAIRE



Help Age International Household Questionnaire

STUDY ON OLDER PEOPLE AND THEIR EXPERIENCE IN NATURAL DISASTER

Good morning, my name is [state name]. I am representing HelpAge International, a non-government organization. I am conducting a survey on older persons and their experiences during disaster in the past.
Can you spare some time to answer some questions on this matter?

Name of Interviewer	
Contact Number	
Initials of Interviewee	
Date	
Time	
Community	

* **INTERVIEWER: PLEASE OBSERVE THE HOME OF THE RESPONDENT, AND FILL IN THE INFORMATION BELOW:**

CODES:	1	2	3	4	5	6	7	8	9
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MATERIAL OF OUTER WALLS

	Wood/Timber	Concrete/Concrete Blocks	Wood & Concrete	Zinc	Stone	Brick/Blocks	Plywood	Makeshift	Other/Don't Know
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MATERIAL OF ROOF

	Zinc	Shingle Asphalt	Shingle Wood	Shingle Other	Tile	Concrete	Makeshift/Thatched	Other	Don't Know
--	------	-----------------	--------------	---------------	------	----------	--------------------	-------	------------

CONDITION OF HOUSE IN GENERAL

	VERY POOR	POOR	FAIR	GOOD	VERY GOOD
Guide:	Badly degraded (broken windows/missing roofs, door); shack; makeshift home	Partially degraded (e.g. missing roof replaced by taupe of other materials)	Minor leaks, roof intact, doors intact; minor damage to walls	No major cracks; no leaks; roof fully intact; all doors intact	New (solid/intact) structure

SECTION A: PRELIMINARY QUESTIONS

* 1 **INTERVIEWER: PLEASE INDICATE THE RESPONDENT'S GENDER**

MALE	FEMALE
------	--------

2 AGE

60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	>=100
-------	-------	-------	-------	-------	-------	-------	-------	-------

3 HOW MANY YEARS HAVE YOU BEEN LIVING IN THE COMMUNITY?

1 to 3	4 to 6	7 to 9	10 to 12	13 to 15	16 to 19	more than 20	Since birth
--------	--------	--------	----------	----------	----------	--------------	-------------

4a HOW WELL CAN YOU MOVE RIGHT NOW?

I can move very well without any obstacles	I can move short distances	I need help to move around cane/walker/wheelchair	I need another person to help me to move	Other
--	----------------------------	---	--	-------

4b IS THIS A RESULT OF A DISABILITY?

YES	NO (move to question 5)
-----	-------------------------

4c WHAT IS THE CAUSE?

Stroke	Birth defects	Amputation	Accident	Aging	Other
--------	---------------	------------	----------	-------	-------

5 WHICH OF THE FOLLOWING **BEST** MATCHES YOUR CURRENT STATE?:

	Very fit [<i>robust, active, energetic, well motivated and fit; you commonly exercise regularly and are in the most fit group for your age</i>]	Well [<i>without active disease, but less fit than people in category 1</i>]	Well, with treated disease [<i>disease symptoms are well controlled compared with those in category 4</i>]	Apparently vulnerable [<i>although not frankly dependent, you commonly complain of being "slowed up" or have disease symptoms</i>]	Mildly frail [<i>with limited dependence on others for basic activities of daily living</i>]	Moderately frail [<i>help is needed with both basic and basic activities of daily living</i>]	Severely frail [<i>completely dependent on others for the activities of daily living, or terminally ill</i>]	
--	--	---	---	---	---	--	---	--

6 DO YOU OWN YOUR HOME?

A	Owned With Mortgage	Owned Without Mortgage	Rented-Furnished	Rented-Unfurnished	Rented Gov't	Rented Private	Leased	Rent Free	Squatted
B	Other	Not Stated							

7 DO YOU OWN THE LAND ON WHICH YOU CURRENTLY RESIDE?

	Owned With Mortgage	Owned Without Mortgage	Rented Private	Leased	Rent Free	Squatted	Other
--	---------------------	------------------------	----------------	--------	-----------	----------	-------

CODES: 1 2 3 4 5 6 7 8 9

8a DO YOU LIVE ALONE?

YES (go to Q. 8b)	NO (go to Q. 8c)
-------------------	------------------

8b IF YES, HOW DO YOU KEEP IN TOUCH WITH YOUR FAMILY (TICK ALL THAT APPLY)

I have no loved ones	My family visits me	I visit my family	Telephone (landline)	Cell phone	Email	Skype (or similar)	Social Media
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8c IF YOU ANSWERED NO TO QUESTION 8A, HOW MANY OTHER PERSONS LIVE IN YOUR HOUSEHOLD?

