



THE NATIONAL  
RESEARCH INSTITUTE  
PAPUA NEW GUINEA

# DISCUSSION PAPER

INNOVATION IN THE  
INFORMAL ECONOMY:  
LESSONS FROM CASE  
STUDIES IN SELECTED AREAS  
OF THREE PROVINCES IN  
PAPUA NEW GUINEA

Elizabeth Kopel  
Rosa Au  
Lewis Iwong  
Cathy Tukne

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No. 186

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# Table of Contents

|   |           |
|---|-----------|
| <b>Abstract</b>   | <b>v</b>  |
| <b>Introduction</b>   | <b>1</b>  |
| <b>Literature review</b>  | <b>3</b>  |
| <b>Methods</b>  | <b>5</b>  |
| <b>Results</b>  | <b>7</b>  |
| Description of interviewed entrepreneurs' characteristics             | 7         |
| Innovations in informal economic activities                           | 7         |
| Sources of household income   | 8         |
| Types of informal economic activities                                 | 9         |
| Innovation in home produced goods                                     | 10        |
| Innovations in provision of services                                  | 11        |
| Innovations in making and, or selling processed goods                 | 12        |
| <b>Challenges faced and coping strategies</b>                         | <b>15</b> |
| Challenges in accessing assistance to set up informal enterprises     | 15        |
| Constraints impacting on the ability to sustain and grow the business | 15        |
| Respondents' ranking of challenges in order of importance             | 16        |
| Challenges faced when setting up an informal business                 | 17        |
| Challenges faced when operating an informal business                  | 17        |
| <b>Discussion</b>   | <b>21</b> |
| <b>Conclusion, policy implications and recommendations</b>            | <b>23</b> |
| Policy implications   | 23        |
| Recommendations for further research                                  | 24        |
| <b>References</b>   | <b>25</b> |
| <b>Appendix: Interview Questionnaire</b>                              | <b>27</b> |

# List of Charts, Figures and Tables

## List of Figures

|   |    |
|---|----|
| Figure 1: Is this informal economic activity your only source of household income?  | 9  |
| Figure 2: Categories of established innovative informal enterprises (n = 86)        | 10 |
| Figure 3: Types of home produced activities undertaken by respondents (n = 86)      | 10 |
| Figure 4: Types of informal services provided by respondents                        | 12 |
| Figure 5: Number of respondents undertaking manufacturing and processing activities | 13 |
| Figure 6: Access to assistance in setting up an informal business (n = 86)          | 15 |
| Figure 7: Constraints faced in operating the business (n = 86)                      | 16 |

## List of Tables

|  |    |
|--|----|
| Table 1: Main reasons for setting up an informal business (multiple responses) | 8  |
| Table 2: Challenges ranked in order of importance (multiple responses)         | 17 |

## List of Text Boxes

|       |    |
|-------|----|
| Box A | 9  |
| Box B | 11 |
| Box C | 12 |
| Box D | 13 |
| Box E | 16 |
| Box F | 18 |
| Box G | 19 |

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Elizabeth Kopel conceptualised and designed the study. All four authors collected the data and Rosa Au wrote the first draft. Lewis Iwong analysed the data and contributed to the case studies. Cathy Tukne also contributed to the case studies and Dr Kopel wrote and edited the paper.

## Abbreviations and Acronyms

|     |                                |
|-----|--------------------------------|
| GST | Goods and Services Tax         |
| IP  | Intellectual Property          |
| IPA | Investment Promotion Authority |
| NCD | National Capital District      |
| NFA | National Fisheries Authority   |
| NRI | National Research Institute    |
| PNG | Papua New Guinea               |
| SME | Small and Medium Enterprise    |

## Abstract

The informal economy of Papua New Guinea (PNG) is huge, but it has a narrow base and lacks diversity and innovation, limiting its potential to grow. This study investigated innovation of informal economic activities. The main objective of the study was to document and draw lessons from owners of enterprises that innovate and diversify with the type and nature of their activities as well as the techniques and methods they use in producing goods and services. Purposive sampling was used in the selection of sites in three provinces: Eastern Highlands, Central, and National Capital District (NCD). Data were collected using a predefined interview schedule to interview entrepreneurs. These were then analysed using Excel. The findings show that innovative methods, techniques or activities are adopted mainly by educated and trained individuals with specialised skills and their enterprises have the potential to grow and become sustainable. Among those without training are also individuals with a spark of originality whose enterprises also have the potential to grow. Expansion of businesses are limited by various challenges. The study concludes that state intervention must focus on developing strategies that can assist enterprises which demonstrate promising signs of innovating and diversifying. These enterprises not only have the potential to transition and become formalised Small and Medium Enterprises (SMEs), but also create additional spin-off benefits to provide training and create employment for local communities. Although most 'survival' entrepreneurs are likely to remain long-term in the informal economy, they also need to be enabled to operate at higher levels of productivity and income to sustain and improve their livelihoods.



# Introduction

Informal economic activities cover enterprises that are not registered with the Papua New Guinea (PNG) Investment Promotion Authority (IPA) covering all sectors. These activities range from selling fresh and cooked food, gold-panning, downstream processing, and so on. In PNG, more than 80 percent of the population depends on informal semi-subsistence sources of livelihood (Wang, 2014; Soweï et al., 2010). Much of the informal economic activity occurs out of necessity to meet survival needs and is centred around fresh food production and selling through open markets (Kopel et al., 2017a; GoPNG, 2011; Soweï et al., 2010; Eugenio, 2001). This explains why the informal economy in PNG is often understood to be synonymous with open produce markets.

Evidence from studies on the informal economy point to lack of diversity and variation in the type and nature of economic activities undertaken. The National Informal Economy Policy 2011–2015 (GoPNG, 2011) acknowledges that among other issues, lack of growth and diversity is a key issue affecting the informal economy, highlighting that Papua New Guineans are largely unaware of the rich range of possibilities for self-employment practiced by the poor in neighbouring Asian countries. Soweï et al. (2010:92) indicated in the Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of the Rural Informal Sector Study that most people produce the same type of crops leading to oversupply and low prices. The findings of Kopel's (2002) study on the nature of activities undertaken by women benefiting from the Western Highlands Provincial Women's Micro Credit Scheme also shows that there is not much diversification in the types of activities undertaken due to various constraints including education, literacy, and knowledge and skills. Eugenio (2001) indicates that many informal entrepreneurs undertake the same type of activities by learning through observation (the copycat phenomenon) of specific economic activities. Recently, the national audit of the informal economy found that lack of diversity continues to remain as a major challenge (Stanley, 2019).

However, pockets of diverse and innovative informal economic enterprises have emerged over recent years. Many of these can serve as good models with the potential to set the pace for growth and expansion. The concept of innovation is fuzzy with multiple meanings (Harriss-White and Rodrigo, 2013:74), but it refers to novelty with interactive processes in generating new products, methods and technology or substituting new factors of production.

Innovation is used here in a loose sense to refer to new ways of conducting common economic activities or engaging in completely new, unique or out of the ordinary economic activities, processes of production, technology or skills. Innovation is context specific as economic enterprises or methods of production considered as innovative in one location or period may not be so for other settings. Activities common in one location may be transferred to other locations in which they serve as new models for a different population.

In this study, innovative individuals and enterprises are categorised to be the ones that invent, adopt or adapt new technology and or improved methods of conducting common income generation activities or those entrepreneurs who take up unique economic activities. Innovation enables the formation and growth of entrepreneurial activities with a comparative advantage to be profitable and grow, of which some can transit into Micro, Small and Medium Enterprises while the bulk of these are certain to remain informal and continue to provide a sustainable source of livelihood.

In PNG, research on innovation in the informal economy is a new field and not much information is available. Therefore, this study aimed to improve the understanding of innovation and diversification as an engine for growth of informal economic enterprises. The objective of this study was to identify, document and draw lessons from innovative informal economic activities and entrepreneurs who are at the helm of driving growth in informal enterprises.

This study was conducted in selected locations in the NCD, Central, and Eastern Highlands provinces. Case studies are used to provide an insight into factors that drive innovation, provide an analysis of how innovative enterprises are set up, operated and managed, the issues faced, and how challenges are dealt with offering invaluable lessons.

This paper aims to learn from the experiences of those driving innovation and gain a better understanding of how innovative enterprises can be better supported to diversify and grow through appropriate policy interventions. The next section provides a brief literature review of innovation in the informal economy. This is followed by the methods used for data collection, presentation of results and discussion. The paper concludes with, policy implications of the lessons learned and recommendations for further research.

## Literature review

The informal economy is pervasive in developing economies; yet, very few studies have explored innovation. The limited available studies published on the subject over the last decade have been focused almost entirely on India and the African context. Further, several of the available studies have a specific focus on Intellectual Property (IP) of innovations in the informal economy (De Beer et al., 2013; Kraema-Mbula and Wunsch-Vincent; 2016) as opposed to investigation of innovation from a broader perspective or other angles.

Sheikh's (2018) article argued that despite the persistence of the informal economy, the main focus of past studies on innovation has been skewed towards the exchange value scalability and commercialisation of innovative initiatives in the formal economy while informal sector innovations have been overlooked. Through a review of literature, Sheikh (2018) discussed the non-economic and methodological factors which have contributed to the under-valuation, marginalisation and exclusion of alternative knowledge systems and informal sector innovations. Soni (2016) examined entrepreneurship and innovation in the informal economy using a case study of India; salient innovation types were identified. Soni argued that entrepreneurship in developing economies is mainly driven by necessity for survival. Research evidence in PNG also shows that most entrepreneurs engage in informality to meet survival needs and multiple sources of income is common and vital in enhancing existing household income (Kopel et al., 2017a; Sharp et al., 2015; Sowe, et al., 2010; Eugenio, 2001). Sharp et al. (2015) presented well-articulated case studies of salaried public-sector employees who operate informal sideline businesses to boost wage income, with some of them eventually leaving formal jobs to focus on undertaking informal businesses.

