

*The Demographic Behaviour of an Indigenous
Population in Urban Papua New Guinea: the Motu
Koitabu of Hanuabada*

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Table of contents

Table of contents	2
List of Tables	6
List of Figures	8
ABSTRACT	9
DECLARATION	11
ACKNOWLEDGEMENTS	12
CHAPTER 1 – Introduction.....	15
1.1 Background of the Study	15
1.2 Research Questions and the Study Objectives.....	35
1.3 Approaches adopted in the study	36
1.4 Significance of the study.....	38
1.5 Outline of the Thesis	39
CHAPTER 2 - A REVIEW OF PREVIOUS RESEARCH AND THEORETICAL CONSIDERATIONS	42
2.1 Introduction.....	42
2.2 Papua New Guinea’s Cultural and Demographic Profile	45
2.3 A Review of Selected Studies from Developing Countries.....	57
2.4 Theoretical Considerations	66
2.5 Summary and Theoretical frameworks for the study.....	79
CHAPTER 3 – methodology	84
3.1 Introduction.....	84
3.2 Approaches adapted in the study	85
3.3 Resources for data collection	86
3.4 The Household and Women’s Survey Methodology.....	86
3.5 Focus Group Discussions and Indepth Interviews.....	91

3.6	Secondary data: The 2000 Census	94
3.7	Quantitative Data Analysis	95
3.8	Qualitative Data Analysis	101
3.9	Issues during Field data collection in Hanuabada.....	102
3.10	Limitations	103
CHAPTER 4 – socio-economic and demographic characteristics of the study sample		105
4.1.	Introduction.....	105
4.2	Hanuabada – A Social Portrait.....	105
4.3	The Village Structure	114
4.4	Belonging to a Clan	117
4.5	Family Structure.....	120
4.6	The Motu Koitabu people in Hanuabada.....	122
4.7	Characteristics of the surveyed households	124
4.8	Relationship between the background characteristics and the selected demographic factors.....	143
4.9	Summary	144
CHAPTER 5 – socio-economic and demographic characteristics of motu koitabu women of hanuabada		146
5.1	Introduction.....	146
5.2	Socio-economic characteristics.....	147
5.3	Demographic characteristics.....	163
5.4	Summary	171
CHAPTER 6 - EXPERIENCE OF CHILDBEARING AND CHILDLOSS IN HANUABADA.....		173
6.1	Introduction.....	173
6.2	Background.....	173

6.3	Experience of Childbearing by Background Factors	174
6.4	Family Planning - knowledge, source and use.....	186
6.6	Fertility Preferences	197
6.7.	Association between child bearing and background factors.....	201
6.8	Background	208
6.9	Child loss by background factors.....	209
6.10	Summary	215
chapter 7 - RESIDENTIAL PREFERENCES and importance of cultural and social safety net IN HANUABADA		220
7.1.	Introduction.....	220
7.2.	Method of analysis	221
7.3.	Measures and descriptions	222
7.4.	Lifetime migration and recent migration	223
7.7.	Summary and Conclusions	243
Chapter 8: Conclusion.....		244
8.1.	Introduction.....	244
8.2.	What is the thesis about?.....	244
8.3.	How has this research been done?	244
8.4.	Results.....	246
8.5.	Limitations of the study	258
8.6.	Value of the Thesis	258
Appendices.....		262
Appendix 1: Appendix Tables		262
Appendix 2: Survey Questionnaire		266
Appendix 3 Detailed descriptions of Questionnaires.....		283
Appendix 4: Example of a Focus Group Discussion Questions		289

Bibliography290

LIST OF TABLES

- Table 4.1 Housing characteristics: Percentage distribution of households by housing characteristics, Hanuabada, 2009.....p.126.
- Table 4.2 Household durable goods; Percentage of households possessing various durable consumer goods, Hanuabada, 2009..... p. 128.
- Table 4.3 Percentage distribution of the sample population (5 year age-group), Hanuabada, 2009.....p. 131.
- Table 4.4 Percent distribution of households by sex of head of households, household size, Hanuabada, 2009.....p. 133.
- Table 4.5 Number of members per household by relationship to head, Hanuabada, 2009.....p. 134.
- Table 4.6 Percentage distribution by marital status according to age and sex, Hanuabada, 2009.....p. 136.
- Table 4.7 Educational level of household population by age 5 and over by highest grade completed, Hanuabada, 2009.....p. 139.
- Table 4.8 Work status distribution by sex, Hanuabada, 2009.....p. 141.
- Table 4.9 Percent distribution of employed people by occupation, Hanuabada, 2009.....p. 142.
- Table 5.1 Women's selected background characteristics: Percent distribution of women by selected socio-economic characteristics, Hanuabada, 2009.....p. 149.
- Table 5.1b Employment status by background characteristics: Percent distribution of women by economic activities, according to selected characteristics, Hanuabada, 2009.....p. 151.
- Table 5.2 Social groupings: Percent distribution of women by social groupings and cultural practices, Hanuabada, 2009.....p. 155.
- Table 5.3 Exposure to mass media: Percent distribution of women by mass communication media, according to age, education and Christina church, Hanuabada, 2009.....p. 160.
- Table 5.4 Distribution of women according to marital status and age group, Hanuabada 2009.....p. 164.