1	2 TO 3	4 TO 5	6 TO 7	MORE THAN 7
---	--------	--------	--------	-------------

8d ARE YOU THE HEAD OF YOUR HOUSEHOLD?

YES	NO
-----	----

8e WHO DO YOU LIVE WITH (TICK ALL THAT APPLY)?

SON/DAUGHTER	BROTHER/ SISTER	HUSBAND/WIFE	PARENT	OTHER RELATIVE	FRIEND	CAREGIVER	PET
--------------	--------------------	--------------	--------	-------------------	--------	-----------	-----

9a ARE YOU EMPLOYED OR UNEMPLOYED?

YES	NO
-----	----

9b IS THE HEAD OF YOUR HOUSEHOLD EMPLOYED OR UNEMPLOYED?

YES	NO	I AM THE HEAD
-----	----	---------------

10 HOW ARE YOU SUPPORTED FINANCIALLY (TICK OR CIRCLE ALL THAT APPLIES)?

Job	Pension	Savings	Life insurance	Family	Other
-----	---------	---------	----------------	--------	-------

11 ARE YOU AFFECTED BY ANY ILLNESS?

Diarrhoea	
Pneumonia, bronchitis	
Breathing problems	
Asthma	
Problems with seeing	
Hearing problems	
Skin infection/fungus/ringworm	
Cancer got worse	
Heart problems	
Infectious disease (cold/flu)	
Feeling depressed	
Feeling anxious	
Feeling hopeless	
Feeling frightened	
Feeling worried	

IF YOU ARE NOT AN ACTIVE MEMBER OF A GROUP: WHAT PREVENTS YOU FROM PARTICIPATING OR BEING A MEMBER OF? WRITE IN THE CELLS BELOW, E.G.

13b SICKNESS

--

14 DO YOU FEEL LONELY AT TIMES/CUT OFF FROM OTHER PEOPLE?

YES	NO
-----	----

15 ACCESS TO SERVICES

- a What is your average wait time per day to get a taxi/bus?
- b How often do you need to see your doctor per month?
- c How often do you see your doctor per month?

WHICH OF THE FOLLOWING SERVICES EXIST IN YOUR COMMUNITY:

*

INTERVIEWER: PLEASE SELECT ALL THAT APPLY:

d	Water	
e	Health Clinic	
f	Post Office	
g	Food	
h	Pension	
i	Pharmacy	
j	Other financial services	

k	Disaster insurance	
l	Garbage disposal	

HOW CONVENIENT IS IT FOR YOU TO GET THE FOLLOWING:

*

INTERVIEWER: PLEASE ASK THE RESPONDENT TO RATE EACH SERVICE, AS OUTLINED BELOW:

	1- EASY	2- NORMAL	3- HARD
d	Water		
e	Health Clinic		
f	Post Office		
g	Food		
h	Pension		
i	Pharmacy		
j	Other financial services		
k	Disaster insurance		
	Garbage disposal		

SECTION B: INCOME, LIVELIHOOD AND ASSETS QUESTIONS

16 HOW MUCH MONEY DO YOU RECEIVE EACH MONTH?

LESS THAN JMD 5000	JMD 5001-15000	JMD 15001-25000	JMD 25001 - 35000	JMD 35001 - 45000	JMD 45001- 55000	JMD 55001-75000	JMD 75001- 100000	OVER JMD 100000
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* 17 **INTERVIEWER: PLEASE FILL IN [1], [2] & [3] WITH ONE ACTIVITY AT A TIME, USING THE LIVELIHOOD SOURCE CODES BELOW**

17a WHAT IS YOUR HOUSEHOLD'S MOST IMPORTANT SOURCES OF MONEY? (USE ACTIVITY CODE, UP TO 3 ACTIVITIES)

1. [2_]	2. [1_]	3. [_]
---------	---------	--------

17b USING PROPORTIONAL PILING OR 'DIVIDE THE PIE' METHODS, PLEASE ESTIMATE THE RELATIVE CONTRIBUTION TO TOTAL INCOME OF EACH SOURCE (%)

*

1. [75%_]	2. [25%_]	3. [_]
-----------	-----------	--------

LIVELIHOOD SOURCE CODES:

- | | | |
|--------------------------------|--|---------------------------------|
| 1 = remittance | 6 = livestock production/sales | 12 = fishing |
| 2 = Food crop production/sales | 7 = skilled trade/artisan | 13 = pension grant |
| 3 = Cash crop production | 8 = small business | 14 = vegetable production/sales |
| 4 = casual labour | 9 = petty trade (firewood sales, etc.) | 15 = Food assistance |
| 5 = begging/gifts | 10 = government child welfare grant | 16 = No other source |
| | 11 = formal salary/wages | 88 = Other _____ |

	Erosion along river or land								
	Food insecurity								
	Fire								
	Social unrest/violence								
	other [specify]								
	other [specify]								
	other [specify]								
CODES:	1	2	3	4	5	6	7	8	9

YOUR RESPONSE TO THE FOLLOWING QUESTION SHOULD BE IN TERMS OF THE WORST DISASTERS BASED ON YOUR SELECTION ABOVE

19 HAVE YOU CHANGED YOUR LIVELIHOOD ACTIVITIES AS A RESULT OF A DISASTER?

YES	NO (SKIP TO QUESTION 21)
-----	--------------------------

20 IF YES, WHAT ARE YOUR THREE MAIN LIVELIHOOD SOURCES NOW? (USE THE ACTIVITY CODE ABOVE)

A. [_]	B. [_]	C. [_]
MOST IMPORTANT	SECOND	THIRD

21 AFTER THE DISASTERS, RATE WHETHER YOU RECEIVED ENOUGH MONEY TO COVER EXPENSES

Less than enough	Barely enough	Enough	More than enough	Other responses
------------------	---------------	--------	------------------	-----------------

22a IF A DISASTER HAPPENS TOMORROW, DO HAVE ENOUGH SAVINGS TO GET BACK ON YOUR FEET?

YES	NO
-----	----

22b EXPLAIN WHY OR WHY NOT:

23 WHAT DO YOU OWN (TICK **ALL** THAT APPLY)?

House	
Land	
Furniture	
Vehicles	
Jewellery	
Bank account	
Investments (Shares)	
Health insurance	
House insurance (building)	
House insurance (contents)	

Livelihood insurance	
Life insurance	
Accident/critical illness insurance	
Equipment and tools	
Memento	
Fishing boat	
Other (specify)	
Other (specify)	

SECTION C: EXPOSURE

CODES:	1	2	3	4	5	6	7	8	9
24 HOW CLOSE IS YOUR HOME TO A HAZARD (TICK ALL THAT APPY)									
	Near/in river bed	Near/in the area of unstable slope (potential for land slippage)	Close to the sea (less than 100 yards)	Close to area with bush fire potential	Windy area (strong winds at least once per week)	Other (state)			

SECTION D: PREPAREDNESS

25 WHICH HAZARD IS THE MOST DIFFICULT TO PREPARE FOR? (SELECT ONE ONLY)

Earthquake	Tsunami	Volcanic Eruption	Landslide	Flood	Large Storm	Tropical Cyclone	Drought	Erosion along river or land
Bush Fire	Social unrest/violence	other [specify]	other [specify]	other [specify]				

26a DO YOU NEED HELP TO PREPARE FOR ANY HAZARD?

YES	NO
-----	----

26b EXPLAIN:

27a IF A DISASTER STRIKES, DO YOU THINK YOU WILL BE ABLE TO PROTECT YOUR HOME AND ASSETS?

YES	SOMEWHAT	NO
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27b REASON FOR ANSWER

28a DOES YOUR HOUSEHOLD HAVE AN EMERGENCY PLAN?

YES	NO
-----	----

28b HAVE YOU EVER ACTIVATED THE EMERGENCY PLAN?

YES	NO (SKIP TO QUESTION 29)
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28c IF YOU ANSWERED "YES", RATE THE EFFECTIVENESS OF THE EMERGENCY PLAN

*

INTERVIEWER: IN THIS CASE, EFFECTIVENESS IS DETERMINED HOW MUCH THE FAMILY WAS IMPACTED, DESPITE USING THE EMERGENCY PLAN

VERY EFFECTIVE	EFFECTIVE	COULD BE MORE EFFECTIVE	NOT VERY EFFECTIVE	VERY INEFFECTIVE
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CODES:

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29a ARE YOU PREPARED FOR THE NEXT DISASTER?

very prepared	somewhat prepared	could be more prepared	not very prepared	minimal or no preparation
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29b GIVE REASONS:

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* 30 WHICH OF THE FOLLOWING PREPAREDNESS MEASURES APPLY TO YOU RIGHT NOW (**INTERVIEWERS, TICK ALL THAT APPLY**)

a	I know how to get assistance in the event of a disaster event	
b	I/my household has an Emergency Kit	
c	I/my household member has a first aid certificate	
d	I know what to do if my home is at risk	
e	I am willing to evacuate if I need to	
f	I know where I can stay if I need to evacuate	
g	I have a list of emergency numbers	

h	I have checked my roof for damage or weakness	
i	I have enough drinking water for three days	
j	I have determined the strongest room in my house	
k	I have an insurance policy	
l	I have removed items that could be dangerous in a disaster	
m	I have a first aid kit	
n	I have enough non-perishable food for three days	
o	I have a battery powered radio	
p	I have a torch (flashlight) and fresh batteries	

q I have enough medication for three days

CODES:

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SECTION E: IMPACT

YOUR RESPONSE TO THE FOLLOWING QUESTIONS SHOULD BE IN TERMS OF THE WORST DISASTERS BASED ON YOUR SELECTIONS IN QUESTION 18, SECTION B

31 WHAT IS THE WORST THINK THAT EVER HAPPENED TO A MEMBER OF YOUR HOUSEHOLD AS A RESULT OF A DISASTER?

Family	No loss or injury	temporary injury	permanent injury	death
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32 RATE THE GREATEST DAMAGE TO YOUR HOME DUE TO A DISASTER IN THE PAST

Socio-economic	NO DAMAGE	MINOR DAMAGE	MAJOR DAMAGE	DESTROYED COMPLETELY
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YOUR RESPONSE TO THE FOLLOWING QUESTIONS SHOULD BE IN TERMS OF THE WORST DISASTERS BASED ON YOUR SELECTIONS IN QUESTION 18, SECTION B

33 PLEASE INDICATE WHICH OF THE FOLLOWING ASSETS THAT YOU HAVE LOST, AND RATE THE IMPACT OF THE LOSSES USING 1-5 (1 BEING THE LEAST, 5 BEING THE GREATEST/MOST INTENSE)

*

INTERVIEWER: TICK THE APPLICABLE ASSET UNDER "MARK", AND PROVIDE RATING OF 1-5 UNDER "RATING"

	Mark	Rating
House		
Land		
Furniture		

Vehicles									
Jewellery									
Bank account									
Investments									
Equipment and tools									
Fishing boat									
Livestock									
Memento									
Documents									
Other (specify)									
CODES:	1	2	3	4	5	6	7	8	9

34a DID YOU APPLY FOR RELIEF FROM ANY OF THE FOLLOWING ORGANIZATIONS?

I did not apply	Ministry of Labour and Social Security	Food for the Poor	Poor Relief	Other (specify)	Other (specify)	Other (specify)
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34b IF YOU DID NOT APPLY FOR RELIEF, EXPLAIN WHY:

35 AFTER THE DISASTER(S), PLEASE RATE YOUR HEALTH

Health Impacts	Excellent	Good	Fair	Poor	Don't remember
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36 WHAT WERE THE PHYSICAL AILMENTS, CONDITIONS OR SYMPTOMS THAT YOU EXPERIENCED OR THAT GOT WORSE AFTER THE DISASTER (LESS THAN THREE WEEKS):

*

INTERVIEWER: FOR EACH AILMENT, CONDITION OR SYMPTOM, TICK UNDER THE "NEW" OR "WORSE" COLUMN

	NEW	WORSE
Diarrhoea		
Pneumonia, bronchitis		
Breathing problems		
Asthma		
Problems with seeing		
Hearing problems		
Skin infection/fungus/ringworm		
Cancer got worse		
Heart problems		

Infectious disease (cold/flu)		
Feeling depressed		
Feeling anxious		
Feeling hopeless		
Feeling frightened		
Feeling worried		
Always stressed/ unusual stress		
Insomnia (cannot sleep)		
High Blood pressure		
Low Blood Pressure		
Cannot control my sugar		
Arthritis		
Headaches		
Other (specify)		
Other (specify)		

	Other (specify)			
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* 37a AFTER THE DISASTER(S), WHICH OF THE FOLLOWING DID YOU EXPERIENCE (**INTERVIEWERS, TICK ALL THAT APPLY**)

The younger people got relief before I did	
I got relief before the younger people	
I received my pension on time	
I did not receive my pension on time	
My pension was enough to help me to recover	
My pension was not enough to help me to recover	
I had to leave my home for less than three months	
I had to leave my home for three months or longer	