Harriss-White and Rodrigo's (2013) article based on work done in Arni, northern Tamil Nadu, India, made a number of observations on types of innovation including:

- Inventive bridging factors of production to create new production methods and technologies in commodification, cost competition, products and forms of organisation;
- adaptive technological and organisational innovations;
- transfer and diffusion of knowledge through education and media that can transform local production relations and create new social and economic aspirations; and,
- enhance livelihood and standard of living as well as problem-solving with the need to respond to selective state failures in provision, regulation and enforcement (Harriss-White and Rodrigo, 2013: 43).

De Beer et al. (2013) investigated the informal economy, innovation and IP in Africa. The paper attempted to link concepts, definitions and data on the informal economy to the idea of innovation and IP to set up a framework for further research and inform public policies relating to these issues.

Kraema-Mbula and Wunsch-Vincent (2016) edited a collection of work which examined innovation and IP in selected African informal economies and demonstrate that innovation takes different forms; economic activities are diverse ranging from just basic survival activities to the most complex and skilled craftsmanship. Often, it is a matter of adaptation instead of creating completely new technical inventions. For instance, metal works in Nairobi in many cases engage in reverse engineering where available materials are used to make cheaper alternatives of the same products that are sold on the formal market (Bull et al., 2016). There are also informal entrepreneurs who make exceptional improved quality, high-end products. Innovation in packaging, marketing and the drive to make herbal medicine part of mainstream healthcare products was observed in Ghana (Essegbey and Awuni, 2016). The study also revealed geographical concentration in certain areas creating clusters of innovation with their own informal IP rules.

Charmes et al. (2018) reviewed options for measuring innovation in the informal economy and proposed an agenda for future work on the development of policy relevant indicators of innovation. This work was also focused on the African context and involved a review of surveys of innovation in the formal business sector

which were used to inform the types of questions that could be applied in surveys of innovation in the informal economy. Avenyo (2018) discussed descriptive data of a survey conducted in 2016 of innovations that informal enterprises undertake, adapt or adopt. The study was conducted in two urban settings in Ghana. The findings revealed that innovation is not radical but incremental in nature and is vital to the survival of the sampled informal enterprises and the livelihoods of those who engage in these activities. Fu et al. (2018) undertook a study on innovation and productivity in both formal and informal firms in Ghana. Using the results of a survey of 501 formal and informal manufacturing firms, they concluded that innovation has a positive impact on the productivity of firms; but technological innovations contribute more so than managerial innovations.

In PNG, the SME Policy (Department of Commerce, Trade and Industry, 2016a) accompanied by a SME Master Plan (Department of Commerce, Trade and Industry, 2016b) has the aim of expanding the number of SMEs from an estimated 50,000 to 500,000 by 2030. With the awareness that the bulk of citizens are engaged in informal economic activities, the policy aims to play a significant role in facilitating major changes in the growth and sustainability of activities and transitioning enterprises into higher value-added SMEs. Any significant progress towards achieving this objective would require the growth of sustainable innovative enterprises of which many may start out as informal. Innovative enterprises require an enabling environment with appropriate support to overcome barriers and improve their activities and income by applying efficient factors of production: technology, skills and methods of operation. It is vital to note that while transitioning to SMEs is an appropriate policy goal, in reality, most 'survival' entrepreneurs who struggle to meet daily needs will unlikely make this progression. Therefore, it is equally important that another goal is set to make the activities of the remaining majority more productive, profitable and sustainable to meet livelihood needs and improve social welfare. The next section presents the methods used for data collection.

# Methods

The study covered selected sites in the NCD, Central, and Eastern Highlands provinces. The rationale for the choice of locations was largely due to resource limitations. NCD is the nation's capital with so many informal enterprises in operation. Central is in close proximity with easy access by road to Port Moresby. Eastern Highlands has been in the limelight in recent years as a growth centre for innovative economic activities. The sample comprised of only informal economic activities. Enterprises that are formally registered with the IPA were not included.

Data were collected using two methods. First, to maintain consistency in the questions asked — a questionnaire instrument was administered through face to face interviews (see Appendix). Questions were developed and pre-tested on informal entrepreneurs at the University of PNG staff residential quarters and vendors outside the PNG NRI campus, one afternoon. The questions were adjusted based on feedbacks from the trials. The questions were written in English and asked in English to confident English speakers and Tok Pisin to those with limited or no education.

Second, to complement data from interviews, detailed case studies were collected from each of the surveyed areas. This adds rich qualitative information describing personal journeys, experiences, challenges and coping strategies of entrepreneurs with the inclusion of a generous number of case boxes in the paper. Data were entered and analysed in Excel with the results presented using basic descriptive statistics. Case studies were written in Microsoft Word.

By the informal nature of their existence, there is no recorded information available on informal enterprises or the people who operate such businesses so there is no sampling frame. This made it difficult to apply random sampling techniques for data collection.

Snowball sampling was used to identify and select innovative entrepreneurs (respondents) and their businesses to be interviewed. Local knowledge played a key part in identifying key informants in specific sectors: National Fisheries Authority, Agriculture via Fresh Produce Development Authority as well as identifying areas where certain activities occur such as craft markets and mobile vehicle repair shops. We commenced by interviewing the first few identified respondents who consented to participate and they referred the team to additional entrepreneurs with a repeat of the process in each of the areas. There were very few refusals, but exact numbers were not recorded. Altogether, 86 respondents were interviewed whose feedback form the basis of this paper.

The field data collection in NCD and Central Province was done by a team of four which comprised three PNG NRI staff and the consultant. Data collection in Eastern Highlands was conducted by the consultant and two research assistants who were post graduate students from the University of Goroka, with previous experience in conducting surveys.

Data collection in north west and north east areas of Port Moresby, NCD and in Central Province (Sogeri and outside Pacific Adventist University) were done over five days from 15–19 August 2017. In Goroka, Eastern Highlands Province, field data collection was done over four days from 22–25 August 2017.

The short timeframe for data collection did not allow us to cover all possible innovative entrepreneurs in the selected areas. Also, the reliance on 'key informants' saves time but they may have missed some obvious innovative informal activities. The next section presents the findings of the study.



# Results

This section begins with a description of the characteristics of the entrepreneurs who participated in the study before proceeding to presentation of the results.

## Description of interviewed entrepreneurs' characteristics

A total of total 86 entrepreneurs were interviewed in the three study locations comprising of 44 men and 42 women. Fifteen male respondents were aged 36–45 years while 14 were aged 46–55 years. Unlike the male entrepreneurs, most women respondents were aged 26–35 years (19). The second biggest group of women was aged between 36–45 years (12). Less women (n=8), over 45 years of age, were engaged in innovative informal economic activities, compared to twenty (n=20) men. The smallest age group comprised younger males (n=2) and females (n=2) aged 16 to 25 years.

The majority of entrepreneurs (83%) were married, followed by single (8%), separated or divorced (6%), and the remaining, widowed (3%). The separated and divorced or widowed vendors would be among the most vulnerable households, especially the women who have to earn for the livelihood of their families through informal means. Their income generation activities need to be productive and sustainable to generate sufficient income to meet the needs of their households.

Household sizes are big with more than half of the respondents (n = 50) living in households that have more than five people while 13 of them live in households with 11 or more occupants. These household sizes are much bigger than PNG's average household size of 5.3 persons per household as recorded in the last National Census (National Statistical Office, 2013). Big households require more resources in terms of food and other essentials so the need to generate sufficient income becomes even more pressing for vendors.

Of the 86 entrepreneurs interviewed, 34 had either not reached beyond primary school education or had never been to school, 17 completed high school education and 5 acquired technical or vocational skills. Twenty-seven respondents are college or university graduates; they are highly qualified and have the potential to establish innovative enterprises. The remaining three did not specify.

More male respondents than females are highly educated and skilled with college and university level education (n = 17) and technical and vocational skills (n = 5), compared to just seven females who are university graduates and three college graduates. One would expect to find those with tertiary level education and training to lead innovative enterprises as knowledge and skills enable and facilitate innovation.

Half of the respondents' (n = 43) households depend entirely on income from informal economic activities for their livelihoods while the other half (n = 43) have other formal and informal sources of income. There was little difference between male and female respondents' sources of household income which indicates that both male- and female-headed households depend on income from informal enterprises to augment income from other sources. Just under half (n = 40) of all respondents have been engaged in informal entrepreneurial activities in the long term (six years or longer) with 30 of them having been in business for more than 10 years. This was followed by 12 entrepreneurs who have been operating for two to five years while those who have been operating for a short term for up to 12 months comprised the smallest group (n = 4). Those who have been operating for a long period demonstrate perseverance and the ability to sustain their business activities. With the right support these enterprises can grow and expand or even transform to formal status as SMEs.

## Innovations in informal economic activities

A number of factors lead people to engage in all informal economic activities; some of these are innovative while the majority are mundane. Table 1 shows the main reasons for engaging in informal economic activities.

