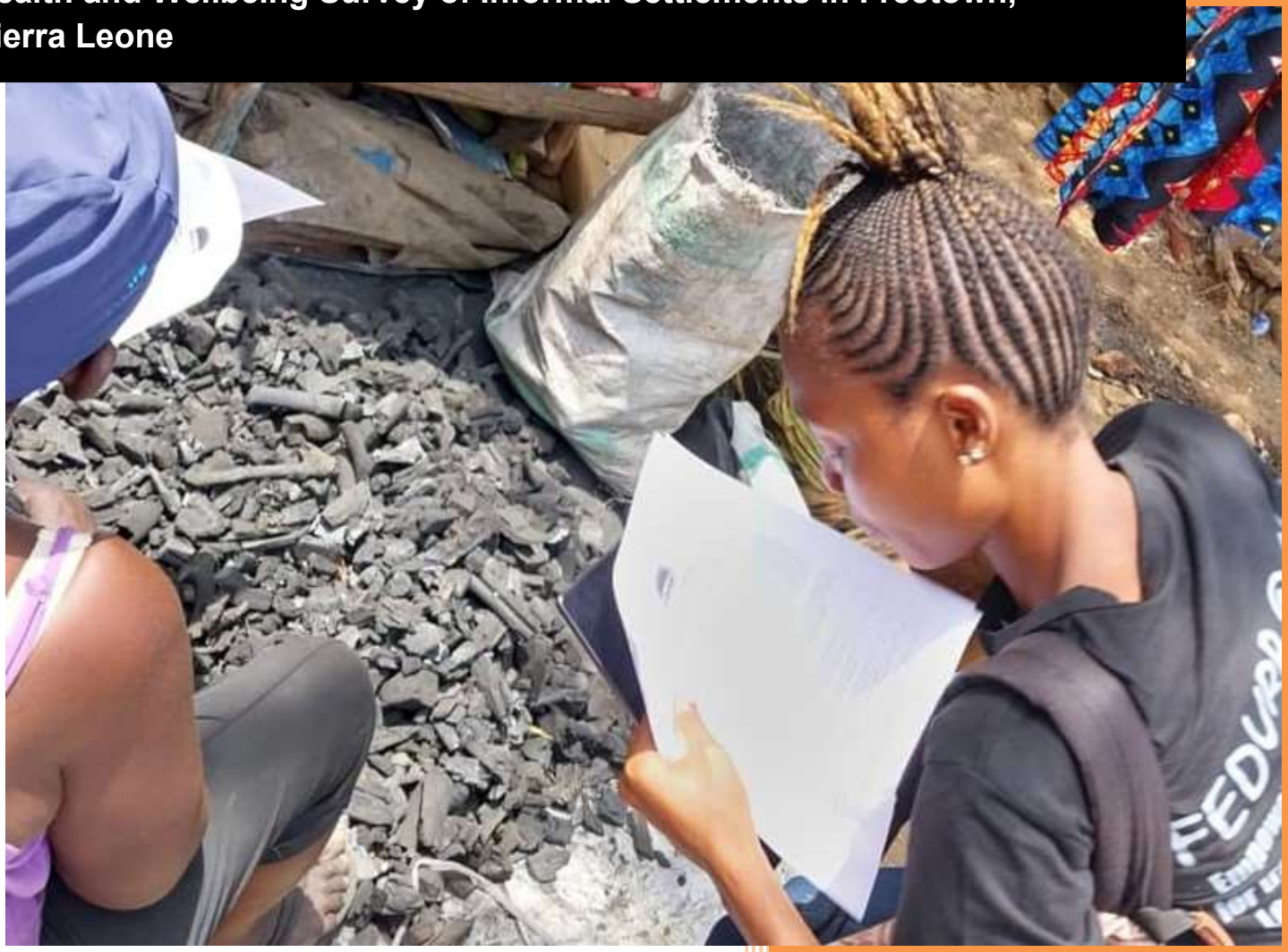
# ARISE Sierra Leone – Survey Report

## Health and Wellbeing Survey of Informal Settlements in Freetown, Sierra Leone



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Samira Sesay
Ibrahim Juldeh Sesay
Ibrahim Gandi
Sullaiman Fullah
Dora Vangahun
Abu Conteh
Samuel Saidu

**Reviewers and support with data analysis:** Eliud Kibuchi, Rajith Lakshman, Noemia Teixeira de Siqueira-Filha, Lana Whittaker, Neele Wiltgen-Georgi

**Survey planning and implementation:** Samuel Saidu, Abu Conteh, Bintu Mansaray, Sia Tengbeh, Juldeh Sesay, Ibrahim Gandi, Samira Sesay, Yirah Conteh, Noemia Teixeira de Siqueira-Filha, Rajith Lakshman, Eliud Kibuchi, Lana Whittaker.

**Co-researchers:** Mohamed Bangura, Mohamed Sesay, Zakiatu Sesay, Sinneh Turay, Hafsatu Kamara, Jamestina Sia Bayo, Fatmata B Sesay, Suad Kamara, Issa Turay, Abdul Karim Kamara, Alieu Bah, Frank Bubu Kamara, Georgiana Goba, Abu Sesay

**Principal Investigators:** Joseph Macarthy, Braima Koroma, Francis Reffell, Haja Ramatulai Wurie-Kamara, Bintu Mansaray, Prof Alastair H Leyland

**Institutions:**

*Sierra Leone Urban Research Centre (SLURC), Njala University, Sierra Leone*

*College of Medicine and Allied Health Sciences (COMAHS), University of Sierra Leone*, Sierra Leone

Centre of Dialogue on Human Settlement and Poverty Alleviation (CODOHSAPA), Sierra Leone

MRC/CSO Social and Public Health Sciences, School of Health and Wellbeing, University of Glasgow, UK

Department of Health Sciences, University of York, UK

*Institute of Development Studies (IDS), UK*

*Liverpool School of Tropical Medicine (LSTM), UK*

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# Abbreviations

ARISE Accountability and Responsiveness of Informal Settlements for Urban Equity

CDMC Community Disaster Management Committee

CODOHSAPA Center of Dialogue on Human Settlement and Poverty Alleviation

COMAHS College of Medicine and Allied Health Sciences

FCC Freetown City Council

FEDURP Federation Urban and Rural Poor

GCRF Global Challenge Research Fund

HH Households

LPPB Coordinated Local police Partnership Board

MoHS Ministry of Health and Sanitation

NDMA National District Management Agency

NGO Non-Governmental Organisation

ONS Office of National Security

PHRF Population Health Research Facility

PHU Peripheral Health Units

PWDs Persons with disabilities

REDCap Research Electronic Data Capture

SGBV Sexual and Gender-based Violence

SLURC Sierra Leone Urban Research Center

STI/D Sexually Transmitted Infections/Disease

WASSCE West African Secondary School Examination Council

## Acknowledgements

We extend our profound gratitude to all those who contributed to the successful execution of the first-ever health and wellbeing survey in informal settlements in Freetown, as part of the *Accountability and Responsiveness in Informal Settlements for Equity* (ARISE) research project. This monumental undertaking, aimed at addressing the complex challenges of ill-health, inequity, and insecurity in informal urban settlements across Low- and Middle-Income Countries, would not have been possible without the collaborative efforts and untiring support of various individuals and institutions.

First, we express our sincere appreciation to the Global Challenge Research Fund (GCRF) for providing the necessary funding (Ref: ES/S00811X/1) to undertake this multidisciplinary research initiative. The GCRF's commitment to addressing global challenges through research that promotes better policy uptake has been instrumental in improving the lives of the poorest and most vulnerable urban residents.

We extend our gratitude to the *Liverpool School of Tropical Medicine* (LSTM) for leading this ambitious project and fostering collaboration among partner institutions in Sierra Leone, Bangladesh, India, and Kenya, as well as UK-based universities. Their continual leadership and coordination have been pivotal to ensuring the success of the ARISE research project.

Special thanks to the *University of Glasgow*, the *University of York*, LSTM, and the *Institute of Development Studies* (IDS) for their invaluable support. The expertise and technical assistance provided by these institutions were critical in calculating the sample size using the pilot survey dataset, finalising the questionnaire for the main survey and offering training in data management, manuscript writing, descriptive statistics, quantitative intersectionality and health economics to our researchers in Freetown. We thank the numerous reviewers of the report who gave invaluable input during the report writing process with their unwavering guidance and support.

Additionally, we express our appreciation to the co-researchers in the research settings and the entire team of researchers from the *Sierra Leone Urban Research Centre* (SLURC), *College of Medicine and Allied Health Sciences – University of Sierra Leone* (COMAHS) and *CODOHSAPA/FEDURP* as the lead institutions in Freetown.

Their dedication, hard work and commitment to modifying the questionnaire, providing training for data collection and monitoring, and field logistical support played a pivotal role in ensuring the survey's success. We are also indebted to the community leaders and stakeholders who have facilitated our seamless entry into the study settings.

In conclusion, we acknowledge the collective efforts of all the individuals and institutions involved in the ARISE research project. This collaborative endeavour has not only advanced our understanding of health and wellbeing in informal settlements but has also contributed significantly to building the capacities of researchers and co-researchers to address the intractable development challenges faced by the urban poor.

# Executive Summary

This report documents the population and health and wellbeing characteristics and challenges among dwellers in three informal settlements (i.e. Cockle Bay, Dwarzark, and Moyiba) in Freetown, Sierra Leone. The findings presented in this report are from the ARISE Hub Health and Wellbeing survey conducted in April – May 2023. This is the first report to provide detailed quantitative analyses of the challenges faced by Freetown informal dwellers. These challenges were informed by informal dwellers themselves through community participatory research.

This survey is based on three objectives:

1. To understand the current state of service delivery in Freetown informal settlements and the barriers faced by different households and individuals to access healthcare, water, and sanitation services.
2. To identify the extent of health and environmental risks experienced through housing, livelihood, social safety, and security challenges; and how they differ across settlements social groups, and coping strategies.
3. To examine the different wellbeing goals, priorities, and strategies and analyse the economic, social, governance, and environmental factors.

Urbanisation has increased and still continues to increase across low- and middle-income countries (LMICs) leading to changes in the burden of disease and the determinants of health and wellbeing structures. This is mostly driven by rural-urban migration as individuals search for better life opportunities in cities. However, due to the higher costs associated with living in cities, most people end up living in informal settlements. In Sierra Leone's capital, Freetown, most informal settlements are located by the coastal area and on hillsides, and they are characterised by inadequate living space, insecure tenure, and lack of basic services. In addition, these informal urban settlements are characterised by poorly defined governance structures that are often viewed as tools for temporary aberrations by the national and local governments.

In turn, this has led informal dwellers to experience poor health and wellbeing compared to their other urban and rural counterparts. Reducing health inequalities experienced by informal dwellers in Freetown requires data-driven evidence which is

often hampered by lack of quality and representative data. Therefore, this study intended to fill this gap by collecting and analysing health and wellbeing data among informal dwellers informed by their own lived experiences and the priorities of the local community members. This will provide clear perspectives, knowledge and experiences regarding their access to services, wellbeing and disaster management. This will contribute to better policy making and mutual understanding by providing in-depth insights into critical health and social issues and bringing stakeholders from informal settlements, the health system and urban planning into dialogue on these issues. This survey leveraged evidence to enhance inclusion of communities in planning to improve governance and wellbeing. By bringing diverse sets of stakeholders together, we hope to create spaces that enable collective action for change that is guided by the priorities of individuals living in these informal settlements.

## Findings summary

This report provides a descriptive analysis about individual and household characteristics, access and barriers to services (water, sanitation, and healthcare), environmental health risks/vulnerabilities (disasters, safety and security, livelihoods), and wellbeing priorities across three informal settlements (i.e. Cockle Bay, Dwarzark, and Moyiba) in Freetown, Seirra Leone.

Chapter 1 of the report provides a comprehensive overview of the trends of urbanization globally and its ramifications, particularly the rapid proliferation of informal settlements in Freetown. It further outlines the objectives of the survey and provides a detailed explanation of the methodology employed, including the rationale behind the selection of the study sites, the sampling approach, the process of questionnaire development, the recruitment and training of data collectors and community mobilisers, challenges encountered during data collection, and measures taken to ensure data quality and ethical compliance. Overall, the chapter serves to establish the framework and methodology used in the survey, setting the stage for the subsequent analysis and findings presented in the report.

Chapter 2 presents the respondents and household characteristics of the 4871 households interviewed. It delves into the sociodemographic and household

characteristics of respondents living in slums, offering a comprehensive understanding of their precarity. The analysis reveals a predominantly female population most of whom are married and have lived in the community for over 10 years, with significant proportions falling within the working-age bracket (26-46 years) and demonstrating varying levels of educational attainment. While households are predominantly male-headed, female members play crucial roles in household management. Large household sizes and high rates of tenancy underscore the challenges of housing within these settlements. Economic activities, primarily centred around daily income generation through small-scale businesses, sustain livelihoods, albeit with notable disparities in income levels.

Chapter 3 of the report explores the intricate dynamics of water and sanitation services across the three study areas (Cockle Bay, Dwarzark, and Moyiba). It examines several aspects, including water sources, accessibility, sanitation facilities, waste management, and associated challenges. The chapter presents a comprehensive analysis of drinking water sources, such as sachet water and community wells, as well as domestic water usage patterns and distances to water points. From the analysis, most of the respondents relied on sachet water and community wells as sources of drinking water. Overall, the sanitation system is relatively poor across the three communities. Flush toilets are mostly common in Cockle Bay and are connected to the sea for sludge discharge with pit latrines widely used in Moyiba and Dwarzark.

Chapter 4 looks at the healthcare landscape of the study sites, revealing significant variations in healthcare access and utilisation patterns. From the analysis, the predominant healthcare services available within the communities are public formal facilities which include hospitals and Peripheral Health Units (PHUs). However, Cockle Bay notably lacks such facilities, relying heavily on drug peddlers and private nurses. Conversely, Dwarzark and Moyiba exhibit a higher prevalence of public health facilities, particularly PHUs. Most respondents seek healthcare services within the community, primarily in public PHUs and pharmacies, but a considerable proportion in Cockle Bay seek healthcare outside their community. In terms of illnesses, malaria, common cold/flu, and typhoid are prevalent and mostly treated within the communities, with drug peddlers and private formal healthcare providers such as clinics and pharmacies being widely utilised. Moreover, significant challenges exist in accessing

healthcare services across the three communities. These barriers such as distance, cost, and quality of care, are particularly pronounced for healthcare services within and outside the communities, with responses to reported barriers varying among the communities. Overall, while healthcare costs are lower within the communities, they are significantly higher outside, underscoring disparities in healthcare access and expenditure. Similarly, quality of care is better in healthcare services outside the communities than within, and this is the reason respondents with sustainable and higher income-generating activities sought healthcare providers outside the community.

In Chapter 5, we examine how common natural disasters such as flooding, fire, building collapsing, and falling boulders affected respondents. Respondents reported theft/robbery, physical violence, road accidents, evictions, and sexual and gender-based violence (SGBV) to be common across communities mostly affecting the most vulnerable and marginalized groups.

In Chapter 6, we explore respondents' perception of their health and wellbeing challenges and barriers are differ across the three communities. The factors that determine physical wellbeing in Cockle Bay and Moyiba are good health and a clean and safe environment while Dwarzark is slightly different. On the other hand, Cockle Bay and Dwarzark seem to have similar social and mental wellbeing priorities like financial stability, safety/security, and support network.

## Overall Implications of the report

The findings of the report underscore the multifaceted challenges faced by residents of informal settlements in Freetown, encompassing issues related to water, sanitation, healthcare, environmental risks, and overall wellbeing. The prevalence of inadequate water and sanitation infrastructure, coupled with disparities in healthcare access and utilisation, highlights systemic deficiencies in essential service provision within these communities. Moreover, the vulnerability of residents to natural disasters and various forms of violence underscores the urgent need for targeted interventions to enhance safety and security. The disparities in perceptions of health and wellbeing priorities across communities further emphasise the importance of context-specific approaches to addressing the diverse needs of residents. Overall, the report calls for

comprehensive, multi-sectoral strategies aimed at improving living conditions, enhancing service delivery, and promoting holistic wellbeing in informal settlements, with a particular focus on addressing the underlying social, economic, and environmental determinants of health and vulnerability.

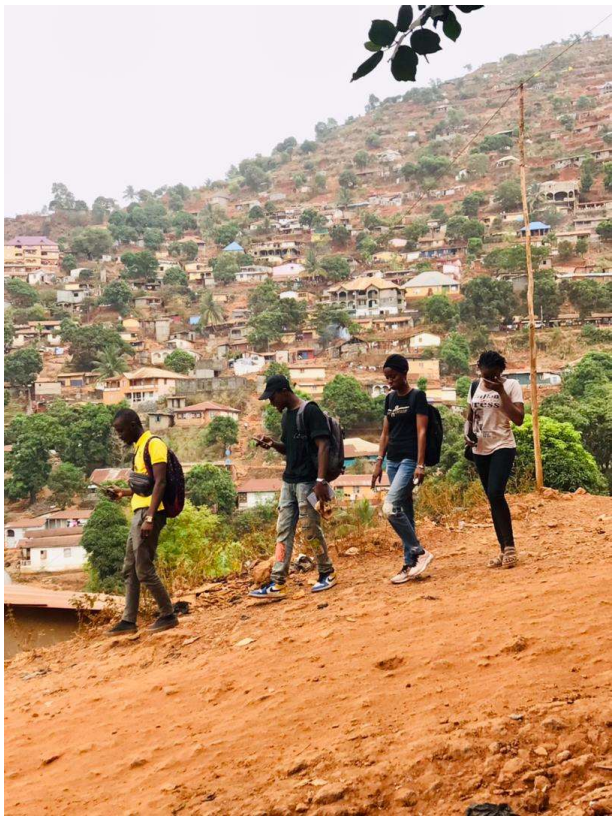


**Photo credit:** Data collectors, Moyiba Community.

# Chapter 1: Introduction

## 1.1 Background

As the world continues to move towards urbanisation, informal settlements or slums continue to spread with extraordinary rapidity (Zerbo et al., 2020). The rapid growth and expansion of cities, often accompanied by harmful waste and pollution, have long-lasting impacts on the health and wellbeing of the urban poor who mostly reside in informal settlements also known as slums (Falegan & Adedire, 2023). Informal settlements are characterised by a lack of access to basic services, a lack of secure housing tenure or certainty of proprietorship and hazardous geographical and environmental locations (UN Habitat, 2018). Informal settlements lack legal recognition from the relevant urban authorities who are accountable for provide essential services and this informality also denies informal dwellers the power to demand these services (Kim et al., 2019).

While Sub-Saharan Africa is the region with the highest rate of informal settlements (Zerbo et al., 2020), slum areas have dominated the urban landscape of most low- and middle-income countries (Corburn & Sverdlik, 2017). Currently, over a billion urban dwellers live in informal settlements globally (UN HABITAT, 2021). Given the precarity of informal settlements (Conteh et al., 2021), informal urban dwellers are predisposed to worse health outcomes compared to other urban and rural counterparts (Corburn & Karanja, 2016). While the urban environment offers many opportunities and services, it concentrates health risks and introduces disproportionate hazards for more vulnerable groups, especially the poor living in informal settlements among whom food insecurity, inadequate housing, and limited social protection play a role in increasing the burden of disease (Shaque et al., 2023).

From a population of 469,000 residents before the civil war in 1991 and 1985 Census (Statistics Sierra Leone, 2006) to over one million residents following the conflict, as indicated by the 2015 Census (Statistics Sierra Leone, 2016), Freetown typifies the rapid urbanisation and population explosion in Sub-Saharan Africa. The ensuing urbanisation, rural to urban migration, and high fertility rates (Dyson, 2011), and lack of adequate investment in developing new houses have resulted in an uncontrollable spread of informal settlements in Freetown. Settlement profiling reports in Sierra Leone indicate that there are about 68 informal settlements in Freetown (FEDURP and CODOHSAPA, 2019) with nearly 35% of the population living in these areas (Slum_mapping_report_2014_final). Many of these settlements are built on fragile ecosystems (i.e., coastal areas, hillsides) at greater risk of disasters such as flooding, fire outbreaks, and falling boulders. In addition, the extreme poverty (people living on less than $1.90 a day) experienced by dwellers in these informal settlements predisposes them to poor health and well-being compared to other urban and rural residents (Sverdlik, 2011). This is mostly driven by inadequate housing structures, overcrowding, improper planning, and lack of access to basic amenities (Conteh et al., 2021). Moreover, informal dwellers in Freetown have often been disengaged in policy discourse and planning by relevant authorities which further exacerbate their plight.

To date, there has been no comprehensive quantitative data on health and wellbeing in informal settlements in Freetown as most surveys are conducted on a national scale and do not contain an indicator for urban slums. For example, Statistics Sierra Leone has conducted numerous surveys in Sierra Leone but none of those surveys specifically targeted or provided disaggregated data for informal settlements. In turn, this has denied Freetown informal dwellers the chance to voice on health and wellbeing challenges affecting them. This has led to a lack of evidence-based information that can help provide answers to several questions critical to understanding urban informality, health inequalities and accountability, and barriers to attaining wellbeing priorities among the urban poor. In addition, a recent scoping review on the economic burden of healthcare access in slums areas found no studies conducted in Sierra Leone (Siqueira Filha et al., 2022).

Since 2019, the Accountability and Responsiveness of Informal Settlements for Urban Equity (ARISE) consortium has been working in four low- and middle-income countries (India, Bangladesh, Sierra Leone and Kenya) to strengthen accountability mechanisms in informal settlements and ultimately improve the health and wellbeing of communities living in these communities. In Freetown, the consortium has worked in three informal settlements (Cockle Bay, Dwarzark, and Moyiba) to understand the health and wellbeing priorities of residents and to co-produce participatory actions with these residents to improve health and wellbeing outcomes. The first phase (2020 and 2021) involved exploratory qualitative study using different participatory methods to explore subjects bearing relevance to health and wellbeing, including health systems accountability, spatial inequalities and other forms of marginality affecting the health and wellbeing of the urban poor. The participatory approach provided informal dwellers with the power to discuss their health and wellbeing challenges and priorities using their own voices. Through an interdisciplinary collaboration, the Sierra Leone Urban Research Center (SLURC), College of Medicine and Allied Health Sciences (COMAHS), Federation Urban and Rural Poor (FEDURP) and the Center of Dialogue on Human Settlement and Poverty Alleviation (CODOHSAPA) with support from School of Health and Wellbeing (University of Glasgow), Department of Health Sciences (University of York), *Institute of Development Studies (IDS)*, and *Liverpool School of Tropical Medicine (LSTM)* conducted the first Health and Wellbeing Cross-sectional Survey in three informal settlements (Cockle Bay, Dwarzark, and Moyiba) in Freetown between April-May 2023 to gain knowledge of the health and wellbeing challenges facing informal dwellers in this settings.

This survey builds on the findings from the exploratory qualitative study that aimed to find out health and wellbeing issues and priorities on these communities in their own voices. Community members were included in the research process as co-researchers from start to end and this enhanced equitable partnership and created opportunities for research uptake thorough knowledge exchange, application, and dissemination. Therefore, this survey report provides descriptive analysis about individual and household characteristics, access, and barriers to services (water, sanitation, and healthcare), environmental health risks/vulnerabilities (disasters, safety and security, livelihoods), and

wellbeing priorities across the three informal settlements (i.e., Cockle Bay, Dwarzark, and Moyiba) in Freetown, Sierra Leone.

## 1.2 Objectives

This survey was conducted to achieve the following specific objectives:

1. To examine the current state of service delivery in informal settlements and the barriers faced by different households and individuals accessing healthcare, water, and sanitation services.
2. To identify the extent of health and environmental risks experienced through housing, livelihood, social safety, and security challenges, and how they differ across settlements social groups, and coping strategies.
3. To examine the different wellbeing goals, priorities, and strategies and analyse the economic, social, governance, and environmental barriers and the attainment of these priorities across individuals and social groups.

## 1.3 Methodology

### 1.3.1 Study sites

This study was conducted in three informal settlements in Freetown, Sierra Leone: Cockle Bay, Moyiba, and Dwarzark. These settlements were selected purposively and have varying spatial and social diversities. Two of the communities, Moyiba and Dwarzark are hillside settlements in the east and central parts of Freetown respectively, with perennial challenges of healthcare access, underpinned by geography and an inability to pay for out-of-pocket medical expenses. They are also affected by varied environmental conditions, including poor sanitation and inadequate access to water and toilets, which often lead to poor health. The main livelihoods include petty trading and stone mining which often pose occupational and health risks. Both settlements are characterised by poor housing, congestion, lack of access to basic hygiene services, and social inequality.

Cockle Bay is located on the shores along the Rokel river in western Freetown. It is a low-lying area characterised by poor drainage and weak housing and infrastructure which

renders the areas reclaimed from the sea vulnerable to risks of flooding and tidal waves. The community has no formal health facility, so residents access health services at a distant health centre located in Murray Town about 2.5km away. The state of sanitation is also worse, compared to Moyiba and Dwarzark, as most residents lack access to proper sanitation infrastructures and dispose their waste into the sea, which often drifts back to the seafront near people's homes during high tides.

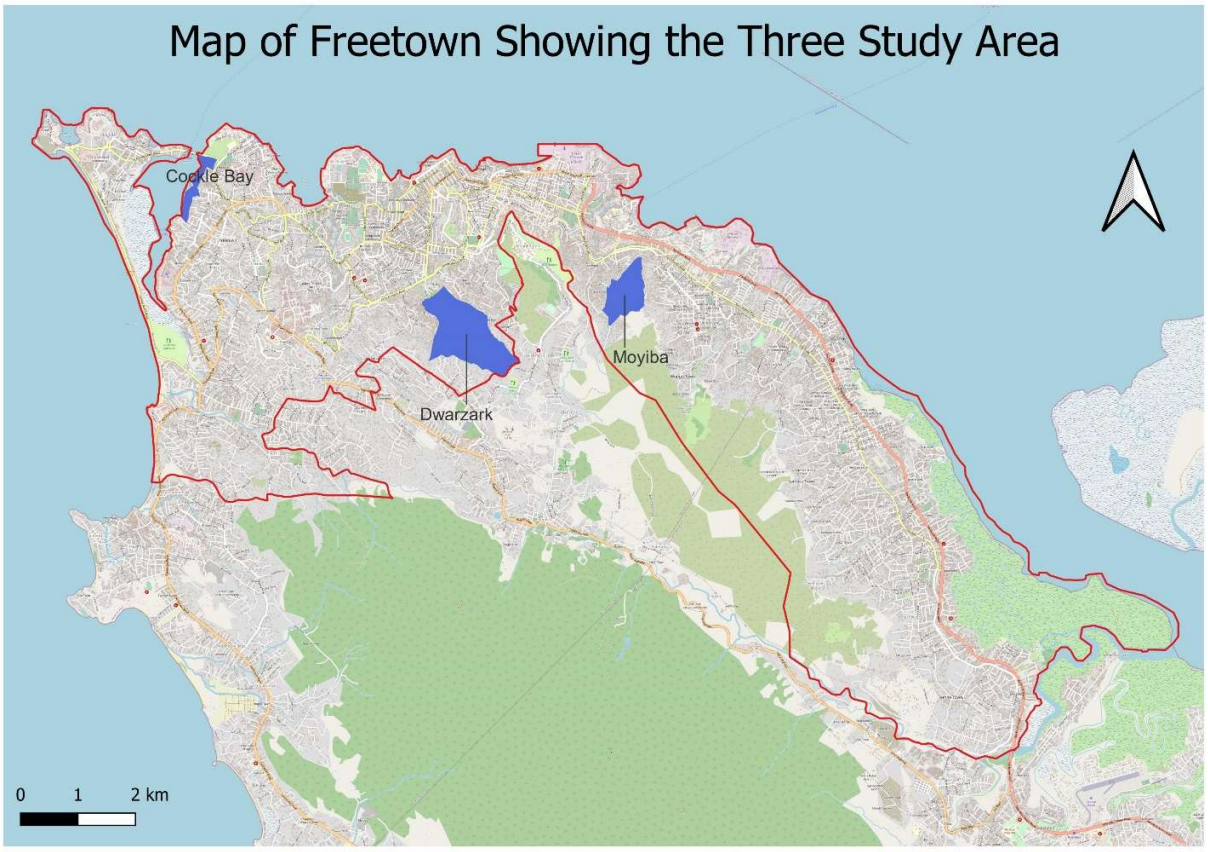


*Figure 1.1: A map of Freetown showing Cockle Bay, Dwarzark and Moyiba informal settlements*

### 1.3.2 Description of the sampling technique

Sample selection was undertaken using convenience sampling. The first step involved allocating the number of households proportionally to each informal settlement based on 2018 estimated populations. The estimated populations for Cockle Bay and Moyiba in 2018 were 20,000 and 37,000 residents respectively (Alexandre Aspan Frediani, 2021;

Statistics Sierra Leone, 2022). For Dwarzark, the estimated population in 2018 was 21,120 residents. This was estimated using population estimates of 16,500 reported for 2012, the latest available statistics and assuming Freetown's population growth of 4.2% (Alexandre Aspan Frediani, 2021). Using the population estimates above, the number of households sampled in Cockle Bay, Dwarzark, and Moyiba were 1,251, 2,312 and 1,321, respectively. The second step involved equally allocating the number of households using zones within Cockle Bay, Dwarzark, and Moyiba which have 4, 10 and 12 zones respectively, this is because there were no details on population distribution at zonal level. For Cockle Bay, 313 households were interviewed in each zone, 232 households in each zone of Moyiba and 111 households for each zone in Dwarzark as presented in Figure 1.2.

To ensure that selected households for interviews were representative, we used landmarks mapped during qualitative data collection such as mosques, cinemas, community centres and water points as starting points. The number of households allocated to each zone were equally allocated to each landmark and data collection was done systematically by interviewing every 5th household from the landmark in each direction. In the context of this survey, a household was defined as people who ate from the same pot, with only one consenting adult (18 years and older) selected to be interviewed. Where a household had more than one adult eligible for interviewing, the head of household or the most senior member of household was selected by a co-researcher (i.e., fieldworker) to be interviewed. The households interviewed were marked to ensure that respondents are not re-interviewed. However, in cases where the number of households was less than the assigned sample, we compensated for this deficit by interviewing more households in neighbouring zones with large households.

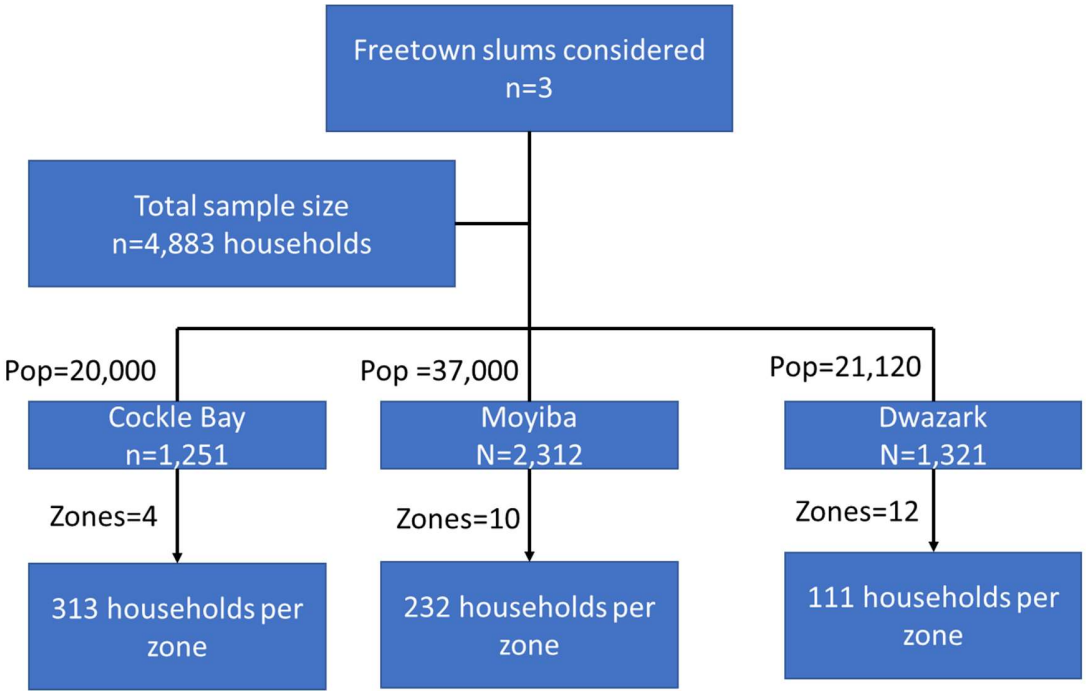


*Figure 1.2: Flow diagram of sample selection across settlements*

### 1.3.3 Sample size

The sample size was estimated based on the proportion of households that faced barriers to access health services of 0.47, which was estimated from a pilot survey which preceded the main survey. The margin of error of 0.03, design effect of 10 to account for convenience sampling, critical value of 0.05 (95% confidence interval), and a non-response rate of 10% to account for any survey non-response. We used the following formula:

$$n = \frac{z^2_{1-\frac{\alpha}{2}} \times P \times (1-P) \times deff}{d^2 \times (1-NR)}$$ Equation (1)

where;

*n* = required sample size of the individuals of target population

*p* = proportion of households that faced barriers to access health services of 0.47

*deff* = design effect of 10

*d* = margin of error of 0.03

$z^2_{1-\frac{\alpha}{2}}$ = critical value for the standard normal distribution corresponding to a Type 1 error rate of a two tailed test (1.96).

*NR* = Nonresponse of 0.1

The final sample size was 4,883 households and was large enough to allow estimation of the other health and wellbeing indicators within the specified precision.

### 1.3.4 Questionnaire development

The questionnaire was developed in an iterative way involving both researchers and co-researchers. First, health and wellbeing questions were developed based on the issues and priorities identified during exploratory qualitative data collection across the three communities. The qualitative data constituted social mapping, wellbeing ranking, Venn diagramming, narrative interviews, and key in-depth interviews (KIIs) with community members. The qualitative data was synthesised and resulted in three main domains: access and barriers to services, environmental disasters, and wellbeing priorities which were then used to develop health and wellbeing questions. Most of the respondent and household characteristics in the survey instrument were adapted from the Nairobi Cross-Sectional Slum Survey 2012 (APHRC, 2014). The final questionnaire had four sections: 1) individual and household characteristics, 2) access and barriers to services (water, sanitation, and healthcare), 3) environmental health risks/vulnerabilities (disasters, safety and security, livelihoods), and 4) wellbeing priorities.