Table 5.5. Percentage distribution of all women (regardless of marital status) by the number of children ever born and surviving and mean number of children ever born and surviving by five year age groups, Hanuabada, 2009.....	p. 166.
Table 6.1. Percentage distribution of ever married women according to socioeconomic variables, demographic and family planning variables and the number of children ever born (CEB), Hanuabada, 2009	p. 177.
Table 6.2 Family planning; Distribution of ever married women according to family planning use, knowledge of family planning methods and their sources and reasons for not using family planning and concerns about using family planning, Hanuabada, 2009.....	p. 190.
Table 6.3 Distribution of ever married women by ever use of family planning according to socio-demographic characteristics and use of family planning methods, Hanuabada, 2009.....	p. 192.
Table 6.4 Distribution of ever married women by ever use of family planning according to family planning and cultural variables, Hanuabada, 2009.....	p. 194.
Table 6.5 Children ever born and ideal number of children according to current age of women, Hanuabada, 2009.....	p. 198.
Table 6.6 Percentage distribution of ever married women by desire for additional according to background characteristics, Hanuabada, 2009.....	p. 200.
Table 7.1 Distribution of study women by place of birth and place of previous residence, Hanuabada, 2009.....	p. 224.
Table 7.2 Percentage distributions of women by place of birth (lifetime migrants) and age, Hanuabada survey, 2009.....	p. 226.
Table 7.3. Percentage distribution of women by place of birth (lifetime migrants) and background characteristics, Hanuabada, 2009.....	p.227.
Table 7.4. Percentage distribution of women by previous place of residence and age, Hanuabada survey, 2009.....	p. 229.
Table 7.5. Percentage distribution of women by previous place of residence and background characteristics, Hanuabada survey, 2009.....	p. 230.
Table 7.6. Intentions, reasons for not moving and alternative residential preferences, Hanuabada, 2009.....	p. 232.

LIST OF FIGURES

- Figure 1.1 Map of the Hanuabada village study location.....p. 16.
- Figure 1.2 Infrastructure Development Waste (Soil and Rocks).....p. 32.
- Figure 2.1 Total Fertility Rates (TFR), PNG, 1966 – 2006.....p 52.
- Figure 2.2 Trends in Mortality Rates (IMR), PNG, 1966 – 2006.....p. 54.
- Figure 2.3 Fertility analytical frameworks for the Motu Koitabu women.....p 80.
- Figure 2.4 Infant and Child mortality framework for the Motu Koitabu women.....p. 81.
- Figure 2.5 Conceptual framework for migration intentions and reasons for the Motu Koitabu women.....p. 82.
- Figure 4.1 Structure of Poreporena Village.....p.115.
- Figure 4.2 Current Hanuabada and sub villages.....p.117.
- Figure 4.3 Percent distribution of households by household size, Hanuabada, 2009.....p. 132.
- Figure 5.1 Children ever born and children surviving, Hanuabada, 2009.....p. 161.
- Figure 5.2 Percentage of women accessing different types of media according to age-group.....p. 162.
- Figure 5.3 Percentage of women accessing different types of media according to educational level, Hanuabada, 2009.....p. 162.
- Figure 5.4 Children ever born and children surviving, Hanuabada, 2009.....p. 167.
- Figure 5.5 Estimated age-specific fertility rate of Motu Koitabu women, Hanuabada, 2009.....p. 169.

ABSTRACT

This thesis examines the demographic behaviour of the *Motu Koitabu* people of Hanuabada, a traditional village in Port Moresby, the capital of Papua New Guinea (PNG) and aims to explain the reasons behind the persistence of their traditional demographic behaviour in spite of their long exposure to modern culture. The study is based on quantitative and qualitative data collected in Hanuabada. The main argument of the paper is that the demographic behaviour of the *Motu Koitabu* are primarily determined by interactions between family and clan, and are associated with old age support, continuation of lineages, and strength and security of clan groups.

This ethnic group is the traditional owner of the land where Port Moresby is built and they are not likely to leave this site and change their social and cultural arrangements without the blessings of their clan leaders. But the economic hardships of urban living are putting pressure on them to make adjustments. From a rational viewpoint, the social and economic changes reshaping Hanuabada are sufficient reasons for them to leave and settle elsewhere, yet most people want to remain in their current place of residence. The continuation of the 'family house' strengthens the family unit and increases clan support, making people continue to live in their cultural safety net.

Motu Koitabu women are increasingly completing primary education and many are involved in informal economic activities to earn a living. Their socio-economic and demographic parameters reflect characteristics typical of PNG women. Most women are married, and married early. They prefer to have more children than their total fertility rate of 3.3 indicates. Most women are still required to obtain permission from their husbands to use family planning and those with high fertility have never used any. Education is not a significant determinant of fertility, but women with less income have high fertility. *Motu Koitabu* women experience child loss at the rate of 33 infant deaths per 1,000 live births. Child mortality decreases with increasing income and the highest child losses are experienced by older women, who find modernization confronting and seeking health services a challenge. Most *Motu Koitabu* women in the study sample were born in their current place of residence,

Hanuabada, and about 22 percent were born either in other villages or in town/city. These are the lifetime migrants to Hanuabada.

Given this demographic outlook, the supremacy of the cultural element over other factors in making decisions to remain in the safety nets of the *Motu Koitabu* society is well placed. Maintaining 'family house' activities helps to keep members of the family and clan groups together. The *Motu Koitabu* believe that Hanuabada is their birthplace and rightful home where they feel safe. Moves to alternative locations, if considered should be made in family groups to clan-oriented lands situated nearby which would continue to foster the cultural way of life. A small minority, though do not want to remain in Hanuabada, mainly because of the negative aspects cultural obligations such as contributing to bride price payment and death related feast expenses, which put pressure on individual income.