**Table 1: Main reasons for setting up an informal business (multiple responses)**

| Main reasons for starting informal business               | Categories of activities | Number of respondents | %    |
|---|--------------------------|-----------------------|------|
| Only source of income                                     | ‘Survival’               | 35                    | 41   |
| Pursue personal interest or hobby                         | ‘Special interest’       | 29                    | 33.7 |
| Respond to a market or demand                             | ‘Opportunistic/creative’ | 16                    | 18.6 |
| Formally trained and acquired special skills in the trade | ‘Skilled/qualified’      | 15                    | 17.4 |
| Side activity to supplement income from other sources     | ‘Supplementary’          | 7                     | 8.1  |

Thirty-five respondents (41%) undertake the informal economic activity as a survival strategy. It is the only source of income to sustain their livelihoods. This group is categorised as ‘survival’ entrepreneurs’ (see Table 1).

Nearly 34 percent of entrepreneurs pursued the informal economic activity as a special interest or hobby that developed into a full time income generation activity. While some special interest business activities may be very profitable, others may not necessarily be so. Many activities in this category also appear to be common, lacking innovation and diversity.

About 19 percent of entrepreneurs stated that they started the income generation activity in response to a perceived market need or demand for a specific product or service. They are referred to as the ‘opportunistic/creative’ entrepreneurs. Such enterprises may potentially be profitable, but the question of profitability was not explored here. This could be investigated by future studies. Most entrepreneurs were seen to undertake mundane activities, while only a handful of them were innovative in the approaches and methods used.

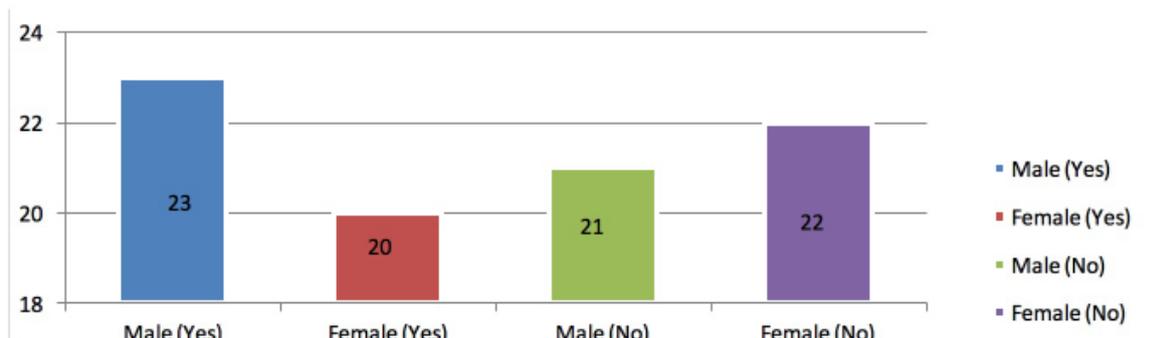
A total of 15 (17.4%) entrepreneurs have established informal businesses in their respective fields of expertise and generate income for themselves. Some respondents in this category have left formal employment to operate their own businesses. Others may remain in formal employment but also engage in this enterprise as a side business; ‘moonlighting’ to supplement household income. Skilled entrepreneurs, by reason of their education and training, may be responsible for many of the most interesting innovative informal business activities. They possess some level of knowledge and skills of trade that most uneducated entrepreneurs lack. They are also good candidates for transition to formal operations, or at least to relatively productive and sustainable informal activity. Their enterprises can thrive with adequate support in an enabling business environment.

In the last category, seven (8.1%) respondents engage in informal business as a side activity to supplement household income from other sources.

## **Sources of household income**

Informal economic activity provides the sole source of household income for half (n = 43) of the respondents (see Figure 1). The other half (n = 43) of the respondents’ households have other sources of income in addition to informal income. Informal income supplements existing sources of income. This means that multiple sources of income, from both informal and formal sources are quite common as a livelihood strategy. For unemployed men and women, income from both formal and informal sources may be earned by other members of the household. Some individuals are formally employed but also have ‘side-line’ sources of informal income. Others may move between formal and informal types of employment. There is a wide range of possible scenarios.

Figure 1: Is this informal economic activity your only source of household income?



The fact that half the households with an existing income are also engaged in informal income generation activities shows that current activities are vital in enhancing household incomes necessary to sustain and improve livelihoods. Informal income is even more important for lone-parent families and low-income households whose formal wage income is often not sufficient to sustain their living. Most of these activities tend to be non-innovative.

The following case study of Maria’s baking enterprise (Text Box A) demonstrates the importance of informal income complementing income from formal employment.

**Text Box A: Maria’s baking enterprise**

Maria is a single mother with three children and is from East Sepik Province. She lives in Port Moresby. Although Maria is in formal employment, she finds that her wage income is not sufficient to maintain her family. Using baking skills she learned from her mother, Maria bakes cakes and scones as well as knits billums and caps for sale (moonlighting). Baking and knitting bilums and caps were initially Maria’s hobbies. However, with a growing family and on a single parent’s income, she turned her hobbies into a money-making venture. Maria has been conducting her informal economic activities for more than 10 years. She provides these services to her workmates as well as her local community. Maria saved enough money to buy a second-hand car as well as restocking new cooking and baking equipment.

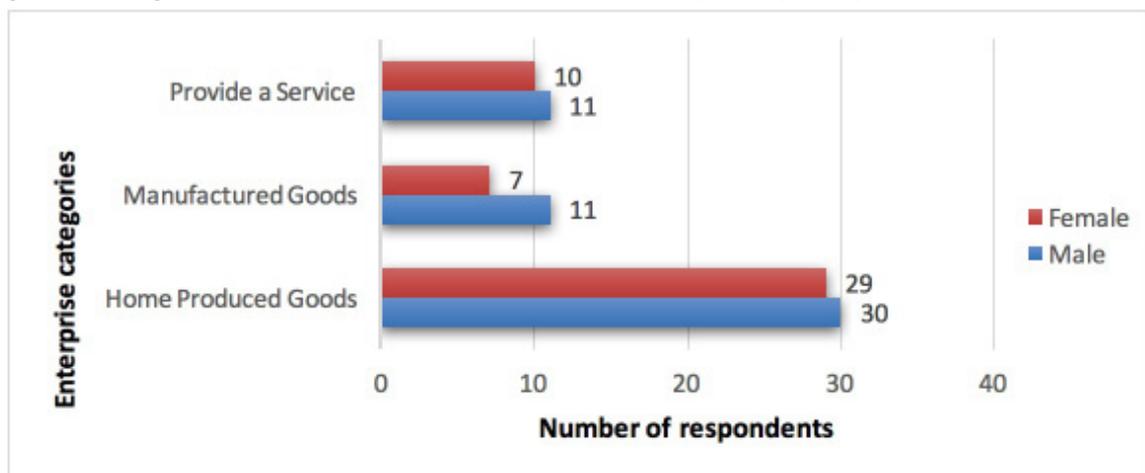
### Types of informal economic activities

Although many activities are common, there are elements of some very interesting informal economic activities employing innovative methods and processes. Some of these innovations are highlighted in case boxes in the subsequent sections. The types of entrepreneurial activities undertaken are divided into three categories.

- Home produced goods;
- Provision of services;
- Manufactured or processed goods.

Most entrepreneurs, both male and female (n = 59; 69%) engage in selling home produced goods (see Figure 2). There was also evidence of home produced goods being obtained through informal intermediaries (distributors or aggregators of commodities such as artefacts, vehicle parts, metal work, craft materials and fresh food). For example Text Box D is a case study of Elizah, the carver who aggregates artefacts and sells them. Twenty-one respondents provide informal services. The search for services provision was restricted to legal or ‘legitimate’ activities. There is plenty of illegal activity in this sector, but these were not covered in this study. Manufacturing related enterprises were the smallest category undertaken by 18 respondents.

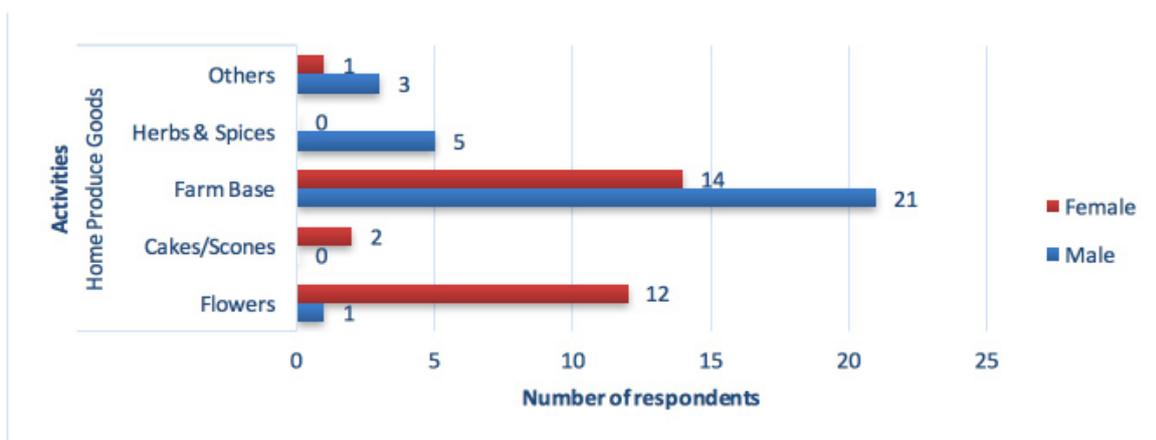
Figure 2: Categories of established innovative informal enterprises (n = 86)



### Innovation in home produced goods

Figure 3 shows activities based on home produced goods. High value activities with the potential to generate increased income are dominated by men whereas more traditional low value activities are undertaken by women. Farm-based activities such as aqua-culture (fish farming) is conducted by 21 (24.4%) male participants compared to 14 (16.3%) females. The growing and processing of non-traditional food production such as herbs and spices is also dominated by male participants. Herbs and spice cultivation, drying, processing and sales activities are mainly done in the Eastern Highlands Province. Cooking, baking and selling of cooked food are done by women. Other emerging activities such as floriculture are dominated by female participants (12) with much less male participation.