The questions were then revised by all parties, and after consensus the questionnaire tool (i.e., database) was developed by the Population Health Research Facility (PHRF) based at MRC/CSO Social and Public Health Sciences Unit at University of Glasgow using the Research Electronic Data Capture (REDCap) (Patridge & Bardyn, 2018). The REDCap tool was then tested for adaptability and accuracy when collecting data in both the online and offline modes. The final version of this tool was then tested in a pilot survey of 150 households across the three communities. The issues identified in the questionnaire during the pilot survey were revised by researchers and co-researchers.

The REDCap tool was also updated to accurately capture geo-coordinates even when the tool was offline due to weak mobile internet connections common in Sierra Leone's informal settlements.

### 1.3.5 Recruitment and training of data collectors and community mobilisers

We recruited 18 community mobilisers and 35 data collectors, who were mostly co-researchers, to assist in data collection for a period of time. Community mobilisers were responsible for recruiting participants for data collectors within their communities and hence their recruitment was based on their residence status within the community and their familiarity and understanding of the community's geography and landscape. Data collectors were responsible for administering the questionnaire to participants recruited by the community mobilisers.

Given the differences in terms of their roles, the training of data collectors and community mobilisers was organised in three parts. The first part was a two-day training session for data collectors which centred on survey processes, content of the questionnaire, the use of the REDCap tool, ethical considerations in research, and safeguarding. The second part of training involved a one-day training session with community mobilisers on the sampling techniques and procedures, and ethical considerations in the survey processes. Finally, a joint training and pairing of data collectors and community mobilisers was done on the third day and involved summarised retraining in areas covered during parts 1 and 2. The training sessions were facilitated by the ARISE-SL team (SLURC, COMAHS, and CODOHSAPA) and completed in three days.

The survey design process involved community members throughout which aimed to strengthen their capacity in terms of the research. This empowerment will help community members to independently generate their own data and use it to demand accountability from relevant authorities and stakeholders. Involvement of co-researchers in the data cleaning process not only enhanced their data collector's aptitude in data management and survey processes but also created a platform for knowledge co-creation and dissemination in their communities.

### 1.3.6 Data collection process

The data collection process encountered several challenges. First, some of the household heads were not at home during the daytime when data collection was being done since they were away engaged in their daily livelihood activities. To counter this, we selected another household member aged 18 and older to be interviewed which did not affect the sample.

Co-researchers experienced research fatigue and dissatisfaction from their higher financial expectations that was met by fair remuneration, which was offered, and this did not affect the collection process. Some households refused to be interviewed because they expected to be given an incentive to participate in the survey process. Also, a small number of households refused to be interviewed due to survey fatigue because they felt previous research on their communities has resulted in no positive changes in their lives and communities. These challenges were rarer because all co-researchers and community mobilisers recruited in this study were residents in these communities. Finally, during data collection, we could not exhaust the estimated sample size for some zones in Cockle Bay and Dwarzark due to eviction threats and limited number of households, respectively. Therefore, to attain the estimated sample size for Cockle Bay and Dwarzark, we interviewed extra households in neighbouring zones which were not experiencing eviction threats and had higher populations, respectively.

### 1.3.7 Data cleaning process

Overall, 4,871 (99%) households were interviewed in Cockle Bay (*N*=1,120), Dwarzark (*N*=1,404) and Moyiba (*N*=2,347). An initial data cleaning exercise was completed by researchers together with data collectors and community members using their field notepads, reflections, and observations to remove any duplicates and solve any inconsistencies (e.g. outliers). Some cost variables were recorded in old leones and converted to new leones to ensure consistency in the currency and figures. Of the 5,121

respondents interviewed across three communities, 250 responses were removed as duplicates, and the remaining 4,477 responses were analysed.

## 1.4 Community feedback on findings

A validation workshop was held in May 2024 to give feedback to the communities on the data collected from the health and wellbeing survey. This allowed participants to provide their comments and feedback on the findings generated and to compare the health and wellbeing status of community people after the survey was conducted.

In cases where there were disagreements with the survey findings, it was attributed to misclassification/measurement errors during the survey interviews. This often arises when respondents do not understand the question clearly. For example, someone assuming that a local health clinic centre is a hospital.

## 1.5 Ethical consideration

The ethical approval for the study was obtained from the Sierra Leone Ethics and Scientific Review Committee (SLESRC: 026/04/2023) and LSTM (21-007). During data collection, we obtained written and informed consent from the participants prior to the start of each interview. This involved communicating to participants the objectives of the survey including the data collection methods, processes of anonymisation, and any risks or expectations involved in their participation. The data collector verbally discussed the information in the information sheet and asked participants to confirm their consent in writing by either signature or fingerprint by for those participants who could not read and write.

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# Chapter 2: Characteristics of households and respondents

## 2.1 Introduction

This chapter presents the sociodemographic characteristics of the sampled respondents in the ARISE Health and Wellbeing Survey of Informal Settlements in Freetown. We report the similarities and differences of respondents across the three informal settlements (i.e., Cockle Bay, Dwarzark and Moyiba) by sociodemographic characteristics.

## 2.2 Respondent's characteristics

Table 2.1 presents the distribution of respondents' sociodemographic characteristics by informal settlements (i.e., Cockle Bay, Dwarzark and Moyiba). Most respondents across all communities were women (n=3,329, 66%), with the gender composition varying slightly by community with 62% in Moyiba, 68% in Cockle Bay and 72% in Dwarzark being women. By age, 38% of respondents were aged 26-35years, followed closely by 36-49 at 30%. 18% of respondents were aged 18-25 and 14% were 50 years and older. This pattern was consistent across the three settlements. More than half of respondents were married (53%); followed by single people at 25% with other groups constituting 22%. The pattern of marital status was not consistent across all settlements; with the single/unmarried people from Cockle Bay being 10% higher than Dwarzark and Moyiba; while in Moyiba the number of married respondents were 12% and 8% higher compared to Dwarzark and Cockle Bay.

Overall, most respondents (43%) have lived in these communities for over 10 years; followed by those who have stayed for 1-5 and 6-10 years at 30% and 20%, respectively. The percentage of respondents who have stayed for 1-5 and over 10 years in Cockle Bay is 35% with those who have lived 1 year and less constituting 9%.

Respondents with education up to A-level/WASSCE were 67% across all settlements. Dwarzark had the highest number of educated respondents at 73% followed by Cockle

Bay and Moyiba at 66% and 63%, respectively. Most of the respondents were educated up to secondary level at 66%, with Dwarzark having the highest percentage of tertiary educated respondents at 27% and Moyiba the lowest at 14%.

Most respondents (75%) were engaged in income generating activity such as business or private salaried jobs, with those not engaged in activity are mostly students (34%), unemployed (23%), and other reasons (21%) e.g. being sick, a housewife or a lactating mother. Cockle Bay respondents experienced the highest unemployment rate at 31%, followed by Dwarzark (23%) and Moyiba (19%). The income generating activities respondents were mainly engaged in were business (61%) and a private salaried job (10%). Dwarzark had more than twice the percentage of government salaried respondents (7%) compared to Cockle Bay and Moyiba which both had 3%. Most private salaried respondents were from Cockle Bay (16%) and Dwarzark (13%); and only 5% were from Moyiba. Most respondents earned their income on a daily basis (72%) with 11% being weekly and 17% monthly earners. Their average monthly income across the communities is about SLE2,031, but Dwarzark has the lowest amount of average monthly income of SLE1,920.

*Table 2.1: Frequencies and percentages of respondents' characteristics*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| **Household statistics** | | | | |
| Number of HHs | 1121 (23%) | 1404 (29%) | 2346 (48%) | 4871 (100%) |
| **Gender** | | | | |
| Males | 358 (32%) | 389 (28%) | 883 (38%) | 1,630 (33%) |
| Females | 763 (68%) | 1,014 (72%) | 1,462 (62%) | 3,239 (66%) |
| **Age** | | | | |
| 18-25 | 181 (16%) | 216 (15%) | 456 (19%) | 853 (18%) |
| 26-35 | 470 (42%) | 521 (37%) | 871 (37%) | 1,862 (38%) |

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| 36-49 | 342 (31%) | 416 (30%) | 721 (31%) | 1,479 (30%) |
| Over 50 | 128 (11%) | 251 (18%) | 298 (13%) | 677 (14%) |
| **Marital status** | | | | |
| Single | 369 (33%) | 325 (23%) | 535 (23%) | 1,229 (25%) |
| Married | 573 (51%) | 654 (47%) | 1,374 (59%) | 2,601 (53%) |
| Cohabiting | 62 (6%) | 116 (8%) | 63 (3%) | 241 (5%) |
| Divorced | 8 (1%) | 28 (2%) | 22 (1%) | 58 (1%) |
| Separated | 23 (2%) | 53 (4%) | 67 (3%) | 143 (3%) |
| Widowed | 64 (6%) | 146 (10%) | 159 (7%) | 369 (8%) |
| Engaged | 18 (2%) | 81 (6%) | 124 (5%) | 223 (5%) |
| Prefer not to say | 1 (0%) | 0 (0%) | 2 (0%) | 3 (0%) |
| Other | 3 (0%) | 1 (0%) | 0 (0%) | 4 (0%) |
| **Length of Stay** | | | | |
| 0-6 months | 36 (3%) | 30 (2%) | 40 (2%) | 106 (2%) |
| 7-12 months | 70 (6%) | 74 (5%) | 113 (5%) | 257 (5%) |
| 1-5 years | 389 (35%) | 297 (21%) | 763 (33%) | 1,449 (30%) |
| 6-10 years | 235 (21%) | 220 (16%) | 521 (22%) | 976 (20%) |
| Over 10 years | 391 (35%) | 783 (56%) | 909 (39%) | 2,083 (43%) |
| **Educated** | | | | |
| Yes | 744 (66%) | 1,030 (73%) | 1,475 (63%) | 3,249 (67%) |
| No | 374 (33%) | 374 (27%) | 868 (37%) | 1,616 (33%) |
| Prefer not to say | 3 (0%) | 0 (0%) | 3 (0%) | 6 (0%) |
| **Level of Education** | | | | |
| Primary | 124 (17%) | 142 (14%) | 240 (16%) | 506 (15%) |

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Secondary | 497 (66%) | 616 (60%) | 1,033 (70%) | 2,146 (66%) |
| Tertiary | 127 (17%) | 276 (27%) | 210 (14%) | 613 (19%) |
| Don't know | 3 (0%) | 0 (0%) | 1 (0%) | 4 (0%) |
| **Income generating activity** | | | | |
| Yes | 818 (73%) | 1,052 (75%) | 1,801 (77%) | 3,671 (75%) |
| No | 303 (27%) | 352 (25%) | 545 (23%) | 1,200 (25%) |
| **Income activity type** | | | | |
| Business | 529 (63%) | 699 (64%) | 1,151 (58%) | 2,379 (61%) |
| Fishing | 8 (1%) | 0 (0%) | 15 (1%) | 23 (1%) |
| Government salaried | 21 (3%) | 79 (7%) | 51 (3%) | 151 (4%) |
| Private Salaried | 134 (16%) | 142 (13%) | 105 (5%) | 381 (10%) |
| Informal Salaried | 3 (0%) | 6 (1%) | 69 (4%) | 78 (2%) |
| Daily wage labour | 27 (3%) | 66 (6%) | 150 (8%) | 243 (6%) |
| Bike riding | 24 (3%) | 16 (2%) | 135 (7%) | 175 (5%) |
| Stone mining | 4 (1%) | 3 (0%) | 185 (9%) | 192 (5%) |
| Unemployed | 4 (1%) | 4 (0%) | 21 (1%) | 29 (1%) |
| Other | 88 (11%) | 81 (7%) | 104 (5%) | 273 (7%) |
| **Reasons for no income activity** | | | | |
| Don't want to work | 10 (3%) | 13 (4%) | 23 (4%) | 46 (4%) |
| Unskilled/Unqualified | 39 (13%) | 5 (1%) | 36 (7%) | 80 (7%) |
| Unemployed | 95 (31%) | 80 (23%) | 107 (19%) | 282 (23%) |
| Sick | 29 (9%) | 43 (12%) | 64 (12%) | 136 (11%) |
| student | 75 (24%) | 105 (30%) | 231 (42%) | 411 (34%) |
| Other | 62 (20%) | 105 (30%) | 90 (16%) | 257 (21%) |
| **Frequency of Income** | | | | |

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Daily | 677 (66%) | 815 (61%) | 1,746 (82%) | 3,238 (72%) |
| Weekly | 91 (9%) | 206 (16%) | 177 (8%) | 474 (11%) |
| Monthly | 256 (25%) | 307 (23%) | 215 (10%) | 778 (17%) |
| **Average monthly income** | | | | |
| Leones (95% CI) | 2,180 (2,021-2,339) | 1,920 (1,782-2,060) | 2,027 (1,932-2,123) | 2,031 (1,959-2,102) |

## 2.3 Household characteristics

Table 2.2 presents frequencies and percentages of household characteristics. Almost a third quarter of households (72%) are male headed with only 27% of household being female headed, a pattern consistent across three informal settlements. Most households across the three settlements had six or more people in the household (38%), followed by four and five people in household at 18%. Moyiba (60%) and Dwarzark (57%) had more than half of their households constituting five or more people, and 46% for Cockle Bay. Only 3% of households constituted a single person and the pattern of distribution was similar across the three settlements.

Concrete and mud houses were the most common structure types at 36% and 37%, respectively. In Cockle Bay, 60% of respondent's houses were made of zinc and aluminium sheets, popularly known as "Pan body". Mud houses were common in Moyiba (50%) and Dwarzark (43%) and less common in Cockle Bay (3%) due to frequent occurrences of tidal wave floodings making them less ideal. Overall, 58% of households were tenants with 30% as outright owners and 10% free-living (i.e. those individuals who neither own the structure nor rent).

Most households (72%) were engaged in income generating activities and varied across the three settlements ranging from 59% in Cockle Bay to 79% in Moyiba. The most

common household income generating activities were business (44%) and private employment (15%). Dwarzark had the highest government salaried households (13%), with private salaries common in Cockle Bay (25%) and Dwarzark (23%). In Moyiba, the households engaged in bike riding (12%), daily wage labourer (10%) and stone mining (7%) were proportionally higher than those in Dwarzark and Cockle Bay.

Only a fifth (21%) of households were food secure, meaning in the past one month they and their households were able to eat the kind of food they preferred. However, 28% only ate once a day and they could not eat the kind of food they preferred due to lack of resources. Most food insecurity was experienced in Dwarzark and Cockle Bay where 66% and 46% of households, respectively did not eat the kind of food they preferred.

Dwarzark has highest rate of household disability, with 122 of which 36% are household heads and the majority have mobility-related disabilities with 58%. In Moyiba shows, 83% have mental illnesses and in the streets while others could have learning difficulties or reside in a mental home.

*Table 2.2: Frequencies and percentages of household characteristics*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| **Household statistics** | | | | |
| Number of HHs | 1121 (23%) | 1404 (29%) | 2346 (48%) | 4871(100%) |
| **Head of household gender** | | | | |
| Male | 807 (72%) | 984 (70%) | 1,717 (73%) | 3,508 (72%) |
| Female | 307 (27%) | 406 (29%) | 617 (26%) | 1,330 (27%) |
| **Number of people in household** | | | | |
| 1 | 52 (5%) | 35 (2%) | 72 (3%) | 159 (3%) |
| 2 | 134 (12%) | 112 (8%) | 158 (7%) | 404 (8%) |
| 3 | 195 (17%) | 198 (14%) | 301 (13%) | 694 (14%) |
| 4 | 226 (20%) | 259 (18%) | 409 (17%) | 894 (18%) |
| 5 | 210 (19%) | 252 (18%) | 432 (18%) | 894 (18%) |

| | | | | |
|---|---|---|---|---|
| 6 or more | 304 (27%) | 548 (39%) | 974 (42%) | 1,826 (37%) |
| **House structure type** | | | | |
| Pan Body | 674 (60%) | 366 (26%) | 175 (7%) | 1,215 (25%) |
| Concrete | 393 (35%) | 426 (30%) | 933 (40%) | 1,752 (36%) |
| Mud house | 32 (3%) | 604 (43%) | 1,181 (50%) | 1,817 (37%) |
| Wooden house | 1 (0%) | 3 (0%) | 15 (1%) | 19 (0%) |
| Other | 21 (2%) | 5 (0%) | 42 (2%) | 68 (1%) |
| **Tenure Status** | | | | |
| Tenant | 729 (65%) | 819 (58%) | 1,256 (54%) | 2,804 (58%) |
| Owner | 297 (26%) | 402 (29%) | 750 (32%) | 1,449 (30%) |
| Free living | 53 (5%) | 147 (10%) | 287 (12%) | 487 (10%) |
| Caretaker | 14 (1%) | 30 (2%) | 48 (2%) | 92 (2%) |
| Lease | 24 (2%) | 2 (0%) | 0 (0%) | 26 (1%) |
| Temporal stay | 1 (0%) | 3 (0%) | 5 (0%) | 9 (0%) |
| Other | 3 (0%) | 1 (0%) | 0 (0%) | 4 (0%) |
| **Household income activity** | | | | |
| Yes | 658 (59%) | 1,024 (73%) | 1,845 (79%) | 3,527 (72%) |
| No | 463 (41%) | 380 (27%) | 501 (21%) | 1,344 (28%) |
| **Income activity type** | | | | |
| Business | 263 (39%) | 427 (37%) | 1,069 (49%) | 1,759 (44%) |
| Fishing | 18 (3%) | 4 (0%) | 18 (1%) | 40 (1%) |
| Government salaried | 39 (6%) | 172 (15%) | 120 (5%) | 331 (8%) |
| Private Salaried | 165 (25%) | 257 (22%) | 193 (9%) | 615 (15%) |
| Informal Salaried | 2 (0%) | 9 (1%) | 45 (2%) | 56 (1%) |
| Daily wage labour | 36 (5%) | 114 (10%) | 226 (10%) | 376 (9%) |
| Bike riding | 39 (6%) | 48 (4%) | 256 (12%) | 343 (9%) |
| Stone mining | 2 (0%) | 0 (0%) | 147 (7%) | 149 (4%) |
| Unemployed | 1 (0%) | 4 (0%) | 3 (0%) | 8 (0%) |

| | | | | |
|---|---|---|---|---|
| Other | 106 (16%) | 109 (10%) | 110 (5%) | 325 (8%) |
| **Food Security** | | | | |
| No | 285 (25%) | 199 (14%) | 562 (24%) | 1,046 (21%) |
| Rarely (once or twice) | 316 (28%) | 275 (20%) | 780 (33%) | 1,371 (28%) |
| Sometimes (3-10 times) | 373 (33%) | 398 (28%) | 520 (22%) | 1,291 (27%) |
| Often (more than 10 times) | 147 (13%) | 532 (38%) | 484 (21%) | 1,163 (24%) |
| **Household disability** | | | | |
| Yes | 56 (5%) | 122 (9%) | 169 (7%) | 347(7%) |
| No | 1061(95%) | 1282(91%) | 2172 (93%) | 4515(93%) |
| Don't know | 3(0%) | 0(0%) | 5 (0%) | 8(0%) |
| Prefer not to say | 1(0%) | 0(0%) | 0(0%) | 1(0%) |
| **Head of household disability** | | | | |
| Yes | 17 (29%) | 44 (36%) | 33 (20%) | 94 (27%) |
| No | 41 (69%) | 79 (64%) | 136 (80%) | 256 (73%) |
| Prefer not to say | 1 (2%) | 0 (0%) | 0 (0%) | 1 (0%) |
| **Type of household head disability** | | | | |
| Mobility | 33 (52%) | 77 (58%) | 82 (43%) | 192 (50%) |
| Sight | 15 (24%) | 32 (24%) | 51 (27%) | 98 (25%) |
| Speaking | 7 (11%) | 9 (7%) | 19 (10%) | 35 (9%) |
| Hearing | 1 (2%) | 6 (5%) | 26 (14%) | 33 (9%) |
| Mental | 4 (6%) | 5 (4%) | 11 (6%) | 20 (5%) |
| Other | 2 (3%) | 3 (2%) | 3 (2%) | 8 (2%) |
| Don't Know | 1 (2%) | 0 (0%) | 0 (0%) | 1 (0%) |
| **Mental disability** | | | | |
| Learning Difficulty | 2 (40%) | 1 (20%) | 1 (8%) | 4 (18%) |
| Insanity in streets | 1 (20%) | 2 (40%) | 10 (83%) | 13 (59%) |
| In mental home | 2 (40%) | 1 (20%) | 1 (8%) | 4 (18%) |

| | | | | |
|---|---|---|---|---|
| Other | 0 (0%) | 1 (20%) | 0 (0%) | 1 (5%) |

## 2.4 Summary findings and conclusion

Two-thirds of respondents were female with more than half of the respondents married. Most respondents have dwelled in these communities for more than 10 years, which means that they tend to dwell longer once they move there. The highest proportion of respondents was aged 26-49 years since they are more likely to settle as they search for employment opportunities in the city. More than two-thirds of respondents were educated with the majority earning their income daily.

Most households consist of more than six individuals, which may be attributed to most households having extended families. A quarter of the households reported experiencing food insecurity, an indication that most families are susceptible to poor nutrition. More than half of respondents are tenants with concrete and pan body dominant house structures because they cannot own or build permanent structures. Most households generate income by engaging in business because they cannot be employed in offices, so their best means of survival is petty trading.

In conclusion, this survey helps us understand the characteristics of the households and individuals in this population. Even though households are mainly male-headed, women were more available for the interviews as compared to men, because men may be away working during the daily upkeep of the homes. If there is any form of disability, the household heads are mostly unable to walk, which may either affect members of the house or responsibilities could be passed on and/or shared amongst other individuals. Wherein these individuals earn on a daily from economic activity that involves selling (and buying) goods and services in small scale, ranging from agricultural produce to imported consumer goods. These findings reveal the vulnerabilities of this population in terms of their income and how this may affect their ability to absorb financial shocks which may in turn impact their health and wellbeing.

**Community feedback on findings:** This feedback was collected in May 2024 and the community believed that it reflects the socio-economic contexts across all the three communities. In Cockle Bay, there is currently advocacy on land tenure security which is at an advanced stage. There is also an increase in the cost of living, in the construction of mud houses and in the enrolment rate in higher education level. In Dwarzark, they stated that there has been low income in the past year due to the loss of livelihoods, jobs, businesses, etc. The educational level within the community has decreased within the past year and many young people, especially boys have dropped out of school because of drug addiction (Kush); while the numbers of girls in education keeps increasing because most girls do not take these drugs. The community is becoming densely populated, resulting in two additional new zones i.e., Egypt and Portugal. Mental illness has increased drastically over the past year because of the rapid rate of Kush intake. Some participants in Moyiba pointed out that the income level of most people has been declining since last year. An increase in rent is also observed, resulting in some people building their residential houses regardless of the nature of the house to escape the skyrocketing rental cost.

# Chapter 3: Access and barriers to water and sanitation services

## 3.1 Introduction

This chapter examines the state of access to water and sanitation services across the three informal settlements (Cockle Bay, Dwarzark and Moyiba).

## 3.2 Water services

This section describes the different water sources for drinking and domestic purposes. It also describes the people in households responsible for collecting/fetching water, distance to drinking and domestic water points, causes of water shortage, persons or institutions responsible for handling water shortage complaints, amount of money paid for water (i.e., water bill) and the person in household responsible for paying water bill.

### 3.2.1 Drinking water sources

Table 3.1 presents responses on questions about the main sources for drinking water across three communities. This was a multiple-choice question that gave respondents an option to select as all sources of drinking water they rely on as a household. Most respondents relied on sachet water (58%) and community wells (35%) as sources for drinking water. It is also noticeable within the communities that Cockle Bay reported the highest proportion (70%) of relying on sachet water, followed by Moyiba with 56% and Dwarzark with 51%. Compound-dug wells were common in Dwarzark at 36% compared to 5% in Cockle Bay and 7.2% in Moyiba. Rainwater and public taps were also common across the three communities (22%), followed closely by spring water (21%).

*Table 3.1: Frequencies and percentages of drinking water sources across Cockle Bay, Dwarzark, and Moyiba*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Piped to Dwelling | 72 (6%) | 33 (2%) | 55 (2%) | 160 (3%) |
| Piped to compound | 65 (6%) | 30 (2%) | 49 (2%) | 144 (3%) |
| Piped to neighbour | 250 (22%) | 19 (1%) | 82 (3%) | 351 (7%) |
| Public tap | 236 (21%) | 154 (11%) | 691 (29%) | 1,081 (22%) |
| Compound-dug well | 53 (5%) | 509 (36%) | 171 (7%) | 733 (15%) |
| Spring water | 241 (21%) | 70 (5%) | 702 (30%) | 1,013 (21%) |
| Rainwater collection | 242 (22%) | 215 (15%) | 623 (27%) | 1,080 (22%) |
| Community well | 335 (30%) | 667 (48%) | 710 (30%) | 1,712 (35%) |
| Bowser water | 2 (0%) | 75 (5%) | 12 (1%) | 89 (2%) |
| Water kiosk | 21 (2%) | 70 (5%) | 208 (9%) | 299 (6%) |
| Bottled water | 11 (1%) | 24 (2%) | 31 (1%) | 66 (1%) |
| Sachet water | 789 (70%) | 722 (51%) | 1,320 (56%) | 2,831 (58%) |
| Surface water | 8 (1%) | 145 (10%) | 388 (17%) | 541 (11%) |
| Well to neighbour | 260 (23%) | 257 (18%) | 237 (10%) | 754 (15%) |
| Other | 57 (5%) | 18 (1%) | 1 (0%) | 76 (2%) |

#### 3.2.1.1 Protected drinking water sources

We asked participants to clarify whether drinking water sources, particularly compound-dug wells, community water wells, and spring water are protected or not. The rationale behind this question is to examine the extent to which drinking water sources in the surveyed communities are safeguarded from contamination or pollution, thereby assessing the potential risks to public health associated with waterborne diseases. The term “protected water sources” in the context of this survey refers to water wells with a

concrete cover and a drainage platform, and users especially females are often required to wear headscarves before being granted access to the well by the caretaker to prevent the possible entry of hair into the water, while these rules do not apply for unprotected wells.

#### 3.2.1.2 Compound-dug wells

Table 3.1 shows that only 5% and 7% of responses were attributed to the use of compound water for drinking in Cockle Bay and Moyiba respectively compared to 36% in Dwarzark. Figure 3.1 shows that most of the households from Moyiba (95%), Cockle Bay (75%) and Dwarzark (77%) deemed compound-dug wells to be protected.

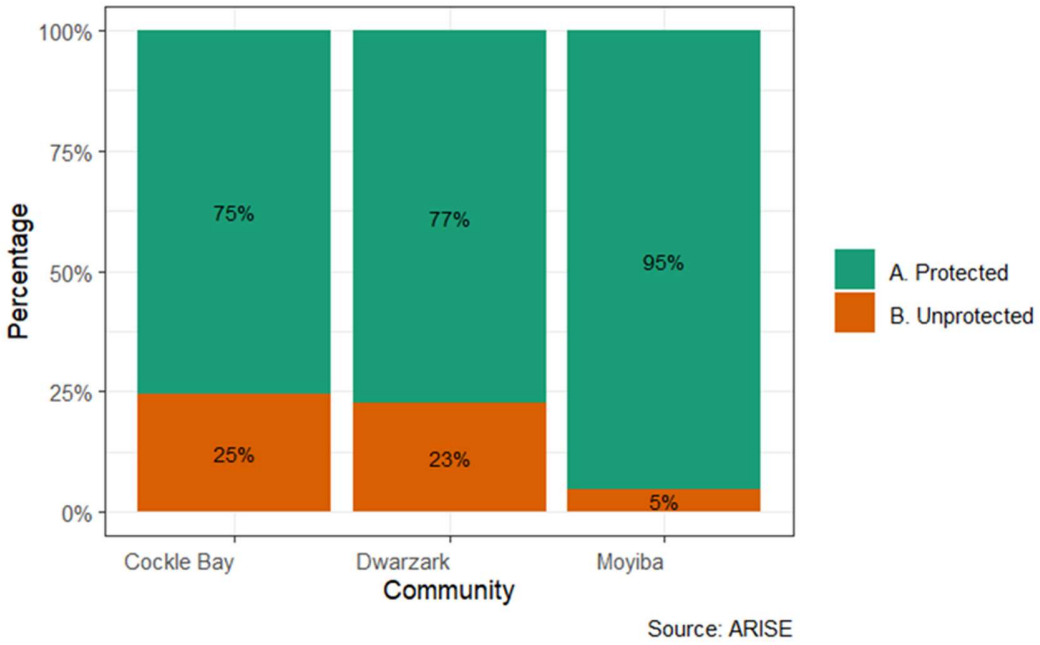



*Figure 3.1: Participants opinions on the protection of compound dug wells as a source for drinking water*

#### 3.2.1.3 Community water wells

Community wells (Table 3.1) were common in Dwarzark (48%), followed by the same proportion in both Cockle Bay and Moyiba (30%). Figure 3.2 shows that most of community wells were protected with proportions of protection for Cockle Bay (89%), Moyiba (88%) and Dwarzark (75%). However, almost a quarter of responses from Cockle

Bay (10%), Dwarzark (24%) and Moyiba (11%) indicated that community wells were unprotected.

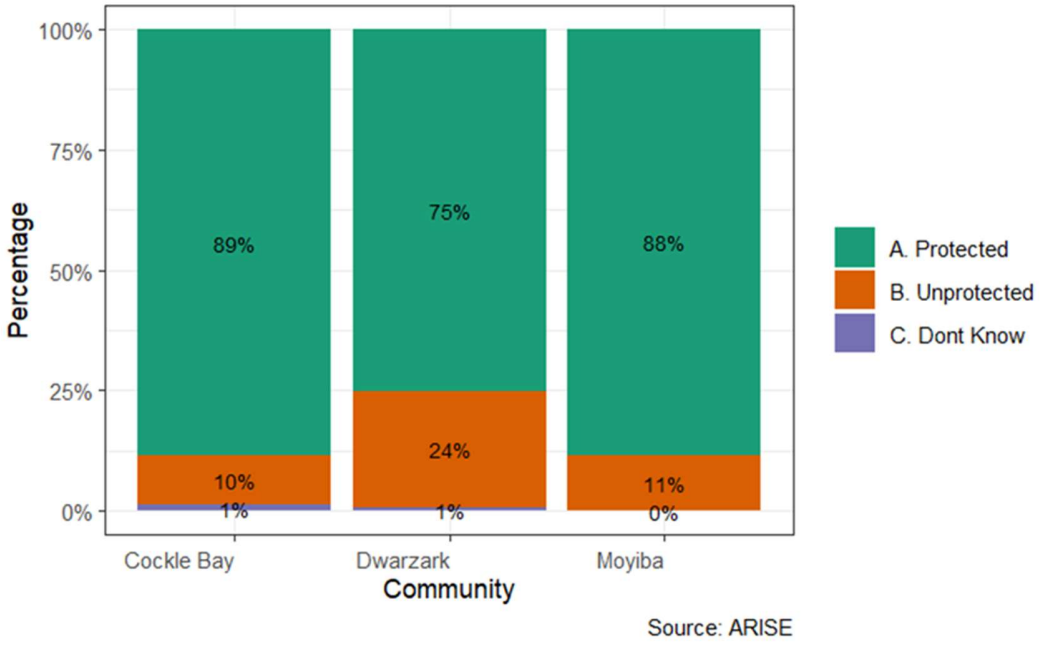



*Figure 3.2: Participants' opinions on the protection of community water wells as a source of drinking water*

### 3.2.1.4Spring water

From Table 3.1, spring water was mostly used in Moyiba (30%) and Cockle Bay (21%), with only 5% in Dwarzark. Across the three communities, Figure 3.3 shows that Dwarzark (93%) had the highest proportion of households who considered spring water sources as protected, followed by Cockle Bay (81%), and Moyiba (77%). Over a fifth of household responses from Moyiba (23%) deemed spring water to be unprotected followed by Cockle Bay (14%), and only 7% for Dwarzark.

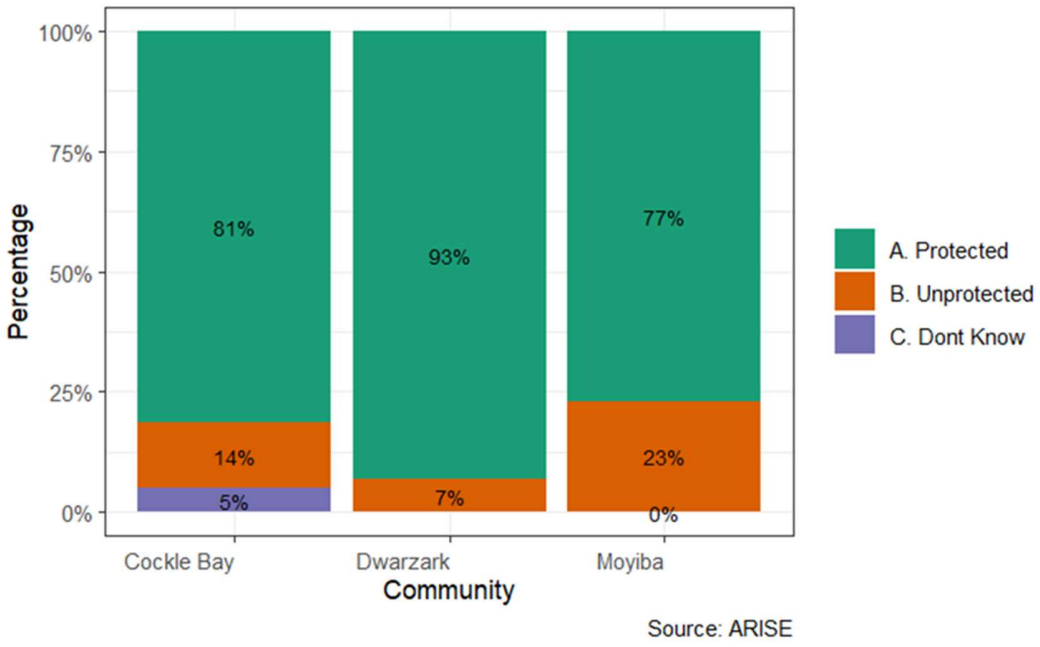



*Figure 3.3: Participants' opinions on the protection of spring water as a source of drinking water*

### 3.2.2 Distance to drinking water point

Figure 3.4 presents the distances households travel to get to drinking water points, measured in time. In Cockle Bay, a greater proportion (64%) of households accessed water in less than 30 minutes compared to Dwarzark (25%) and Moyiba (21%). Over a quarter of respondents in Dwarzark (27%) and Moyiba (29%) took more than two hours to fetch drinking water compared to fewer than 1% in Cockle Bay.