However, while the family/clan support keeps the *Motu Koitabu* people bound to their current place of residence, those families that want to move out of Hanuabada because of constrained living conditions cannot make any such move because they feel they would not receive the necessary blessings of clan elders to make such a move.

DECLARATION

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

.....

Esther Lavu

Adelaide, 26 July 2012

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DEDICATION

This thesis is dedicated to the Motu Koitabu women who have been marginalised for many years in various ways in Papua New Guinea's capital city-Port Moresby. The silent acceptance of outsiders on their homeland has driven Papua New Guinea to acquire modernisation on accounts of deprivation of basic rights and benefits from their cultural heritage- their land.

CHAPTER 1 – INTRODUCTION

1.1 Background of the Study

The demographic behaviour of a particular population or population group generally reveals a history rich in individual, familial and societal experiences. These experiences are typically set against a backdrop of demographic factors; fertility, mortality and migration patterns. These factors are important in providing explanations for many of the demographic changes and within a social setting. In the absence of direct government social security support systems in Papua New Guinea (PNG), the interactions of family and kin, associated with old age support, continuation of lineages, strength and security for the clan groups continue to influence population dynamics among local rural and urban communities.

Demographic behaviour studies have shown past and present orientations and do forecast future consequences. People marry, cohabit, have more or fewer children, or migrate as a reaction to direct or indirect changes in their socioeconomic and cultural conditions (McDonald 1996, p. 385; Broe and Hinde 2006, p. 455; Smith 2004, p. 232; Bongaarts 2003, p. 333; Jejeebhoy 1995, p. 7; Muhuri *et al.*, 1994, p. 7; Dyson and Moore 1983, pp. 43-44; Caldwell 1982, p. 692). These individuals have expectations about how a particular demographic change will affect their lives and therefore modify their demographic behaviour accordingly (McDonald 1996, p. 385). These interactions with other mediating factors in most societies support both positive and negative changes and these give rise to social concerns in a given society.

This study examines the demographic behaviour of an indigenous population in urban Papua New Guinea using Hanuabada as the study base (see Figure 1.1). The main argument of the thesis is that the demographic behaviour of Motu Koitabu people are primarily determined by the dynamic interactions between family and kin, which are associated with old age support, continuation of lineages, and strength and security within the clan groups. The importance of cultural and socio economic conditions that shape the overall demographic behaviour of this group are especially significant.

Figure 1.1 Map of study location



Source: Environment Systems Research Institute, DeLorme, USGS.

1.1.1 Selected studies in developing countries

There is a scarcity of studies that deal with the influences of socioeconomic and cultural factors that drive and constrain demographic behaviour in Papua New Guinea (PNG). Therefore, in order to obtain some idea of how socio-economic and cultural factors influence demographic behaviour, some selected relevant studies conducted in other developing countries are reviewed here.

As expected, changes within population numbers occurred in response to massive economic changes brought in by industrialisation that altered societies from traditional to modern societies (Weeks 2002, p. 101). Massive economic changes resulted in improved socio economic status of societies. Gaining education and employment in urban sectors became a way of life and this filtered down to developing countries as a result of European in migration to these countries (Weeks 2002, p. 18). Allowing for external influences on the socio economic status and cultural conditions, demographers have studied these relationships with demographic variables such as fertility, mortality, and migration in developing countries.

A number of studies have demonstrated these relationships between the socio economic and cultural factors on the demographic variables. For example, fertility is higher among rural women compared to those in the urban area, and higher among those with low levels of education than those who are better educated (Rutstein 2002, p. vii; Bongaarts 2010, p. 9). Similarly, children of higher educated mothers have a higher chance of survival than those with lower levels of education (Gakidou et al. 2010, p. 970; Cleland and van Ginneken 1988, p. 1365; Houweling and. Kunst, 2010, p. 20). Further, people migrate because there are no opportunities available locally so they migrate in order to survive (Skeldon 2002, p. 71). People who migrate are characterized by high levels of education, highly skilled and the wealthy people and the outcome of the migration-development are remittances; brain circulation; and diaspora (Skeldon 2008, p. 3).

There are several ways of studying demographic behaviour. However, the present discussion rests on major components of population growth, especially fertility (the

number of births per woman) and mortality (the risks of dying at a particular age) (Mason 1995, p. 2; Eberstein 1989, p. 410). Further, migration is examined by ‘open population’ which is defined as a population experiencing inward and outward migration (Rowland 2003, p. 387). The study of fertility behaviour is primarily focused on women as they are the ones who bear and give birth to children. On the other hand, changes in mortality, particularly in high mortality populations are usually examined by inspecting the trends in infant and child mortality. High mortality rates occurring at young ages in developing countries are responsive to medical and socio-economic changes (Mason 1995, p. 2; Hobcraft *et al.*, 1984, p. 193). Further, migration is ‘seen as a system linking origins and destinations in which flow is not just people, but also money and goods’ (Skeldon 2002, p. 75). Each process is explained briefly in this chapter and is detailed in chapter 2 of this Thesis. As such, the following paragraphs discuss the socio economic and cultural factors and their influences on fertility, mortality and migration.

The demographic behavioural choices made by the general population are influenced by a number of factors. Freedman in 1979 argued that changes occurred even with limited subset of development. The changes ranged from a better and longer life, higher education, welfare institutions, communications and transport as contributing factors that influenced changes in fertility. People became aware of other alternatives to their traditional lifestyles and aspired to something different, even though these aspirations often were poorly defined (Freedman 1979, p. 4). While this view is acceptable, other societies that progressed slowly in to modernisation, considered other factors as important.