Figure 3: Types of home produced activities undertaken by respondents (n = 86)



Under farm-based home produced goods, poultry farming is the most popular activity operated by 21 male and 14 female participants, adding to a total of 35 participants. Poultry farming is an example of an informal activity that does not require special skills. It is easily undertaken by observing and learning from other farmers. Therefore, it is no longer innovative, but what makes it innovative and value adding is aggregating chicken by buying from farmers, preparing, storing and selling the chicken in a cooler or freezer. Another major innovative activity, aqua-culture under farm-based activity is fresh water fish farming, set up mostly by men and fewer women. Text Box B is about Gima, a female fish farmer from Sogeri who explains how she entered fish farming and manages it as an informal business activity.

### **Text Box B: Fish farming at Sirinumu Dam**

Gima is from the inland of Rigo District, Central Province. She is married to a man from Sogeri, Central Province, and has seven children. Her husband started fish farming with the help of National Fisheries Authority (NFA) a few years ago. Gima's husband received extension help from NFA and he in turn assisted other men in the village to set up their own fish farms at the Sirinumu reservoir which supplies water to Port Moresby. Initially Gima assisted her husband with his fish farming project. It was not long before she realised the economic benefits of this activity and decided to start her own project. Her husband provided fingerlings and they shared nets and cages to start her off.

Nets and fish feed are imported from Thailand and it is quite costly. NFA relieves the financial pressure on Gima and the other farmers by providing training, provision of feed and nets to Gima and other farmers. When the fish is sold, farmers repay NFA's expenses. Gima has been farming fish for two years.

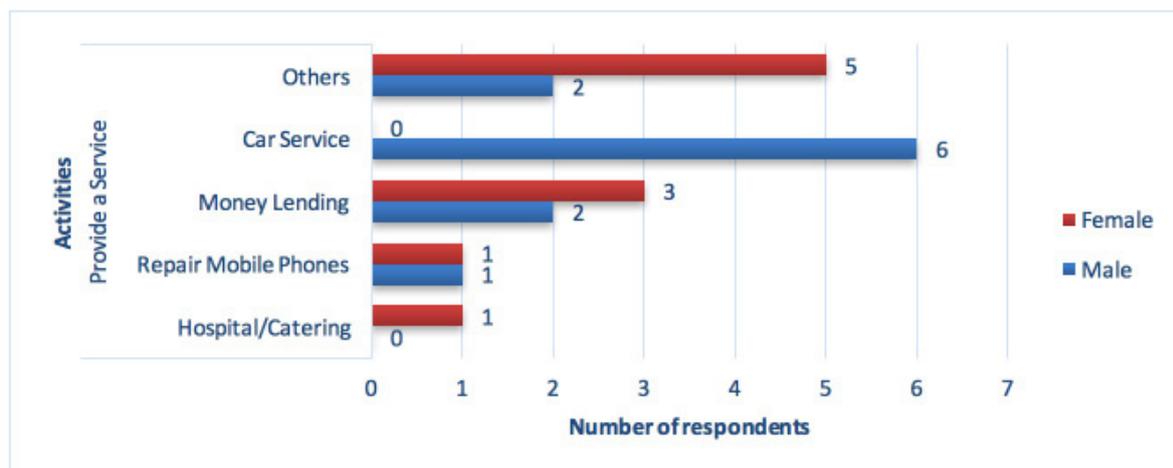
She faces business constraints because of the lack of her own fish pontoons and cages as she still shares these facilities with her husband. Another constraint is the high cost of transport to take fish from the island at Sirinumu Dam by dinghy to the Sogeri mainland and then by road to the markets in the city. She also grows ginger and sells in between fish harvests for extra cash. Although fish farming brings good income, the cost of transport depletes the hard-earned cash. This suggests the need for intermediaries to 'bulk up' supplies of fish close to the point of farming for transport to markets. Gima appreciates the assistance provided by NFA through training skills and sale of fish feed on credit. Fish farming is hard work, but it pays well so it should be promoted, especially among the grassroots in rural communities.

Other less common farm-based home produced goods include cultivation of citrus fruits, mix crops and grape cultivation. In terms of scale, these economic activities are very small, but can be expanded over time.

### **Innovations in provision of services**

The provision of informal services are undertaken by slightly more respondents than those selling manufactured goods. Examples of service based activities include: child minding; mobile phone repairs; car servicing and hospitality. Car repairs and servicing is undertaken only by male respondents comprising seven percent (n = 6), see Figure 4. Respondents in this category have varying levels of skills ranging from vehicle tinting, tyre repairing, to specialised mechanics. One qualified mechanic interviewed in Port Moresby stated that over the years, he has taken many young men under his wing and trained them. Once they acquire the basic skills, they then move on and are now scattered in the settlements and suburbs earning their own living through both informal and formal employment. Even though this entrepreneur was operating informally, he made an important contribution to pass on his skills by training other young men. This demonstrates that informal entrepreneurs who possess specialised skills have the potential to impart their knowledge and skills to other members of their communities. Such available skills including those in other sectors need to be identified, promoted and supported where possible. A research project could be devoted to informal trade based activity to explore the extent of contribution this sector makes to create employment and transfer knowledge and skills to the younger generation.

Figure 4: Types of informal services provided by respondents



Another form of service provision is money lending engaged by both men and women. One male and one female provided mobile phone repair services. The most notable in “Others” service provision activities is child minding, undertaken by one woman. This business has the potential to grow and become formalised. Details of this enterprise is presented in Text Box C.

**Text Box C: Florence’s child minding service**

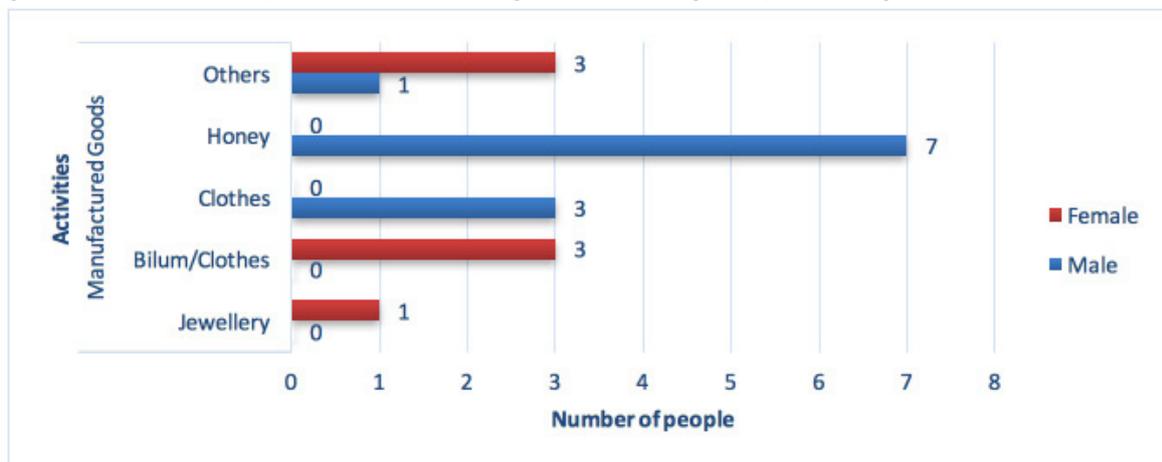
Florence is from Solomon Islands and Enga Province. She is married to a man from Enga Province. She was a teacher in a private school but left in 2015 and became a stay-at-home mum after her baby was born. Her husband financed her to set up a child minding service in her backyard. Florence is passionate about early childhood learning and therefore started this project. She lives in a settlement where such services are not available to families so Florence supports her community and the project provides an income for her.

The target population is low income earners who cannot afford private school fees or formal child minding services. Most of the clients are parents who are actively involved in informal marketing activities and low to middle-income earners. Florence employs two young women as assistants who are receiving informal training on-the-job. Fee payments are used to pay the assistants, children’s lunch, teaching kits and facilities. Any left-over income is used for her family needs. The main problems faced are: lack of finance for expansion of the business; the need for a bigger and more secure property; and more helpers. She feels that the government should help fund child minding projects as she believes early childhood development is fundamental for children to be educated as well as molding them to become respectable and responsible young people.

**Innovations in making and or selling processed goods**

Manufacturing and the sale of processed goods is undertaken by slightly more male respondents than females. Observed home-based activities included jewellery making, metal works carving out sculptures, sewing, pottery, artefacts and honey processing. Bee keeping and honey making are real innovations so these enterprises were separated from farming of food crops and animal farming.

Figure 5: Number of respondents undertaking manufacturing and processing activities



Keeping of bee hives is categorised under farming and honey processing and is treated as processing a finished product. Figure 5 shows that honey processing was undertaken by seven male participants. This is because honey-making requires highly specialised skills. Supplies of honey combs are bought directly from local bee keepers and processed. Over time, aggregation will essentially contribute to the emergence of industrial processes of specialisation and exchange.

Text Box D shows how Elizah aggregates and sells artefacts; providing income for his community and informal employment in the process.