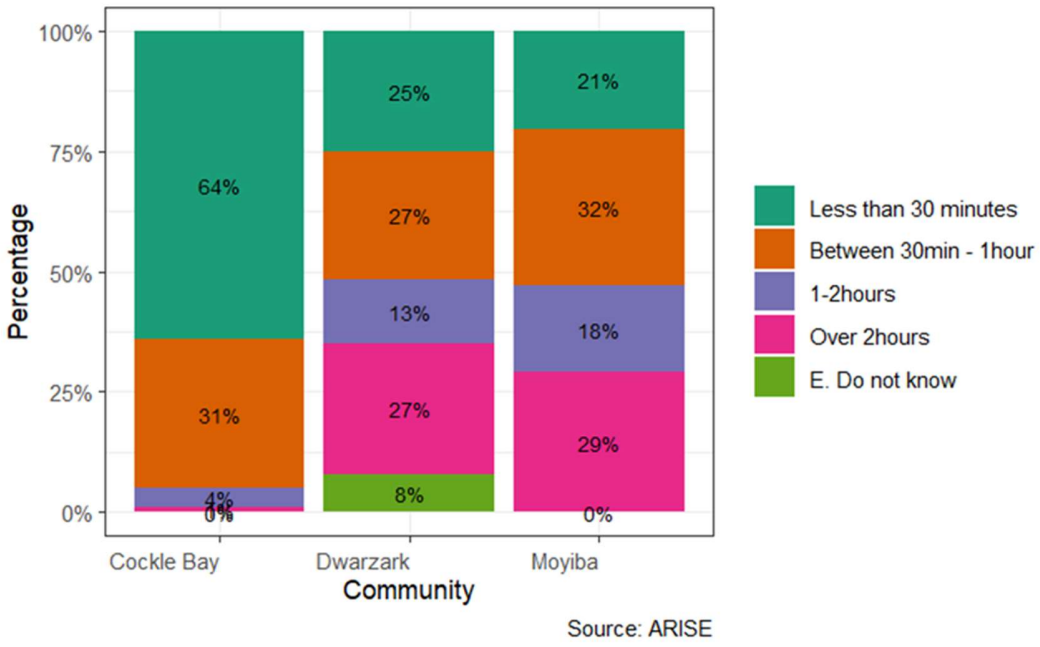



*Figure 3.4: Percentage of responses based on the distance to drinking water source in Cockle Bay, Dwarzark, and Moyiba*

### 3.2.3 Domestic water sources

Table 3.2 presents the proportion of responses provided by participants on the different water sources used by households for domestic purposes such as cooking, laundry, bathing, and cleaning. Community wells (37%) were the main source of water for domestic use followed closely by surface water (33%) and rainwater (27%). However, there are differences in the proportion of usage across settlements with community well (40%) and neighbour's well (33%) most common in Cockle Bay; while for Dwarzark, community well (47%), compound-dug well (33%), and surface water (31%) were highly used. In Moyiba, surface water (33%), spring water (22%), public tap (21%), and rainwater collection (27%) were the main sources of water for domestic use.

*Table 3.2: Frequencies and percentages of different water sources for domestic use across Cockle Bay, Dwarzark, and Moyiba*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Piped to dwelling | 65 (6%) | 25 (2%) | 54 (2%) | 144 (3%) |
| Piped to compound | 58 (5%) | 21 (1%) | 64 (3%) | 143 (3%) |
| Piped to neighbour | 192 (17%) | 14 (1%) | 110 (5%) | 316 (6%) |
| Public tap | 190 (17%) | 88 (6%) | 746 (32%) | 1,024 (21%) |
| Compound-dug well | 52 (5%) | 463 (33%) | 170 (7%) | 685 (14%) |
| Spring water | 170 (15%) | 58 (4%) | 834 (36%) | 1,062 (22%) |
| Rainwater collection | 320 (29%) | 234 (17%) | 748 (32%) | 1,302 (27%) |
| Community well | 446 (40%) | 660 (47%) | 684 (29%) | 1,790 (37%) |
| Bowser water | 3 (0%) | 65 (5%) | 19 (1%) | 87 (2%) |
| Water kiosk | 1 (0%) | 54 (4%) | 223 (10%) | 278 (6%) |
| Bottled water | 5 (0%) | 0 (0%) | 3 (0%) | 8 (0%) |
| Sachet water | 194 (17%) | 41 (3%) | 137 (6%) | 372 (8%) |
| Surface water | 22 (2%) | 439 (31%) | 1,169 (50%) | 1,630 (33%) |
| Well to a neighbour | 346 (31%) | 273 (19%) | 239 (10%) | 858 (18%) |
| Other | 27 (2%) | 12 (1%) | 4 (0%) | 43 (1%) |

### 3.2.4 Distance to domestic water points

Figure 3.5 shows that households in Moyiba (30%) and Dwarzark (22%) take over two hours to access water for domestic use compared to 1% in Cockle Bay. A greater proportion of households (57%) in Cockle Bay accessed water for domestic use in less than 30 minutes, followed by Dwarzark (31%) and only 19% in Moyiba. The longest time taken by residents in Dwarzark and Moyiba to access sources of water for domestic use may be attributed to the hilly terrain and distance.

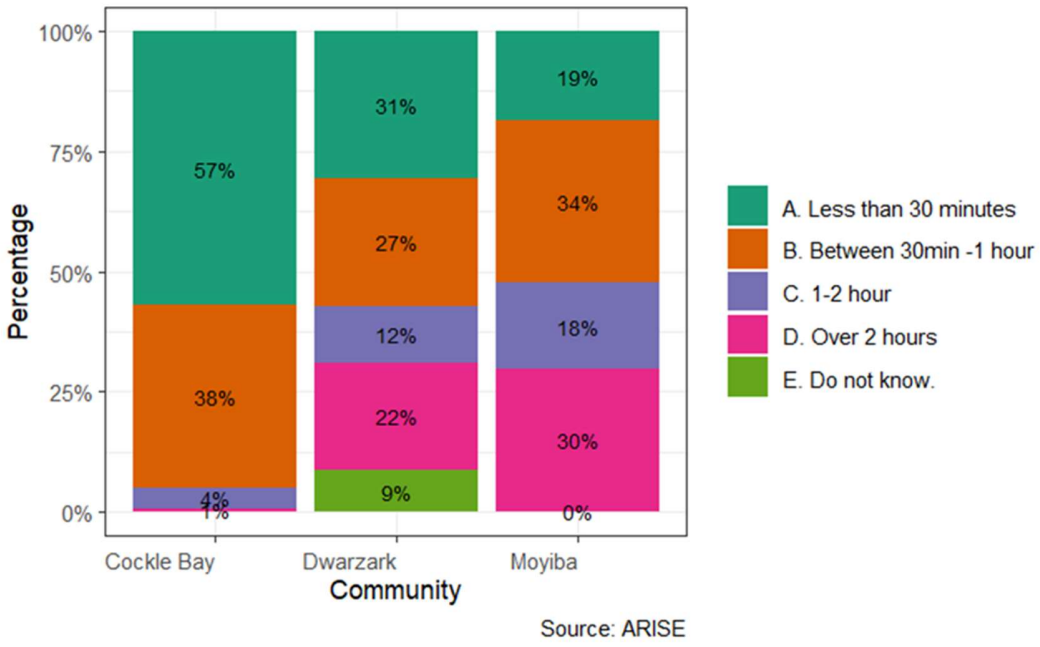



*Figure 3.5: Percentage of responses based on the distance water source for domestic use in Cockle Bay, Dwarzark, and Moyiba.*

### 3.2.5 Persons tasked with fetching/collection of water in a household

Table 3.3 shows that the responsibility to collect/fetch water for household use across the communities was mainly undertaken by boys (45%), women (43%), and girls (40%) across all communities. The groups with the highest proportion for each settlement were adult women (45%) in Cockle Bay and boys in Dwarzark (44%) and Moyiba (53%). Due to the hilly terrain and distance to water points in Dwarzark and Moyiba, boys and girls mostly fetch water in those communities, unlike in Cockle Bay where adult women mostly fetch water.

*Table 3.3: Frequencies and percentages of persons collecting or fetching water in the household across Cockle Bay, Dwarzark, and Moyiba*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Adult Man | 291 (26%) | 279 (20%) | 584 (25%) | 1,154 (24%) |
| Adult Woman | 507 (45%) | 498 (35%) | 1,109 (47%) | 2,114 (43%) |

| | | | | |
|---|---|---|---|---|
| Boys | 306 (27%) | 623 (44%) | 1,239 (53%) | 2,168 (45%) |
| Girls | 298 (27%) | 538 (38%) | 1,123 (48%) | 1,959 (40%) |
| Anyone | 236 (21%) | 126 (9%) | 187 (8%) | 549 (11%) |
| Not applicable | 2 (0%) | 25 (2%) | 1 (0%) | 28 (1%) |
| Others | 14 (1%) | 44 (3%) | 11 (0%) | 69 (1%) |

### 3.2.6 Causes/reasons for water shortages

Table 3.4 shows that the water sources drying up (46%, i.e. wells), followed by closed water points and taps (19%) were the main reasons/causes for water shortages. The challenge of closed taps was common in Cockle Bay (24%) and Moyiba (19%). Lack of money contributed to 6% of responses to water shortages overall; it was most frequently reported in Dwarzark (10%) compared to Cockle Bay (2%) and Moyiba (5%).

*Table 3.4: Causes/reasons for water shortage across Cockle Bay, Dwarzark and Moyiba*

| | **Cockle Bay** | **Dwarzark** | **Moyiba** | **All** |
|---|---|---|---|---|
| Tap closed | 268 (24%) | 109 (8%) | 557 (24%) | 934 (19%) |
| Water not supplied | 60 (5%) | 63 (4%) | 225 (10%) | 348 (7%) |
| Water point closed | 244 (22%) | 382 (27%) | 311 (13%) | 937 (19%) |
| Water source dry | 334 (30%) | 897 (64%) | 1,018 (43%) | 2,249 (46%) |
| No money to pay | 24 (2%) | 133 (9%) | 117 (5%) | 274 (6%) |
| Others | 16 (1%) | 258 (18%) | 210 (9%) | 484 (10%) |

### 3.3.9 Water shortage responders

Table 3.5 shows that 82% of respondents reported to no one when there is water shortage with Cockle Bay (91%) leading followed by Dwarzark (88%) and Moyiba (74%). Only a small number reported to a youth leader (9%), community chief (6%) and councillor (5%) across the three settlements.

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Community Chief | 13 (3%) | 42 (4%) | 117 (9%) | 172 (6%) |
| Honourable | 2 (0%) | 6 (1%) | 53 (4%) | 61 (2%) |
| Councillor | 1 (0%) | 16 (1%) | 132 (10%) | 149 (5%) |
| Youth leader | 9 (2%) | 8 (1%) | 262 (19%) | 279 (9%) |
| Community Disaster Management Committee (CDMC) | 4 (1%) | 1 (0%) | 36 (3%) | 41 (1%) |
| FCC | 0 (0%) | 3 (0%) | 0 (0%) | 3 (0%) |
| Guma Valley Water Company | 20 (4%) | 3 (0%) | 35 (3%) | 58 (2%) |
| Federation of Urban and Rural Poor (FEDURP)/NGOs | 0 (0%) | 4 (0%) | 8 (1%) | 12 (0%) |
| Report to none | 452 (91%) | 966 (88%) | 1,012 (74%) | 2,430 (82%) |
| Others | 8 (2%) | 77 (7%) | 29 (2%) | 114 (4%) |

### 3.2.7 Responses received after reporting water shortage concerns

Figure 3.6 shows that a greater proportion of households in Dwarzark (69%), Moyiba (43%) and Cockle Bay (40%) did not report water shortage concerns. It was observed that 56% of respondents in Cockle Bay did not experience any water shortages, followed by Moyiba with 42%, and only 22% in Dwarzark. Overall, respondents from Moyiba who reported water shortages (13%) experienced positive responses after reporting water shortage compared to Dwarzark (7%) and Cockle Bay (3%).

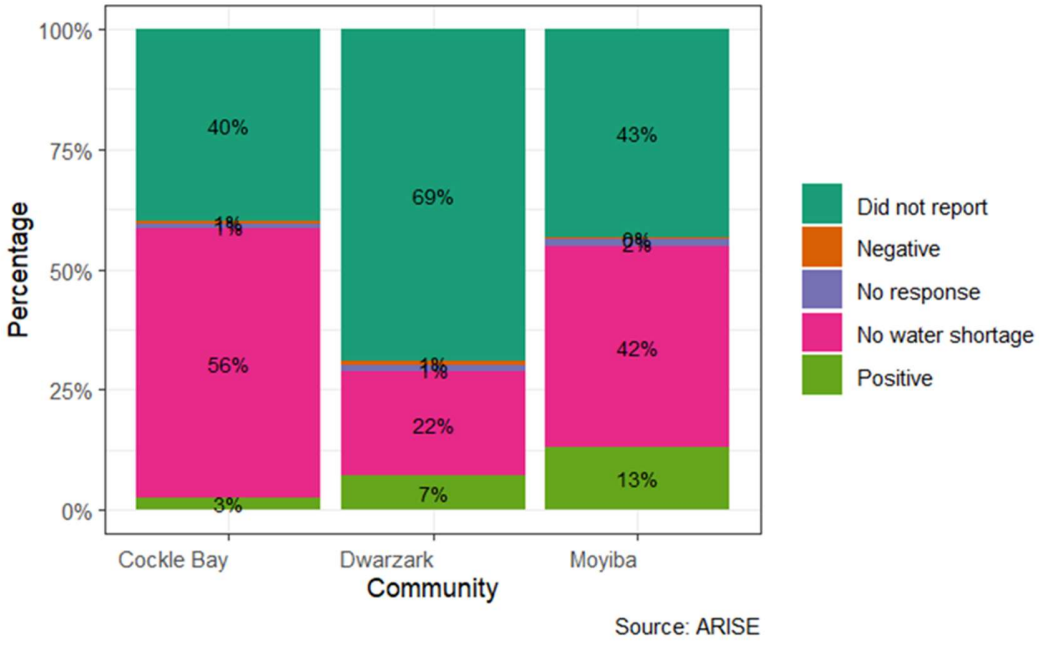



*Figure 3.6: Percentage of responses received after reporting water shortage in Cockle Bay, Dwarzark, and Moyiba*

### 3.2.8 Frequency of payment for water bill

Figure 3.7 shows that most respondents in Moyiba (76%), Dwarzark (66%) and Cockle Bay (34%) made daily payments for water. Monthly payments are more common in Cockle Bay (26%) compared to Dwarzark (15%) and Moyiba (9%). A quarter of respondents in Cockle Bay (24%), 19% in Dwarzark and 14% in Moyiba did not pay for water. Overall, distribution of payments across distinct options was more similar in Cockle Bay compared to Dwarzark and Moyiba.

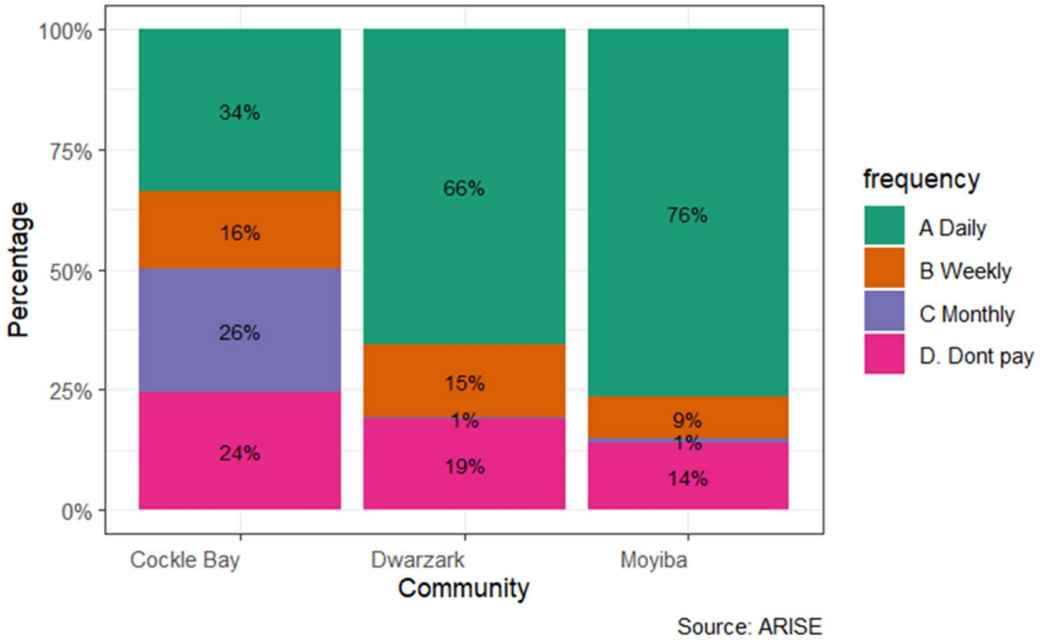



*Figure 3.7: Percentage of responses on the frequency of payment for water bill in Cockle Bay, Dwarzark, and Moyiba*

### 3.2.9 Person responsible for payment of water bills

Figure 3.8 shows that the head of the household was responsible for the payment of water bills in Cockle Bay (75%), Dwarzark (65%), and Moyiba (66%). The adult members of a household were the second after head of household in Cockle Bay (24%), Dwarzark (32%) and Moyiba (31%).

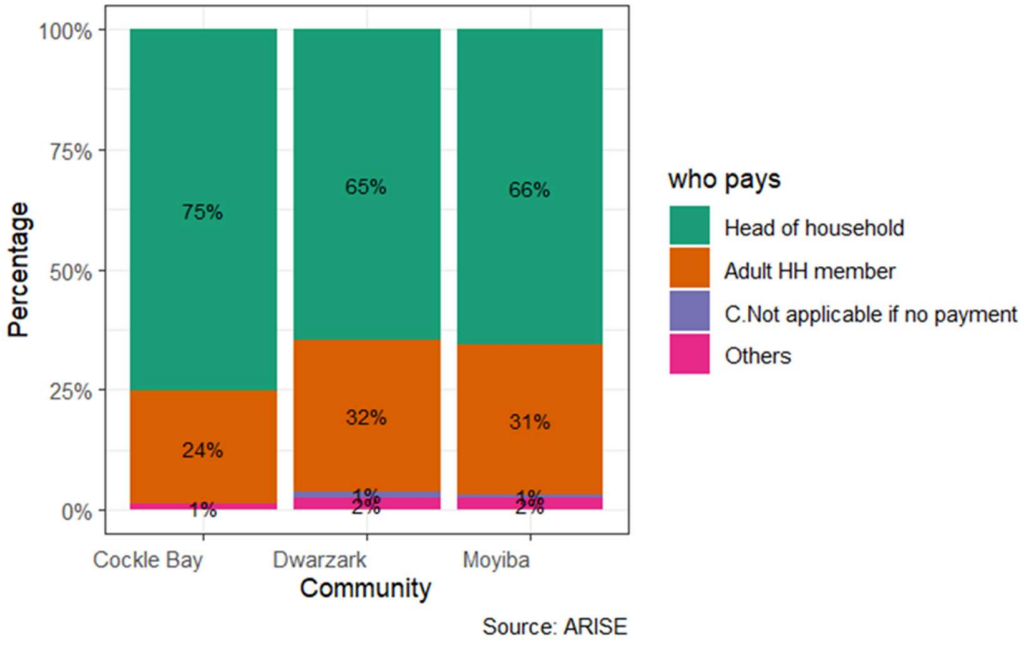



*Figure 3.8: Percentage of responses for the person responsible for payment of water bill in a household in Cockle Bay, Dwarzark, and Moyiba*

## 3.3 Sanitation services

To examine the sanitation situation in the survey communities, this section looked at two broad categories of sanitation services: the availability of toilets and waste disposal facilities.

### 3.3.1 Toilet facilities

The sub-section captures the types of toilet facilities used by household members, sharing of toilet facilities, toilet accessibility, and payment for toilet use.

#### 3.3.1.1 Type of toilet facility used by household members.

Table 3.6 shows that (67%) of the respondents use dry pit latrines across the three settlements. However, usage of pit latrines is most common in Moyiba (83%) and Dwarzark (80%) with only 17% in Cockle Bay. The use of flush toilets was dominant in Cockle Bay (49%) followed by buckets (27%). In Moyiba, bucket use accounted for 44%, and flush toilets for 19%.

*Table 3.65: Frequencies and percentages of distinct types of toilet facilities in Cockle Bay, Dwarzark, and Moyiba*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Flush | 547 (49%) | 289 (21%) | 324 (14%) | 1,160 (24%) |
| Dry pit latrines | 185 (17%) | 1,124 (80%) | 1,957 (83%) | 3,266 (67%) |
| Buckets | 303 (27%) | 227 (16%) | 1,021 (44%) | 1,551 (32%) |
| Hanging toilet | 190 (17%) | 19 (1%) | 84 (4%) | 293 (6%) |
| Flying toilet | 8 (1%) | 5 (0%) | 9 (0%) | 22 (0%) |
| Open defecation | 80 (7%) | 7 (0%) | 19 (1%) | 106 (2%) |
| Others | 17 (2%) | 3 (0%) | 10 (0%) | 30 (1%) |

### 3.3.1.2Flush waste/sludge emptying.

Figure 3.8 shows the percentages of the distinct methods used to empty waste in flush toilets. In Cockle Bay, 65% of respondents emptied waste in flush toilets into the ocean, while the majority in Dwarzark (53%) and Moyiba (55%) emptied into pit latrines and septic tanks, respectively. Emptying the waste into a septic tank (45%) was popular in Dwarzark and into a pit latrine (41%) in Moyiba. It was only in Cockle Bay where sludge was emptied from the flush toilets into open drains (15%). The emptying of sludge into the ocean and open drains ended up draining to the ocean creating poor living conditions for humans and marine life.

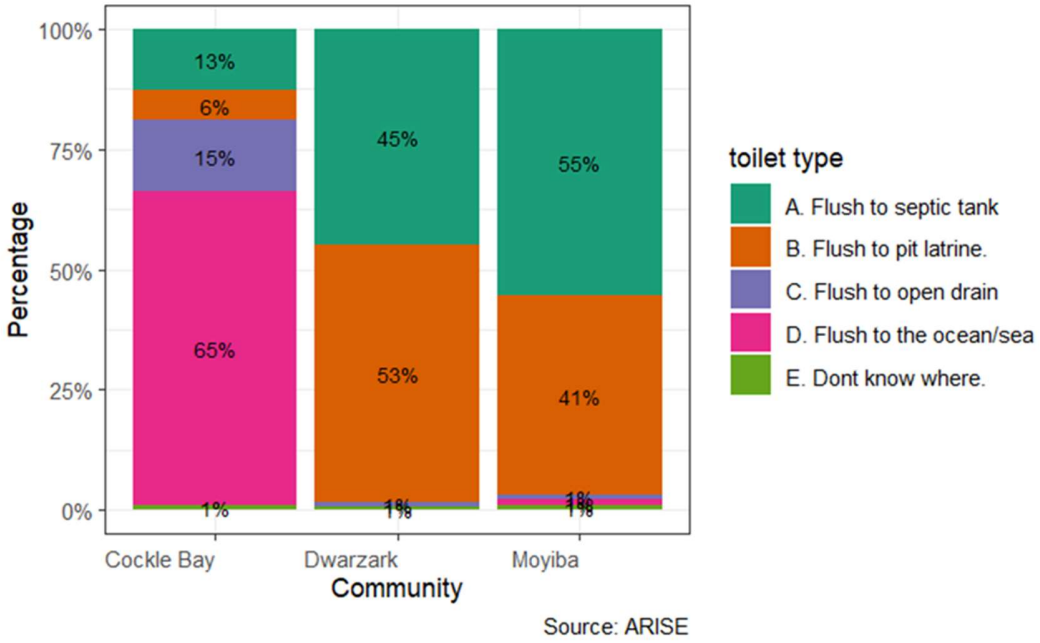



*Figure 3.9: Percentages of distinct ways in which sludge/toilet waste was emptied in Cockle Bay, Dwarzark, and Moyiba*

### 3.3.1.3Type of floor for pit latrines

Figure 3.10 shows that most pit latrines in Dwarzark (95%), Moyiba (87%), and Cockle Bay (78%) had slab floors. Cockle Bay (22%) and Moyiba (14%) had a higher percentage of open-pit latrines compared to Dwarzark (5%).

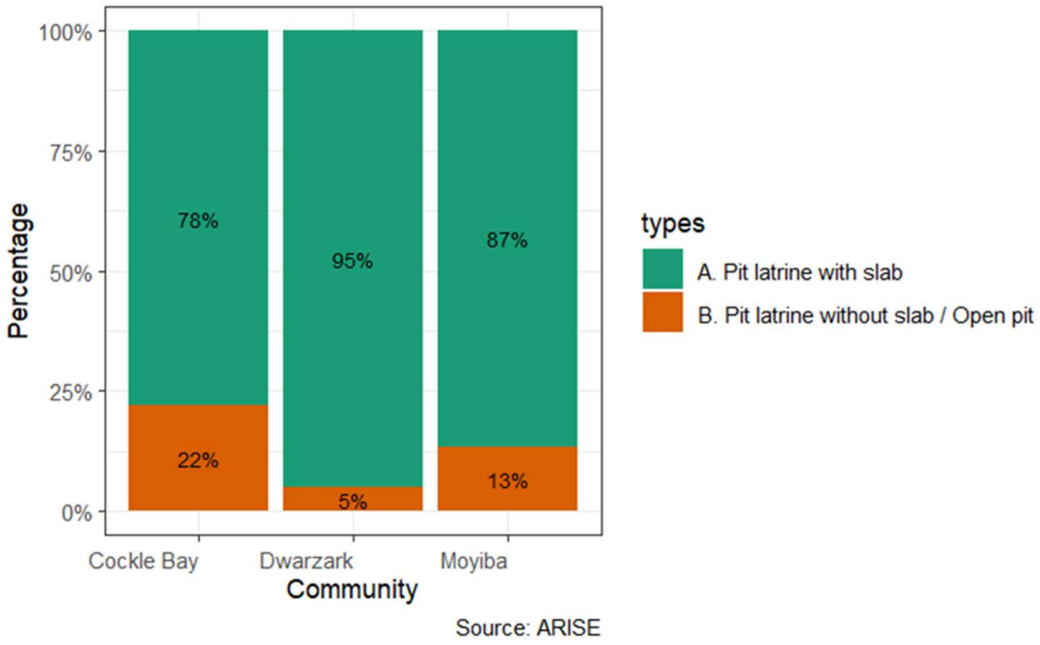



*Figure 3.10: Percentages of type of floor for pit latrines in Cockle Bay, Dwarzark and Moyiba*

#### 3.3.1.4 Shared toilet facilities

This question was asked to determine whether households share toilet facilities with other households. Figure 3.11 shows that most respondents in Cockle Bay (60%), Dwarzark (73%), and Moyiba (74%) confirmed they shared toilets with other households. In Cockle Bay, more than one-third (39%) claimed they did not share toilet facilities with other households, compared to Dwarzark (27%) and Moyiba (24%).

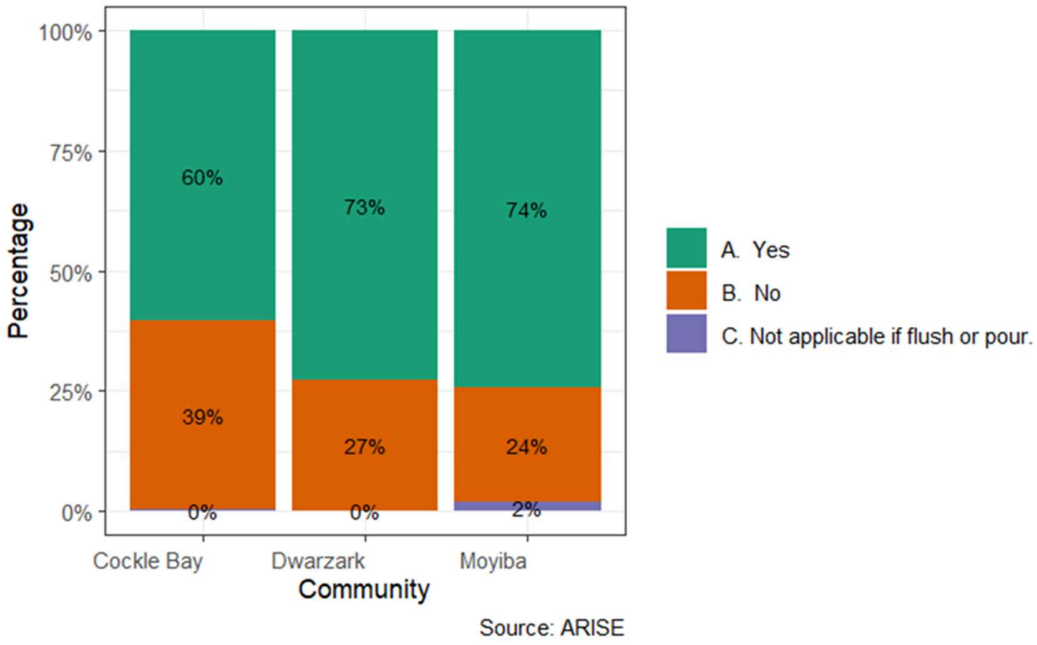



*Figure 3.11: Percentage of participants on shared toilets in Cockle Bay, Dwarzark, and Moyiba*

### 3.3.1.5Number of households sharing toilet

Households that shared toilet facilities were further asked to select from the given range the number of households they share toilet with. Figure 3.12 shows most respondents in Cockle Bay (55%) and Moyiba (45%) shared toilet facilities with eight or more households. In Dwarzark, most respondents shared toilet facilities with two to four households (38%), followed closely by those who shared with five to eight households (33%). Overall, Cockle Bay and Moyiba had more households sharing toilet facilities.

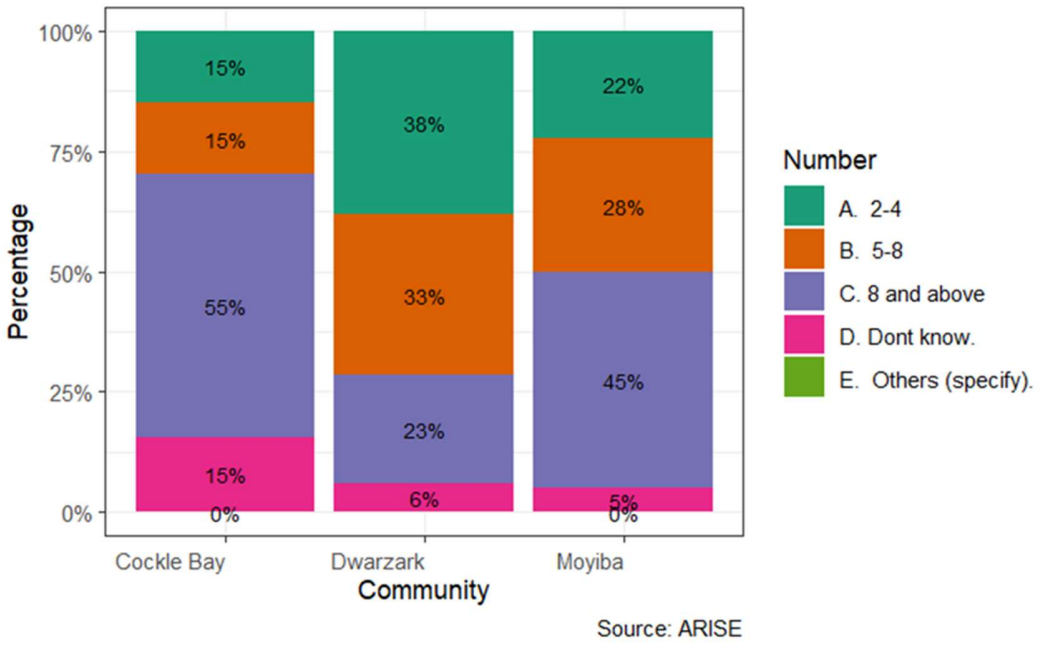



*Figure 3.12: Percentages of respondents based on the number of households sharing a toilet in Cockle Bay, Dwarzark, and Moyiba*

### 3.3.1.6 Access to toilet facilities

This question was posed by asking respondents if they had access to toilet facilities. The responses in Figure 3.13 show that most households had access to toilet facilities as indicated in Cockle Bay (87%), Dwarzark (84%), and Moyiba (84%). However, over 15% of respondents in Dwarzark and Moyiba had no access to toilet facilities compared to 12% in Cockle Bay.