Caldwell and Caldwell (1987, p. 410) in their study observed that there are contrasting societies and demographic behavioural choices are conditioned and constrained by the varying influences of social, economic and cultural conditions. In their study of African rural societies, it was noted that:

‘an African society is constructed so that high fertility and large surviving families have usually been economically and socially rewarding, in contrast to the West where this was clearly not the case by the last decades of the nineteenth century and may have not been the case with

respect to very high levels of fertility for centuries' (Caldwell and Caldwell 1987, p. 410).

One reason that created such contrasts is that in each given situation, the surrounding conditions shape the society and the conditions are specific. The beginning of any change occurs when external influences, integrated with the existing cultural and social factors time and again enhance these changes within the societies. Noted from Caldwell's conclusion on the differences in economic and social rewarding values, studies show that among the African populations, high fertility was due to early ages at marriages and almost universal marriages (Foote *et al.*, 1993, p. 9). In contrast, fertility decline was associated with later marriage and greater use of modern contraception (Cohen 1998, p. 1431; Garrene 2008, p. xi). The implications are that the external influences such as women's education and engagement in employment influence the decisions made and in turn affects the demographic behaviour.

Society level factors such as the family and the group are cultural factors that influence demographic changes. The patriarchal family system influenced and maintained high fertility as described by Caldwell (1982, p. 695). In contrast, elsewhere at the societal level, as in South Western Bangladesh, family planning programs have been found to have played an important role in reducing family size. But economic and social changes, particularly the growing aspirations (such as life outside agriculture) among the rural populace have also played major roles. In addition, changes in the nature of family decision making were oriented to being receptive to the idea of family planning (Caldwell and Khuda 2000, p. 239).

Of importance to the study are norms for supporting and maintaining the large families. To gain family support, maintaining the kinship involved 'a range of interactions, ranging from "just keeping in touch" to regular family events and provision of care' (Murphy 2008, p. 19). Also valuable is the co-residence with kin although diverse in level has been increasing in developing countries (Ruggles and Heggeness 2008, p. 253). The co residence arrangement encourages values that maintain existence of larger families. The positive aspects are that the older generations supports the family by caring for the young while the parents earn an income either in informal or formal workforce.

Socioeconomic factors including societal and place of residence play an important role in understanding fertility, mortality and migration. In their search for explanations of fertility changes, Davis and Blake (1956, p. 234) stated that there are differences in the demographic behaviour between the underdeveloped areas and the urban industrial societies, a finding which has had a significant influence in the understanding of fertility differentials. For example, in the recent past, studies show that women in urban areas are more likely to experience improved demographic behaviour resulting in low fertility and mortality, compared to their counterparts in the rural areas (Romaniuk 2011, p. 6; ICF Macro 2010, 15; Garenne 2008, p.8; Rutstein 2002, p. 14; Broe and Hinde 2006, p.436; Mahy 2003, p. 24). Other factors such as religion have been found to be influential (Westoff and Afreka 2007, p. 804) and development indicators (Bryant 2007, p. 123) showed degree of changes between groups of different socio economic status.

The changes in the status of women have profound influences in their demographic behaviour as they are exposed to alternative life styles while being educated outside of home particularly in developing countries. In particular, the break through to working status and employment outside of home are important to improving demographic indicators (Cleland and Rodriguez, 1982, p. 422; Muhuri *et al.*, 1994, p. 7). While previous work have acknowledged the women's contribution to formal labour force and hence influenced demographic variables, issues relating to absence of women's work have emerged (Donahoe 1999, p. 543; Ahmed *et al.* 2010, p. e11190). The typology of work for women as described isolates women's contribution to the overall labour force participation (Donahoe 1999, p. 546). The descriptions includes full accounting of productive activities of all kinds of work and emphasizes that these are activities oriented to personal or family consumption, thus identifying and acknowledging women's work. This work illustrates description that are valuable in describing work in the populations where formal labour force is limited.

Demographic factors such as age, age at marriage, age at first birth are important as they directly affect the fertility, mortality and migration variables. These demographic factors are central to changing demographic variables as the other factors such as the socio economic and cultural factors play the external influence. For example, 'the

trend towards later marriage has occurred in both rural and urban areas and even among women with no formal schooling. These changes are related to exposure to mass media, particularly television, that plays a role in the trend toward later marriage, and has contributed to increases in age at marriage among women with no education' (Westoff 2003, p. 47). The implications are varied, in that increased age in marriage is likely to result in less number of years in marriage and in turn produce lower fertility.

Studying specific populations demonstrated another dimension in approaching the demographic behavioural enquiry in connection with the way of life and adaptation to introduced social, and economic and historic conditions. For example, Caldwell and others (1982, p. 689) adapted a saturated approach of observing, talking to people and listening to conversations in order to provide adequate explanations of demographic behaviour. As Caldwell and others stated 'this comparative approach has been employed to provide perspective to our concentration on some phenomena that are apparently only of local significance' (Caldwell 1982, p. 689). This approach is an extension to the traditional demographic population surveys. In extending the traditional survey data collection for quantitative data, the in depth interviews and focus group discussions fill in the information for qualitative data (Basch 1987, p. 411; Knodel et al., 1997, p. 848; Entwisle 1996, p. 1).

While the socio demographic and cultural factors are important agents for demographic change, there are other issues that also contribute to these changes. The issues of social status, limited land, and access to basic services, local politics, ignorance and religion are factors that are valuable and are worth exploring in the PNG context.