**Text Box D: Elizah aggregates and sells artefacts**

Elizah is a carver from Milne Bay Province. He is a pastor, married with four children. However, his allowance from his church work is not enough to sustain his family in the city so he makes carvings as a ‘side-hustle’, providing supplementary income. Elizah has been selling his own carvings and also for others from his home village for 15 years. The business does more than providing an extra source of income. It also gives him the opportunity to promote his culture. Elizah sells at Laguna Hotel which offers free space. He also sells at fee paying locations such as Ela Beach Craft Market and Holiday Inn. Using public transport to move his artefacts from one location to another was a problem in the beginning. However, he now has his own vehicle and pays family members to load and unload his goods. This creates a separate form of informal employment for carriers; employment creation by informal entrepreneurs.

Text Box D shows that Elizah attracts customers by word of mouth and through social media platforms such as Facebook and the use of internet. For an informal entrepreneur, the use of internet and social media is innovative as it helps promote his goods both domestically and internationally. Elizah wishes to see the government provide a safe venue with protection from the elements for informal vendors to sell art and craft products in a central location such as near the airport. This would enable entrepreneurs to sell their goods in a safe environment and under all-weather conditions. However, the capital costs of such a centre could be too much leading to user-charges being expensive for informal entrepreneurs. Further studies can quantify the extent of employment and income generated by such informal enterprises, which often benefit young workers and introduce them to the informal economy.



## Challenges faced and coping strategies

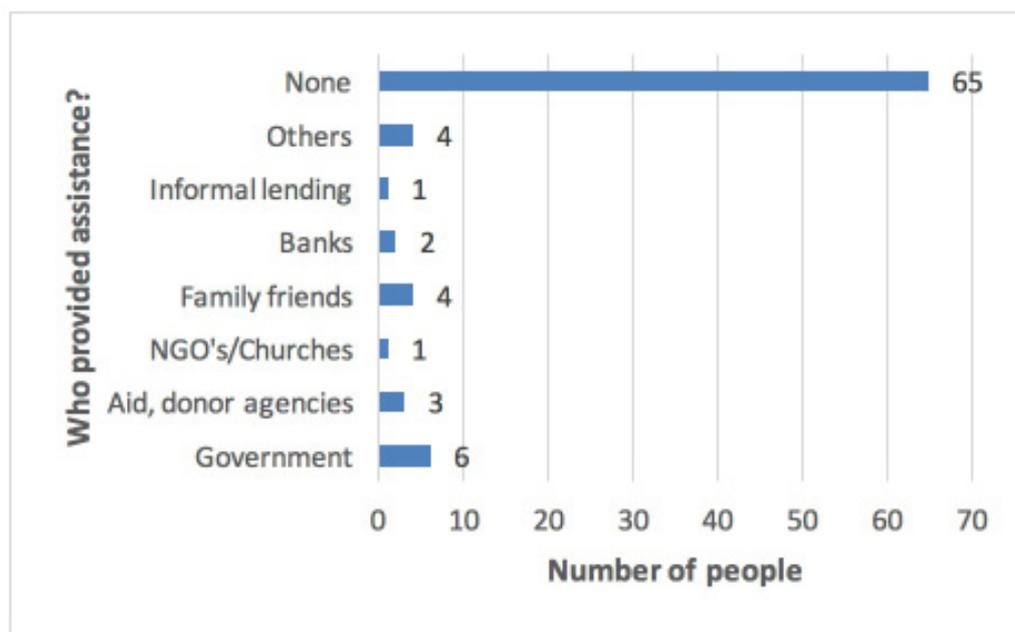
Challenges are perpetual and affect the setting-up and ongoing operation of income generation activities. These experiences have led some entrepreneurs to adopt coping strategies in response to challenges and becoming resilient in maintaining their enterprises.

### Challenges in accessing assistance to set up informal enterprises

Being informal entrepreneurs, the majority (n = 65) have not obtained any assistance from formal sources to establish their activities both in terms of funding and technical aid (see Figure 6). Only twelve (n = 12) entrepreneurs benefited from formal sources with six having received help from government sources. Four individuals obtained assistance from donor agencies and non-government organisations while four respondents received funds in cash or kind from family and friends. Informal lending was used by just one respondent and the remaining four were assisted through unspecified sources.

It is worth noting that only two entrepreneurs were able to access help from financial institutions/banks. Due to the lack of access to finance, most entrepreneurs keep their activities small and continue to operate outside the formal system. This raises the question of how the informal entrepreneurs can better access services offered by financial institutions to enable their economic activities to become part of the mainstream economy.

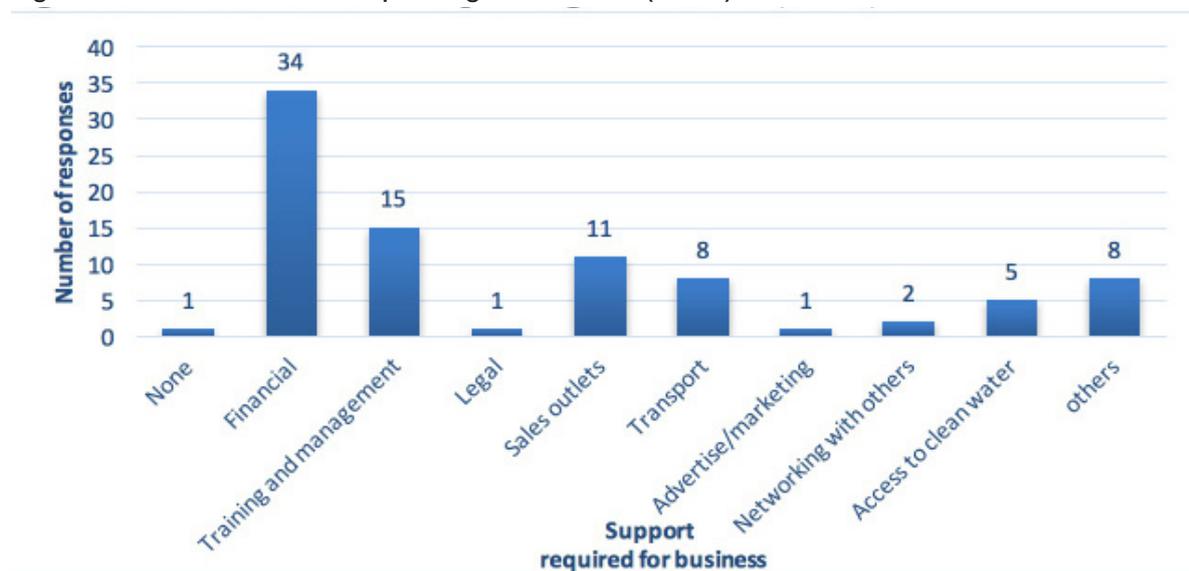
Figure 6: Access to assistance in setting up an informal business (n = 86)



### Constraints impacting on the ability to sustain and grow the business

The most common challenge for entrepreneurs (n = 34), to continue to operate and sustain their businesses is also lack of finance (see Figure 7). Business management training is the second common constraint (n = 15), and eleven (n = 11) entrepreneurs expressed limited access to sales outlets for products and services. This was followed by the need for access to reliable and affordable transport (n = 8) to enable easy movement of goods and services between town, market and home for smooth running of business activities. As a result, in order to cope with these challenges, many entrepreneurs keep their activities small.

Figure 7: Constraints faced in operating the business (n = 86)



Access to clean potable water is also a big challenge for participants’ own personal health and hygiene as well as drinking water for farm animals, crops and plants (n = 5). This was identified specifically by respondents engaged in herb and spice cultivation and floriculture activities. To address this challenge, women who are engaged in floriculture activities at 9 Mile in NCD collect and use waste water from drains along the main road to water their plants.

Text Box E on James’ herb and spice enterprise provides an insight into the challenges associated with operating the enterprise.

**Text Box E: James’ herb and spice cultivation enterprise**

James is from Goroka in the Eastern Highlands Province. He has been conducting his informal business, which is growing and selling herbs, spices and brown onions for three years. These commodities are relatively high value per unit of volume. James was trained and coached by Fresh Produce Development Agency staff in Goroka who also helped him find markets for his produce. He took heed of the advice that growing herbs and spices have good potential for income. James’ wife, children and other family members assist him with the operation of his business. James finds family support to be essential for the growth of this kind of farming.

This activity is a good source of income for the family. It keeps the youth occupied in the community and reduces the level of criminal activities and consumption of home brew and drugs. James’ specific challenges are accessing water for farm activities in the dry season. In instances where it is extremely dry, water is carried in plastic containers on foot, but often this is not sufficient to water all farm plants. James also noted that the cost of farm tools is expensive and suggested the need for subsidisation or reduction of the Goods and Services Tax (GST) for farming tools, equipment and seeds.

An import ban on produce like brown onions will enable local farmers to get a good price for their produce. However, given the small scale of many of these enterprises, production would need to increase to meet demand. Technical advice and training in crop production, harvesting, curing and packaging is important for the survival of spices, herbs and brown onion businesses.

**Respondents’ ranking of challenges in order of importance**

Informal entrepreneurs face many challenges and so we wanted to establish which issues were more pressing than

others. Below are responses from entrepreneurs ranking the challenges in order of importance.