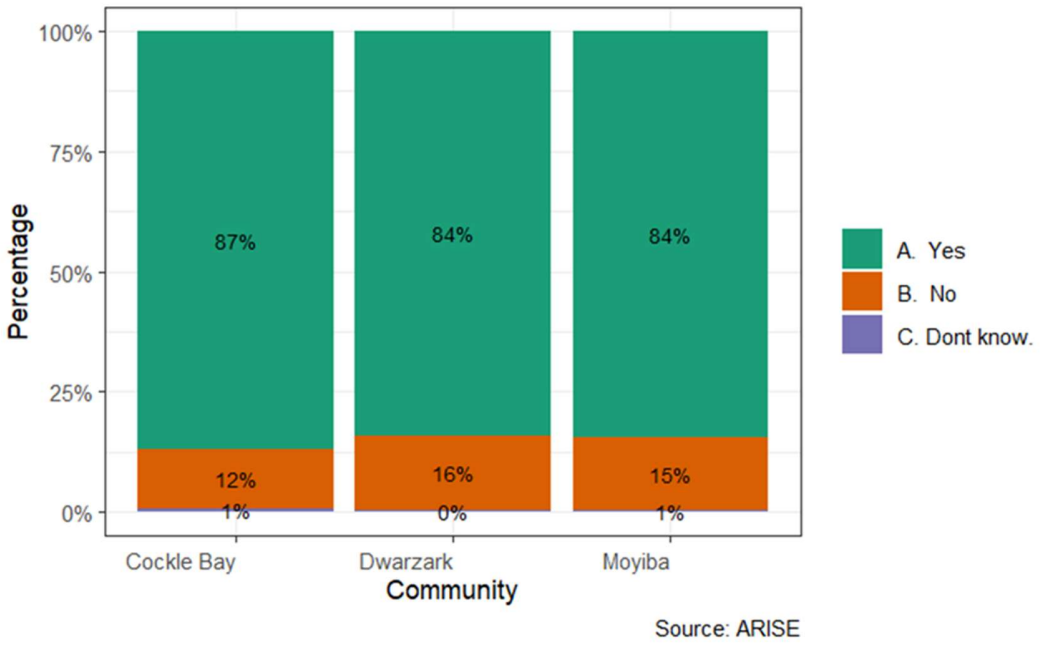



*Figure 3.13: Percentages of responses based on access to toilet facilities in Cockle Bay, Dwarzark, and Moyiba*

### 3.4.1.7 Reasons for not accessing toilet facilities

Table 3.7 is a follow-up to the preceding question for respondents who reported not having access to a toilet. It shows that they were not able to access toilet facilities due to the higher number of users (80%), which is also dominant within the communities, followed by hygiene (52%) and safety concerns (43%).

*Table 3.76: Frequencies and percentages for reasons preventing access to a toilet facility.*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Rough terrain | 2 (1%) | 7 (3%) | 26 (7%) | 35 (5%) |
| Distance | 70 (51%) | 21 (10%) | 23 (6%) | 114 (16%) |
| Many users | 85 (62%) | 177 (81%) | 309 (87%) | 571 (80%) |
| Hygiene concerns | 50 (36%) | 124 (57%) | 197 (55%) | 371 (52%) |
| Safety concerns | 68 (50%) | 79 (36%) | 159 (45%) | 306 (43%) |
| Cost | 2 (1%) | 0 (0%) | 0 (0%) | 2 (0%) |

| | | | | |
|---|---|---|---|---|
| Others | 1 (1%) | 5 (2%) | 5 (1%) | 11 (2%) |

### 3.4.1.8 Reports/complaints about inaccessibility to toilet facilities

Figure 3.14 shows that most respondents in Dwarzark (90%), Moyiba (81%) and Cockle Bay (76%) who confirmed inaccessibility to toilet did not report to any relevant persons/authorities regarding inaccessibility to toilet facilities.

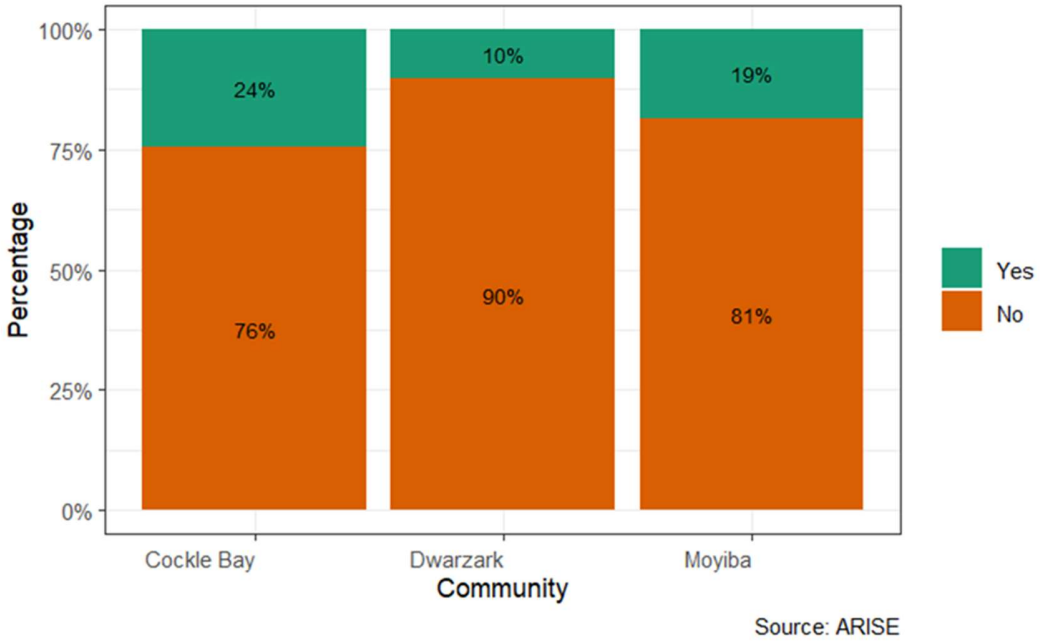



*Figure 3.14: Percentages of responses based on whether they report inaccessibility to toilet facilities*

### 3.4.1.9 Stakeholders that access to toilet concerns directed.

The respondents (18%) who reported their inaccessibility to toilet facilities were asked who they reported the issue to. Table 3.8 shows that 84% of respondents reported toilet inaccessibility to house owners, while 18% reported it to their spouses. None of the households made toilet inaccessibility reports to stakeholders such as community chiefs, the Community Disaster Management Committee (CDMC), and the Ministry of Health (MoHS)/Government when they encountered access to toilets concerns.

*Table 3.7: Frequencies and percentages of where respondents report toilet inaccessibility.*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| House owner | 30 (91%) | 18 (78%) | 54 (82%) | 102 (84%) |
| Neighbour | 0 (0%) | 0 (0%) | 8 (12%) | 8 (7%) |
| FCC (Freetown City Council) | 1 (3%) | 0 (0%) | 0 (0%) | 1 (1%) |
| Community chief | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| My spouse | 3 (9%) | 3 (13%) | 12 (18%) | 18 (15%) |
| Family members | 2 (6%) | 1 (4%) | 3 (5%) | 6 (5%) |
| CDMC (Community Disaster Management Committee | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| MoHS (Ministry of Health and Sanitation) / Government | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| Report to none | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| Others | 2 (6%) | 2 (9%) | 4 (6%) | 8 (7%) |

#### 3.4.1.10 Responses received after making toilet inaccessibility complaints

Figure 3.15 shows that most respondents in Cockle Bay (88%) and Moyiba (73%) received positive response after reporting toilet inaccessibility compared to Dwarzark (46%). Negative responses (17%) and no response at all (38%) was higher in Dwarzark compared to Cockle Bay and Moyiba. Considering most respondents in Dwarzark reported toilet inaccessibility to homeowners (78%; Table 3.8), this indicates more than half of owners were not addressing toilet inaccessibility issues of their tenants.

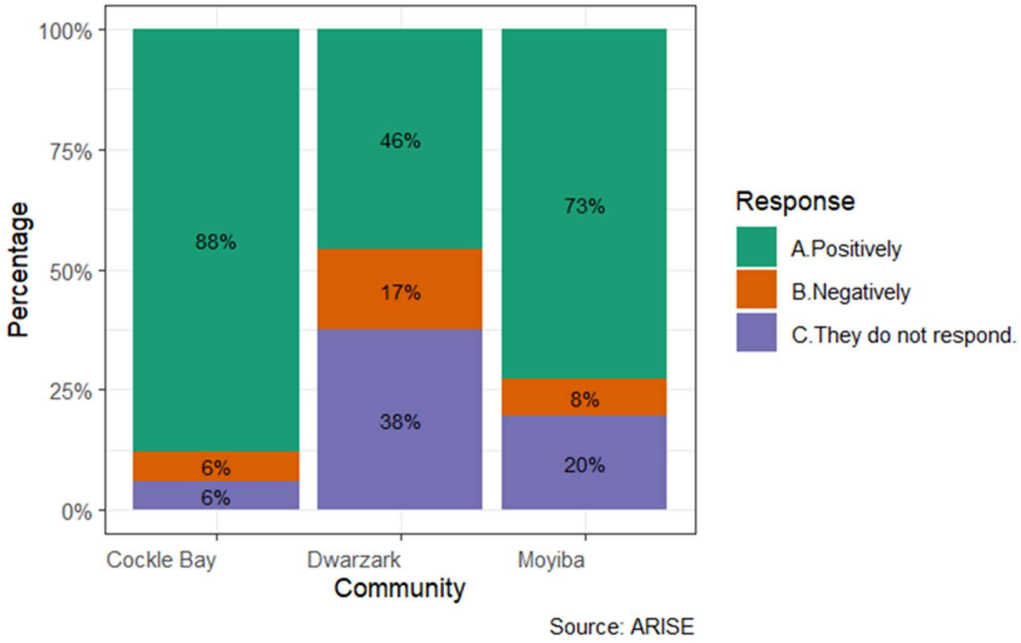



*Figure 3.15: Percentages for responses received after making toilet inaccessibility complaints*

### 3.4.1.11 Payment for access to toilet

Figure 3.16 shows that more than half of respondents in Cockle Bay (53%), Dwarzark (51%), and Moyiba (81%) do not pay to access toilets. While for those who paid in Cockle Bay (47%), Dwarzark (46%) and Moyiba (19%), money paid by users was spent on toilet maintenance.

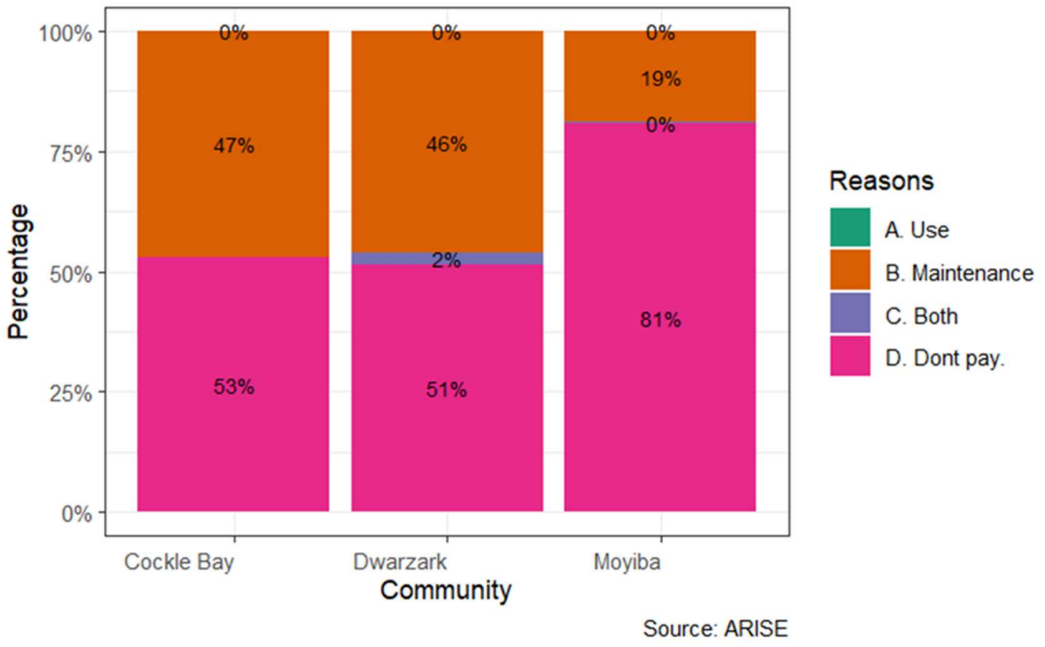



*Figure 3.16: Percentages for responses about the purpose of payments made to access the toilet*

### 3.4.1.12 Payment frequency for access to toilet

Figure 3.17 shows that most respondents make payments to access toilets when the need arises. This may be informed by the fact that the money paid is used toward maintenance and therefore payment for toilet use may be promoted when there is a need to carry out our maintenance work.

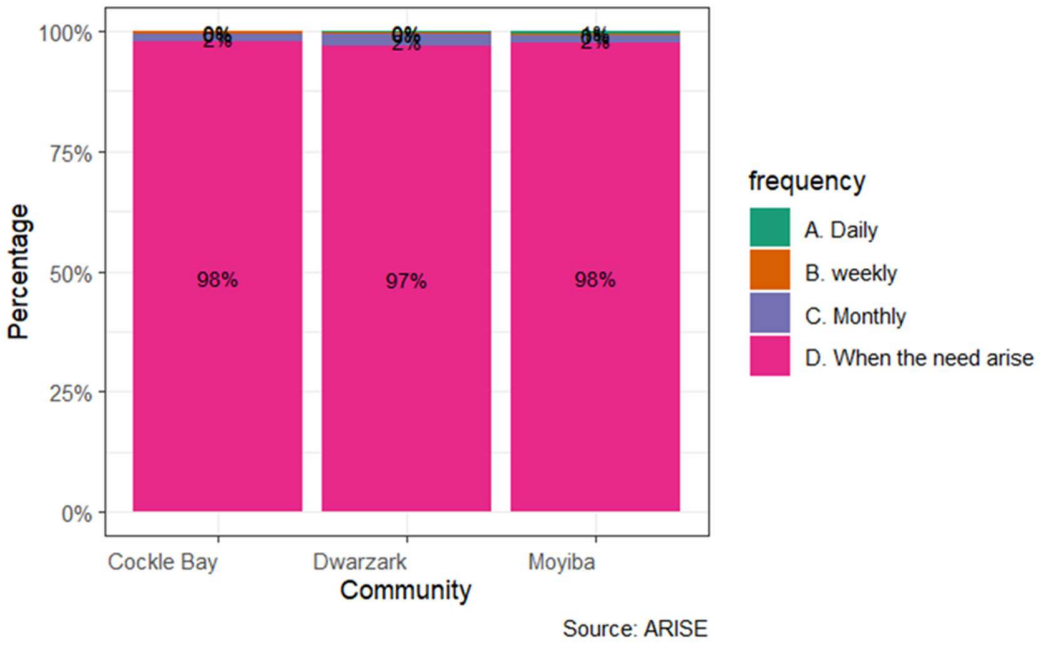



*Figure 3.17: Percentages for responses on the frequency of payment to access the toilet*

### 3.3.2 Waste Disposal

This section provides descriptions of waste disposal facilities available across Cockle Bay, Dwarzark and Moyiba. It covers topics such the availability of waste disposal sites, management of community waste disposal sites, household waste sites, and distance to waste disposal sites.

#### 3.3.2.1 Availability of waste disposal sites

To uncover the sanitation situation across the communities from the lens of waste site, household respondents were asked if they had specific sites to dispose of their waste. Their responses in Figure 3.18 shows that almost all respondents in Cockle Bay (98%), Dwarzark (96%), and Moyiba (95%), confirmed the non-availability of waste disposal sites.

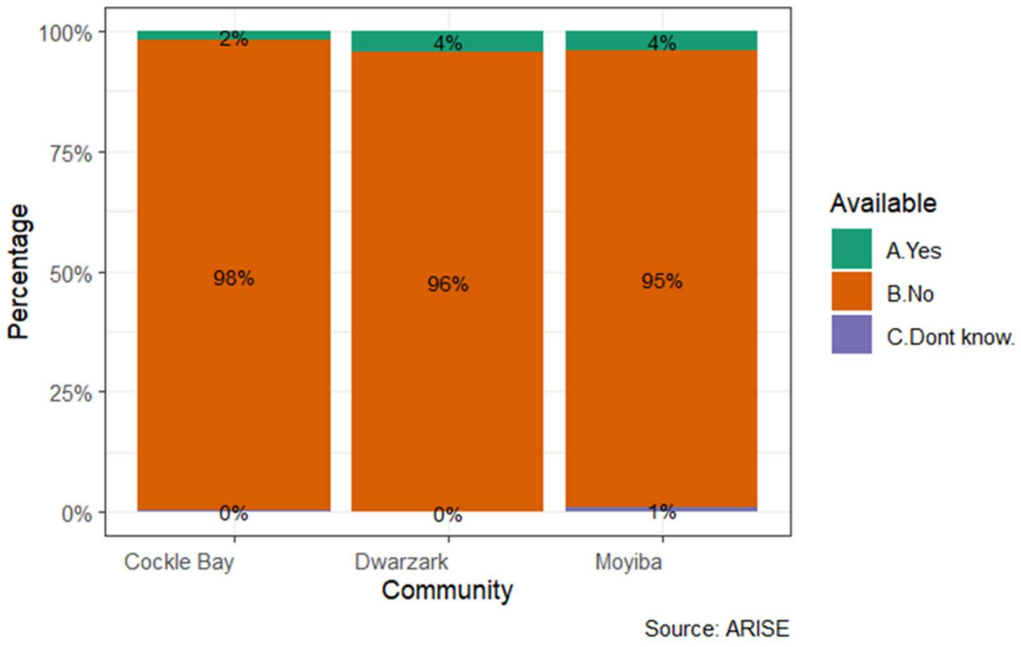



*Figure 3.18: Percentages of responses regarding availability of waste disposal sites*

### 3.3.2.2 Management of waste disposal sites

Respondents who confirmed that their communities have waste disposal sites were asked to provide information about the persons or organisations in charge of managing such sites. Figure 3.19 shows that community members mostly managed their waste disposal in Cockle Bay (38%), Dwarzark (64%), and Moyiba (52%). MASADA (a private waste management company) was also common in managing waste disposal sites especially in Moyiba (40%) and was also present in Dwarzark (11.5%) and Cockle Bay (10.3%). Most respondents in Cockle Bay (45%) did not know who was responsible for the waste disposal sites.

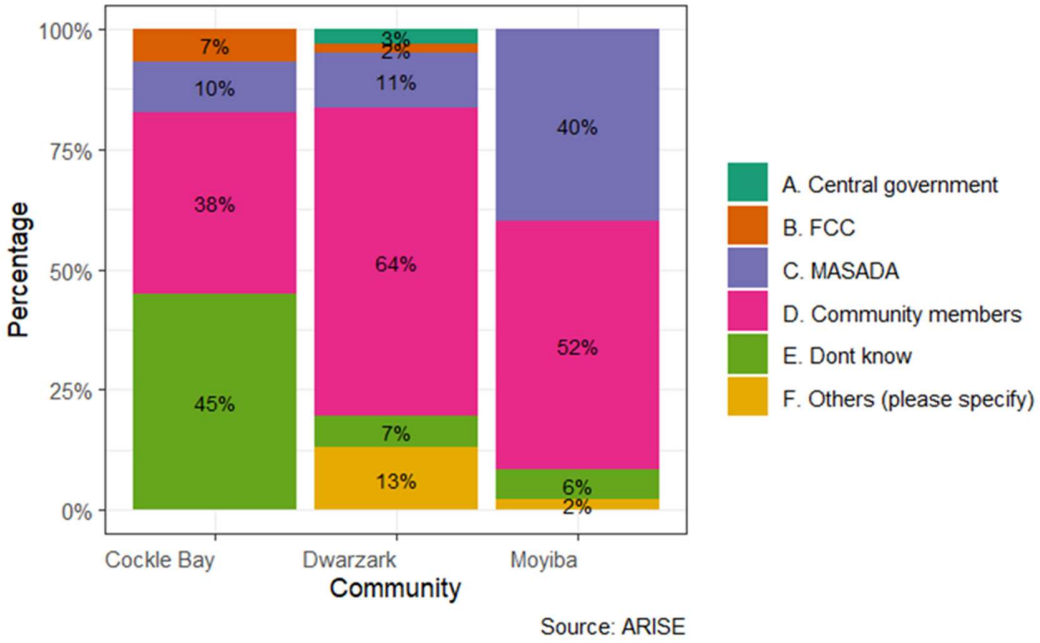



*Figure 3.19: Percentages responses of organisations responsible for management waste disposal sites*

### 3.3.2.3Household waste disposal sites

Figure 3.20 shows that most respondents in Cockle Bay (96%) threw their waste into the ocean, while Dwarzark (58%) and Moyiba (73%) disposed of waste somewhere in the vicinity of their house. Almost a quarter of respondents in Dwarzark (22%) and Moyiba (27%) disposed of their waste in drains. Moreover, solid waste collectors were also common in Dwarzark (26%) and Moyiba (23%) compared to 1% in Cockle Bay.

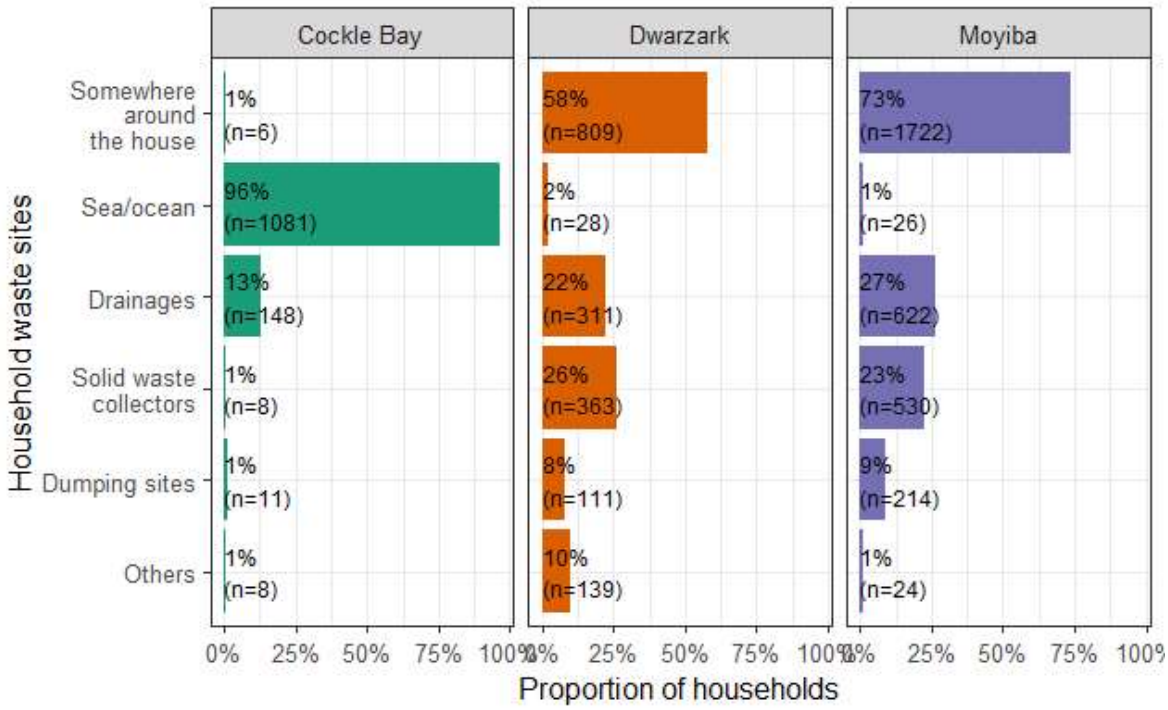



*Figure 3.20: Percentages responses of where households dispose their waste*

### 3.3.2.4Distance to waste disposal sites

Figure 3.21 shows that most respondents in Cockle Bay (87%), Dwarzark (84%) and Moyiba (74%) travel less than 30 minutes to dispose of their waste, with Cockle Bay indicating a slightly higher percentage than other communities.

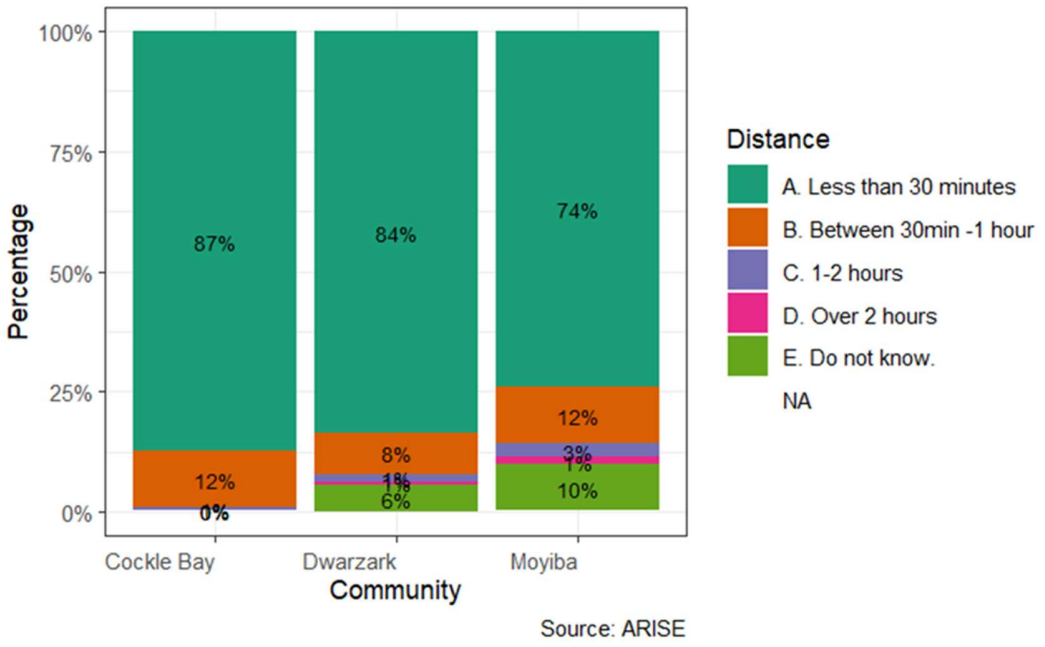



*Figure 3.21: Percentage responses based on the on distance to waste disposal site*

### 3.3.2.5Payment for waste disposal

Figure 3.21 shows that most respondents across Cockle Bay (98%), Dwarzark (71%), and Moyiba (75%) do not pay for waste disposal. 29% of respondents in Dwarzark, and a quarter in Moyiba (25%) paid for their waste disposal services compared to only 2% in Cockle Bay.

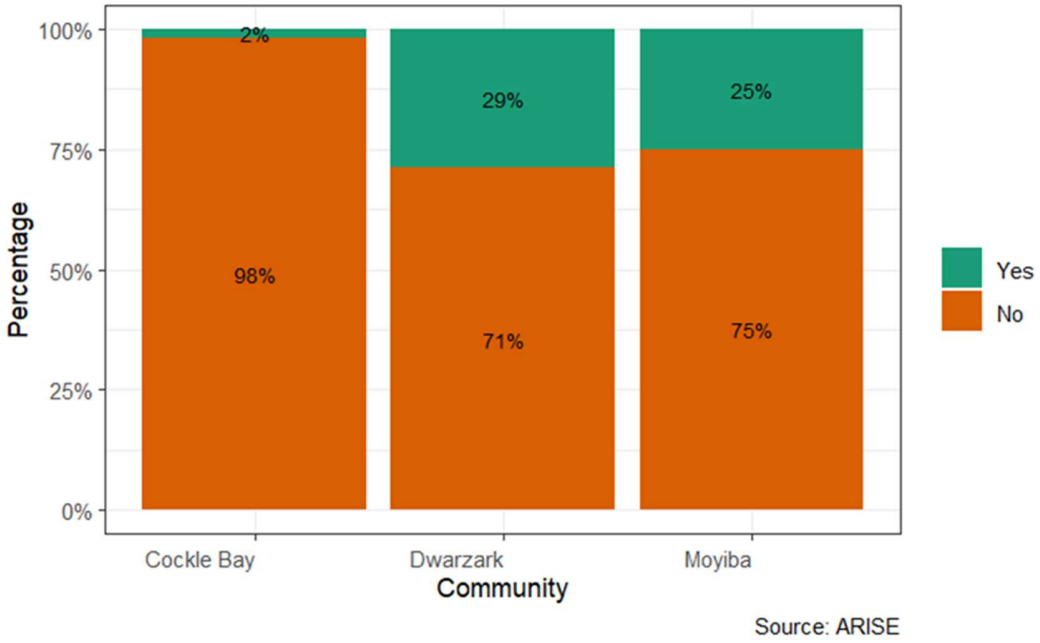



*Figure 3.22: Percentage of responses on whether they pay for the disposal of waste*

### 3.3.2.6 Frequency of Payment for Waste Disposal

Figure 3.22 shows that most respondents who pay for waste disposal do it on a weekly basis in Cockle Bay (50%), Dwarzark (79%) and Moyiba (67%). Moreover, a high percentage of Cockle Bay (45%) and Moyiba (32%) respondents paid waste disposal fees daily.

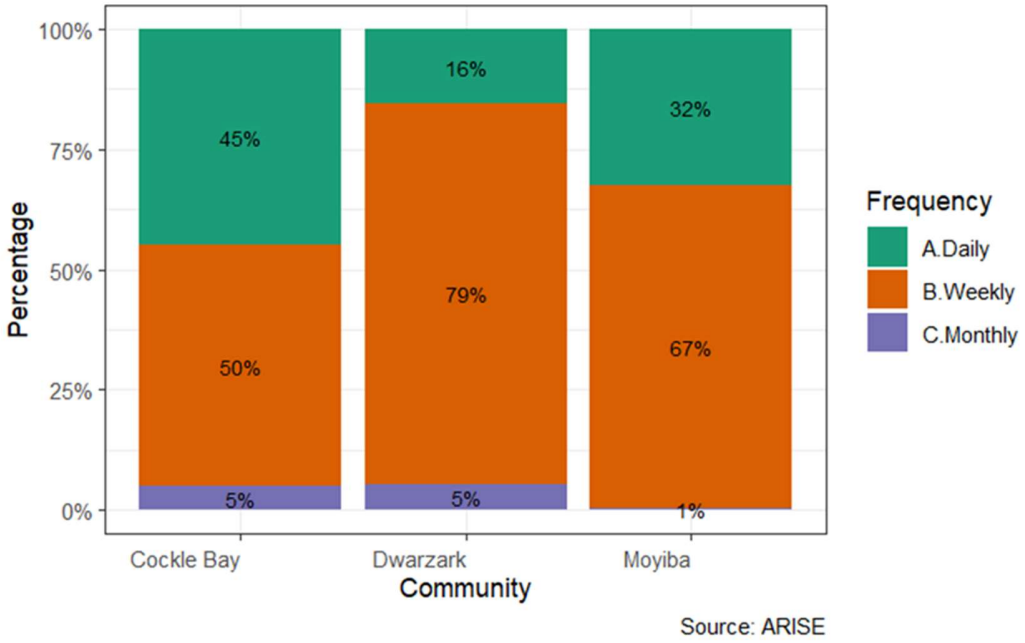



*Figure 3.23: Percentage of responses based on frequency of payment for waste disposal*

### 3.3.2.7Who pays for waste disposal

Figure 3.23 shows that a greater proportion of respondents in Cockle Bay (84%), Dwarzark (66%), and Moyiba (71%) attributed payment for disposal of waste to the head of household. Over a quarter of respondents in Dwarzark (31%) and Moyiba (26%) reported that waste disposal fees were paid by other adults in a household compared to 16% in Cockle Bay.

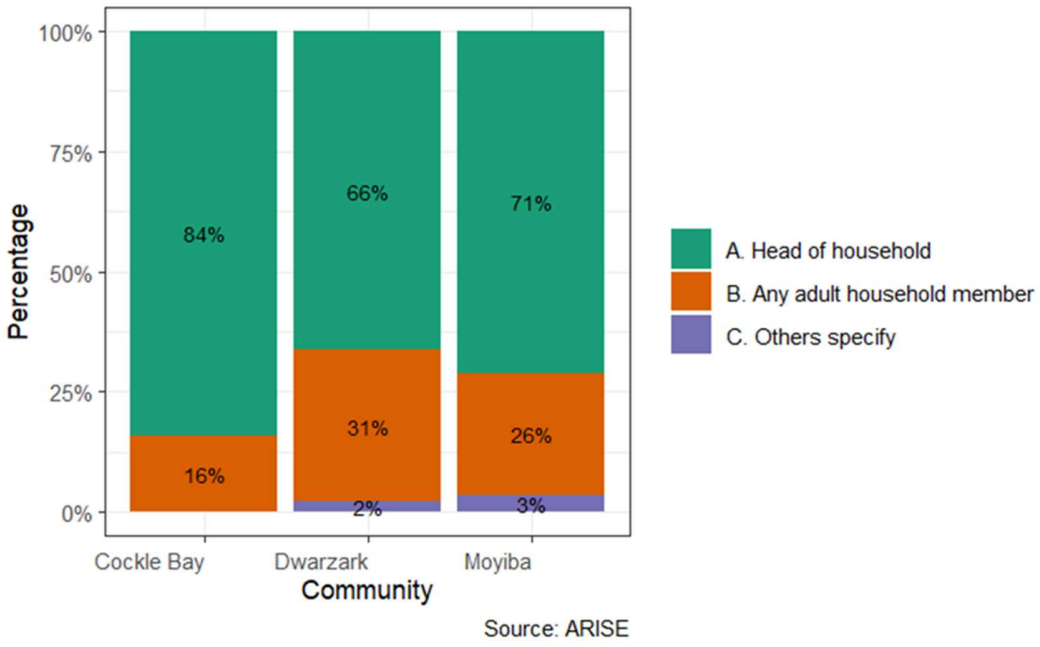



*Figure 3.24: Percentage of responses about the person who pays for the waste disposal*

### 3.3.2.8Water and sanitation costs

Table 3.8 shows the average cost (Leone, SLE [95% CI]) of household services/utilities, including water, toilet, and waste disposal across the three informal settlements in Freetown, Sierra Leone. Households across the settlements paid an average water cost of SLE167 per month. Within the settlements, households paid almost similar costs, with Moyiba residents paying slightly higher fees for water services (SLE156), followed by Dwarzark (SLE129) and Cockle Bay (SLE107). In terms of toilet access, few residents (N=41) reported frequent payment (e.g., daily, weekly, monthly) for toilet maintenance/usage. The average cost for the three settlements was SLE96. Dwarzark reported the highest cost among the three settlements with an average monthly cost of SLE124; this value is 1.4 times the one paid by residents of Cockle Bay (SLE87) and 2.6 times the costs by Moyiba residents (SLE47). Waste management/disposal at the household level across the settlements was reported at an average cost of SLE62. Comparing the three settlements, households in Moyiba reported a higher average cost for waste disposal at SLE77, followed by Cockle Bay (SLE67) and Dwarzark (SLE40).