1.1.1. Demographic profile of Papua New Guinea

The demography of Papua New Guinea has been adequately described in national reports of the National Statistical Office (NSO), which are based on the findings of national censuses and surveys. The reports of the National Statistical Office for the years 1980, 1990 and the 2000 censuses and 1996 and 2006 Demographic and Health

Surveys (DHS) have mapped out the demographic trends and patterns of the country (Bakker 1986a, p. 5; 1986b, National Statistical Office 1997, p. 18, 2002, p. 18-21, 2003, p. 4; 2009, p. xxiii).

Papua New Guinea's estimated population of 6.5 million for the year 2010 is widely dispersed across the country (Department of National Planning and Monitoring (DNPM), 2004 p. 6). Among the four geographical regions of the country, the majority of the people live on the Highlands, followed by the New Guinea Coastal region and the Southern region, while the Islands are the least populated parts of the country. On the whole, the majority of the people live in rural areas and therefore the patterns of demographic indicators are rural oriented (NSO 2002, p. 7; 2003, p. 16). The population is very mobile, and internal migration and urbanization are recognized as increasingly significant factors affecting the standards of living of many families and communities throughout the country (Department of National Planning and Monitoring (DNPM) & United Nations Development Programme (UNDP) 2004, p. 6).

Fertility remains at high levels and as a result, the population has a very broad based age structure with about 40 percent under the age of 15 (NSO 2002, p. 11). This implies that there is a very high level of youth dependency and high child woman ratio, indicating serious concerns for the government in terms of employment, maternal health and family planning (DNPM & UNDP 2004, p. 6). A detailed analysis of fertility data shows that fertility transition after 1980 has been progressing very slowly. Unlike the patterns indicated in the 1980's, where extreme differences in fertility between provinces were evident, the current differences are not very significant (NSO, 2003, p. 65).

The mortality situation for PNG is rather a sad one. While some decline has occurred, the progress has been slow. According to the 1980 Census and 1981 fertility and mortality survey, the infant mortality rate of (IMR) was 72 per 1,000 births and the 1996 survey reported 73 deaths per 1,000 births. However, the most recent Demographic and Health Survey conducted in 2006, reveals some improvements in infant mortality in PNG. For example, for every 1,000 children born in PNG, 57 die

before they reach their first birth day (NSO 2009, p. 102). In summary, while infant mortality did not decline in the 1980s and 1990s, the most recent data do indicate a declining trend (NSO 2003, p. 4; 2009, p. 103). In terms of fertility, the 1980 Census and the 1981 fertility and mortality survey produced estimates of total fertility rate (TFR) of 5.4 (Bakker 1986a, p. 19). The 2006 Demographic and Health Survey produced a TFR of 4.4 (NSO 2009, p. 41). The trends in mortality and fertility indicate a slow demographic transition in PNG.

Internal migration has taken the most important place in terms of migration studies in PNG (Walsh 1987; Connell 1997). People moved from densely populated areas to the coastal towns (Connell 1997, p. 176). These streams consisted mainly of single males from the Highlands to the coastal and the Islands plantation who were recruited as labourers to work on plantations (Walsh 1987, p. 1). High migration rates were associated with more urbanised provinces and those experiencing major developments, the National Capital District (NCD) was the main destination for the migrants. According to the most recent census, 37 percent of the people classified as migrants were enumerated in urban areas (NSO 2002, p 35). An estimated 90 percent of the citizen migrants migrate to NCD, much more than any interprovincial migration that takes place in Papua New Guinea.

While there is enough information to track the demographic change at the national provincial levels, the same cannot be said for sub-national levels of Papua New Guinea such as district or village levels, which is the focus of the present study. Despite the fact that there is scant information about the differences in influences of demographic behaviour by social, cultural, economic and historical factors, not much attention has been paid by researchers to such issues. In turn, it has made it difficult to understand the many factors that contribute to the slow progress of demographic transition in Papua New Guinea.

As Papua New Guinea's population is predominantly rural based, it is characterized by the high fertility and mortality rates of rural areas. The rural demographic indicators are showing resistance to change as supports needed to enhance declines in fertility and mortality are limited. In contrast, educational achievements in the past 10

years have improved among women in urban areas (NSO 1996, p. 28; 2009, p. 21). However, with seriously limited access to public health services in the country, the improvements are scarcely visible. The lack of core services for modern day life styles is often compensated for by the support and cooperation available in the extended family system which plays a significant role in getting people who are employed to stretch their scarce resources to accommodate the needs of their less fortunate relatives in the urban areas and their home villages. These good deeds continue as these groups are governed by social norms and cultural values that are making many demographic decisions challenging (McDowell 1988; O'Collins 1980).

McDowell (1988, p.9) writes,

'Any attempt to discern general patterns in a nation as diverse as Papua New Guinea is fraught with pitfalls. Traditional cultural organisation and ecological adaptation exhibit a bewildering variety of forms; economic, subsistence, politics, social structures and cultural beliefs differ significantly from place to place' (1989,p.9).

More than 800 languages are spoken in Papua New Guinea. These languages are governed by different cultural and social values and conditions that make it difficult to achieve a uniform demographic behaviour in a country so diverse in culture. Even though there are obvious differences in demographic behaviour between urban and rural areas, most of the changes in demographic behaviour are associated with the urban population.