I did not receive basic food items	
I did not receive non-food relief items	
I had enough medication	
I could not get to the clinic for my prescription	
I could not get to the pharmacy for my prescription	
Other (specify)	

* 37b AFTER THE DISASTER(S), WHICH OF THE FOLLOWING DID YOU DO (***INTERVIEWERS, TICK ALL THAT APPLY***)

I refused to evacuate	
I returned to my farm soon after the disaster	
I continued my daily routine	
Other (specify)	

CODES:

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* 38 WHAT BEST DESCRIBES THE SOCIAL IMPACTS THAT YOU HAVE HAD SINCE THE DISASTER(S)? (***INTERVIEWERS, TICK ALL THAT APPLY***)

Social Impact	Increased	No Change	Decrease	Not Applicable
Visiting neighbours				
Attending meetings				
Attending church				
Shopping for goods				
Participation in community organizations				
Other (specify)				

39 DESCRIBE ANY LONG-TERMS EFFECTS OF THE DISASTER THAT YOU EXPERIENCED:

Long Term effects

YOUR RESPONSE TO THE FOLLOWING QUESTIONS SHOULD BE IN TERMS OF THE WORST DISASTERS BASED ON YOUR SELECTIONS IN QUESTION 18, SECTION B

40a WHAT SERVICES WERE IMPACTED IN YOUR COMMUNITY AS A RESULT OF THE DISASTER(S)? [TICK ALL THAT APPLY]

Services	Infrastructure/roads	Electricity	Water lack-offs/broken mains/pumps	Communication	Health Clinic	Post Office
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For each that applies, indicate how long it took for services to be restored

1) less than 2

2) 2 - 3

3) 1 -3

4) 4-6

5) 6mths-

6)

7) > 2 yrs

40b

INTERVIEWERS: BELOW EACH SERVICE, place the number that corresponds to the length of time for services to resume. E.g., if it took one month for water to return, place '3' under 'Water'

Infrastructure/roads	Electricity	Water	Communication	Health Clinic	Post Office
[_]	[_]	[_]	[_]	[_]	[_]

CODES: 1 2 3 4 5 6 7 8 9

SECTION F: COPING AND RECOVERY

YOUR RESPONSE TO THE FOLLOWING QUESTIONS SHOULD BE IN TERMS OF THE WORST DISASTERS BASED ON YOUR SELECTIONS IN QUESTION 18, SECTION B, UNLESS OTHERWISE INDICATED

41 HOW DO YOU COPE WITH LOSSES FOLLOWING THE DISASTER(S)? (SELECT ALL THAT APPLY)

Use savings to restore goods lost	Prepare so you don't lose	Receive support from family/friends	Receive from community groups/churches	Receive support from agencies/groups outside the community	Other
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42 AFTER THE DISASTER(S), HOW MUCH TIME PASSED BEFORE YOU STARTED TO FEEL LIKE THINGS WERE GETTING BETTER?

Days	3-4 weeks	5-8 weeks	2-4 months	4-6months	6 months-1year	1-2years	2-3 years	Other
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43a WHO ASSISTED YOU AFTER THE DISASTER? SELECT ALL THAT APPLY

No one/no help	Family/friends	RADA and/or other government agencies	Church	Farmer's group/CDC group/other	Non government/aid groups (provide e.g.)	other (specify)	other (specify)	other (specify)
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43b FOR EACH, INDICATE THE SPECIFIC HELP THAT YOU RECEIVED

* **INTERVIEWERS: LIST THE SPECIFIC AID UNDER EACH CATEGORY**

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44 USING A RATING OF 1-5, RATE YOUR VIEW OF THE HELP YOU RECEIVED FROM EACH GROUP [RATE ONE AS COMPLETELY DISSATISFIED, AND FIVE AS COMPLETELY SATISFIED]

	Family/friends	RADA and/or other government agencies	Church	Farmer's group/CDC group/other	Non government/aid groups (provide e.g.)	other (specify)	other (specify)	other (specify)
	[_]	[_]	[_]	[_]	[_]	[_]	[_]	[_]

45 WHAT CAN BE DONE TO IMPROVE AID FOLLOWING A DISASTER?

46 WHAT ADDITIONAL SERVICES WOULD HAVE BEEN HELPFUL IN YOUR RECOVERY?

* 47 NOTES: **INTERVIEWER, PLEASE USE THIS SPACE TO WRITE DOWN QUOTES FROM THE INTERVIEWEE**

Empty rectangular box for notes.