Overall, the results reveal that households commit some amount of their incomes to pay for essential services. Water services presented the highest monthly costs, possibly due to the frequency of usage for drinking and domestic purposes.

*Table 3.8: Average cost (Leone, SLE [95% CI]) of services across three informal settlements in Freetown, Sierra Leone*

| Services | Cockle Bay | Dwarzark | Moyiba | Total |
|---|---|---|---|---|
| | Average (CI) | Average (CI) | Average (CI) | Average (CI) |
| Water[3] | 107 (101-113) | 129 (123-134) | 156 (151-161) | 167 (163-172) |
| Toilet[2] | 87 (0-220) | 124 (55-193) | 47 (13-81) | 96 (48-145) |
| Waste management[1] | 67 (44-89) | 40 (35-44) | 77 (70-84) | 62 (57-66) |

[1] N=4002, 16 missing data

[2] N= 1656 reported they pay for toilet, but 1609 respondents did not provide costs monthly, costs based on a sample of 41 participants after removing outliers and missing data

[3] N=1010, 12 missing data

## 3.4 Summary findings and conclusion

Sachet water and community wells are the main sources for drinking water across the settlements. Even though most households across the communities predominantly used sachet water, households in Cockle Bay used more sachet water than Dwarzark and Moyiba. There were differences in terms of domestic use water sources with Cockle Bay and Dwarzark highly dependent on community wells, while Moyiba relied mostly on surface water and rainwater. Fetching water in Cockle Bay was mainly done by adult women since the distances to water points are shorter and less hilly compared to Dwarzark and Moyiba where boys and girls predominantly fetched water. The average cost of drinking and domestic water across the settlements was relatively affordable at SLE167. Payment for water services was primarily made by the head of the household.

The overall sanitation system is relatively poor across the three settlements. The use of flush toilets was common in Cockle Bay where most toilets in the community are connected to the sea for sludge discharge. The use of dry pit latrines in the hilltop communities (Dwarzark and Moyiba) is higher compared to Cockle Bay which can be attributed to the hilly terrain and water shortages which makes use of flush toilets economically infeasible. Sharing toilets with other households is common in these communities with toilet access not considered a challenge. The majority of respondents across three settlements did not report any issues about toilet inaccessibility to any relevant persons/authorities. However, few households reported their toilet inaccessibility to house owners, and they got positive responses.

The three communities are characterised by poor waste management, with uncontrolled dumping of waste into the sea (Cockle Bay), around the houses and drains (Moyiba and Dwarzark). The average cost to access toilets and waste disposal at the household level was largely affordable.

**Community feedback on findings:** In Cockle Bay, for water there is access to spring water in the community. An increase in public water tap installation as five taps are being installed but will require minimal cost to access for buying from GUMA and maintenance. Poor road network within the community affects accessibility to water points and is not disability-friendly. There are more pour flush toilet facilities than a normal flush (press flush). For sanitation, there are changes in waste management collection due to the Transforming Lives project that provided two tricycles to manage solid waste. Also, a reduction and improvement on hanging toilets.

In Dwarzark, the water demand had increased while the supply kept decreasing because of the increase in population; increasing the cost for sachet water and jerry cans. All of these challenges keep increasing due to the increase in population while the number of water points remain the same. As community actions, there is continuous advocacy to the government and NGOs to add more water points within the community and most households are now digging water wells in their compounds. For sanitation, the waste service providers that were in the community have closed their operations. In the lower

part of the community, people use MASADA to dispose of their waste. While in the upper part, people dig holes in their compounds to dispose of their waste, burn them, or pay boys to throw the dirt.

In Moyiba, there are changes observed in terms of water, like an increase in the cost. For example, a jerry-can of water was three new leones (SLE3) increased in cost to five new leones (SLE5), especially in the Nack Force and Soja Town zones located at the top part of the hill in the community. For sanitation, MASADA (a private waste collection company) was active in collecting waste, but the poor road network forced them to cease waste collections in the community. The “Clean Salone” boys in the community are now more active in collecting waste but due to a lack of disposal sites, they usually dispose of waste around the community.

# Chapter 4: Healthcare services

This chapter covers healthcare services that people access within and outside the communities and provides a clear picture of the health situation in the study communities. It includes types of healthcare services within and outside the communities, household members seeking healthcare service in the last one month prior to the survey, type of illness sought for healthcare within and outside the communities, barriers to access healthcare, and person/authority reported to when faced with barriers to access healthcare services.

## 4.1 Healthcare services/providers within the communities

To determine available healthcare services across the communities, respondents were asked to state the types of healthcare facilities they had within their communities and the result obtained from their responses are presented in Table 4.1. It shows that public formal facilities (65%) are the most common healthcare services, followed by drug peddlers (59%), private nurses (43%) and private formal (39%). However, percentages of healthcare providers across settlements differed with public formal more popular in Dwarzark (88%) and Moyiba (82%) compared to Cockle Bay (1%). In Cockle Bay, 55% of respondents indicated that there are no health facilities compared to Dwarzark (3%) and Moyiba (9%). This may inform the higher percentage of drug peddlers (i.e., informal medicinal drug sellers who walk/ride from place to place and can reach hard to reach communities) in Cockle Bay (56%) and private formal (35%).

*Table 4.1: Frequencies and percentages of different healthcare providers within Cockle Bay, Dwarzark, and Moyiba*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Public formal | 5 (0%) | 1,242 (88%) | 1,935 (82%) | 3,182 (65%) |
| Private formal | 388 (35%) | 1,078 (77%) | 435 (19%) | 1,901 (39%) |
| Traditional healers | 183 (16%) | 177 (13%) | 860 (37%) | 1,220 (25%) |

| | | | | |
|---|---|---|---|---|
| Drug peddlers | 625 (56%) | 757 (54%) | 1,465 (62%) | 2,847 (58%) |
| Private nurse | 287 (26%) | 732 (52%) | 1,064 (45%) | 2,083 (43%) |
| No health facilities | 622 (55%) | 36 (3%) | 221 (9%) | 879 (18%) |
| Other | 26 (2%) | 6 (0%) | 46 (2%) | 78 (2%) |

## 4.2 Public formal healthcare providers utilised within the communities

Figure 4.1 shows that most respondents in Cockle Bay (72%), Dwarzark (92%) and Moyiba (81%) sought healthcare services in public peripheral health units (PHUs). Over a quarter of respondents in Cockle Bay (28%) sought healthcare services in public hospitals compared to Moyiba (20%) and Dwarzark (8%). As Cockle Bay lacks public formal healthcare facilities, the 28% reported in Cockle Bay could be attributed to people not understanding different categorisations of health services which they visit. Also, residents may attend public formal healthcare centres outside Cockle Bay but deem them within the community when they were being interviewed.

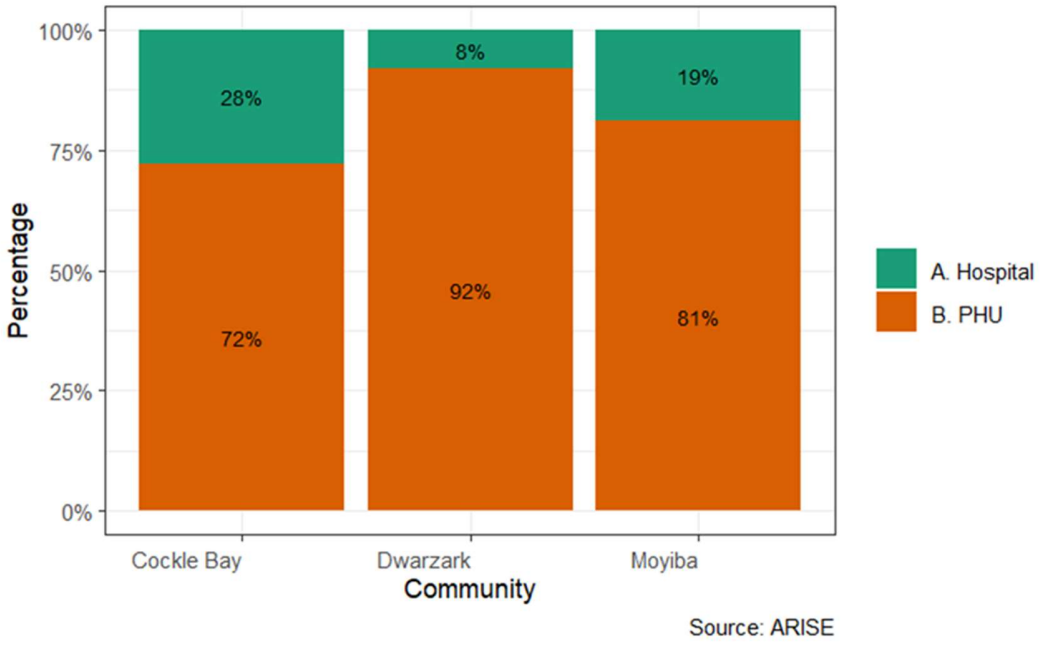


*Figure 4.1: Percentage of public formal health care services sought within and outside communities*

## 4.3 Private formal healthcare providers utilised within the communities

Respondents were asked to select the private formal healthcare service (i.e. clinic or pharmacy) they had visited in the month prior to the survey. Figure 4.2 shows most households who visited private formal healthcare within the community went to pharmacies compared to clinics across the three communities (i.e., Cockle Bay (97%), Moyiba (88%) and Dwarzark (69%).

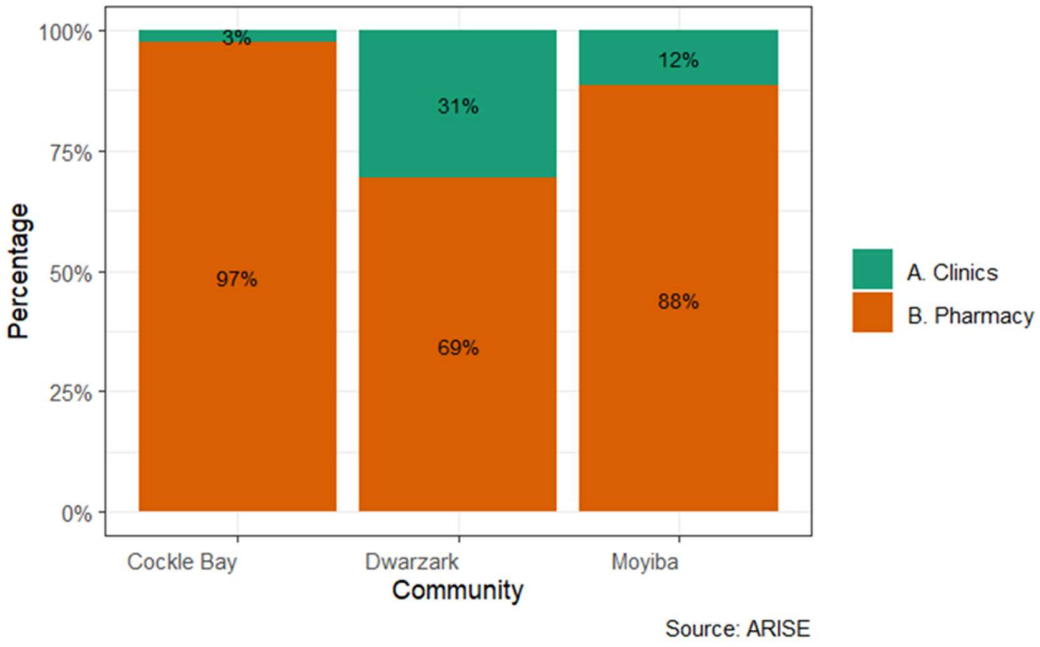



*Figure 4.2: Percentage of private formal health care services within communities*

## 4.4 Household healthcare utilisation in the last one month within the communities

To understand healthcare utilisation within the communities, respondents were asked whether they or any member of their households sought healthcare a month prior to the survey. In Cockle Bay (75%), Dwarzark (54%), and Moyiba (77%) did not seek healthcare

in the preceding month before the survey as shown in Figure 4.3. Healthcare utilisation within the community was higher in Dwarzark (46%) compared to Cockle Bay (25%) and Moyiba (22%).

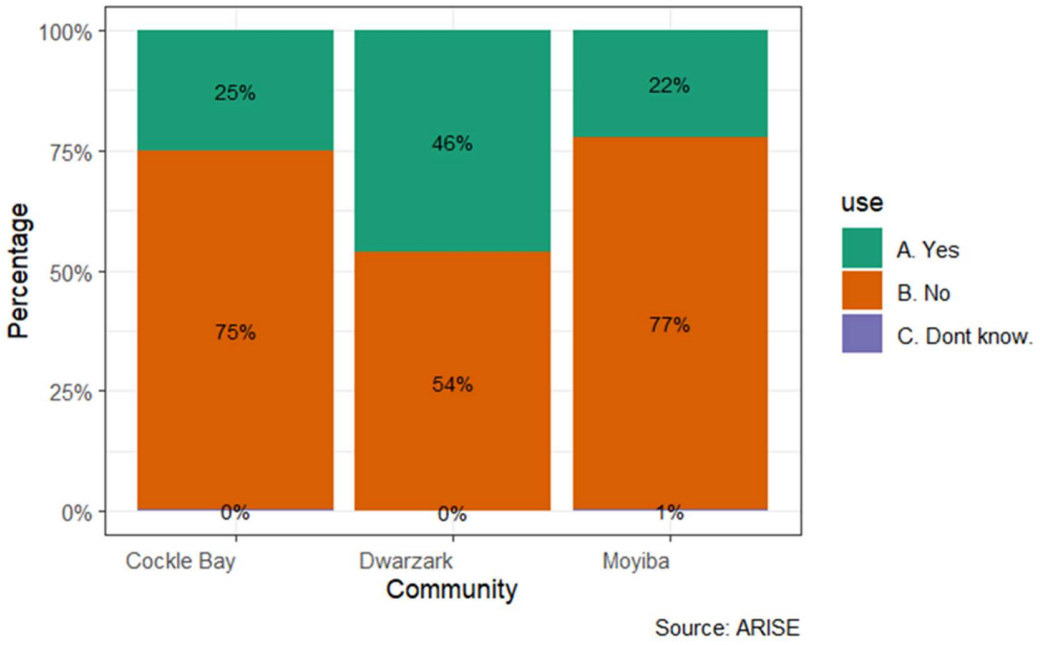



*Figure 4.3: Percentage of healthcare utilisation within community*

## 4.5 Illnesses households sought healthcare services within the communities in the last month

Respondents who sought healthcare in the last month (31%) were asked which illness(es) they sought treatment for. Table 4.2 shows that malaria (70%), common cold/flu (51%), and typhoid (31%) were the health conditions that most households sought healthcare services for. Overall, the pattern of illness that individuals sought healthcare services for was similar across the three communities except for some less commonly reported health conditions. For example, Sexually Transmitted Infections (STI) were reported more frequently in Cockle Bay (6%) compared to Moyiba (1%) and Dwarzark (1%); while routine health checkups were higher in Moyiba (9%) compared to Cockle Bay (3%) and Dwarzark (3%).

*Table 4.2: Types of illness treated within the community's healthcare providers*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Malaria | 212 (75%) | 428 (66%) | 374 (72%) | 1,014 (70%) |
| Cholera/Diarrhoea | 7 (2%) | 22 (3%) | 27 (5%) | 56 (4%) |
| Typhoid | 75 (27%) | 179 (28%) | 198 (38%) | 452 (31%) |
| Common cold/flu | 167 (59%) | 283 (44%) | 290 (56%) | 740 (51%) |
| STD/Infection | 7 (2%) | 5 (1%) | 6 (1%) | 18 (1%) |
| Tuberculosis | 0 (0%) | 2 (0%) | 2 (0%) | 4 (0%) |
| Ulcer | 19 (7%) | 34 (5%) | 22 (4%) | 75 (5%) |
| Convulsion | 2 (1%) | 8 (1%) | 5 (1%) | 15 (1%) |
| Skin rash | 9 (3%) | 34 (5%) | 27 (5%) | 70 (5%) |
| Blood pressure | 12 (4%) | 58 (9%) | 61 (12%) | 131 (9%) |
| Diabetes | 2 (1%) | 8 (1%) | 4 (1%) | 14 (1%) |
| Injury | 7 (2%) | 31 (5%) | 29 (6%) | 67 (5%) |
| Routine check-ups | 9 (3%) | 17 (3%) | 48 (9%) | 74 (5%) |
| Other | 32 (11%) | 113 (17%) | 51 (10%) | 196 (14%) |

## 4.6 Types of healthcare providers accessed within the communities

Respondents who reported health care utilisation in the last month were also asked which type of healthcare providers they used. Table 4.3 shows that most respondents utilised public formal (41%) and private formal (40%) for healthcare. However, it differed across settlements with public formal more popular in Moyiba (74%) and Dwarzark (29%) with private formal highly utilised in Cockle Bay (60%) and Dwarzark (52%). Drug peddlers were most frequently utilised in Cockle Bay (32%) and Moyiba (18%) compared to Dwarzark (8%). Healthcare seeking among private nurses was almost similar across Cockle Bay (16%), Dwarzark (17%), and Moyiba (16%).

*Table 4.3: Frequencies and percentages of different healthcare providers within Cockle Bay, Dwarzark, and Moyiba*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Public formal | 12 (4%) | 190 (29%) | 386 (74%) | 588 (41%) |
| Private formal | 168 (60%) | 340 (52%) | 65 (12%) | 573 (40%) |
| Traditional healers | 7 (2%) | 7 (1%) | 12 (2%) | 26 (2%) |
| Drug peddlers | 91 (32%) | 49 (8%) | 93 (18%) | 233 (16%) |
| Private nurses | 44 (16%) | 113 (17%) | 81 (16%) | 238 (16%) |
| None | 3 (1%) | 17 (3%) | 1 (0%) | 21 (1%) |

## 4.7 Public healthcare providers/facilities utilised within the communities

Respondents were asked to select between the two public healthcare facilities in Table 4.4. The result shows that PHUs were the most frequently visited public healthcare facility as indicated by 74% of the respondents. In Cockle Bay, no one reported to having utilised PHU, despite being popular in Moyiba (77%) and Dwarzark (42%). All respondents in Cockle Bay sought healthcare in hospitals compared to Dwarzark (28%) and Moyiba (23%).

*Table 4.4: Frequencies and percentages of public formal healthcare providers within communities*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Hospital | 12 (100%) | 53 (28%) | 89 (23%) | 154 (26%) |
| PHU | 0 (0%) | 138 (72%) | 301 (77%) | 439 (74%) |

## 4.8 Private health care providers/facilities within the communities

Between clinics and pharmacies as private health facilities, respondents were asked to select the facility they visited in the community. Table 4.5 shows that most respondents relied on pharmacies (73%) for healthcare utilisation in private facilities. Across

communities, healthcare utilisation in pharmacies is highest in Cockle Bay (95%), with Dwarzark and Moyiba each having 64% and 67%, respectively. Respondents who sought healthcare in clinics were 27%, with Dwarzark (36%) and Moyiba (33%) higher compared to Cockle Bay (5%).

*Table 4.5: Frequencies and percentages of private formal healthcare providers within communities*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Clinics | 9 (5%) | 126 (36%) | 23 (33%) | 158 (27%) |
| Pharmacy | 160 (95%) | 221(64%) | 46 (67%) | 427 (73%) |

## 4.9 Distance to access healthcare services within the community

Respondents were asked about the distance they covered to access healthcare in the most recent visit within their communities. Figure 4.4 shows that most respondents in Cockle Bay (71%) accessed healthcare services within less than 30 minutes of travel compared to 42% and 34% in Dwarzark and Moyiba, respectively. In Moyiba, 52% of respondents accessed healthcare services between 30 minutes and one hour which higher compared to Cockle Bay (24%) and Dwarzark (35%). Respondents who took between one to two hours to access healthcare services were higher in Dwarzark (15%) and Moyiba (10%) compared to Cockle Bay (3%).

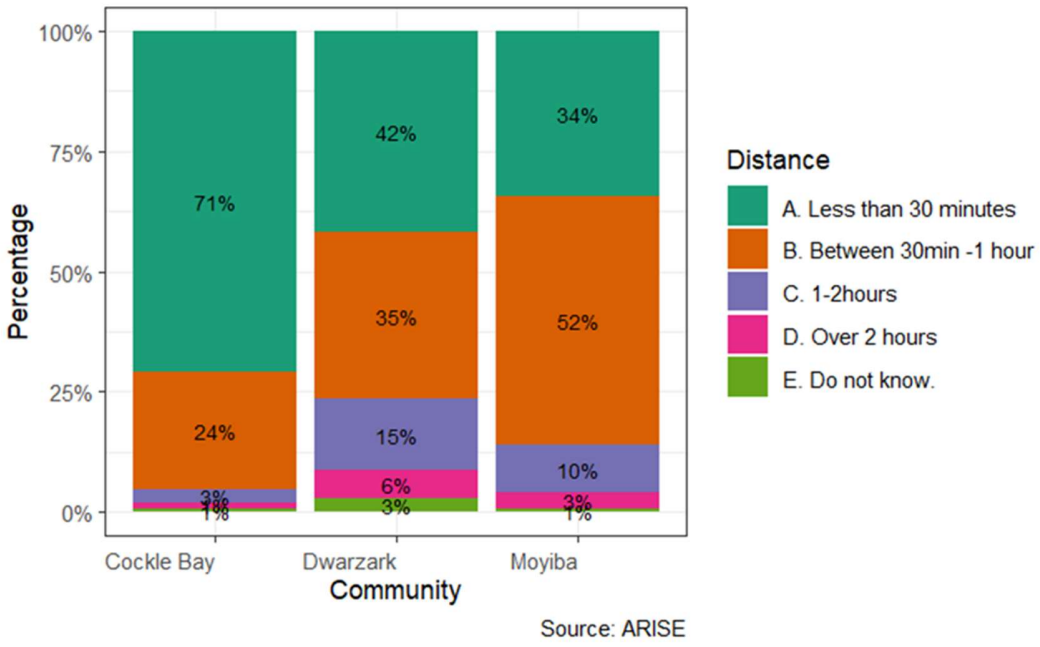



*Figure 4.4: Percentages of responses based on the distance to healthcare facility within communities*

## 4.10 Healthcare facilities sought by households outside the community

Figure 4.5 shows the percentage of households' healthcare seeking outside the community a month prior to the survey. It reveals that most respondents in Dwarzark (74%) and Moyiba (76%) did not seek healthcare service outside community compared to Cockle Bay (43%). This indicates Cockle Bay respondents (57%) were more likely to seek healthcare services outside their community.

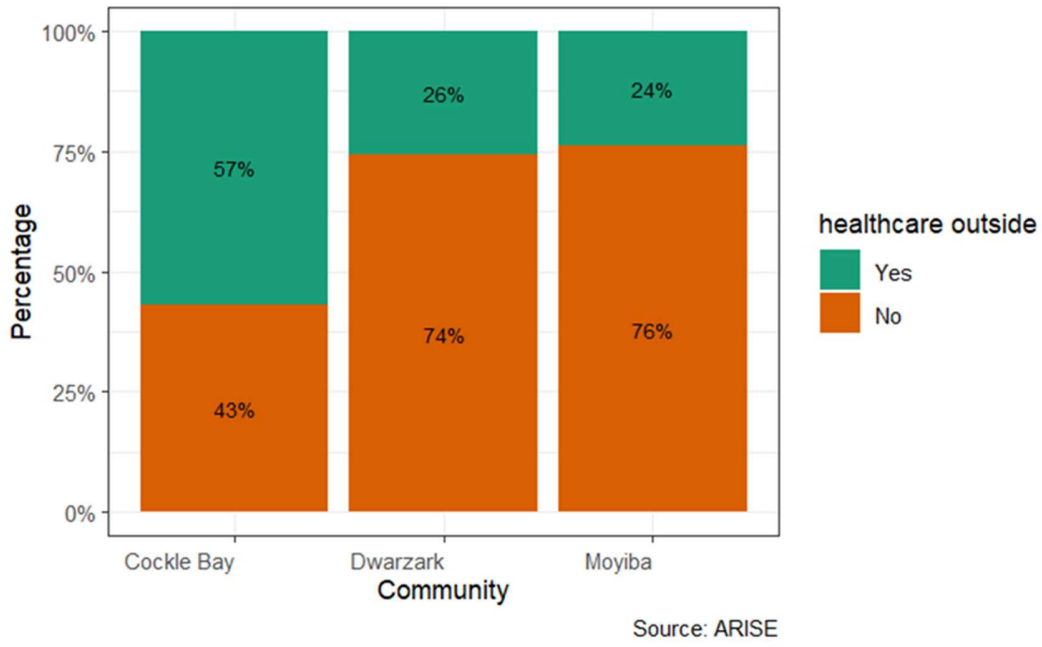



*Figure 4.5: Percentage of healthcare utilisation outside communities*

## 4.11 Illnesses households sought healthcare services outside the communities in the last month

Table 4.6 shows responses to a multiple-choice question about what diseases households sought for healthcare outside the community in the last month before the survey. It illustrates that malaria (71%), common cold/flu (53%) and typhoid (41%) were the most common illness respondents sought healthcare services for outside the community.

*Table 4.6: Types of illness treated outside the community's healthcare providers*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Malaria | 509 (80%) | 193 (53%) | 408 (73%) | 1,110 (71%) |
| Cholera/Diarrhoea | 18 (3%) | 9 (2%) | 32 (6%) | 59 (4%) |
| Typhoid | 298 (47%) | 101 (28%) | 239 (43%) | 638 (41%) |
| Common cold/flu | 399 (62%) | 121 (33%) | 313 (56%) | 833 (53%) |
| STD/Infection | 12 (2%) | 4 (1%) | 32 (6%) | 48 (3%) |
| Tuberculosis | 1 (0%) | 4 (1%) | 1 (0%) | 6 (0%) |

| | | | | |
|---|---|---|---|---|
| Ulcer | 40 (6%) | 24 (7%) | 78 (14%) | 142 (9%) |
| Convulsion | 3 (0%) | 5 (1%) | 20 (4%) | 28 (2%) |
| Skin rash | 19 (3%) | 8 (2%) | 37 (7%) | 64 (4%) |
| Blood pressure | 58 (9%) | 41 (11%) | 96 (17%) | 195 (12%) |
| Diabetes | 6 (1%) | 12 (3%) | 15 (3%) | 33 (2%) |
| Injury | 16 (3%) | 24 (7%) | 70 (13%) | 110 (7%) |
| Routine check-ups | 51 (8%) | 26 (7%) | 76 (14%) | 153 (10%) |
| Other | 73 (11%) | 78 (21%) | 89 (16%) | 240 (15%) |

## 4.12 Types of healthcare facilities accessed outside the community

Respondents were asked which healthcare facility they or any member of their household sought health provision services outside the community. Table 4.7 shows that a higher proportion of respondents sought formal public healthcare facilities (62.2%) outside the community followed by private formal (44.9%). The proportions in the table are calculated as a fraction of the households which sought healthcare from outside the community. The highest percentage of respondents seeking public formal healthcare outside the community were from Dwarzark (67.2%), while Cockle Bay and Moyiba had 56.3% and 65.6%, respectively.

*Table 4.7: Frequencies and percentages of different healthcare providers outside community*

| | **Cockle Bay** | **Dwarzark** | **Moyiba** | **All** |
|---|---|---|---|---|
| Public formal | 360 (56%) | 244 (67%) | 367 (66%) | 971 (62%) |
| Private formal | 303 (47%) | 122 (34%) | 276 (49%) | 701 (45%) |
| Traditional healers | 5 (1%) | 7 (2%) | 22 (4%) | 34 (2%) |
| Drug peddlers | 23 (4%) | 2 (1%) | 66 (12%) | 91 (6%) |
| Private nurse | 11 (2%) | 7 (2%) | 43 (8%) | 61 (4%) |

## 4.13 Types of public healthcare providers accessed outside the community

Predefined options were provided for respondents to select the type of public healthcare providers they accessed outside the community. Table 4.8 shows that 88.26% of respondents visited hospital facilities when seeking public formal healthcare. This was highest in Dwarzark (96%), and Cockle Bay (96%) compared to Moyiba (75%). In Moyiba, 31% of respondents sought PHU healthcare services outside their community compared to only 5% in Cockle Bay and 4% in Dwarzark.

*Table 4.1: Frequencies and percentages of public formal healthcare providers outside communities*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Hospital | 345 (96%) | 235 (96%) | 277 (75%) | 857 (88%) |
| PHU | 19 (5%) | 10 (4%) | 114 (31%) | 143 (15%) |

## 4.14 Types of private formal healthcare facilities accessed outside the community

Similar to the preceding question, respondents were asked to choose between the options provided, which private health facilities they sought outside the community. Table 4.9 shows that most respondents seeking healthcare services in formal private facilities outside the community visited clinics (79%) compared to pharmacies (34%). However, responses differed across settlements with those visiting clinics in Dwarzark (84%) and Cockle Bay (82%) compared Moyiba (73%). There was also a higher percentage of respondents visiting pharmacies outside their community in Moyiba (53%) compared to Cockle Bay (24%) and Dwarzark (17%).

*Table 4.2: Frequencies and percentages of private formal healthcare providers outside communities*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Clinics | 247 (82%) | 102 (83%) | 202 (73%) | 551 (79%) |
| Pharmacy | 72 (24%) | 21 (17%) | 145 (53%) | 238 (34%) |

## 4.15 Distance to access healthcare services outside the community

In determining the distance to healthcare facilities households seek outside the community, respondents were asked how long it takes them to access the healthcare providers/services outside the community. Figure 4.6 shows most of respondents in Cockle Bay (43%) and Dwarzark (43%) took between 30 minutes and one hour to access healthcare services outside the community while for Moyiba (38%) took between one and two hours. A higher percentage of respondents in Moyiba (31%) took more than two hours to access healthcare services outside community compared to those in Cockle Bay (17%) and Dwarzark (22%).

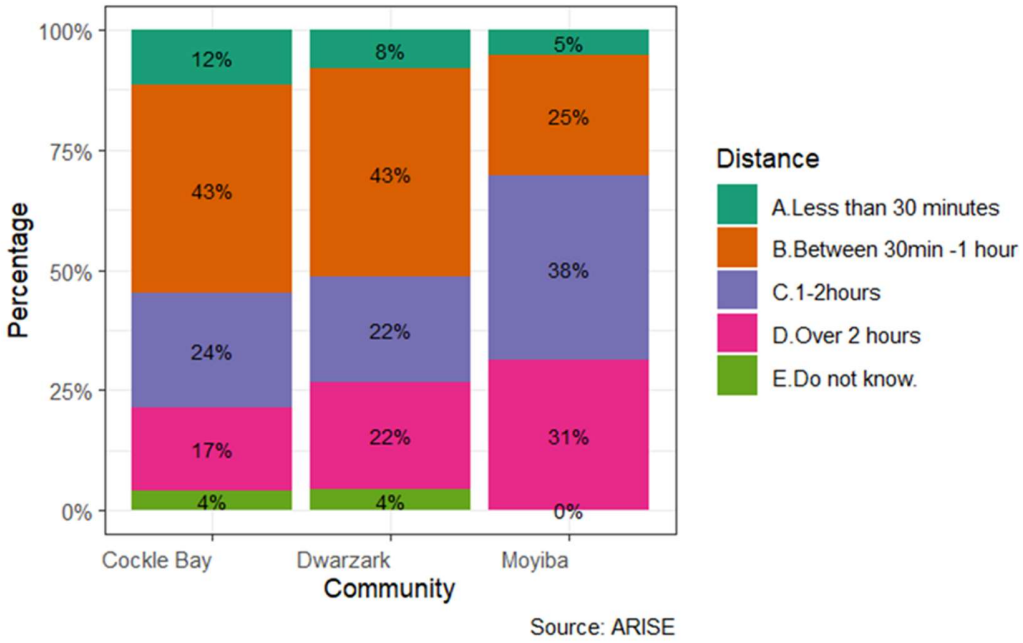



*Figure 4.6: Percentages of responses based on the distance to healthcare facility within communities*

## 4.16 Healthcare costs

Table 4.10 shows the average cost (Leone, SLE [95% CI]) of healthcare utilisation costs within and outside the informal settlements during the month before the interview. Results for healthcare costs within the community reveal that the average consultation fee to see

the doctor was SLE17 across the three settlements. However, there is a variation among the communities, with Dwarzark (SLE20) and Moyiba (SLE18) compared with Cockle Bay (SLE8). The average cost for medical tests to diagnose the health problem was SLE26 across the three settlements and was higher in Moyiba (SLE30) and Dwarzark (SLE26) compared to Cockle Bay (SLE16.) The money paid for medicines contributed the highest proportion of healthcare cost which averaged SLE138 across three settlements. Respondents in Dwarzark paid more for medicines (SLE154), followed by Cockle Bay (SLE129) and Moyiba (SLE125). The total direct cost (consultation fees plus medicines plus tests) was similar across all communities.

Regarding direct non-medical costs, transportation costs to access healthcare and the cost of food during healthcare visits were higher in Moyiba (transport: SLE12; food: SLE22) and cheaper in Cockle Bay (transport: SLE2; food: SLE8). Dwarzark reported the highest consultation fee at an average of SLE58 followed by Cockle Bay at SLE44, and Moyiba SLE35.

The total average cost for medical tests was SLE161 across the settlements; with Moyiba respondents paying the highest (SLE297), followed by Dwarzark (SLE122), and Cockle Bay (SLE83). Like healthcare within the communities, the cost of medicines was higher than other healthcare costs, with an average cost of SLE313 across the settlements. Dwarzark paid more for medicines (SLE444) compared with Cockle Bay (SLE309), and households in Moyiba (SLE232). The total direct medical cost across the communities was SLE582, with Dwarzark (SLE677) and Moyiba (SLE631) presenting the highest expenditures compared to Cockle Bay (SLE485).

Regarding the direct non-medical costs outside the community, transportation costs to access healthcare and the cost of food during healthcare visits were higher in Moyiba and cheaper in Cockle Bay, representing a total direct non-medical cost of SLE68 and SLE48, respectively.