A closer examination of the demographic indicators for the urban population reveals that while the urban population presents healthier indicators compared to its rural counterpart, the composition of the urban population is an issue. In NCD, the demographic indicators represent people from ordinary suburban, squatter settlements and traditional villages. The ordinary suburb populations are usually employed populations and those who pay rent for housing and they also pay for utilities. The people in the squatter settlements are of different ethnic origin. Moreover, they are further grouped into sections of particular ethnic groups (Chan and Yala 2007). These people settle in Port Moresby area either on traditional land or government land. They build their own houses and therefore do not pay for any rents or even utilities as most

cases do not have access. In contrast, the traditional villages in the urban areas, especially in the nation's capital city belong to one ethnic group (Seligman 1909, p. 315; Groves 1958, p 76; Goddard 2001, p. 313). They are the Motu Koitabu people who live on their own land. The urban services such as electricity, water, and sewerage systems are inadequate at most times.

At the national level, the demonstration of demographic differences by various sectors brings out the seriousness of understanding the reasons behind the changes in demographic behaviour of the people. Between the two sectors of urban and rural, the demographic estimates for the urban area reveal improved demographic behaviour with lower fertility and lower mortality, yet the lifestyles of the Motu Koitabu people are not typical of urban areas. The composition of these population groups, surrounded as they are by an urban population, yet living a rural lifestyle, point to the need to conduct specific demographic studies in order to understand their demographic behaviour that are governed by social networks and cultural values in relation to socio-economic factors.

1.1.2. Socioeconomic profile of Papua New Guinea

According to critics of the overall development issues in Papua New Guinea, socio-economic conditions place its people in a vulnerable situation and pose challenges (Hughes and Banks 2003). At the global level, Papua New Guinea ranks 156 out of 187 countries with comparable data, on the Human Development Index (HDI) [a composite measure of socioeconomic indicators that includes information on health, education, and employment levels] (UNDP, 2009, p. 168). The HDI of East Asia and the Pacific as a region increased from 0.432 in 1980 to 0.683 in 2012. In the same period, the HDI of Papua New Guinea increased from 0.324 to 0.466, placing it below the regional average (<http://hdrstats.undp.org/en/countries/profiles/PNG.html/>).

As a developing country, the population continues to be threatened with serious social issues in all aspects of life. The escalating social phenomenon of human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) epidemic continues to challenge the social networks and the familial support. In 2004,

the epidemic was declared as a generalised epidemic that has the potential to cause significant economic and social costs to the country (National AIDS Council (NAC) 2007, p 10.). The demographic characteristics of the population are threatened. For example it has been indicated that the AIDS epidemic will result in reduced life expectancy and therefore a lower overall quality of life (Hayes 2007, p. 28). Other issues that fuel the epidemic are associated with sexually transmission diseases and lack of knowledge and understanding about how the epidemic spreads and ways of avoiding contracting the deadly disease (Lupiwa *et al.*, 1996, p. 246; Passey *et al.*, 1998, p. 120). Despite the increased efforts of the government and various organizations involved in the response, women are yet to acquire the comprehensive knowledge of HIV transmission (National Research Institute (NRI) 2010, p. viii). Such a dilemma will continue to add to the spread of HIV.

The Papua New Guinea Liquefied Natural Gas Project (“the Project”) is an integrated development that includes gas production and has been the main political agenda in the recent times in the country. This is an integrated development project that includes gas production from currently operating fields in the Southern Highlands and Western Provinces of Papua New Guinea and processing facilities (the Hides Gas Conditioning Plant (HGCP), onshore and offshore pipelines for transport to liquefaction facilities near the capital, Port Moresby. (http://www.pnglng.com/quarterly_reports/). The estimated project cost is around \$15 billion and a project of this magnitude would affect the economy of Papua New Guinea and its balance of trade situation profoundly (<http://www.pnglng.com/project/>; ACIL Tasman 2008, p. iv). The plant location is Port Moresby and according to the reviews, there will be potentially very large net benefits for the country and its people. The implications are that the impacts of the project are expected to be felt at the local level (ACIL Tasman 2008, p. 25).

As NCD is the nominated project location, goods and services will be sourced from Port Moresby which in turn will receive some of the indirect impacts. Based on the mineral mining experiences in Papua New Guinea, the local impact of the project are enormous and is expected to have life changing experiences. The spin off benefits are in terms in increased employment during construction and operation phases of the development projects, royalties from the use of the natural resources will be paid to

the landowners, and improved infrastructure provision within the project area (ACIL Tasman 2008, p. 25).

While the legitimate Motu Koitabu landowners will benefit directly, others will experience a life change through indirect benefits such as employment and business opportunity and other social aspects. The social and economic implications will vary and changes will be rewarding for certain aspects of the livelihood while others will affect the general life style among the Motu Koitabu people in the years ahead.

The studies relating to Motu Koitabu people are scarce and any information relating to the people are limited to socio economic disparities and their apparent non involvement in infrastructure development decisions. The lone voice of the advocator of Motu Koitabu people's rights in national politics clearly points out the disparity by stating the importance of the social net-works and cultural values in a rapidly growing city (Kidu *in* UNESCO 2001, p. 45). With the influx of more people migrating to the areas in search for employment leading up to the full operations of the LNG project, social and economic disparities among the urban population will worsen. Thus, the value of studies relating to indigenous populations, in particular to the resource areas, become essential.

At the global level, despite the poor socio economic indicators reported as the HDI (0.607) for Papua New Guinea, NCD, where Hanuabada village is located is one of the areas that scores a HDI far above the national average (DNPM and UNDP 2004, p. 41). The indicator is biased towards well to do elite of the nation's educated and working population and rarely a representation of the indigenous population.