**Table 2: Challenges ranked in order of importance (multiple responses)**

| <b>Rank challenges</b> | <b>To set-up informal business</b>      | <b>Number of respondents</b> | <b>To operate informal business</b>               | <b>Number of respondents</b> |
|------------------------|---|------------------------------|---|------------------------------|
| 1                      | Start-up funds                          | 22                           | High cost of materials and equipment              | 25                           |
| 2                      | Lack of materials and equipment         | 15                           | Transport cost and availability                   | 13                           |
| 3                      | Lack of transport and access to markets | 10                           | Access to markets/high competition and poor sales | 11                           |
| 4                      | Lack of knowledge and skills            | 3                            | Law and order issues affecting business           | 7                            |

### **Challenges faced when setting up an informal business**

The issues faced when setting up the business have been ranked by participants from the most important to those that are least important. Start-up capital is the highest-ranking issue faced by (n = 22) respondents. Although start-up capital amounts are small to moderate ranging between K300–K1,000, only two (2) entrepreneurs obtained loans from formal financial institutions.

Lack of materials and equipment ranked second with 15 respondents. The most common of this is the need to import materials and equipment which cannot be sourced locally. With the low value of the PNG Kina, imported materials and equipment are often extremely expensive. As noted earlier, lack of transport and access to markets was ranked as a major constraint by 10 respondents. Lack of knowledge and skills was highlighted by three respondents who would like to establish activities that can generate better income but are unable to do so.

### **Challenges faced when operating an informal business**

Four of the most common challenges that entrepreneurs face in operating informal economic activities are: increasing cost of materials and equipment; transport cost and availability, market access and competition, and law and order issues.

The high cost of materials and equipment for production of goods and services was ranked as the biggest challenge for twenty-five (25) entrepreneurs. This is a major concern as many materials, tools and equipment needed to conduct economic activities have to be sourced from abroad. For instance; fresh water fish farmers at Sogeri in Central Province use imported fish feed and nets from Thailand; vegetable growers purchase seeds imported from Australia; mechanics buy vehicle parts from dealers who import from Japan; and honey processors import equipment from New Zealand. These entrepreneurs all experience the burden of paying marked-up prices including the GST. Increasing costs make it difficult for entrepreneurs to sustain activities, grow and transition to formally registered businesses.

As seen earlier, to address the issue of increasing costs for fish farmers, NFA has adopted an innovative approach to help them by providing technical assistance and distributing fish stock (fingerlings) feed, and nets. When the fish is ready, NFA sells the fish to city shops on behalf of the farmers, holds back the amount owed to NFA for fingerlings, feed and materials, and gives the remaining funds to each farmer.

It is in the interest of entrepreneurs to see a reduction in import tax on commodities for use in specific sectors such as agriculture, manufacturing or downstream processing, but this is bound to be politically difficult. The best option would be to produce materials and equipment locally where possible. However, the local industry is underdeveloped and demand is not sufficient to attract investment. Again, it may begin with informal production using a hybrid of local and imported materials such as fishing nets and feed to reduce costs for farmers. The case study of Ben the bee farmer in Text Box F illustrates the issue of the high cost of materials and equipment facing innovative entrepreneurs.

**Text Box F: Ben the bee keeper**

Ben is a bee keeper and is from Bena in the Eastern Highlands Province. He is married and has six children. He has been in this informal business for 10 years. He graduated with a Diploma in Agriculture and worked for the Department of Agriculture and Livestock. Ben was sent to New Zealand to be trained in bee keeping. After years of working for DAL providing extension services to farmers, Ben resigned and set up his own informal bee keeping business.

Lacking the finance and materials to start the business, his family and friends helped to buy his bee stock. With New Zealand Government Aid, he was able to purchase bee hives. He sells queen bees and trays of bee hives but not honey as downstream processing requires more equipment which needs to be imported which is costly. Ben feels that the government is not doing enough to promote innovative informal economic activities. Entrepreneurs struggle to pay the excessive costs of importing equipment and the added import duty and GST.

Bee farming and honey production are high earning informal economic activities. A genuine search for options to assist innovative informal businesses like Ben's, whether it be through materials and equipment or micro credit to sustain the business, would go a long way. Ben's business is a good candidate for full formalisation and transition to SMEs providing employment for others. Such innovative activities are promising projects for support by donor partners with a focus on improving rural livelihoods and economic empowerment.

Transport challenges were ranked as the second major constraint faced by 13 respondents. This relates to both the lack of access and high cost of transport as both have a negative impact on informal economic activity. It becomes costly to transport village products to markets or transport home urban purchased goods including transport of store items (animal feed, pesticides and fertilisers).

The floriculture entrepreneurs have undertaken several initiatives to overcome transport constraints by fare sharing for transporting plants to the city for sale using taxis or public motor vehicles and taking turns to mind market stalls. Others mentioned contributing money as a group and purchasing fuel for relatives or friends with vehicles to transport items in bulk. This reduces the time and cost of transportation which would be incurred if each farmer was to do it alone. These initiatives to pull resources together and working in partnership indicates resilience. If the level of activity is big, there may be need for specialised intermediaries to provide transport services. However, this is a problem where the informal businesses are too small to justify such expenses by potential investors.

The challenge with transport is shown in Text Box G by flower and plant sellers outside the 9 Mile cemetery in NCD.

### **Text Box G: Flower and plant selling outside the 9 Mile Cemetery**

Grace is a 34-year-old married woman from Finschafen, Morobe Province. She has four children. Grace and her husband plant flowers on their settlement block at 8 Mile and sell on the roadside outside the 9 Mile cemetery. Both of them were unemployed and helped her uncle to sell his flowers when he went to work. As his flower business grew, he helped Grace and her husband to plant and sell flowers for themselves. With very low levels of formal education and unemployed, Grace and her husband worked hard to grow their flower business.

Water from nearby drains is fetched to water the plants. A neighbour's wheelbarrow is used to transport the plants back and forth daily to avoid vandalism or theft overnight. With money from the sale of plants, Grace and her husband pay a small amount to the wheelbarrow owner. Through this activity, the family meets the cost of their basic needs as well as purchase new flower pots and plastic bags. Sometimes when there is an important event in the city, Grace and her friends share taxi fare or buy petrol for a relative or friend's vehicle to transport their plants and flowers to sell. Networking and cooperation with other informal entrepreneurs helps them to sustain their small businesses. Perhaps using modified wheel barrows with layered storage racks would make it easier for people to transport potted plants.

Increased competition and lack of access to markets was ranked as the third major challenge by 11 respondents. The strong competition from other 'copycat' entrepreneurs who imitate by setting up the same activities, results in poor sale of goods, products and services. Lack of diversification of income generation activities and production of the same type of goods and services lead to oversupply and low prices. This is due largely to lack of education and skills. There is limited understanding and people do not know the diverse range of possible activities that could be established to earn an income. Other studies have shown that most activities are centred on production of perishable food items so what is unsold often goes to waste (Sowe et al., 2010; Kopel, 2002).

Law and order issues constraining informal enterprises was ranked as the fourth major challenge by seven respondents. This covers a wide range of issues including theft, vandalism, robbery and looting, particularly in open markets. For example, plant sellers outside the 9 Mile cemetery stated that their plants have often been vandalised or stolen when left unattended overnight. Such actions contribute to loss of income and curtail the earning capacity of entrepreneurs. In an attempt to prevent theft and destruction, floriculture vendors take turns as night watchers.

The next section discusses the findings of the study and outlines the lessons learned from innovative informal entrepreneurs and the enterprises they operate.



# Discussion

The discussion on results of innovation, the challenges facing entrepreneurs and their enterprises and the coping strategies employed reflect the circumstances and experiences of the entrepreneurs in operating the enterprises. The level of innovation in PNG is at its infancy with the majority of entrepreneurs engaging in common, non-innovative informal economic activities that are essential for meeting daily survival needs and enhancing livelihoods. This supports findings from previous studies that a large proportion of entrepreneurs depend on the informal economy as a survival strategy to meet livelihood needs (Kraema-Mbula and Wunsch-Vincent, 2016; Kopel et al., 2017a; GoPNG, 2011; Sowe et al., 2010; Eugenio, 2001).

Soni's (2016) study in the Indian context also supports this finding that much of the entrepreneurial activity is driven by the need to meet survival needs. It is important to provide an enabling environment that would make it easier for survival entrepreneurs to operate at higher levels of productivity which can sustain businesses and increase incomes. These entrepreneurs would benefit from extension services and short-term skills training opportunities which can enable them to diversify their economic activities and improve income. Over time, some of these entrepreneurs can innovate, expand their activities and transition to formal SMEs.

The lack of diversity in the type of activities and methods of production or technology is widespread, also echoing the findings of previous studies that PNG's informal economy is marked by lack of diversity (Sowe et al., 2010; Kopel, 2002; Eugenio, 2001). This contrasts with the high level of innovation occurring in other developing countries in areas of downstream processing, technology adoption, adaptation and diffusion, particularly in the Africa subcontinent, to the point where they are now considering questions of IP rights (Kraema-Mbula and Wunsch-Vincent, 2016).

Some of the most interesting innovative enterprises in this study were found to be undertaken by a much smaller number of entrepreneurs in the areas of fresh water fish farming, vehicle repair work, bee keeping and honey making as well as herb and spice growing and packaging. As Kraema-Mbula and Wunsch-Vincent (2016) noted, with sufficient diversification and increase in supply and demand, spin-off economic activities will emerge at aggregation points to effectively link the supply chain (packaging, storage, transportation and markets).