*Table 4.10: Healthcare costs within and outside the communities*

| Cost item | Cockle Bay | Dwarzark | Moyiba | Total |
|---|---|---|---|---|

| | N=287 | N=658 | N=530 | N=1475 |
|---|---|---|---|---|
| | Average (CI) | Average (CI) | Average (CI) | Average (CI) |
| **Within the community** | | | | |
| Consultation fees | 8 (4-11) | 20 (15-24) | 18 (15-21) | 17 (15-20) |
| Tests | 16 (10-23) | 26 (22-30) | 30 (25-35) | 26 (23-29) |
| Medicines | 129 (117-121) | 154 (143-165) | 125 (112-136) | 138 (131-145) |
| Total direct medical costs[1] | 154 (136-171) | 200 (185-214) | 173 (158-187) | 181 (172-190) |
| Transport | 2 (1.5-3) | 7 (6-8) | 12 (11-14) | 8 (7-9) |
| Food | 8 (6-10) | 9 (8-10) | 22 (20-25) | 14 (13-15) |
| Total direct non-medical costs[2] | 10 (8-13) | 16 (15-18) | 35 (32-37) | 22 (20-23) |
| Total direct costs[3] | 164 (145-183) | 216 (101-231) | 207 (192-223) | 203 (193-212) |
| **Outside the community** | | | | |
| | **Cockle Bay N=641** | **Dwarzark N=369** | **Moyiba N=568** | **Total N=1578** |
| Consultation fees | 44 (40-49) | 58 (49-66) | 35 (31-39) | 44 (41-47) |
| Tests | 83 (70-96) | 122 (86-158) | 297 (52-542) | 161 (80-258) |
| Medicines | 309 (266-352) | 444 (352-537) | 232 (204-261) | 313 (283-342) |
| Total direct medical costs[1] | 437 (385-488) | 623 (517-728) | 563 (316-810) | 526 (431-620) |
| Transport | 23 (20-25) | 31 (27-36) | 36 (31-40) | 30 (27-32) |
| Food | 25 (22-28) | 24 (22-27) | 33 (28-37) | 27 (25-30) |
| Total direct non-medical costs[2] | 48 (43-53) | 54 (47-62) | 68 (60-76) | 57 (53-61) |
| Total direct costs[3] | 485 (430-539) | 677 (571-784) | 631 (384-878) | 582 (487-678) |

[1] Total direct cost = consultation fees + tests + medicines

[2] Total direct non-medical costs = transport + food

[3] Total costs = total direct medical + total direct non-medical

The pie charts below show the drivers of healthcare expenditures inside and outside the settlements.

**INSIDE THE COMMUNITIES** **OUTSIDE THE COMMUNITIES**

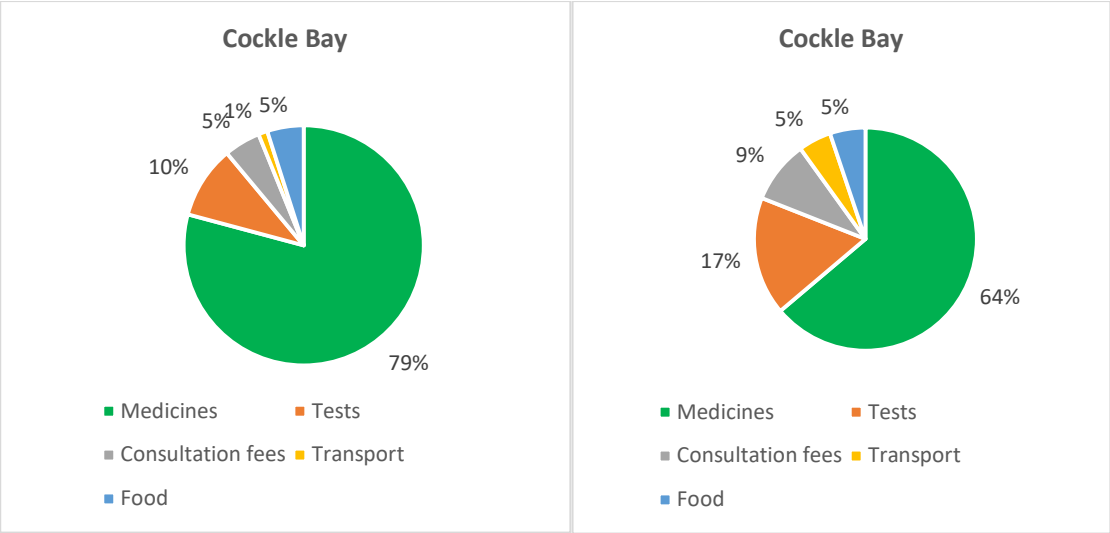



*Figure 4.7: Healthcare costs inside and outside Cockle Bay*

In Cockle Bay, the cost of healthcare utilisation presented similar patterns within and outside the community, with medicines composing the main cost driver in both settings (79% and 64%, respectively). Costs with tests and transport were slightly higher outside the community than within the communities (test: 17% vs 10%; transport: 5% vs 1%).

**INSIDE THE COMMUNITY** **OUTSIDE THE COMMUNITY**

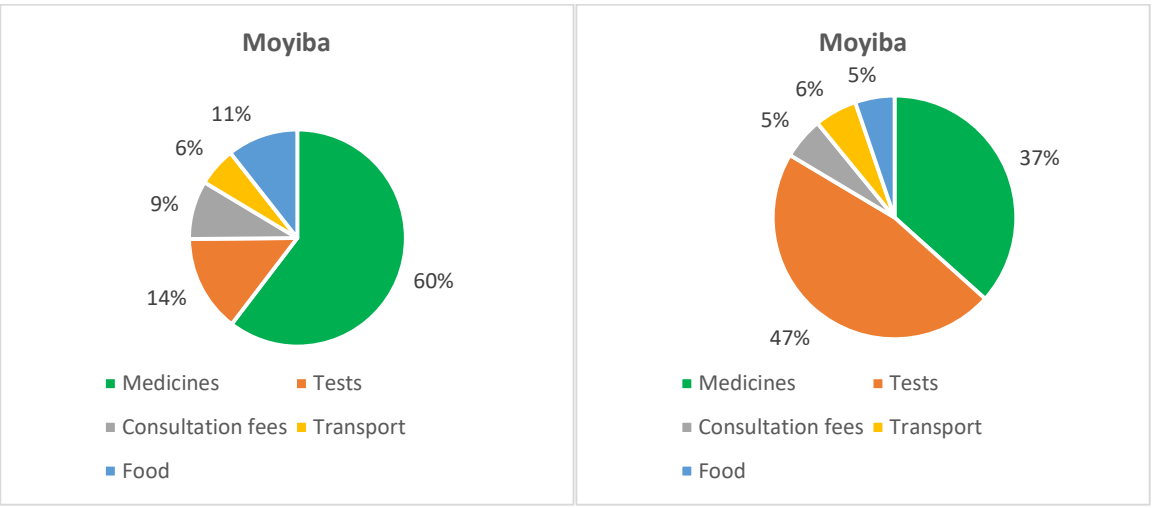



*Figure 4.8: Healthcare costs inside and outside Moyiba*

In Moyiba, medicines accrued the highest healthcare expenditure inside the community (60%), and the lowest was on transportation costs to the healthcare providers/centres.

Outside the community, tests/diagnoses cost more than medicines and together with medicines were the main cost drivers in this setting.

**INSIDE THE COMMUNITY** **OUTSIDE THE COMMUNITY**

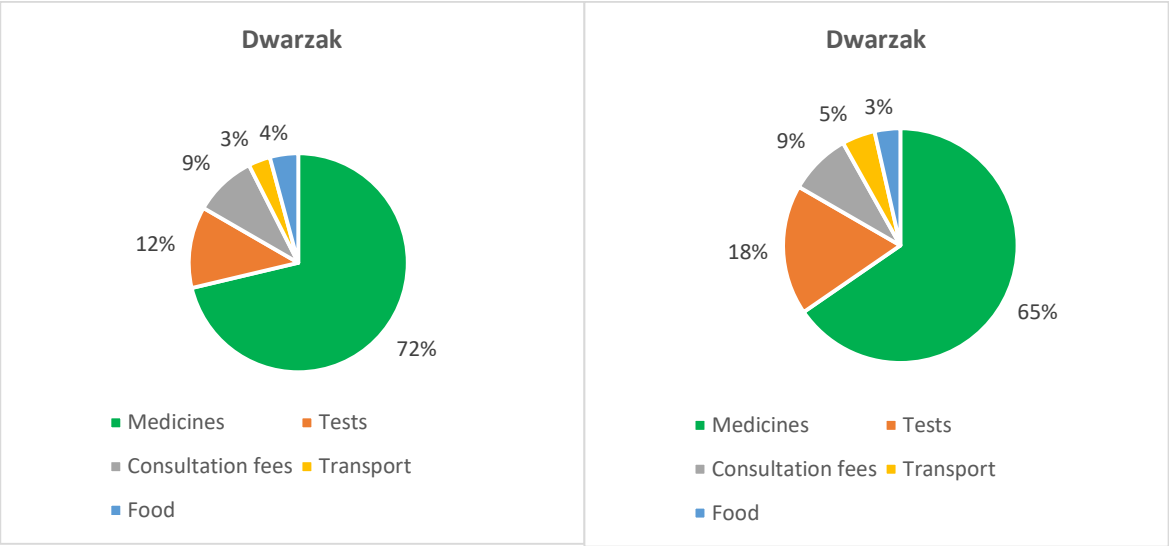



*Figure 4.9: Healthcare costs inside and outside Dwarzark*

Dwarzark had a similar cost pattern as Cockle Bay, and medicines represented the main cost driver inside and outside the community. Within the community, the percentage of household expenditure on medicines was the highest, accounting for over three-fourths (72%) of the total cost, followed by 12% on tests and less on transportation and food, with 3% and 4%, respectively. Outside the community, medicines account for two-thirds (65%) of the total costs for healthcare, tests 18%, and transportation costs to access health facilities was the lowest, representing 3% of the total costs for healthcare utilisation.

**INSIDE THE COMMUNITY** **OUTSIDE THE COMMUNITY**

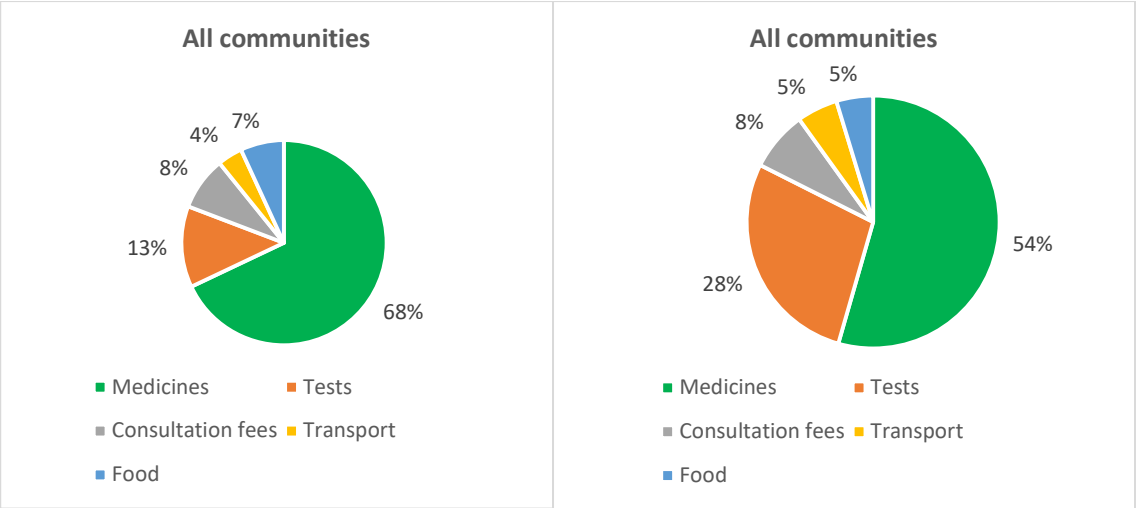



*Figure 4.10: Healthcare costs inside and outside the three communities*

The overall healthcare expenditures within the communities indicate that households incurred more on purchasing medicines (68%) of the total healthcare expenditure and, to some extent, on testing (13%). Transportation costs were lowest among the different cost drivers. Medicines comprised over half (54%) of the overall healthcare costs outside the communities. The cost for testing was also high, at 28%, while transportation and food costs were the lowest, representing 5% each.

Lastly, Figure 4.11shows the proportion of costs associated with healthcare utilisation within and outside the communities. Overall, it indicates that the expenses outside the community are significantly higher than inside the community, with households spending around three times more direct medical, non-medical and total costs (all communities, direct medical costs: 74% vs 26%; direct non-medical costs: 72 % vs 28%; total direct costs: 74% vs 26%).

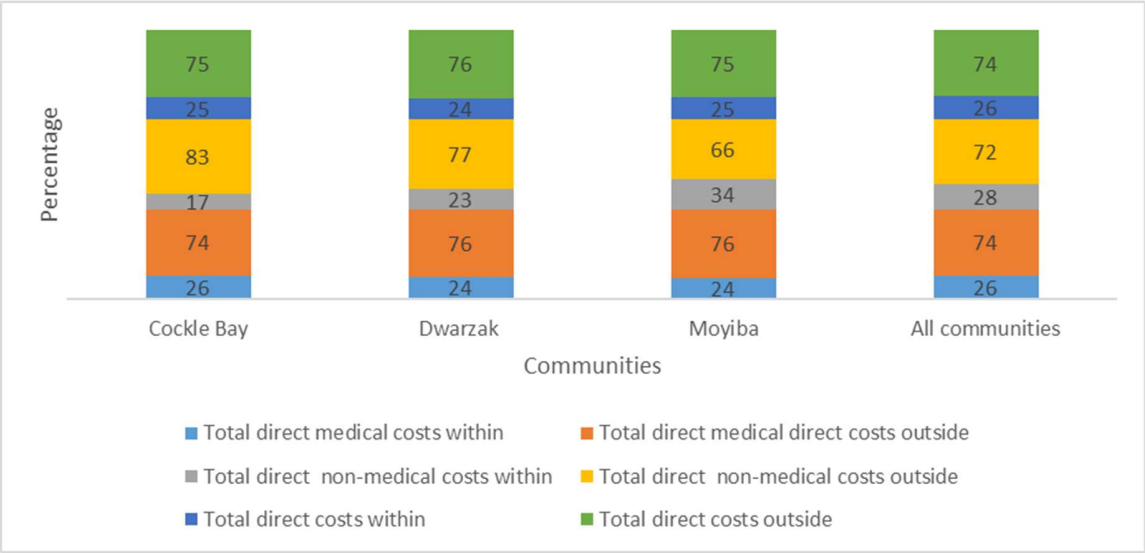



*Figure 4.11: Patterns of healthcare expenditures within and outside the informal settlements, Sierra Leone, Freetown*

## 4.17 Whether people face barriers to accessing healthcare services

This question tried to determine whether households experienced healthcare barriers by asking respondents if they or any member of their households faced any barriers to accessing health services. Figure 4.12 below shows that most respondents in Cockle Bay (85%), Dwarzark (70%) and Moyiba (77%) provided a “No” response. This means barriers to healthcare access across the communities are less overwhelming. However, when comparing across the communities, Dwarzark reported more healthcare barriers when seeking healthcare services outside the community, with almost twice of respondents (30%) compared to Cockle Bay (15%).

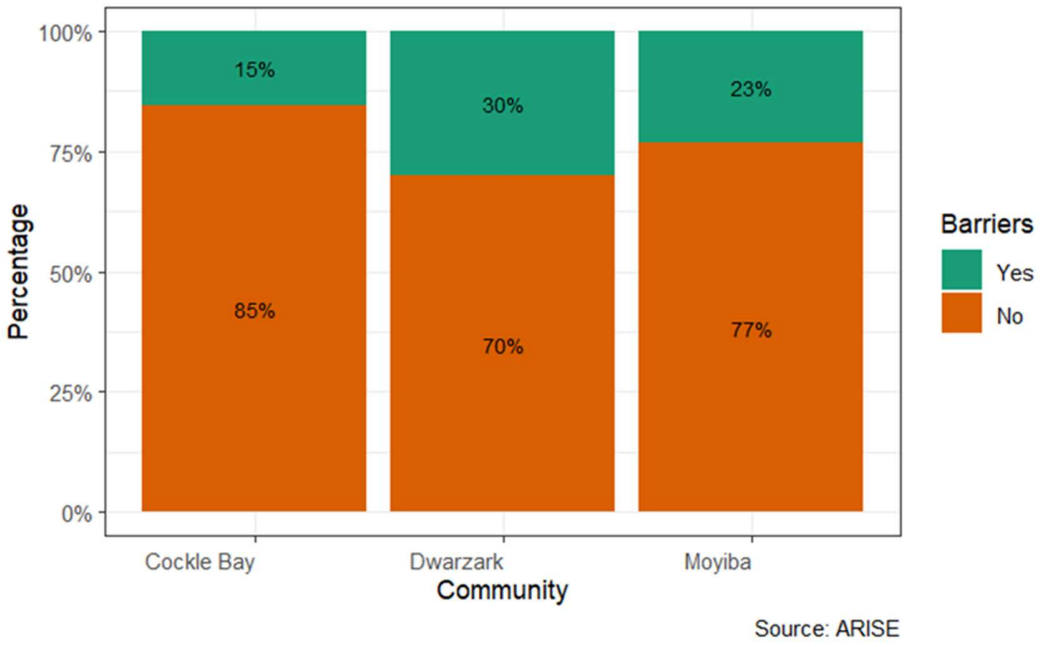



*Figure 4.12: Percentages of responses on barriers faced when accessing healthcare services outside communities*

## 4.18 Types of barriers faced to access healthcare outside the communities (% of those who said they face such barriers)

To understand the barriers respondents experienced in seeking healthcare, they were asked to choose healthcare access barriers they usually contend with. Table 4.11 shows that most respondents chose distance (69%), cost (51%) and quality of care (28%) as the barriers often faced when accessing healthcare services outside their communities. Distance as a barrier was more popular in Cockle Bay (84%) and Moyiba (84%) compared to Dwarzark (46%); while cost barrier was higher in Cockle Bay (84%) compared to Dwarzark (46%) and Moyiba (49%). Quality of care was a key concern in Dwarzark (42%) compared to Cockle Bay (9%) and Moyiba (20%). Moreover, 24% of Dwarzark respondents highlighted attitudes of healthcare workers as a barrier compared to 5% in Cockle Bay and 18% in Moyiba.

*Table 4.311: Frequencies and percentages of barriers faced when accessing healthcare services outside the communities.*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Distance | 63 (84%) | 140 (45%) | 350 (84%) | 553 (69%) |
| Waiting time | 12 (16%) | 65 (21%) | 32 (8%) | 109 (14%) |
| Cost | 63 (84%) | 143 (46%) | 202 (49%) | 408 (51%) |
| Stigma and discrimination | 2 (3%) | 5 (2%) | 13 (3%) | 20 (2%) |
| Quality of care | 7 (9%) | 130 (42%) | 83 (20%) | 220 (28%) |
| Opening and closing time | 3 (4%) | 5 (2%) | 67 (16%) | 75 (9%) |
| Attitudes of health workers | 4 (5%) | 74 (24%) | 74 (18%) | 152 (19%) |
| Others | 0 (0%) | 55 (18%) | 36 (9%) | 91 (11%) |

## 4.19 Responders to healthcare barriers outside the community

Respondents were asked who they reported/complained to when faced with these barriers to accessing healthcare services. Table 4.12 shows that most respondents in Cockle Bay (81%), Moyiba (81%) and Dwarzark (72%) did not report barriers faced when seeking healthcare services outside community to anyone. In Dwarzark, 12% of respondents reported to the community chief compared to only 7% in Moyiba and 5% in Cockle Bay. A higher percentage of respondents in Cockle Bay (11%) reported to community youth leaders compared to Dwarzark (3%), and Moyiba (0%). The Ministry of Health and health representatives were higher in Moyiba (8%) compared to Dwazark (1%) and Cockle Bay (0%).

*Table 4.12: Frequencies and percentages of responders to healthcare barriers faced outside the communities.*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Community chief | 4 (5%) | 37 (12%) | 12 (3%) | 53 (7%) |
| Honourable | 0 (0%) | 5 (2%) | 38 (9%) | 43 (5%) |

| | | | | |
|---|---|---|---|---|
| Councillor | 0 (0%) | 14 (5%) | 10 (2%) | 24 (3%) |
| Youth leader | 8 (11%) | 9 (3%) | 2 (0%) | 19 (2%) |
| CDMC (Community Disaster Management Committee) | 0 (0%) | 2 (1%) | 0 (0%) | 2 (0%) |
| FCC (Freetown City Council) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| NDMA (National Disaster Management Agency) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| Office of National Security | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| FEDURP (Federation of Urban and the Rural Poor)/NGOs | 0 (0%) | 3 (1%) | 1 (0%) | 4 (1%) |
| Health representative/Ministry of Health Sanitation | 0 (0%) | 4 (1%) | 32 (8%) | 36 (5%) |
| Others | 4 (5%) | 24 (8%) | 22 (5%) | 50 (6%) |
| None | 61 (81%) | 221 (72%) | 337 (81%) | 619 (77%) |

## 4.20 Responses of healthcare barrier responders outside the community

Figure 4.13 shows the percentage of respondents who reported the barriers they encountered when seeking access to healthcare, and they were asked how people they reported responded to their concerns. The figure illustrates that more respondents in Cockle Bay (51%) received a positive response after reporting barriers faced when accessing healthcare services outside community compared to Moyiba (26%) and Dwarzark (17%). However, most Dwarzark (76%) and Moyiba (68%) respondents received no response after reporting barriers they faced when accessing healthcare services outside their communities. Twice of Cockle Bay respondents 13% received negative response compared to those in Dwarzark (7%) and Moyiba (6%).

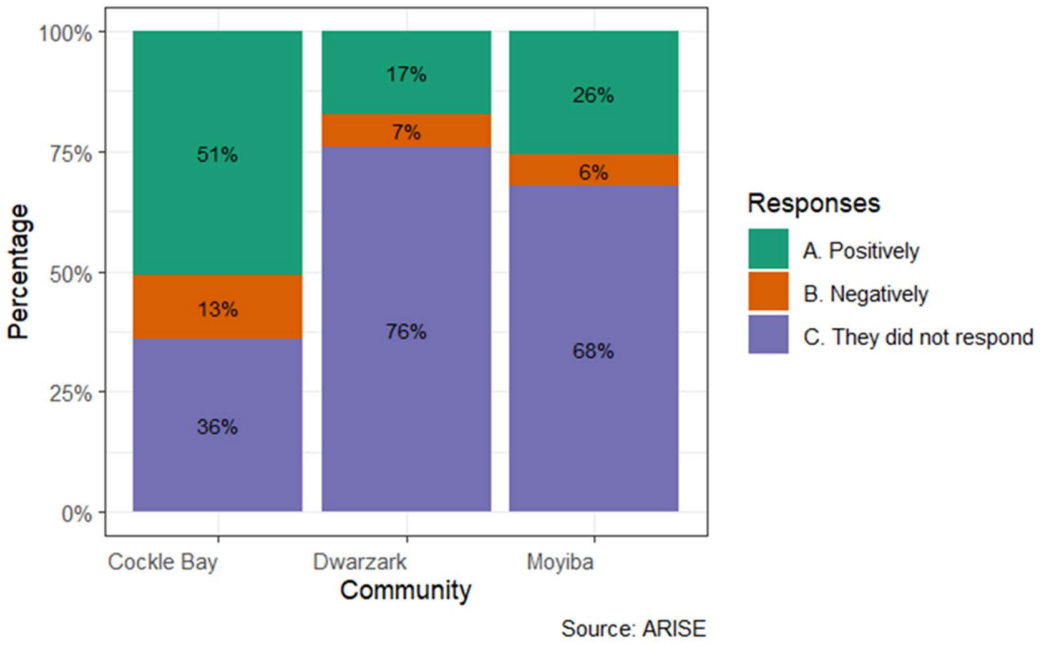



*Figure 4.13: Percentages of types of responses received about healthcare barriers faced outside community.*

## 4.21 Summary findings and conclusion

Th findings show that healthcare facilities vary between the coastal community (Cockle Bay) and hillside communities (Moyiba and Cockle Bay). Cockle Bay lacks formal public healthcare services with private formal (pharmacies) and drug peddlers (i.e. informal medicine sellers) being the main healthcare providers. Dwarzark and Moyiba have more public health facilities which are dominated by the PHUs. However, drug peddlers, private formal, and nurses are also contributing to providing healthcare services in these two settlements. The majority of respondents sought formal public healthcare services outside their communities followed by the formal private.

Malaria infection and common cold/flu were the main illnesses which residents across these settlements sought medical care for. The total cost for healthcare utilisation within the communities is cheaper (SLE203) compared to outside the communities (SLE583) across three communities. On average, Cockle Bay dwellers spent less healthcare costs both within and outside community compared to Dwarzark and Moyiba.

Distance to the health centres, cost of accessing the healthcare services, and quality of care were reported as the main barriers for healthcare utilisation. The majority of respondents in Cockle Bay (51%) had a positive experience after reporting barriers they encountered while accessing healthcare to relevant authorities. However, the majority of Dwarzark and Moyiba respondents did not report barriers they faced when accessing healthcare services to anyone.

**Community feedback on findings:** There is no public/private healthcare facility in Cockle Bay which does not reflect the result presented. Cockle Bay only has drug stores and drug peddlers and a high cost to access healthcare outside of the community.

In Dwarzark, the survey data reflects the reality of the healthcare challenges in the community, but no hospital exists as a formal healthcare facility; only PHU's. Most pharmacies have closed because they are not registered with the pharmacy board. As a result, most people are now using drug peddlers as an alternative medical facility. The population of the community has increased more than the number of available healthcare facilities. Community stakeholders are advocating for more healthcare facilities within the community. There has been an increase in malaria, typhoid, and diarrhoea infections.

In Moyiba, they intimated the lack of space in their PHU and health facilities including medicines, leading to prioritisation of those covered by the free healthcare scheme (under-five children, pregnant women, and lactating mothers). Residents of Nack Force, and Soja Town are more vulnerable to health challenges due to the no health centres in those parts of the community and the poor terrain. The PHU is overwhelmed and provides less care for people outside the free healthcare scheme. There is now community land set aside for any intervention in the community relating to the construction of a bigger health centre/hospital. There is a surge in the population coupled with increased demand for healthcare. They also noted an increase in healthcare costs due to the long distances in seeking care outside, causing more people to seek alternative care from drug peddlers and native healthcare providers as malaria, typhoid, and cold cases continue to increase.

# Chapter 5: Environmental health risks: disasters, safety and security and livelihood

## 5.1 Introduction

This chapter presents the descriptive statistics for section C: Environmental/Health Risks & Vulnerabilities of the ARISE Health and Wellbeing Household survey. This section of the survey focused on four broad areas: incidences of disasters, impact and responses to disaster, community safety, and livelihood shocks. The findings reported in this chapter are important for informing future preparedness and responsiveness to disasters and shocks, including in the context of climate change and for increasing safety in the community, for everyone and especially particularly vulnerable groups.

## 5.2 Disaster incidence

Section C of the survey started by asking the respondents if their community had experienced any disasters such as fire, landslides, floods over the previous year. The responses to this question are summarised in Figure 5.1. The figure illustrates a prevailing trend of overwhelmingly affirmative responses ("Yes") across all communities. The communities pooled sample shows that "Yes" responses constitute 93% of the total count, meaning that nearly all respondents confirmed the occurrence of disasters in the settlements. This pattern remains consistent across the communities, but Cockle Bay displays the highest prevalence of disasters (99%) compared to the other communities. Also, Dwarzark has the largest proportion of "No" responses (13%) across the three communities. Yet disaster prevalence is a defining feature of these communities.

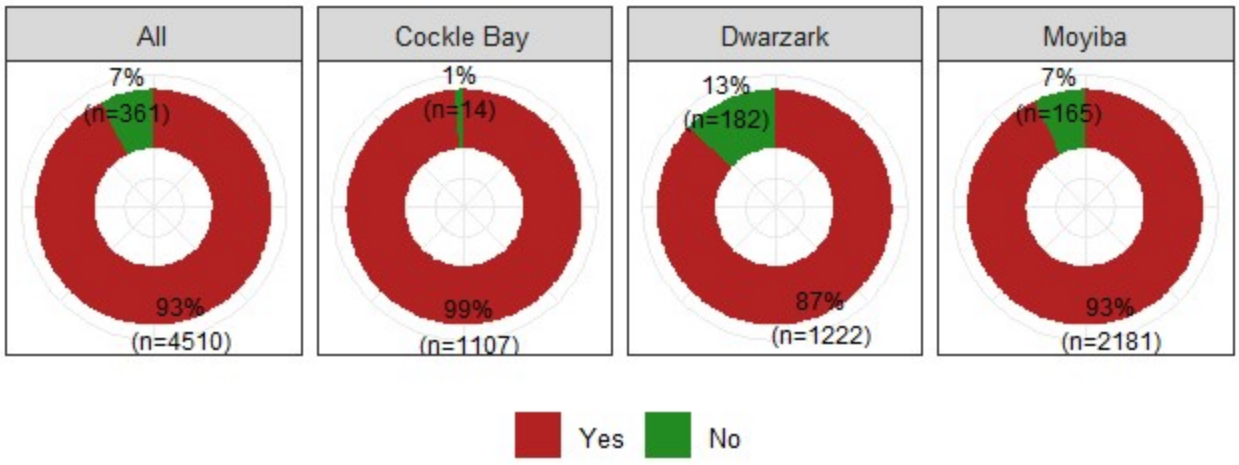



*Figure 5.1: Experience of disasters over the previous year*

Those respondents who confirmed that their communities were affected by a disaster over the previous year were then asked to elaborate on the types of disasters which affected their communities during that time. With the choice to select more than one response to this question, there were 8804 responses which are summarised below.

*Table 5.1: Disaster types at community level*

| Disaster Type | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Flooding | 1,063 (95%) | 994 (71%) | 1,183 (50%) | 3,240 (67%) |
| Mudslide | 2 (0%) | 172 (12%) | 467 (20%) | 641 (13%) |
| Building collapse | 41 (4%) | 392 (28%) | 1,294 (55%) | 1,727 (35%) |
| Falling boulders | 7 (1%) | 387 (28%) | 792 (34%) | 1,186 (24%) |
| Fire | 533 (48%) | 436 (31%) | 964 (41%) | 1,933 (40%) |
| Disease | 15 (1%) | 20 (1%) | 13 (1%) | 48 (1%) |
| Others | 3 (0%) | 18 (1%) | 8 (0%) | 29 (1%) |

According to Table 5.1 flooding is the most predominant disaster experienced across all communities in the past 12 months; 66.5% of the households reported flooding. Cockle

Bay has the highest percentage (94.8%) of households claiming the respective community as being flood affected over the last one year. In Dwarzark, this was 70.8% and in Moyiba 50.4%. Across all communities, fire stands out as the second highest percentage (39.6%) of disaster experienced in the last year, with Cockle Bay standing out amongst all communities with the highest percentage (47.5%) while 41.1% and 31.1% of sampled households in Moyiba and Dwarzark respectively claimed that fires had affected their communities over the past 12 months.

Across all communities, Moyiba has the highest percentage of building collapses, with 55.2% of responses claiming that the community has seen building collapses in the last one year. This was lower in Dwarzark with 29.9% and nearly irrelevant in Cockle Bay with 3.7%. Moyiba and Dwarzark are both hill-top communities with similar characteristics, households from both communities with 33.8% and 27.6% respectively stated that their community had experienced falling boulders in the last one year while Cockle Bay with less than one percent (0.6%).

Figure 5.2 presents disaster incidence data at the zone level. The figure offers a comprehensive view of disaster occurrences across various communities and zones within these communities, revealing both commonalities and striking differences. Dwarzark as a hill-top community showcases a varied landscape of disasters, with notable fluctuations in the frequency of occurrences across zones. For example, the Germany zone, which is a lower section within Dwarzark community diverges from the general trend by displaying a higher incidence of flooding compared to other zones at the hill-top section in the same community. Meanwhile, specific zones within Moyiba, like Garden, which sit at the mid-level of the community depict a more balanced distribution of disaster types, including substantial instances of building collapses and falling boulders. These variations underscore the micro-level differences in disaster occurrences, emphasising that certain zones within a community might face distinct disaster challenges compared to the broader community trend.