Along with the influences of the socio economic changes and struggle to keep up with the life in an urban environment, the existing social safety nets are now threatened by the increasing modernisation. 'The three key elements of PNG's social environment are the traditional land tenure system, the 'Wantok' system and the churches in combination with community – based groups for women and youth' (DNPM & UNDP, 2004, p. 8). All key elements are important. Today, traditional land tenure system plays an important in the social and economic well-being of the population

and often underscores the importance of social relations. This is in relation to the economic benefits that are obtained from the traditional land.

As in most Pacific Island communities ‘*wantok*’ literally means ‘one talk’, *wantoks* are people who speak the same language as you – your family and your clan (Gibson 2006, p. 1). It is the social capital and in Papua New Guinea, the *wantok* system is the country’s safety net, under which family and clan members are required to support each other (Reilly and Phillpot 2002, p. 924). As described by Gibson (2006, p. 1) ‘the *wantok* system involves both responsibilities and privileges. Within a village, everyone is entitled to land, food and a share in community assets. In a country without a social security system, the *wantok* system provides for material care, a sense of identity and support during difficult times’ Further, the churches in combination with community – based groups for women and youth continue to develop in varying levels.

The above discussions on the demographic and socio cultural outlook point to the need for specific ethnic and demographic studies that are lacking in Papua New Guinea. The slow demographic transition mapped out the seriousness of lack of understanding in relation to reasons associated with the changes. While the urban population continue to dominate the healthier demographic and socio economic indicators compared to the whole Papua New Guinea averages, the disparities among the urban population are widespread. Studies are needed at the village levels to understand and explain the lifestyle changes and their influences on the demographic behaviour.

1.1.3. The study location and the Motu Koitabu people

The study is conducted among Motu Koitabu people who live in Hanuabada village. There are features that make Hanuabada different from the urban NCD. Firstly it is a traditional village where the social and cultural ties are long standing and the inhabitants are Motu Koitabu people (Belshaw 1957, p. 1; Gibson *et al.*, 1996, p 18). Secondly being an indigenous population and disadvantaged from obtaining employment as they compete with elites from other provinces of PNG, it has been

found that poverty levels are higher in Hanuabada than in most urban areas Gibson *et al.*, (1996, p. 18).

Geographically, Hanuabada is located about two kilometres from the Port Moresby city centre. Hanuabada and Papua first came under colonial administrative control in the 1800's (Newbury 1989 *in* Latukefu 1989, p. 40). It was at this time that it was recognized that these people had forgone their traditional lifestyles and the traditional economy disappeared (Belshaw 1957, p. 1). Many were trained and employed as administration assistants and the majority remained in white collar jobs. The wage-earners worked for the town elite residents and it was around that their whole life was organised (Belshaw 1957 p .1). Unlike the other Motu Koitabu villages in the Port Moresby area where the land is maintained for subsistence gardening, the people of Hanuabada have been locked in by infrastructure development, thus finding employment in urban economy for survival is the norm.

Embracing the activities of a modern economy is the way of life for the Hanuabada villagers. Daily consumption is based on modern economy culture and cultivating own food is a thing of the past (Belshaw 1957, p. 48). Yet, a view of the village houses still built over the sea indicates no urban planned housing. These houses follow a linear pattern, with the walkway defining clan boundaries or more so aligned on two sides of a canoe anchorage, the left hand side and right hand side (Belshaw, 1957, p. 13). The traditional clan leader's house is the first over the sea and closest to the land, symbolizing his social status. The clan leader determines where everyone builds his house in his clan boundary (Gaudi *in* UNESCO 2006, p. 78). Recent houses built on land demonstrate a more irregular layout. The land shortage has now forced people to move inland and new homes are now even built over existing graves in the cemetery (Gaudi *in* UNESCO 2006, p. 78). Despite the strict traditional rules in building houses, other important aspects of life have precedence over building houses.

This is an extremely important issue as the land and the fishing grounds for survival have now been used for major infrastructure development for the expansion of the nation's capital city. As Hanuabada is situated on the coast, other disturbing factors are those related to the dumping of soil and rock that has caused sedimentation

stretching from the land near the Sir Hubert Murray Stadium land and has been further reclaimed near the village (See Figure 1.2). The distance from the reclaimed land to the end of the village is only a few hundred metres (Gaudi *in* UNESCO 2006 p. 28). This reflects more pressure on the Hanuabada people as the city expands. The low levels of education attainment and higher rates of not working are indications of the inability of the Motu Koitabu people to compete with the other urban residents for employment (NSO CPS 2002).

Even though there are no serious issues with urbanization in Papua New Guinea as the majority of the people live in rural areas, the notion of adapting to the modern way of life by the Motu Koitabu people in Port Moresby has caused them remoteness and isolation from the rest of Port Moresby population. The people did not choose to live in the urban environment and its expanding development infrastructure. It has been a struggle to live a normal urban lifestyle. They have maintained some of their traditional way of life and social exchange systems. In doing so, the villagers are predominantly isolated in their traditional village affairs which continue to foster their social exchanges and cultural obligations. Even if the agricultural subsistence support no longer exists, the people have embraced the modern economy and its benefits to foster their cultural obligations.

Compounded with limited opportunities for employment and the obligatory expectations, the people are confronted with issues of access to vital urban services such as water, sanitation and electricity. While the infrastructure is established, the reasons for non-access to these services by some families in the village are due to inability for employment and the mentality of being a villager. In Papua New Guinea traditional villages, the land belongs to them and therefore, the use of resources such as water is free. The norm of paying for such a valuable resource is far from reality.