Aggregation of goods was demonstrated only in several cases by the artefact seller who collects products from village people and does street sales as well as online. Honey processors also collect honey combs from bee keepers and process honey. Over time, more aggregation points may emerge. There is also some evidence of use of adaptive technological innovation in Port Moresby with vehicle repair workers using recycled vehicle parts as well as creation of sculptures and barbeque stands using recycled metals. These activities require technical knowledge and are undertaken by skilled entrepreneurs, particularly men, catering to unmet demand or provide cheaper services. This evidence supports Harriss-White and Rodrigo's (2013) suggestion that such developments in the transfer and diffusion of knowledge and skills gained through a combination of formal and informal education for problem -solving emerge in response to state failure in provision, regulation and enforcement. Entrepreneurs apply the kinds of innovation involving inventive bridging factors of production which enable new production methods, use new technology and forms of organisation.

An interesting contribution of the results of this study is that the potential to drive innovation and diversifying the informal economy lies in the activities of those who are educated with specialised knowledge and skills in specific sectors or have a spark of originality in responding to market demand for certain goods or services. To facilitate the growth of innovation in the informal economy, it is better to identify persons with the skills and or ideas and assist them to establish or grow the enterprises, which can better serve as models for others to learn from. This means actually locating the 'heroes' of innovative enterprises and publicising their activities in areas where similar opportunities exist.

While both male and female entrepreneurs were found to engage in informal economic activities, men tended to dominate the innovative, high value and high earning activities compared to women. For instance, fish farming; herb and spice production, bee keeping and honey processing enterprises were dominated by males. This, on the surface, does appear that men are good candidates to drive innovation, increase productivity and sustain

growth of informal businesses and rightly so, for some types of activities. However, people who are at the heart of innovation and diversification are mainly educated and highly skilled entrepreneurs; and most of these are male entrepreneurs. Any effort to increase women's engagement in innovation and diversification of their enterprises would require targeted education and training programs and skill-building opportunities for women alongside other interventions such as adult literacy and financial inclusion efforts.

Operating innovative informal enterprises in the community creates employment and training for young people. Youth often have some introduction to informal economic activities through acting as low-paid or unpaid helpers. This provides them with some experience, leading to their later independent activity. The artefact aggregator, for example, provides employment for others and income for his kinsfolk back in the village. The child minding service provider employs young women as helpers; and the mechanic teaches young men to repair vehicles. Over time, as they get older, informal assistants will move on and set up their own enterprises or find formal employment.

The results suggest that women engage with informality earlier than men (26–35 age group) but that men become increasingly dominant thereafter. Perhaps child-bearing imposes economic responsibility on women at an earlier age while simultaneously ruling them out from formal employment. This raises the question of why women's engagement appears to taper off over time. Maybe younger women are exposed to new ideas through education or mobility and are more receptive to adopting and adapting new skills and are innovative compared to older women. Men may engage in formal employment in their younger years and leave later to establish informal businesses and work for themselves. These are areas for potential research on the informal economy.

The challenges that constrain innovative enterprises are not confined to one sector. These apply across industries and activities, ranging from producing and selling fresh produce to manufacturing/downstream processing and provision of services. A number of common areas of challenges emerge from this study. These include: lack of finance, lack of skills and knowledge, shortage of technical capacity and material resources, access to markets and high competition as well as cost of transportation and safety. These challenges mirror the same issues identified by previous studies (Kopel, 2020; Stanley, 2019; ADB, 2012; GoPNG, 2011; Sowe et al., 2010; Eugenio, 2001).

Some of the innovative informal businesses have the potential to grow, but their capacity to grow have been constrained by lack of finance and they are highly dependent on informal sources of funding. Shortage of technical and material resources also pose a major barrier for informal entrepreneurs where the price of imported materials and equipment needed are extremely high. This should provide an incentive for the local industry to produce and promote the use of local equipment and materials. Unfortunately, this has not yet happened. Imposing import restrictions would address some of the challenges to meet short term needs; in the long-term demand needs to be met by local firms.

Forms of 'appropriate technology', in the formal or informal innovation of the type observed in African countries by Kraema-Mbula and Wunsch-Vincent (2016) needs to be developed to avoid the necessity of importing high-cost, sophisticated equipment. Even traditional materials can be adapted to enable many tasks to be performed. Some of the supplies needed for enterprises like fish farming using fibre nets and bamboo cages were produced in traditional society. Perhaps some of these essential items could be produced in modified forms locally, both formally or informally and this requires innovation.

The need for better connectivity: access to improved roads and affordable transport is also a key challenge, an issue that has also been noted consistently in previous studies (ADB, 2012; GoPNG, 2011; Sowe et al., 2010; Eugenio, 2001). Poor infrastructure and lack of transport services constrain free and easy movement of people, goods and services and this affects progress of innovation in the conduct of economic activities. The emphasis on the need to invest in infrastructure to provide an enabling environment has been laid out in the National Informal Economy Policy (GoPNG, 2011) and the Medium Term Development Plan III (Department of National Planning and Monitoring, 2018). Shortfalls in technical skills and knowledge is an issue for those with limited education. This partly explains the lack of diversity in activities, leading to over supply, strong competition and poor sales which are recurring themes, also observed in previous studies by Bonney et al. (2012); Sowe et al. (2010); Kopel (2002); Eugenio (2001). This evidence raises the need for policy interventions to be strategic and holistic, from different entry points to address a range of different issues simultaneously.

# Conclusion, policy implications and recommendations

The majority of people are 'survival' entrepreneurs whose priority is to meet livelihood needs, undertaking common economic activities. Those with an existing source of household income engage in informal activities to supplement income from wages or other informal sources. Most entrepreneurs sell what they produce with a few instances of aggregation with some very interesting and innovative activities.

Innovation, using new technology and methods of production requires knowledge, skills and capital, but many entrepreneurs lack these inputs. Entrepreneurs who are educated and skilled taking up activities that are in line with their skills and training are driving innovation. With adequate resources and support this group of entrepreneurs can grow their businesses. They have shown potential to train and employ others in the process of growing their businesses. More can be achieved with a little bit of extra support to these informal entrepreneurs operating in local communities.

The opportunity for innovators to grow their enterprises is constrained by technical and resource limitations. Many enterprises have not benefited from formal sources of support and operate under challenging conditions. Addressing many of these constraints can go a long way to promote and encourage innovation and growth of economic activities. The growth and expansion of the informal economy can create greater employment opportunities and income in both rural and urban areas.

## Policy implications

### Implications on the SME Policy

Innovative informal enterprises are established and operated by people with formal training and specialised skills. These enterprises are more likely to be sustainable, grow and transition to SMEs and contribute to meeting PNG's SME Policy target of reaching 500,000 SMEs by 2030 (Department of Commerce, Trade and Industry, 2016a). However, the results of this study indicate that growth and expansion of innovative enterprises is constrained by financial, technical and resource challenges. Individuals and enterprises driving innovation need to be supported with appropriate financial and technical training and resources which can enable them to grow and make the transition to SMEs.

### Implications on the National Informal Economy Policy

A comprehensive analysis of challenges affecting the informal economy informed the development of the now lapsed National Informal Economy Policy (GoPNG, 2011). This study identified some of the same issues that are challenging to informal enterprises which need to be adequately addressed by the new policy that is yet to be developed. Effective implementation would require the development of an implementation strategy that would provide a road map to guide projects and activities to achieve the policy objectives.

Innovation is led mainly by educated and skilled entrepreneurs who operate in communities, sharing their knowledge, expertise and provide informal employment as well as skills transfer through hands-on training where extension services may not be available.

The activities of these entrepreneurs are the most likely candidates to make the transition to SMEs. It would be useful to create opportunities that can support and promote innovative methods or techniques and activities as well as supporting entrepreneurs already demonstrating potential for innovation. This is not to say that the majority of entrepreneurs with limited education, low levels of literacy and skills who engage in informal economic activities as a livelihood strategy should be neglected. They also need to be supported to improve incomes and make their enterprises more sustainable to maintain and improve livelihoods.

### **Other key areas that need policy focus**

Other key areas which emerge from the results of this study that need policy to focus on to address include:

- Seeking ways in which the local industry can be stimulated to develop culturally and technically appropriate alternatives to replace costly imported materials and equipment. Actively promoting initiatives that can reduce costs for informal entrepreneurs including incentives for research into the development and production of cheaper local products and equipment. University of Technology's appropriate technology division would be a key stakeholder in the search for local solutions to address this issue.
- Addressing specific training and skills building needs of informal entrepreneurs. This is essential for collaboration between government, donor partners and non-government organisations to address.
- Improving access to finance for informal economy participants. This would require working in partnership with the Centre for Excellence in Financial Inclusion to implement its Financial Inclusion initiatives. This can enable shared use of public resources and eliminate duplication of programs.
- Exploring creative and cheaper ways of providing strategically located and serviced specialist markets that would enable informal economic activities to thrive. Entrepreneurs of certain activities such as artefacts and floriculture operate in the open at the mercy of the elements.

### **Recommendations for further research**

Several recommendations are offered for further research into innovative informal economic activities in PNG.

- Trained and skilled informal entrepreneurs have the potential to drive innovation. They operate in communities where extension services may not be available, sharing their knowledge, expertise and transfer skills to others through hands-on training. Research needs to focus on current and potential initiatives which can support innovative entrepreneurs to expand their enterprises while at the same time providing informal training to other members of their community to take up similar projects.
- A comprehensive study into innovative informal economic activities needs to be conducted at a scale that can provide representative evidence of innovative informal economic activities across PNG.
- There is a need for research to identify and analyse innovations in non-agricultural, manufacturing and downstream processing informal economic activities. There is also a need for detailed research into industry specific informal enterprises that have potential for export to overseas markets. Artefacts, spices and honey are examples of informal activities that could be promoted for export.
- The informal economy has the potential to absorb massive numbers of unemployed young people. However, both males and females under 25 years of age were under represented in this study. Further studies could investigate whether this finding is consistent elsewhere and establish why this may be so.