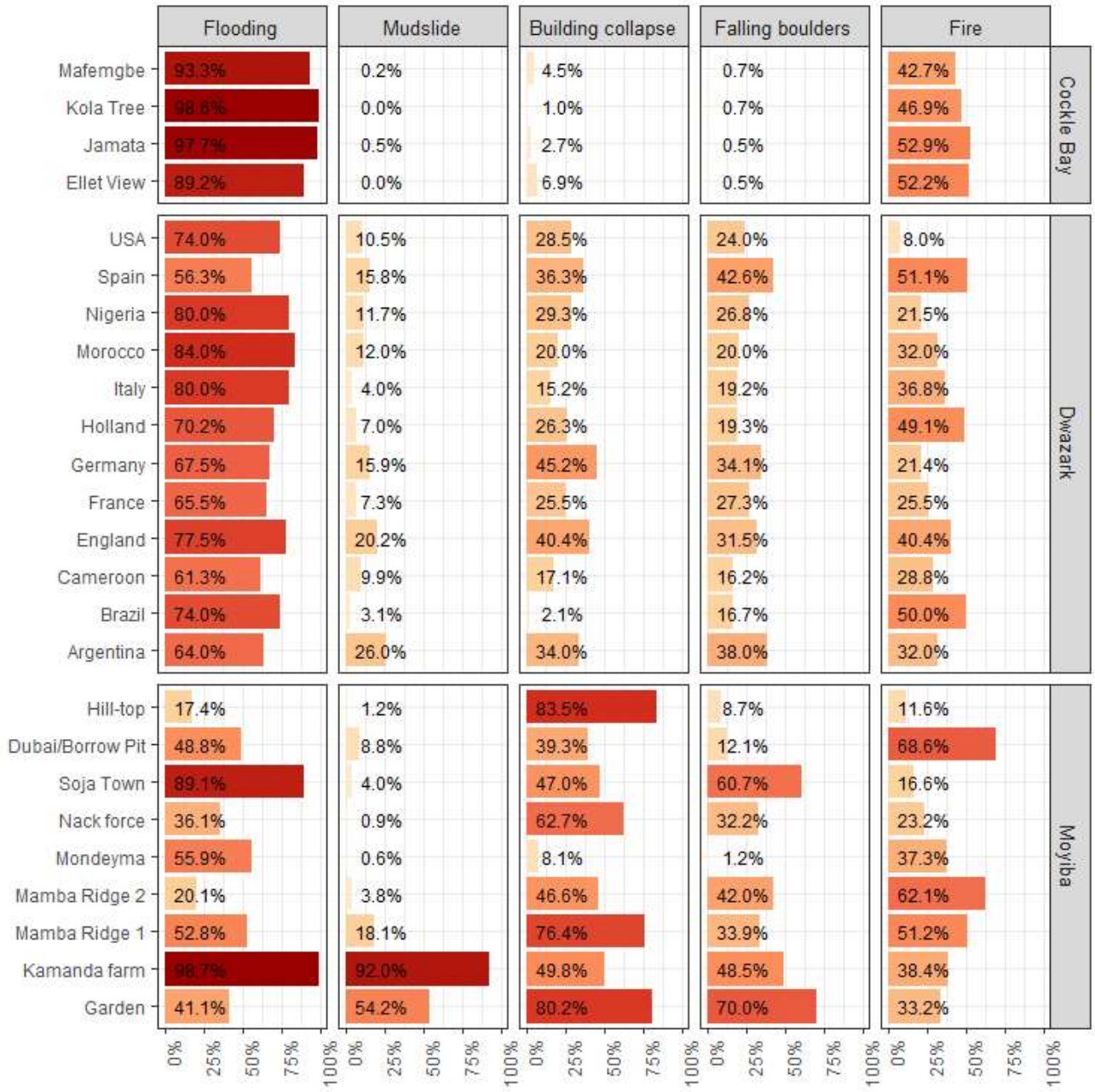



*Figure 5.2: Disaster types at zone level*

The distinctive zones within Cockle Bay stand out for their shared experiences of flooding and fire incidents. In all three zones, about 40 percent of responses raised concerns about fire incidences and about 65 percent about floods. Comparatively, the zones within Dwarzark and Moyiba seem to have more intra-community variation. This variance

showcases the nuanced differences in disaster occurrences within specific zones. Take Moyiba for example: responses from Hill-top overwhelmingly emphasise building collapses (85.3%) while the Modayama zone also in Moyiba emphasises flooding (55.9%). These deviations highlight the necessity for tailored disaster response strategies that consider the distinct vulnerabilities and occurrences within each zone, with percentages in the table reflecting these nuanced differences in disaster occurrences.

Understanding these zone-specific dynamics becomes pivotal in crafting targeted disaster management strategies that effectively address the unique challenges faced by each zone within a community. By recognising and responding to these micro-level variations, communities can better prepare and mitigate the diverse impacts of disasters, ensuring that responses are finely tuned to address the specific vulnerabilities and trends within each zone while considering the broader community context.

Table 5.2 illustrates results of responses indicating the timeline of environmental disasters occurrence during the year prior the interview. Across all communities, the rainy season stands out as the most predominant in the timeline (78.7%) for the occurrence of environmental disasters. Analysing each community, disasters during the rainy season also stand out, with Cockle Bay presenting the highest percentage (86.4%), followed by Dwarzark with 77.3% and Moyiba with 75.9%

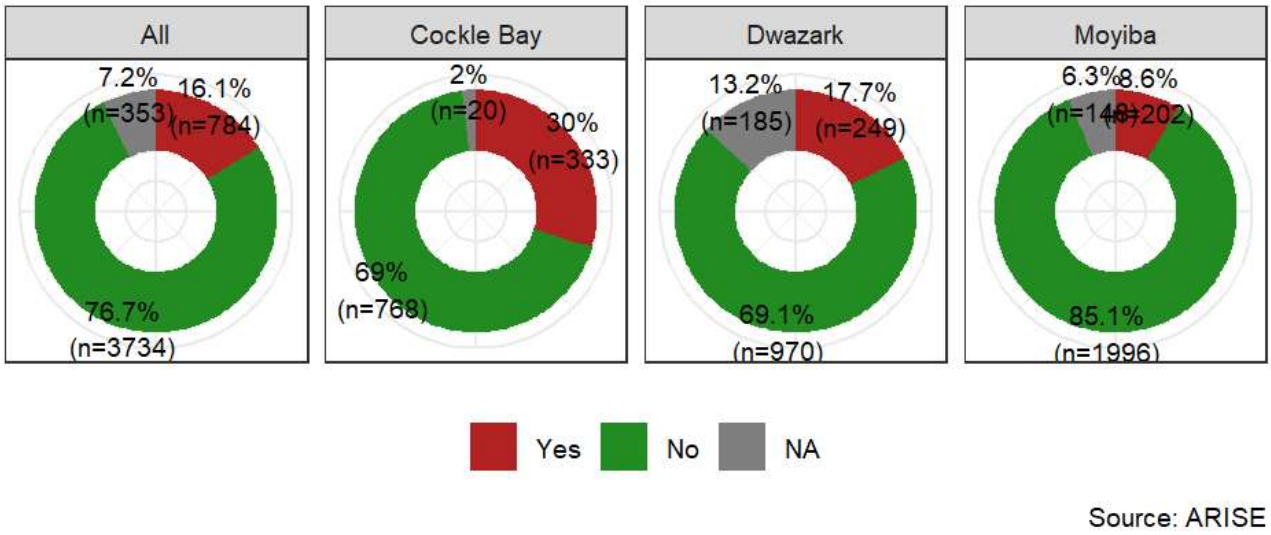
*Table 5.2: Environment disasters occurrence within a year*

| Timeline | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Rainy season | 969 (86%) | 1,085 (77%) | 1,781 (76%) | 3,835 (79%) |
| Dry season | 292 (26%) | 291 (21%) | 1,047 (45%) | 1,630 (33%) |
| Anytime | 127 (11%) | 111 (8%) | 598 (25%) | 836 (17%) |
| Other | 0 (0%) | 0 (0%) | 3 (0%) | 3 (0%) |
| Don’t Know | 4 (0%) | 0 (0%) | 2 (0%) | 6 (0%) |

Results also indicate that the dry season has the second highest percentage (33.5%) for environmental disasters occurrence, with Moyiba recording the highest percentage (44.6%) followed by Cockle Bay (26.1%) and Dwarzark, (20.7%).

## 5.3 Disaster impact and disaster response

Even though the community/zone level data on experiences of disasters is useful, the data presented in the previous section cannot be directly attributed to disaster impacts. This is because the same disaster will be referenced by multiple respondents within a community even if it did not directly affect this household. This is why we asked a more direct follow-up question on if any member of the respondent's household was impacted by the reported disasters. The response to this question is summarised below in Figure 5.3. Even though 4510 respondents said "yes" their communities have experienced disasters, only 784 of the respondents had been directly affected by them. The sample in Cockle Bay has the largest proportion of households (30%) which were directly affected by disasters over the previous year. Dwarzark was the next (17.7%) followed by Moyiba (8.6%).




Source: ARISE

*Figure 5.3: Disaster impact at household level over the last year*

The households which were directly affected by disasters (784 households in total) were asked questions about the effect the said disasters have had on their livelihoods. Table 5.3 summarises those responses. The findings indicate that, across all communities, destroyed property is the most predominant effect of disaster on households (14.8% of all households). Cockle Bay reported the highest percentage (28.6%) of responses when the household's property was destroyed. In Dwarzark the corresponding figure was 16.2% and in Moyiba it was 7.5%.

*Table 5.3: Disaster effect at household level*

| | **Cockle Bay** | **Dwarzark** | **Moyiba** | **All** |
|---|---|---|---|---|
| Reduced livelihood | 224 (20%) | 114 (8%) | 118 (5%) | 456 (9%) |
| Destroyed property | 321 (29%) | 228 (16%) | 175 (7%) | 724 (15%) |
| Disrupted schooling | 78 (7%) | 73 (5%) | 71 (3%) | 222 (5%) |
| Death | 0 (0%) | 10 (1%) | 3 (0%) | 13 (0%) |
| Injury | 18 (1%) | 44 (3%) | 34 (1%) | 96 (2%) |
| Other | 2 (0%) | 19 (1%) | 2 (0%) | 23 (0%) |

Reduced livelihood stands out as the second most predominant (9.4%) effect of disasters felt at the household level. Cockle Bay recorded the highest percentage (9.4%) of households which asserted that their livelihood was reduced when disasters occur in their community. In Moyiba, the corresponding proportion was 5% and in Dwarzark 8.1%.

The community's vulnerability to debilitating disaster impacts suggests a lack of adequate preparation. The responses to a household-level disaster preparedness question (Figure 5.4) indicate that a significant portion of the community were unprepared for disasters. Remarkably, 62.8% of the surveyed households across all community types stated that they lacked readiness to face environmental disasters during the past year, highlighting a substantial potential for being caught off-guard in the event of a disaster. This unpreparedness is notably higher in specific communities, particularly Dwarzark at 72% and Moyiba at 66.9%. These figures strongly suggest a concerning lack of readiness

across the surveyed households, which extends beyond those directly affected by recent disasters, signifying a broader issue of unpreparedness within the community.

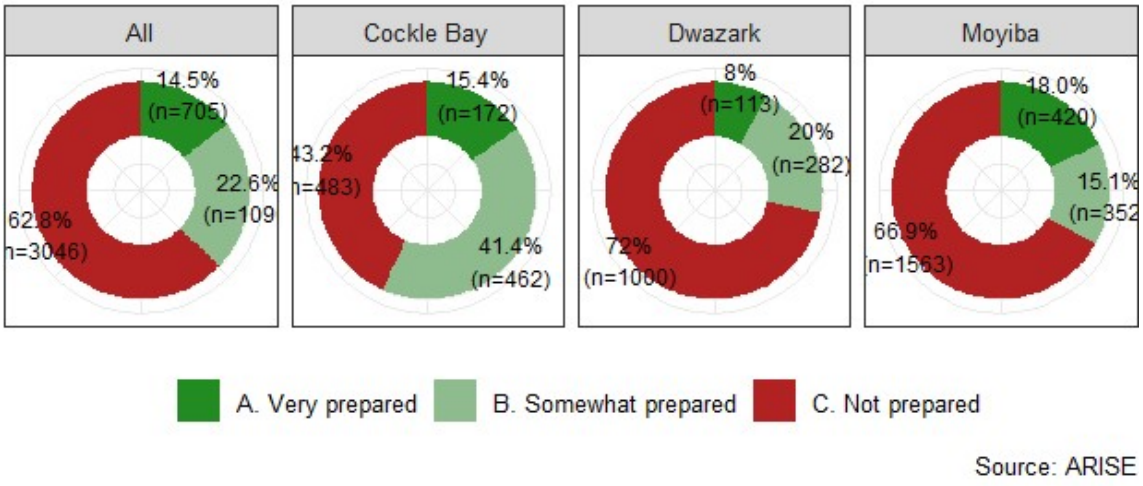



*Figure 5.4: Household level disaster preparedness in the previous year*

Following up on the above question, we collected additional information from those who responded that they were very/somewhat prepared. We were interested in what preparatory actions had been taken the previous year. This information is summarised in Table 5.4. Across all communities, results show that physical flood barriers are the most predominant (28.3%) preparedness approach and resilience. Cockle Bay had the highest percentage of households using physical flood barriers (43.5%), followed by Moyiba with 29.1% and Dwarzark with 14.8%. Improvement in disaster awareness is the second most predominant preparedness approach with 23.2% of the households using it. Despite these preparations during the previous year, disasters did befall some unfortunate households.

*Table 5.4: Disasters Preparedness over the previous year*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Awareness | 466 (42%) | 185 (13%) | 479 (20%) | 1,130 (23%) |
| Training | 205 (18%) | 27 (2%) | 319 (14%) | 551 (11%) |
| Preventive equipment | 77 (7%) | 19 (1%) | 311 (13%) | 407 (8%) |
| Provision of medicines | 65 (6%) | 12 (1%) | 268 (11%) | 345 (7%) |
| Physical barriers | 488 (44%) | 208 (15%) | 683 (29%) | 1,379 (28%) |
| Community Disaster Management Committee | 136 (12%) | 10 (1%) | 217 (9%) | 363 (7%) |
| Warning system | 98 (9%) | 28 (2%) | 278 (12%) | 404 (8%) |
| Evacuation plans | 104 (9%) | 16 (1%) | 230 (10%) | 350 (7%) |
| Other | 2 (0%) | 46 (3%) | 4 (0%) | 52 (1%) |

Table 5.5 summarises the multiple coping mechanisms used by these households. These responses were taken from 784 households that felt the impact of disasters (see Figure 5.3). Table 5.5 shows that across all communities, “report and ask for support from the government and NGOs” stands out as the coping mechanism used by the highest proportion of households (35.2%) affected by disasters. At community level, Cockle Bay recorded the highest percentage (45.1%) of disaster impacted households that report and ask for support from the government and NGOs as a coping mechanism, while Dwarzark reported 28.9% and Moyiba reported 26.7%. Cockle Bay reported the highest percentage (30.2%) of relocation as a coping mechanism followed by Dwarzark (21.3%).

*Table 5.5: Household coping with disaster*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Report and ask for support from the government and NGOs | 150 (45%) | 72 (29%) | 54 (27%) | 276 (35%) |
| Relocate | 98 (29%) | 53 (21%) | 61 (30%) | 212 (27%) |
| Use the evacuation route to an evacuation centre | 67 (20%) | 6 (2%) | 45 (22%) | 118 (15%) |
| Ask for support from the government and NGOs | 125 (38%) | 31 (12%) | 46 (23%) | 202 (26%) |
| Other specify | 36 (11%) | 113 (45%) | 72 (36%) | 221 (28%) |

Table 5.6 summarises the data on the kinds of support the households seek in order to be prepared for future disasters. Results across all communities indicate that food supplies are the support type highlighted by highest proportion of households (76.9%). Moyiba has the highest percentage (85%) of households that asserted that they seek food supplies as disaster preparedness support while Dwarzark has 71.8% which is a little higher than Cockle Bay with 66.6%. Across all communities, results show that disaster preparedness equipment/materials is the second most needed support type with 72.4% of the households highlighting this. At community level, this figure ranged from 79.6% in Moyiba to 65.2% in Dwarzark.

*Table 5.6: Disaster preparedness support*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Disaster preparedness equipment/materials | 744 (66%) | 916 (65%) | 1,868 (79%) | 3,528 (72%) |

| | | | | |
|---|---|---|---|---|
| Training on disaster mitigation | 514 (46%) | 324 (23%) | 1,193 (51%) | 2,031 (42%) |
| Community group support/CDMCs | 473 (42%) | 222 (16%) | 1,196 (51%) | 1,891 (39%) |
| Access to social protection schemes | 473 (42%) | 135 (10%) | 1,404 (60%) | 2,012 (41%) |
| Food supplies | 746 (67%) | 1,009 (72%) | 1,994 (85%) | 3,749 (77%) |
| Other | 23 (2%) | 372 (27%) | 131 (6%) | 526 (11%) |

Table 5.7 illustrates results of household perceptions on first responders to disaster at community level. Results indicate that, across all communities the neighbour/community is the first responder category most often identified by the surveyed households (82%). The corresponding figure Dwarzark of 86.6% is the highest across the three communities while Cockle Bay recorded 77.6%, a little less than Moyiba with 81.4% of targeted respondents.

*Table 5.7: Disaster first responders at community level*

| | **Cockle Bay** | **Dwarzark** | **Moyiba** | **All** |
|---|---|---|---|---|
| Community chief | 293 (26%) | 126 (9%) | 608 (26%) | 1,027 (21%) |
| Honourable | 43 (4%) | 23 (2%) | 262 (11%) | 328 (7%) |
| Councillor | 127 (11%) | 56 (4%) | 421 (18%) | 604 (12%) |
| Youths | 938 (84%) | 762 (54%) | 2,013 (86%) | 3,713 (76%) |
| CDMCs | 152 (14%) | 96 (9%) | 150 (6%) | 398 (8%) |
| FCC | 3 (0%) | 5 (0%) | 32 (1%) | 40 (1%) |
| NDMA | 34 (3%) | 11 (1%) | 15 (1%) | 60 (1%) |
| ONS | 1 (0%) | 19 (1%) | 63 (3%) | 83 (2%) |
| FEDURP/NGOs | 53 (5%) | 80 (6%) | 210 (9%) | 343 (7%) |
| Ministry of Health & Sanitation | 20 (2%) | 12 (1%) | 225 (9%) | 257 (5%) |

| | | | | |
|---|---|---|---|---|
| National Fire Force | 10 (1%) | 38 (3%) | 234 (10%) | 282 (6%) |
| Neighbours/Community | 870 (78%) | 1,216 (87%) | 1,909 (81%) | 3,995 (82%) |
| Other | 46 (4%) | 82 (6%) | 114 (5%) | 242 (5%) |

Across all communities, the results indicate that youths are the second highest category of first responders reported by 76.2% of respondents (in Table 5.7). Disaggregated at community level the corresponding figures in descending order are Moyiba 85.8%, Cockle Bay 83.7% and Dwarzark 54.3%. The households in the survey highlighted additional first responders. However, Table 5.7 shows that compared to neighbours/community and youth, these were mentioned by much smaller percentages of respondents.

## 5.4 Community Safety

This sub-section of the survey focused on safety within each community. Respondents were first asked what the safety concerns of themselves and their household members were. Across all communities, theft/robbery was the most reported safety concern, identified by 86.1% of all respondents (see Table 5.8). Physical violence was the second most reported safety concern, identified by 52.7% of all respondents. Safety concerns varied across the three sites. As shown in Table 5.8, 91.8% of respondents in Moyiba identified theft/robbery as a safety concern. Road accidents were a particular safety concern among respondents in Moyiba and evictions were of particular concern in Cockle Bay. Sexual and gender-based violence (SGBV) was of particular concern in Cockle Bay and Moyiba. Notably, only a small percentage of responses (6.2% overall) reported no community safety concerns.

*Table 5.8: Community Safety concern*

| | **Cockle Bay** | **Dwarzark** | **Moyiba** | **All** |
|---|---|---|---|---|
| Theft/robbery | 899 (80%) | 1,140 (81%) | 2,155 (92%) | 4,194 (86%) |
| Physical violence | 396 (35%) | 412 (29%) | 1,759 (75%) | 2,567 (53%) |

| | | | | |
|---|---|---|---|---|
| Road accidents | 113 (10%) | 206 (15%) | 1,450 (62%) | 1,769 (36%) |
| Evictions | 595 (53%) | 37 (3%) | 331 (14%) | 963 (20%) |
| Sexual and gender-based violence | 197 (18%) | 51 (4%) | 536 (23%) | 784 (16%) |
| Other | 17 (2%) | 145 (10%) | 99 (4%) | 261 (5%) |
| None | 36 (3%) | 144 (10%) | 122 (5%) | 302 (6%) |

Respondents were then asked which groups of people are more exposed/vulnerable to the safety and security concerns in their community, selecting from those concerns listed in Table 5.8. The most common answers, as illustrated in Table 5.9, were women, others, the aged and girls. Responses were relatively similar across the three sites. Further analysis of the groups specified by those who answered 'others' is required.

*Table 5.9: Groups of people who are more exposed/vulnerable to safety and security concerns.*

| | **Cockle Bay** | **Dwarzark** | **Moyiba** | **All** |
|---|---|---|---|---|
| Sex Workers | 291 (26%) | 155 (11%) | 499 (21%) | 945 (19%) |
| The aged | 626 (56%) | 586 (42%) | 1,502 (64%) | 2,714 (56%) |
| PWDs | 345 (31%) | 232 (16%) | 713 (30%) | 1,290 (26%) |
| Women | 845 (75%) | 883 (63%) | 2,006 (85%) | 3,734 (77%) |
| Orphans | 279 (25%) | 314 (22%) | 1,041 (44%) | 1,634 (34%) |
| Men | 265 (24%) | 273 (19%) | 794 (34%) | 1,332 (27%) |
| Boys | 257 (23%) | 404 (29%) | 830 (35%) | 1,491 (31%) |
| Girls | 466 (42%) | 539 (38%) | 1,617 (69%) | 2,622 (54%) |
| Others | 749 (67%) | 746 (53%) | 1,876 (80%) | 3,371 (69%) |
| Don't know | 12 (1%) | 107 (8%) | 19 (1%) | 138 (3%) |

The small number of respondents that answered that they had no safety concerns (6.2% of the total sample as reported in Table 5.8) were asked why they thought their community

was safe. Community safety volunteers and community leadership were the most reported reasons across the sample as a whole (see Table 5.10); however, answers varied by community. Of note, an effective local police partnership was less commonly mentioned in Cockle Bay. In Dwarzark, more than half of respondents specified another reason.

*Table 5.10: Community safety systems*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Effective local police partnership | 3 (8%) | 25 (17%) | 66 (54%) | 94 (31%) |
| Community safety volunteers | 30 (83%) | 35 (24%) | 92 (75%) | 157 (52%) |
| Strong community leadership | 29 (81%) | 22 (15%) | 109 (89%) | 160 (53%) |
| Others | 1 (3%) | 80 (56%) | 8 (6%) | 89 (29%) |

While Table 5.10 covered the responses from those who believed their respective communities to be safe places, we also asked a similar question to all participants of the survey. Here all respondents were asked which types of actions promote safety and security in their community. Awareness raising as identified by 71.07% of the households is the top-ranking action overall as well as at community level. Functional streetlights, Coordinated Local Police Partnership Board (LPPB) and functional bylaws were reported by a similar percentage for all respondents. Notably, functional streetlights were less widely mentioned in Dwarzark. Also, in Dwarzark, 30.34% of the respondents specified another reason.

*Table 5.11: Action to promote safety and security at community level.*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Awareness raising | 989 (88%) | 799 (57%) | 1,674 (71%) | 3,462 (71%) |
| Functional streetlights | 703 (63%) | 207(15%) | 1,689 (72%) | 2,599 (53%) |
| Coordinated Local police partnership board (LPPB) | 399 (35%) | 326 (23%) | 1,825 (78%) | 2,550 (52%) |
| Functional by-laws | 672 (60%) | 443 (32%) | 1,665 (71%) | 2,780 (57%) |
| Others specify | 7 (1%) | 426 (30%) | 84 (4%) | 517 (11%) |

## 5.5 Livelihood shocks

This subsection examines the survey data on livelihood shocks experienced by households within the three communities. The questions examined here shed light on how the loss of livelihoods may be connected to internal/external shocks.

In Table 5.12, which delves into the factors influencing household livelihoods across Cockle Bay, Dwarzark, and Moyiba, economic shocks emerge as the most prevalent concern with 78.7% of the households raising this issue. This dominance is consistent across the three communities, with 87.2% of households in Cockle Bay reporting economic shocks, 76.9% in Dwarzark, and 75.7% in Moyiba. Overall, the remaining three shocks reported in Table 5.12 seem to be of similar significance so the second ranked health shocks only just secure that place. At the community level, second ranked shocks are clearer in some communities; in Cockle Bay natural shocks takes the second spot (71.2%) and in Dwarzark it is health (47.8%). In Dwarzark, and Moyiba, natural shocks are only ranked 4$^{th}$ after health shocks and political/social shocks. Political/social shocks constituted 44.3% of the total responses. The data reveals some variations across communities, with Cockle Bay, Dwarzark, and Moyiba reporting 54.5%, 32.7%, and 46.4% of political/social shocks, respectively. Health shocks, at 45.6% overall, do not exhibit noteworthy differences between communities, with Cockle Bay, Dwarzark, and Moyiba reporting 41.7%, 47.8%, and 46.1%, respectively.

*Table 5.12: Factors affecting sources of livelihood.*

| | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|
| Natural shocks | 798 (71%) | 319 (23%) | 983 (42%) | 2,100 (43%) |
| Political/Social shock | 611 (54%) | 459 (33%) | 1,089 (46%) | 2,159 (44%) |
| Economic shock | 978 (87%) | 1,080 (77%) | 1,775 (76%) | 3,833 (79%) |
| Health shock | 467 (42%) | 672 (48%) | 1,081 (46%) | 2,220 (46%) |
| None | 15 (1%) | 30 (2%) | 67 (3%) | 112 (2%) |

The households which identified their livelihoods as having been affected by the four categories of shocks in Table 5.12 were asked to elaborate on these. For example, everyone who claimed that natural shocks had affected their livelihoods, were asked to elaborate if they meant flooding, building collapses, mudslides or other kinds of natural shocks. Similar questions were asked about political/social shocks, economic shocks and health shocks. Table 5.13 summarises these four questions to provide a detailed description of livelihood shocks in these communities.

According to Table 5.13 flooding seems to be the most pervasive issue within the category of natural shocks. Notably, in Cockle Bay a staggering 70.4% of the households surveyed reported flooding, while Moyiba follows with 36.7%, and Dwarzark with 19.9%. Building collapses, though less prevalent, are a significant form of natural shock in all communities, with Moyiba reporting a higher percentage (24.8%) of households whose livelihoods were affected this way compared to Cockle Bay (4.7%) and Dwarzark (11.6%). Mudslides are notably higher in Moyiba (12.7%) compared to the other two communities.

Political and social shocks present a diverse landscape. Civil unrest is prominently reported in Dwarzark (24.2%), while thefts stand out in Cockle Bay (49.7%) and physical violence in Moyiba (40.6%). At the overall level, theft is the most significant in this shock category with significant variation across communities.

Economic shocks showcase a distribution with inflation reported as the most prevalent shock in this category affecting 65.1% of the households, overall. This is followed by

currency devaluation which had affected 47% of the households across all communities. This order of ranking in economic shocks with inflation followed by devaluation is a consistent pattern across Cockle Bay and Dwarzark; in Moyiba the second ranking economic shock is business closures. In fact, economic shocks are the most pervasive of all seventeen shock types reported in Table 5.13.

*Table 5.13: Types of livelihood shocks*

| | | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|---|
| Natural shocks | Flooding | 789 (70%) | 280 (20%) | 862 (37%) | 1,931 (40%) |
| | Building collapse | 53 (5%) | 163 (12%) | 584 (25%) | 800 (16%) |
| | Mudslide | 2 (0%) | 65 (5%) | 297 (13%) | 364 (7%) |
| | Others | 3 (0%) | 12 (1%) | 84 (4%) | 99 (2%) |
| Political/social shocks | Civil unrest | 197 (18%) | 340 (24%) | 600 (26%) | 1,137 (23%) |
| | Eviction | 312 (28%) | 18 (1%) | 393 (17%) | 723 (15%) |
| | Physical violence | 288 (26%) | 209 (15%) | 952 (41%) | 1,449 (30%) |
| | Theft | 557 (50%) | 183 (13%) | 830 (35%) | 1,570 (32%) |
| | Others | 0 (0%) | 16 (1%) | 4 (0%) | 20 (0%) |
| Economic shocks | Inflation | 870 (78%) | 916 (65%) | 1,385 (59%) | 3,171 (65%) |
| | Business closure | 349 (31%) | 303 (22%) | 1,286 (55%) | 1,938 (40%) |
| | Rapid currency dev. | 581 (52%) | 535 (38%) | 1,174 (50%) | 2,290 (47%) |
| | Others | 1 (0%) | 156 (11%) | 8 (0%) | 165 (3%) |
| Health shocks | Prolonged illness | 416 (37%) | 500 (36%) | 947 (40%) | 1,863 (38%) |
| | Death in family | 255 (23%) | 414 (29%) | 769 (33%) | 1,438 (29%) |
| | Injury | 60 (5%) | 271 (19%) | 794 (34%) | 1,125 (23%) |
| | Others | 2 (0%) | 17 (1%) | 4 (0%) | 23 (0%) |

Note: All percentages in parentheses are calculated as a proportion of the full sample so they can be compared across the four categories of shocks.

Health, illness and death-related shocks, reported in Table 5.13 seem to paint a similar landscape across the three communities. High levels of prolonged illness is prevalent in Moyiba (40.3%), Cockle Bay (37.1%) and Dwarzark (35.6%), contributing to 38.3% of all households being affected by it. Perhaps a corollary, death in the family is a shared concern affecting livelihoods of 29.5% of the households. In contrast, injury incidence seems to vary significantly between a low of 5.4% in Cockle Bay to a high of 33.8% in Moyiba.

Table 5.14 outlines the information on how the households responded to livelihood shocks noted in Table 5.13. The table offers deeper understanding of how households in Cockle Bay, Dwarzark, and Moyiba respond to the aforementioned shocks, unveiling distinct patterns in coping mechanisms across communities.

One prevalent response across all communities is the reduction of non-essential expenditures, with Cockle Bay, Dwarzark, and Moyiba reporting 84.8%, 72.7%, and 72.7%, respectively. Another common strategy involves substituting cheaper food options, demonstrating an adaptive approach to economic challenges. Moyiba and Cockle Bay stand out with 82.7% and 80% respectively.

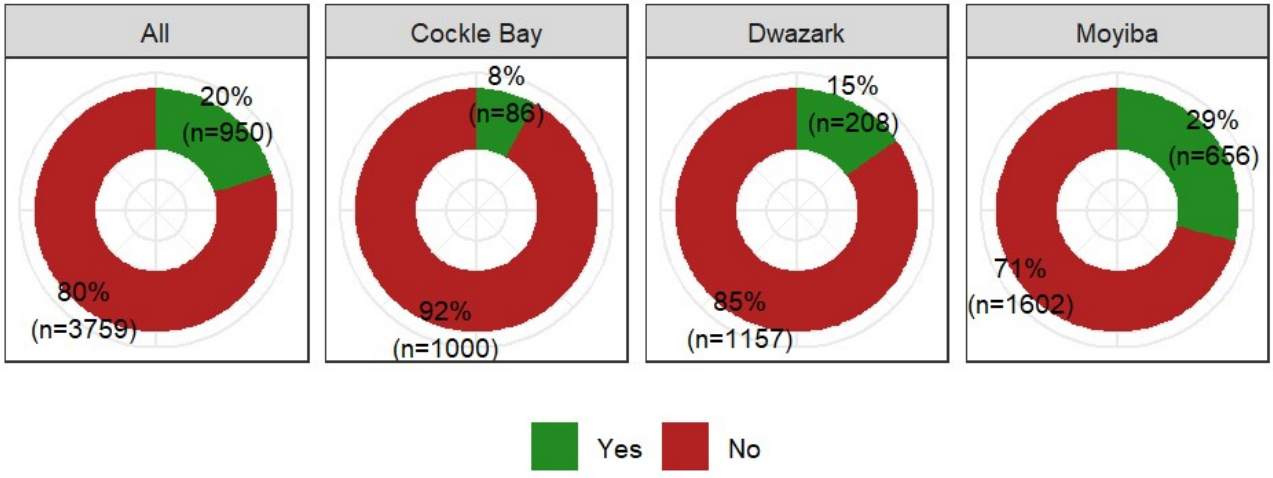
*Table 5.14: Household coping responses to the livelihood shocks*

| | **Cockle Bay** | **Dwarzark** | **Moyiba** | **All** |
|---|---|---|---|---|
| Cut non-essential exp. | 951 (85%) | 1,021 (73%) | 1,706 (73%) | 3,678 (76%) |
| Substitution to cheaper food | 897 (80%) | 969 (69%) | 1,941 (83%) | 3,807 (78%) |
| Borrowing from neighbours & friends | 421 (38%) | 258 (18%) | 1,300 (55%) | 1,979 (41%) |
| Loans (e.g., microcredits, pong) | 80 (7%) | 158 (11%) | 883 (38%) | 1,121 (23%) |
| Reduction in household food consumption | 786 (70%) | 771 (55%) | 1,764 (75%) | 3,321 (68%) |
| Sale of assets | 154 (14%) | 83 (6%) | 552 (23%) | 789 (16%) |
| Access to social protection (cash, food baskets, etc.) | 228 (20%) | 106 (8%) | 595 (25%) | 929 (19%) |
| other | 3 (0%) | 91 (6%) | 4 (0%) | 98 (2%) |

Borrowing from neighbours and friends emerges as an important coping mechanism, with Moyiba displaying the highest reliance at 55.4%, compared to Cockle Bay (37.6%) and Dwarzark (18.4%). Loans, including microcredits and pong, also play a role, with Moyiba reporting the highest utilisation at 37.6%. However, it is interesting to note that Cockle Bay and Dwarzark exhibit much lower reliance on this strategy at 7.1% and 11.3%, respectively.

Reduction in household food consumption is a shared response, with Cockle Bay and Moyiba reporting similar percentages at 70.1% and 75.2%, respectively. Sale of assets, while not a predominant strategy, varies across communities, with Moyiba having a higher percentage (23.5%) compared to Cockle Bay (13.7%) and Dwarzark (5.9%).

Access to social protection measures, such as cash and food baskets, is utilised to varying degrees. Moyiba reports the highest percentage at 25.4%, while Cockle Bay and Dwarzark display lower reliance at 20.3% and 7.6%, respectively.




Source: ARISE

*Figure 5.5: Household ever received support to cope with shocks*

The use of extreme measures like cutting down on food consumption strongly suggests that crucial support structures are missing in these communities. To confirm this, we asked if the households which had their livelihoods impacted by shocks (Table 5.12 indicates that this is 99% of the sample) had ever received external support to cope with

those shocks. The answer as documented in Figure 5.5 is an emphatic no: 80% percent of the sample had not received any support. The figure also suggests that this situation varies a lot across communities with Cockle Bay fairing the worst with 92% with no external support.

Next, we look more closely at the group that did get external support (950 households as per Figure 5.5). Table 5.15 provides a comprehensive view of the external support received by these households in response to various shocks. It also outlines the support these households anticipate needing for future shocks. The table illustrates that relatives are a significant source of support in all three communities, with 53.5% of those households that received support in Cockle Bay relying on relatives for that support, 69.7% in Dwarzark, and 88.3% in Moyiba. However, there are differences in the reliance on other external entities across the three communities. Friends play a more substantial role in Moyiba (58.5%), compared to Cockle Bay (12.8%) and Dwarzark (19.7%). NGOs are a more prominent source of support in Cockle Bay (32.6%) but less so in Dwarzark (12.5%) and Moyiba (8.5%). Community members/neighbours are also more actively involved in Moyiba (25.3%) than in Cockle Bay (3.5%) and Dwarzark (10.1%).