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# Appendix

## Innovative informal economic activities: NCD/Central and EHP

Instructions to interviewers

1. Give copy of informations statement to participant
2. Explain purpose of study to participant
3. Respondent signs consent form to participate
4. Ensure that all questions are asked and responses recorded
5. Use note book to record any additional information

### Instrument for data collection

Location: \_\_\_\_\_

Questionnaire No: \_\_\_\_\_

Date of interview: \_\_\_\_\_

#### A. Informal Economy Participant (Respondent) General Information.

| Question  |                       |
|---|-----------------------|
| <b>1. Gender:</b>                                   |                       |
| 1. Female   | 2. Male               |
| <b>2. Age Range</b>                                 |                       |
| 1. 16 – 25  | 4. 46 – 55            |
| 2. 26 – 35  | 5. 56 and over        |
| 3. 36 – 45  |                       |
| <b>3. Marital Status</b>                            |                       |
| 1. Single   | 3. Separated/Divorced |
| 2. Married  | 4. Widowed            |
| <b>4. Number of people in your household:</b> _____ |                       |
| <b>5. Do you have any children?</b>                 |                       |
| 1. No (Go to Question 7)                            | 2. Yes                |

**6. If yes, how many and how old?**

| Number<br>( List oldest child first) | Gender |        | Age |
|--------------------------------------|--------|--------|-----|
|                                      | Male   | Female |     |
| 1                                    |        |        |     |
| 2                                    |        |        |     |
| 3                                    |        |        |     |
| 4                                    |        |        |     |
| 5                                    |        |        |     |
| 6                                    |        |        |     |
| 7                                    |        |        |     |
| 8                                    |        |        |     |

**7. Province of Origin**

- |                                      |                        |
|--------------------------------------|------------------------|
| 1. Autonomous Region of Bougainville | 13. Morobe             |
| 2. Central                           | 14. NCD                |
| 3. Eastern Highlands                 | 15. New Ireland        |
| 4. East New Britain                  | 16. Oro                |
| 5. East Sepik                        | 17. Sandaun            |
| 6. Enga                              | 18. Simbu              |
| 7. Gulf                              | 19. Southern Highlands |
| 8. Hela                              | 20. Western            |
| 9. Jiwaka                            | 21. Western Highlands  |
| 10. Madang                           | 22. West New Britain   |
| 11. Manus                            | 23. Mix, Specify-----  |
| 12. Milne Bay                        |                        |

**8. Highest level of formal education**

- |               |                          |
|---------------|--------------------------|
| 1. None       | 5. Vocational/ Technical |
| 2. Elementary | 6. College               |
| 3. Primary    | 7. University            |
| 4. Secondary  | 8. Other, Specify-----   |

**9. Is this informal economy activity your only source of income?**

- |                            |       |
|----------------------------|-------|
| 1. Yes (Go to Question 11) | 2. No |
|----------------------------|-------|

**10. If no, what are your other sources of income?**

| Source of income                        | Number of earners |        | Total |
|---|-------------------|--------|-------|
|   | Male              | Female |       |
| 1. Working in the formal economy        |                   |        |       |
| 2. Remittance from other family members |                   |        |       |
| 3. Other informal activities            |                   |        |       |
| 4. Others, specify-----                 |                   |        |       |

**B. Type and nature of informal economy business**

| Question  |                               |  |
|---|-------------------------------|--|
| <b>What type of informal economy business do you conduct?</b>                                 |                               |  |
| <b>11. Home produced goods</b>  |                               |  |
| 1. Flowers  | 4. Herbs & spices             |  |
| 2. Cakes/Scones   | 5. Downstream processing----- |  |
| 3. Farm based   | 6. Others, specify -----      |  |
| <b>12. Manufactured goods</b>   |                               |  |
| 1. Jewellery  | 4. Pottery                    |  |
| 2. Bilum /Clothes   | 5. Honey                      |  |
| 3. Clothes  | 6. Others, specify -----      |  |
| <b>13. Provide a service</b>  |                               |  |
| 1. Hospitality/Catering   | 5. Money Lending              |  |
| 2. Repair Mobile Phones   | 6. Entertainment              |  |
| 3. Internet Café  | 7. Others, specify-----       |  |
| 4. Taxi/Hire Car  |                               |  |
| <b>14. Do you pay any fees to operate your informal economy business?</b>                     |                               |  |
| 1. No (Go to 16)  | 2. Yes                        |  |
| <b>15. If yes, what do you pay for, how much and how often?</b>                               |                               |  |
| <b>15.1 Purpose</b>   | <b>15.2 Amount</b>            | <b>15.3 Frequency</b><br>(1. Daily/2. Weekly/3. Fortnightly/4. As needed/5. One off payment /6. Other----- |
| 1. Business licence   |                               |  |
| 2. Rent   |                               |  |
| 3. Transport  |                               |  |
| 4. Labour   |                               |  |
| 5. Security   |                               |  |
| 6. Stall space  |                               |  |
| 7. Others -----   |                               |  |
| <b>16. Why did you get into this type of business? (Rank reasons in order of importance )</b> |                               |  |
| <b>Reason</b>   | <b>Ranking</b>                |  |
| 1. Trained/skilled  |                               |  |
| 2. Personal interest/hobby  |                               |  |
| 3. Market potential/demand  |                               |  |
| 4. Family business  |                               |  |
| 5. Unemployed, nothing else to do   |                               |  |
| <b>17. Briefly describe how you started this business</b>                                     |                               |  |
| -----   |                               |  |

**18. How long have you been operating your informal economy business?**

- 1. Less than 6 months
- 2. 6-12 months
- 3. 2-5 years
- 4. 6-10 years
- 5. More than 10 years

**19. Who owns this informal economy business?**

- 1. Only me
- 2. Me and my spouse/partner
- 3. Me and other family members
- 4. Others, specify -----

**20. Who helps you to operate this informal economy business? (Tick applicable responses)**

- 1. No one else
- 2. My spouse/partner
- 3. Son
- 4. Daughter
- 5. Male family members
- 6. Female family members
- 7. Others, specify -----

**21. Do you have paid workers?**

- 1. Yes
- 2. No (Go to 23)

**22. If yes, please answer the following**

| No. of Workers | Relationship to owner of business | Male | Female | Age | Pay<br>1. Weekly/2. fortnight/3. monthly/ 4. As needed) |
|----------------|-----------------------------------|------|--------|-----|---|
| Worker 1       |                                   |      |        |     |   |
| Worker 2       |                                   |      |        |     |   |
| Worker 3       |                                   |      |        |     |   |
| Worker 4       |                                   |      |        |     |   |

**23. How much capital did you need to start your business?**

- 1. Less than K50
- 2. K50 – K100
- 3. Between K100 – K300
- 4. Between K300 – K1000
- 5. Between K1000 – K5000
- 6. Over K5000
- 7. Other, Specify

**24. Who helped you with starting capital?**

- 1. Self- financed
- 2. Spouse
- 3. Family/friends
- 4. Informal lending
- 5. Development aid/donor agencies
- 6. Commercial banks
- 7. Micro finance institutions
- 8. Others, specify-----



**31. How did you overcome these problem/challenges? (List action and explain)**

| Action | Explain how this was done |
|--------|---------------------------|
| 1.     |                           |
| 2.     |                           |
| 3.     |                           |
| 4.     |                           |
| 5.     |                           |

**32. What problems are you facing now in running your informal economy business?**

- |  |                                      |
|--|--------------------------------------|
| 1. None                                      | 7. Transport problem                 |
| 2. High cost of goods and materials          | 8. Market to sell                    |
| 3. Poor sales from strong competition        | 9. Demand is greater than I can meet |
| 4. Law and order problems                    | 10. Others, specify-----             |
| 5. Financial Problems                        |                                      |
| 6. Lack skills/knowledge in running business |                                      |

**D. Support Needs and Services**

| Question   |                          |
|--|--------------------------|
| <b>33. Have you received any assistance for your business?</b> |                          |
| 1. Yes   |                          |
| 2. No (Go to 36)   |                          |
| <b>34. If yes, who helped you?</b>                             |                          |
| 1. Government  | 5. Banks                 |
| 2. Aid, donor agencies   | 6. Informal lending      |
| 3. NGO's/ Churches   | 7. Others, specify ----- |
| 4. Family friends  |                          |
| <b>35. How? (List responses)</b>                               |                          |
| 1. Finance   | 5. Transport             |
| 2. Training/skills   | 6. Market outlets        |
| 3. Equipment/tools   | 7. Others, specify       |
| 4. Advertising   |                          |

|   |                           |
|---|---------------------------|
| <b>36. What kind of help do you need for your business now?</b> |                           |
| 1. None   | 6. Transport              |
| 2. Financial  | 7. Advertise/marketing    |
| 3. Training and Management                                      | 8. Networking with others |
| 4. Legal  | 9. Others, specify -----  |
| 5. Sales Outlets  |                           |

**E. Suggestions and recommendations**

|   |
|---|
| <b>37. What can informal economy participants do to help themselves in running their business successfully?</b> |
| <b>38. What lessons have you learnt from setting up and operating your informal enterprise?</b>                 |
| <b>39. What should government do to help informal economy businesses?</b>                                       |
| <b>40. Any other comments you wish to make.</b>   |

Thank you for your participation.





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