Cash support is the most common form of assistance across all communities, but with variations ranging from 81.4% in Cockle Bay to 95.6% in Moyiba. Food aid is the second most prevalent form of support in all communities, but again, with differences – 44.19% in Cockle Bay and 64.6% in Moyiba. Medical support stands out in Moyiba (26.2%), whereas Cockle Bay (8.1%) and Dwarzark (12%) show lower reliance on such support among support recipient households.

*Table 5.15: Financial or material support*

| | | Cockle Bay | Dwarzark | Moyiba | All |
|---|---|---|---|---|---|
| **External Support providers** | Government | 7 (8%) | 10 (5%) | 42 (6%) | 59 (6%) |
| | NGOs | 28 (33%) | 26 (13%) | 56 (8%) | 110 (12%) |
| | CBOs | 3 (3%) | 1 (0%) | 14 (2%) | 18 (2%) |
| | Relatives | 46 (53%) | 145 (70%) | 579 (88%) | 770 (81%) |
| | Friends | 11 (13%) | 41 (20%) | 384 (58%) | 436 (46%) |
| | Community members/neighbours | 3 (3%) | 21 (10%) | 166 (25%) | 190 (20%) |
| | Community chief | 0 (0%) | 0 (0%) | 14 (2%) | 14 (1%) |
| | Others | 2 (2%) | 16 (8%) | 14 (2%) | 32 (3%) |
| **Kinds of support received** | Cash | 70 (81%) | 177 (85%) | 627 (96%) | 874 (92%) |
| | Food aid | 38 (44%) | 131 (63%) | 424 (65%) | 593 (62%) |
| | Housing reconstruction | 1 (1%) | 4 (2%) | 13 (2%) | 18 (2%) |
| | Relocation | 0 (0%) | 1 (0%) | 20 (3%) | 21 (2%) |
| | Medical support | 7 (8%) | 25 (12%) | 172 (26%) | 204 (21%) |
| | Others | 2 (2%) | 3 (1%) | 5 (1%) | 10 (1%) |
| **Support needed for future shocks** | Loan schemes | 3 (20%) | 17 (57%) | 32 (48%) | 52 (46%) |
| | Food | 12 (80%) | 11 (37%) | 58 (87%) | 81 (72%) |
| | Social protection | 3 (20%) | 5 (17%) | 35 (52%) | 43 (38%) |
| | Early warning | 10 (67%) | 2 (7%) | 25 (37%) | 37 (33%) |
| | Training on SME skills | 5 (33%) | 3 (10%) | 39 (58%) | 47 (42%) |
| | other | 0 (0%) | 8 (27%) | 3 (4%) | 11 (10%) |

Note: The percentages in parentheses for 'support providers' and for 'kinds of support' are calculated as a proportion of the total number of households that received support to cope with livelihood shocks. In the case of percentages in 'future support needs' the denominator was the total number of households that reported no livelihood shocks.

The future support needs reveal variations in priorities.[1] In Dwarzark, there's a notably higher demand for loan schemes (57%) compared to Cockle Bay (20%) and Moyiba (48%). Food remains a consistent requirement, but again with variations - 80% in Cockle Bay, 36.7% in Dwarzark, and 86.6% in Moyiba. Social protection is deemed important in Moyiba (52.2%), more so than in Cockle Bay (20%) and Dwarzark (16.7%). Training on Small and Medium Enterprises (SME) skills is a future support need that stands out in Moyiba (58.2%).

In summary, while relatives remain a crucial support network, variations in the reliance on friends, NGOs, and community members, as well as differences in the types of support received and future needs, highlight the diverse priorities across Cockle Bay, Dwarzark, and Moyiba. These distinctions provide valuable insights for tailoring support strategies to the specific needs and dynamics of each community.

The last question in Section C of the survey does a good job of underscoring the need for support in these communities. Respondents were asked if over the previous month the household was not able to eat the kind of food they wanted because of lack of resources, and, if so, how frequently this occurred. This experience was used to indicate household food insecurity. Unlike the future support needs data in Table 5.15 which relies on a small subsample, this question was put to everyone who took part in the survey. The data summarised in Figure 5.6 reveals varying levels of food insecurity across the communities of Cockle Bay, Dwarzark, and Moyiba. The situation seems to be worst in Dwarzark with 37.9% of respondents reporting experiencing an aspect of food insecurity “often (more than 10 times)” over the previous month. A further 28.3% in Dwarzark experienced food security “sometimes (3 to 10 times)”. In Cockle Bay (13.1% often and 33.3% sometimes)

[1] This question was asked from only a subset of respondents who declared that they did not have any issues affecting their livelihoods (see Table 4.12). This means that for Cockle Bay (37 responses) and Dwarzark (46) the number of responses for this question is rather small.

and in Moyiba (20.6% often and 22.2% sometimes), the situation was better but not by much. The data reflects varying degrees of food insecurity within each community over the last month, showcasing differences in the prevalence of different levels of food security challenges.

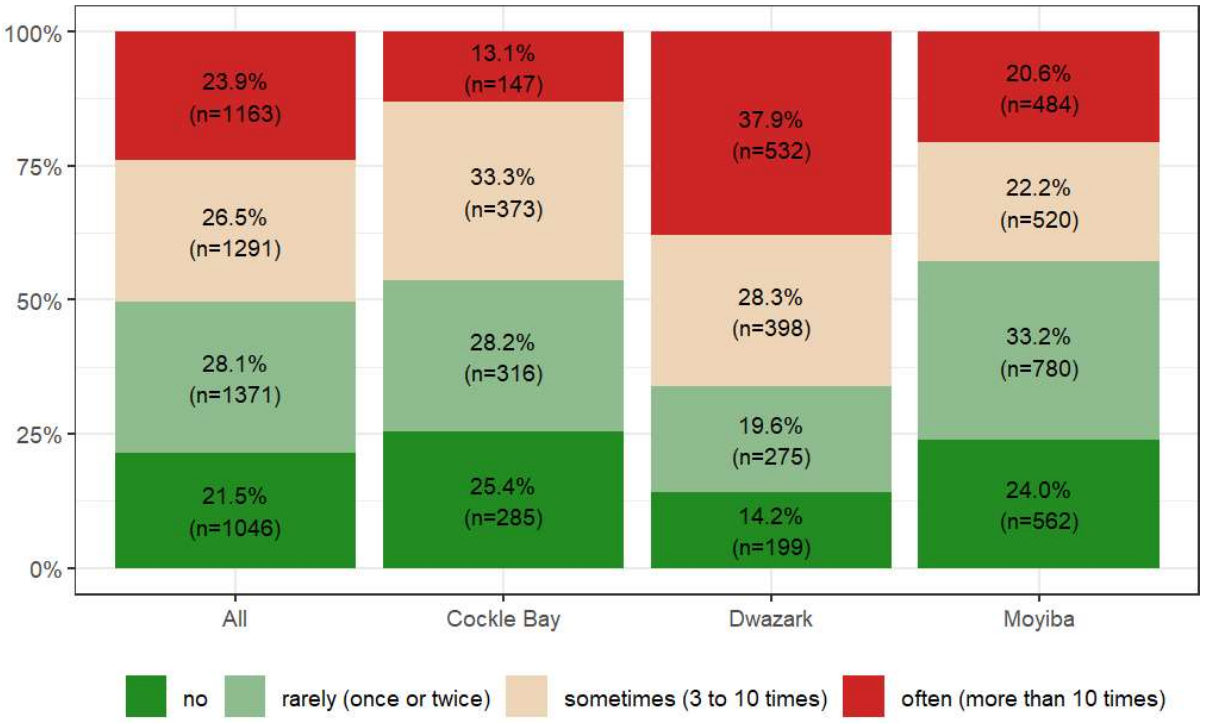



*Figure 5.6: Limits on food over the previous month*

## 5.6 Conclusion

The examination of the surveyed data across Cockle Bay, Dwarzark, and Moyiba highlighted a range of disaster and livelihood shocks faced by these communities. The thorough analysis delineated the prevalence and impact of disasters, showcasing the overwhelming affirmative responses across the communities regarding disaster occurrences, particularly in instances of flooding, fire, building collapses, and falling boulders. This underscored the necessity for tailored disaster response strategies,

considering the nuanced differences in disaster occurrences at the community level, even at the zone level.

Information from households with firsthand experience of disaster impacts showed significant effects on property destruction and reduced livelihoods alongside the lack of assistance and support from local authorities. The findings illuminated a substantial portion of households reporting being unprepared for disasters, particularly in Dwarzark and Moyiba. The figures indicate the absence of public policies targeting the most frequent environmental disasters in these communities.

The varied approaches taken for disaster preparedness, such as physical flood barriers and improved disaster awareness, mainly organised by the communities, signified the need for more robust community-specific strategies.

There is an urgent need to increase safety in the three study communities, for everyone and for vulnerable groups including women, girls and the aged. Survey results indicate that theft/robbery are predominant across study communities and, in turn, vulnerable and marginalised groups are often targeted. There is the need to address all the identified safety concerns (theft/robbery; physical violence; road accidents; evictions; and SGBV) across the three communities; however, some concerns are particularly prevalent in specific communities, for example, evictions in Cockle Bay.

The examination of livelihood shocks within these communities elucidated economic shocks as the most prevalent concern, influencing household livelihoods consistently across Cockle Bay, Dwarzark, and Moyiba. This dominance was accompanied by natural, political/social, and health shocks, revealing nuanced distributions across communities. The coping mechanisms adopted by households, including reductions in non-essential expenditures, altering food consumption, and borrowing from various sources, shed light on the adaptive approaches taken in the face of these shocks.

Additionally, the assessment of external support and future needs emphasised a significant lack of support for households impacted by disasters, highlighting the need for more robust support structures. While relatives remained a crucial support network,

variations in reliance on friends, NGOs, and community members, as well as differences in the types of support received and future needs, provided invaluable insights for tailoring support strategies to the specific needs and dynamics of each community.

Lastly, the data on food insecurity unveiled varying degrees of challenges within each community, reflecting differences in the prevalence of food security challenges. This diverse and comprehensive narrative across disasters, household impacts, coping strategies, support structures, and food security underscored the necessity for targeted interventions and support tailored to the unique needs and challenges faced by each community within Cockle Bay, Dwarzark, and Moyiba. Efforts must focus on improving preparedness, enhancing support networks, and addressing the pressing food security concerns prevalent within these areas to ensure a more resilient and supported community fabric.

**Community feedback on findings:** In Cockle Bay, the community raised concern about the alarming flooding incidence from the findings as they experience less flash flooding. Residential homes close to the main drains are frequently affected by flash flooding. They are faced with more water logging and outbursts in houses without concrete floors when the water table rises. There is a reduction of gender-based violence due to sensitisation and awareness raising.
There is no specific evacuation centre so people often use religious places, schools, and community centres as rescue sites. There are fewer fire incidences due to the installation of high-tension cables from 25mm to 70mm within the different zones as each zone connects to different transformers. There is an increase in drug abuse (Kush) that leads to alarming theft incidences.

In Dwarzark, the data reflect the reality in the community and nothing has changed since the data was collected until now. However, there is a mismatch in some of the information; for example, according to the data, respondents mentioned that buildings/ houses normally collapse in the Italy and Brazil zones within the community. While in reality, there is no disaster of this type recorded in these zones.

In Moyiba, the data speaks the truth about the community as flooding occurs due to lack of proper drains. The fire incidents are now less frequent but can happen now when there is a malfunction in the community electricity supply. Collapsing buildings occur often both in the dry and rainy seasons and it is a threat to us in the community. The disease outbreak remains the same in the community and during the rainy season, diseases like diarrhoea, common cold, skin rash, and malaria affect most people. Since the survey, there are still safety concerns in the community because the community safety volunteers (CSV's) are not everywhere in the community and there are no police posts.

# Chapter 6: Wellbeing Priorities and Challenges

## 6.1 Introduction

This section helps us understand the communities' (i.e. Cockle Bay, Dwarzark and Moyiba) interpretation of wellbeing. From the exploratory phase of our research, we categorised wellbeing into Physical, Mental and Social wellbeing. People in the community define wellbeing differently and locally refer to wellbeing as "Alafia". What they and their households consider important for their physical wellbeing, "yangay-yangay", is good health, a clean environment, proper housing conditions, ownership of assets, improved sanitation, a safe environment, and access to clean drinking water. For social wellbeing, they may consider having peace, financial stability, security & safety, and support networks. For mental wellbeing, they may consider having employment opportunities, peaceful coexistence and relationships within their household and community. The questions in this section were multiple choice options from the exploratory data and respondents selected all that applies.

## 6.2 Physical wellbeing

Respondents were asked what they considered as important for their physical wellbeing, as a list was given and asked which were important. All respondents across the three settlements considered good health the most important indicator of physical wellbeing (>80%). From the questionnaire which was shared with respondents, good health is understood as not being sick, having no physical injury, or emotional and mental stability. In Dwarzark, more than half of respondents considered clean drinking water (59%) and ownership of assets (58%) important indicators of physical wellbeing. We found similar results in Moyiba and Cockle Bay, with more than 60% of respondents agreeing that clean drinking water, a clean and safe environment, improved sanitation, and proper housing are important indicators of physical wellbeing.

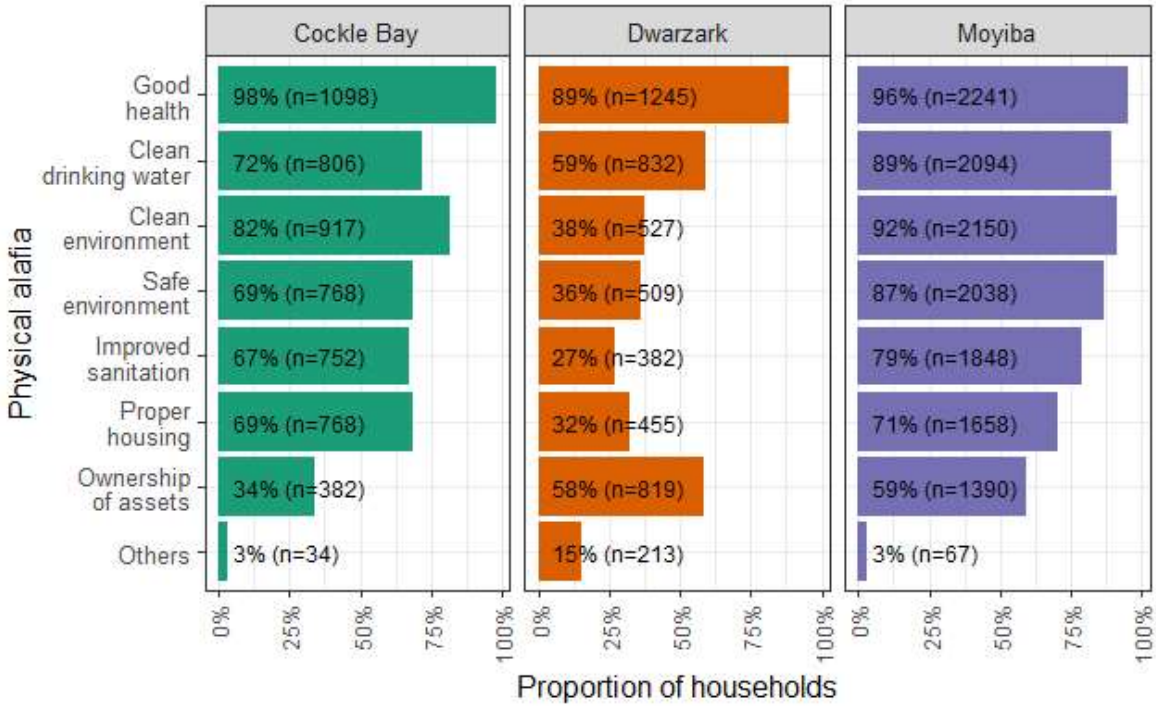



*Figure 6.1: Participants interpretations of their physical wellbeing "Alafia"*

## 6.3 Social wellbeing

Most of the respondents (≥70%) across all three settlements considered peace and financial stability the most important for social wellbeing. In Moyiba, security and safety also reached a high percentage (89%). A support network was considered less important in Dwarzark and Cockle Bay, but more than half of (63%) respondents in Moyiba also considered this essential for their social wellbeing.

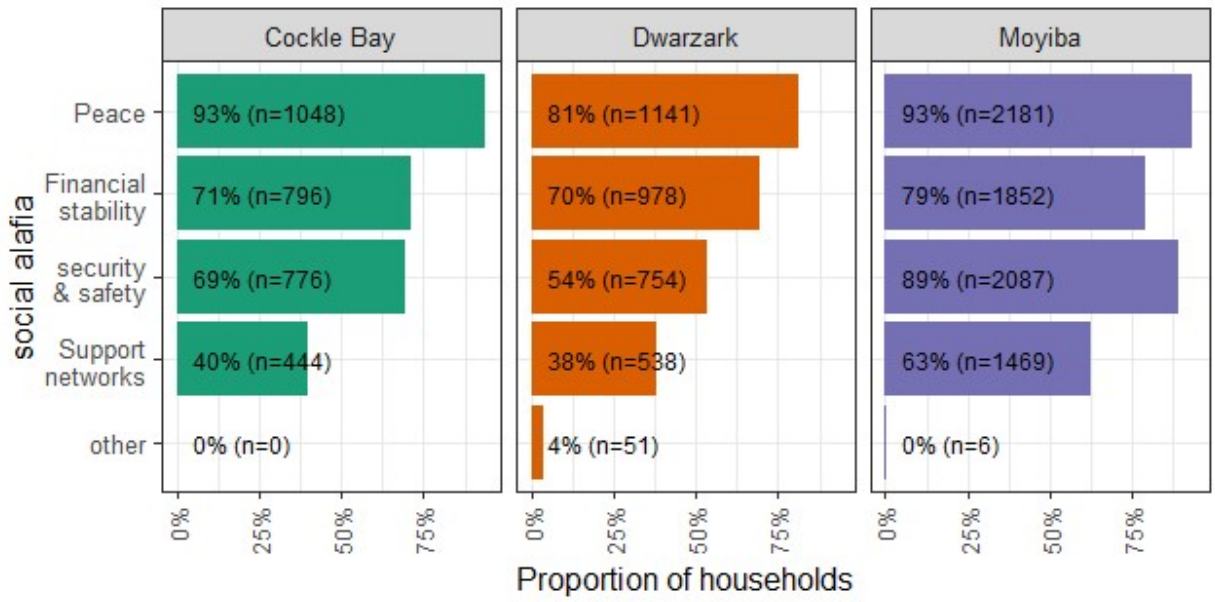



*Figure 6.2: Participants interpretations of their social wellbeing "Alafia"*

## 6.4 Mental Wellbeing

Respondents in all three communities considered having employment/livelihood opportunities important for mental wellbeing (>80%). In Moyiba, they also considered having a peaceful coexistence as important, with 90% of respondents selecting this for their mental wellbeing. All three communities agreed that improved family/marital relationships were less important for their mental wellbeing than the others.

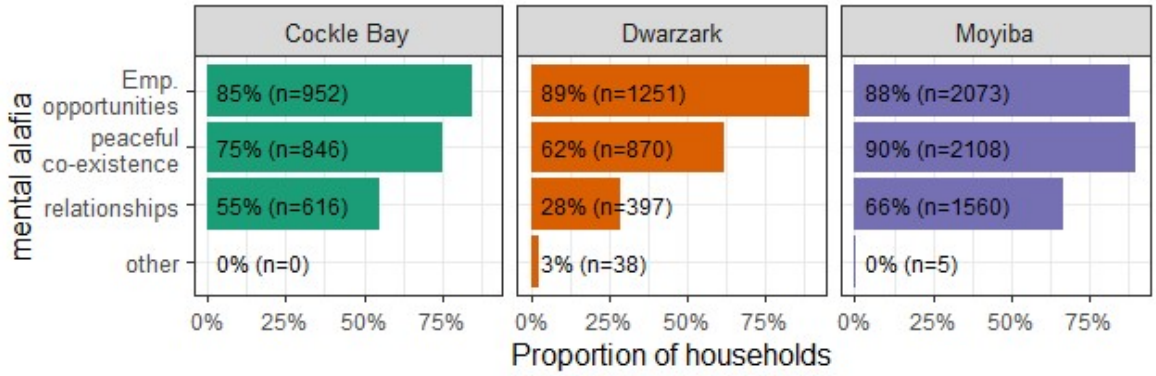



*Figure 6.3: Participants interpretations of their mental wellbeing "Alafia"*

## 6.5 Challenges and barriers to wellbeing goals

The challenges or barriers that affected the wellbeing goals or priorities the most were financial challenges in all three communities (>90%). For all the other challenges, the communities had different perceptions. For example, lack of employment and safety/security were selected as important challenges by over half of the respondents (61% and 59% respectively) in Cockle Bay, whilst in Moyiba, these challenges were chosen by more than 70% of the respondents. Other important challenges reported in Moyiba were limited access to WASH services (76%), stress/pressure from family (72%), childcare responsibility (64%) and unexpected violence (55%). In Cockle Bay, these challenges reached low percentages (<50%).

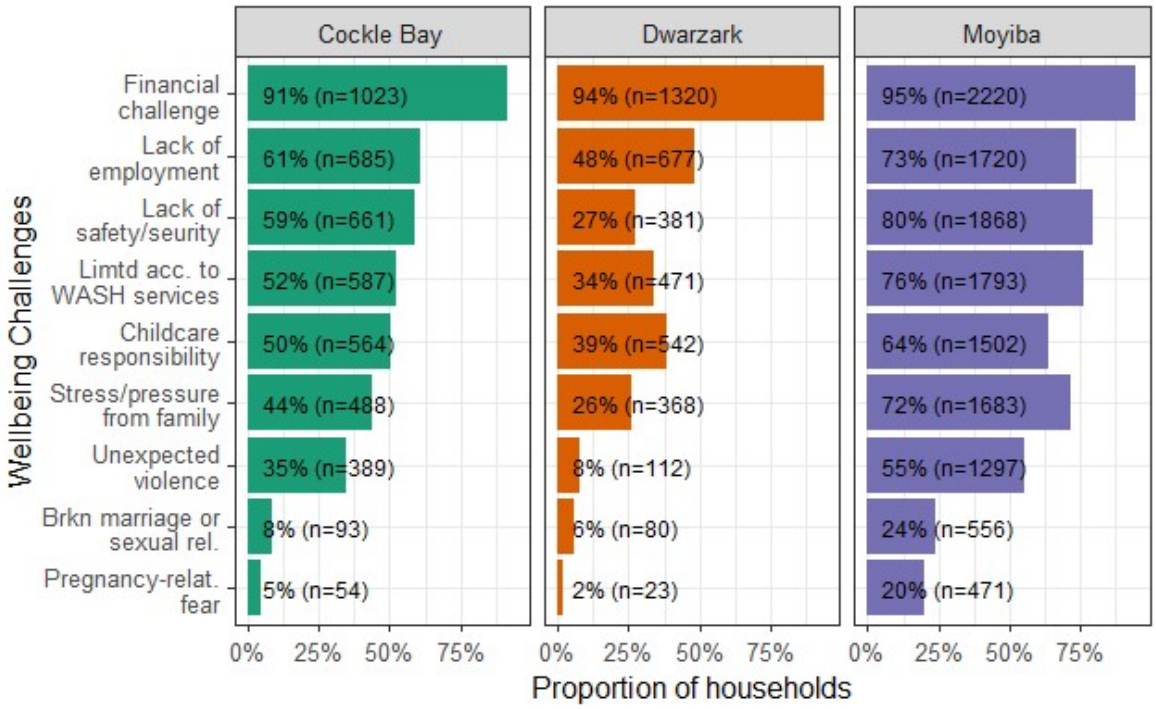



*Figure 6.4: Participants challenges and barriers to wellbeing "Alafia"*

## 6.6 To whom do they report wellbeing challenges

Respondents were asked to whom they usually report wellbeing challenges (Figure 6.5). The most popular response across all communities was God. Cockle Bay and Dwarzark had similar response patterns, with all other options reaching low percentages (<50%). Whilst in Moyiba, besides God, other relatives were also a popular option (54%). Interestingly, authorities and local NGOs reached lower percentages (<10%).

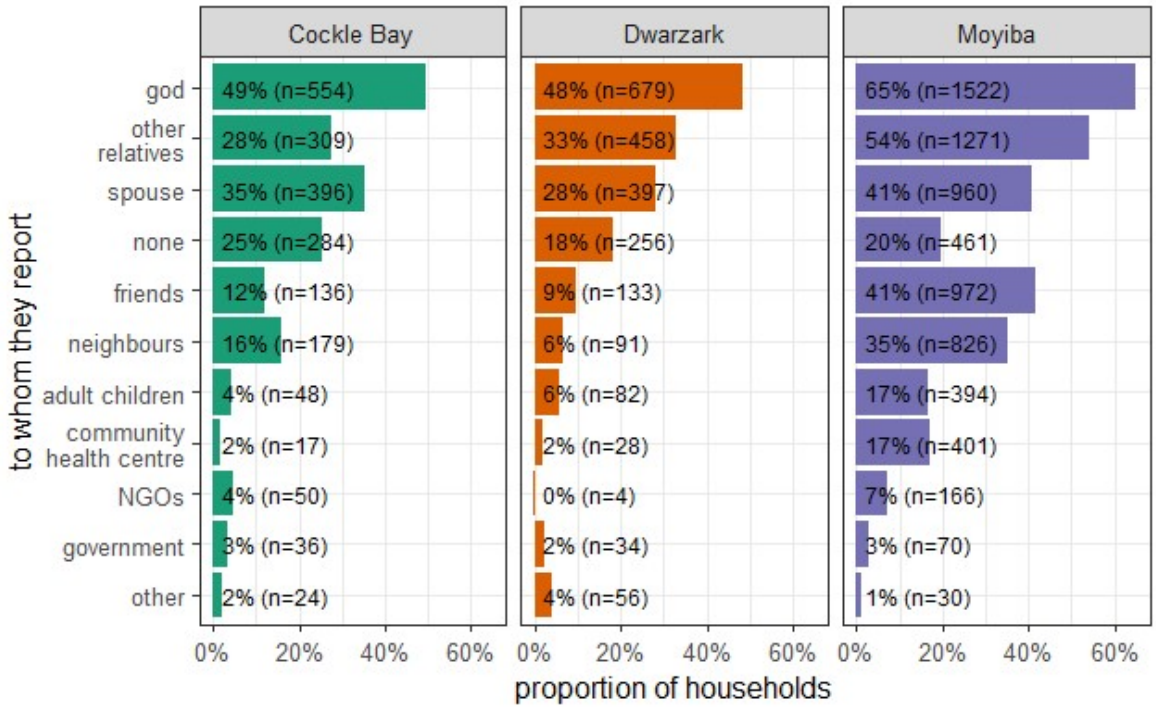



*Figure 6.5: Who participants report their wellbeing "Alafia" challenges to*

## 6.7 How do they respond when people ask for help

Figure 6.6 shows how the community responded when seeking help for their wellbeing challenges. For all respondents, it shows that the majority (>90%) reacted positively even though Cockle Bay had more people responding negatively than Dwarzark and Moyiba (5.8%, 2.4%, 1.05%, respectively).

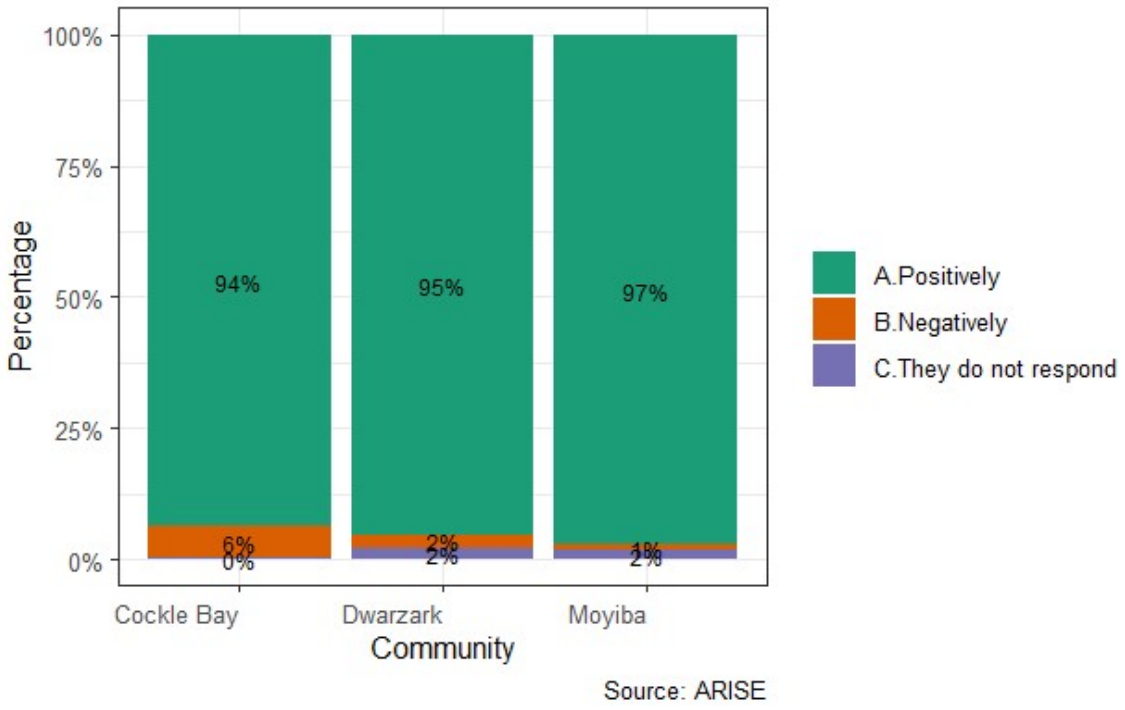



*Figure 6.6: How they respond to participants report on wellbeing "Alafia" challenges*

## 6.8 Summary of key findings

From our data within the three study sites, the general perception of wellbeing in informal settlements may include material possessions such as cars and household assets, access to financial services and formal safety nets and social networks. All these aspects of wellbeing are essential for vulnerable populations living in informal settlements. However, the lack of homogeneity in the perception of physical, social and mental wellbeing across informal settlements is rarely considered when implementing policies targeting these communities.

We found similarities and differences in the surveyed communities. For example, the factors that determine the physical wellbeing in Cockle Bay and Moyiba are good health and a clean and safe environment, whilst Cockle Bay and Dwarzark seem to have similar

social and mental wellbeing priorities (e.g. financial stability, safety/security and support network).

The pattern in challenges and barriers to wellbeing differ across the communities, except for financial challenges, which was the option selected by most (>90%) of the respondents in all communities. Our findings indicated that Moyiba may face more incidents of violent activities, as violence and conflict were common issues in all wellbeing categories (physical, mental and social) and challenges. Similarly, this study shows that safety, peace and security are essential wellbeing goals in Moyiba as their responses for physical wellbeing (safe environment, 87%), social wellbeing (peace, 93% and security and safety, 89%), mental wellbeing (peaceful coexistence, 90%), and wellbeing challenges (lack of safety and security, 80%) had reached high percentages.

Another interesting finding is about religion and how it may play a role in the communities. Across all communities, 'God' ranked top when households needed to report their daily struggles and challenges. Despite the positive aspect of the religion in the provision of emotional relief and spreading messages of generosity, this find may indicate a lack of trust in formal institutions (e.g., local authorities, NGOs) or even a lack of assistance from those who are expected to have an active position in these communities. In addition, households seem to trust the most in their spouses, other relatives, friends and neighbours as they reported more positive and timely responses, which reinforces the negligence of formal institutions.

From this survey, we could observe the perception of physical, social and mental wellbeing in Freetown's informal settlements alongside barriers/challenges faced by these vulnerable communities. The findings indicated that the perception of health and wellbeing, challenges and barriers can differ across informal settlement communities. These findings are crucial for evidence-based policy-making to improve local policy development. Also, these findings can contribute to prioritising interventions focusing on wellbeing according to the different needs and challenges faced by informal settlement dwellers in Freetown.

**Community feedback on findings:**

In Cockle Bay, the data on well-being is a reflection of what was happening in the community during the survey. Inflation is affecting the living conditions of those living in the community. Over the past year, the entire country has been plagued with high inflation, inflicting suffering, mental health problems, and increasing the blood pressure of many people in the community.

In Dwarzark, there is poor health due to excessive drug abuse, especially amongst the youth. This intake of “Kush” drugs affects the mental and physical well-being of the people taking it. Indirectly, it is also affecting their parents and neighbourhoods through crimes such as theft, etc. For clean drinking water, the water body within the community is now contaminated because of excessive use, high demand, and low supply. The water has fewer intervals to replenish itself. To create a clean and safe environment, there are more garbage disposal sites around the community e.g. the street, drains, etc. and theft is also in the increase. For improved sanitation, toilet access has improved within this past year due to additional public toilets installed within the community. Many households are digging pit latrines to move away from local toilets to improved toilets facilities. For proper housing, in the past year, most people have converted their homes from corrugated sheet houses to concrete and mud brick houses.

In Moyiba, from the data collection period until now, the health system in the community has remained the same. There are no medicines in the health centre. There are no pure and safe drinking water facilities. The environment is not safe because of poor housing conditions and poor toilet facilities. They also said there is only one public toilet and there are no public trash cans within the community. They have poor drainage systems which causes flooding and a poor road network which is the biggest challenge. They also pointed out inadequate job opportunities and most people are working without salary. They have challenges with domestic violence within the community. Finally, they said women are faced with more challenges in taking care of their family because the burden is strongly on them.

**ACKNOWLEDGEMENT:**

The UKRI GCRF Accountability for Informal Urban Equity Hub is a multi-country hub with partners in the UK, Sierra Leone, India, Bangladesh and Kenya which we call ARISE. The Hub works with communities in slums and informal settlements to support processes of accountability related to health. It is funded through the UKRI Collective Fund.