The Motu Koitabu people are traditional inhabitants of the site where Papua New Guinea's capital city, Port Moresby has been built. A basic unit of Motu Koitabu society is the *Iduhu*, a corporate group which is nowadays conventionally locally referred to as a 'clan' in English (Goddard 2001 p. 1). Belshaw (1957, p. 13), describes *Iduhu* as the 'patrilineage (descents of a common ancestor, plus unmarried

females). The group defines a series of kin rights and obligations for lineages and alliances within and between descents which establishes kinship and social relationships'. The physical location of a residential area for each *Iduhu* in Hanuabada uniquely layout and no one outside of the clan can build a house in their territory. The account given by Hogbin (1973 p. 15) describes the '*Iduhu*' as a term for village sections and at this level the *Iduhu* is a named group. Its members are associated with a residential locality, garden land, certain trading vessels, fishing nets, ritual paraphernalia. 'As a residential unit, the primary members of the *iduhu* are agnates, and the group leader succeeds by agnatic primogeniture' (Hogbin 1973, p. 15). In the past these relationships were strengthened by clan events such as engaging in overseas trading expeditions in search for food and building materials and feast giving.

However, these days, many customary practices and rituals are eroding away as they are either replaced or modified to suit the current situations that these people are confronted with. For instances, the overseas trading expeditions are non-existent. Further some members of a clan based in the eastern side of the village are now residents of a hill top away from the original clan location. It is important however to note that the leadership of the clan headship is retained as it is handed down by birth irrespective of place of residence.

Previous scholars claimed that the *Iduhu* system under social consequences of missionisation and colonialism under the traditional leadership collapsed and the system was rescued by new leaders and church deacons (Goddard 2001, p. 313). However, as Goddard (2001) himself correctly points out, this was never the case. He argued that the resilient existence of the *Iduhu* was demonstrated by the power of clan system where approval for land use was obtained from the real land owners who were clan leaders and not just any one. These days the positions of such leaders are still maintained and respected.

Figure 1.2. Infrastructure Development waste (soil and rocks)



Source: Environment Systems Research Institute, DeLorme, United States Geography System.

The use of clan groups in implementing church activities such as fund raising (*Boubou*) for administration costs and paying wages for the church workers is one

event that demonstrates the existence of the *Iduhu*'s. The *Boubou* is a concept derived from the word '*Hebou*' which means an 'organised meeting' in the Motu Koitabu society. This is where meetings are held and public grievances or announcements are made. This has been elevated to church thanks giving presentations. Under the clan leadership, careful handing out of responsibilities to each clan member signifies that such events actually promote and strengthen the structures of a social system rather than weaken it.

This is illustrated these days in the United Church circles. Today, an individual who identifies with and is a member of the United Church of Papua New Guinea has a responsibility and a commitment to the church by giving cash that denotes their financial support. On an annual basis, an expected levy is allocated to each individual family, and at a given time, the offerings are given and the total collections from the clan members are presented to the Church. Such an event brings on responsibilities and support is evident among the clan members. For all employed members their contributions are given when they have accumulated their offerings. The unemployed or ordinary villagers take on the task of organising fund raising so that they too could give their contributions towards their levy after they (the hitherto unemployed) start earning. Although it is not compulsory, each clan within these villages takes these commitments very seriously and at a given time, usually around the end of November, these levies are presented in style which involves dancing, and singing at such big celebrations. Other activities that complement the fund raising activities are weekly fellowship meetings and prayer meetings. These activities are essential and are integrated into their clan meetings where they can share and fellowship with each other.

The Motu Koitabu people comprise one group where values are diversified with serious conflicts in almost every direction one takes. For example, Belshaw (1957, p. 3) pointed out that the people had little support for any independent and constructive development and may have been assessed as sub-standard of someone else's culture. While this was the view point, the essence of the matter is that ceremonial events such as bride price payments, feasts for births and first born child, funerals and deaths, church membership obligations, recognition gifts, church weddings and birthday

parties are ongoing activities. While the organising skills were not recognized as strengths, these traits were leadership qualities.

The practices have however continued. The ongoing activities include the continuation of joint families living together in one house which increases the financial strength in sharing and contributing to the cultural feasts relating to marriage, birth of children and death. Among these people, the 'family house' is a significant place. This is where the first born son and his family are supposed to reside as it would have been passed to him by the parents. This will continue to maintain the status of a 'family house'. These are large houses with 4 to 5 bed rooms and these days are occupied by several families. The 'family house' is also the main place for family meetings to discuss arrangements on marriage, bride price and is the gathering place for mourning or '*Mase Rumana*'. This is where all the mourners camp while waiting for the final word on burial. During the waiting period, various customary activities occur where relatives from far and near pay their tributes and contribute cash and kind before the dead is finally buried.

There are other issues that are important in the lives of the Motu Koitabu people. For example, the assistance and support given by the non-genealogical people for fulfilling the cultural obligations among the Motu Koitabu people is an acceptable norm. Such contributions are from people of different ethnic backgrounds. The acceptance of non-genealogical contributions in cash or kind to cultural feasts are described as obligatory duty as they live in the surrounding areas, in many instances rents are not paid for the land where they reside. Therefore this allows migrants to contribute as a token of appreciation for dwelling on the land free of charge. Such arrangements were established by the ancestors when the outsiders were granted permission to build houses and live near the village and the respect for the decision made by the then clan leader may not change in this era. Secondly, the gesture is appreciated as it increases the financial supported for the given clan with the community and maintains the clan's prestige. Such relationships are highly regarded in the community support system in the absence of subsistence farming.

It is the aim of this study to contribute to the past information and explain issues that influence demographic behaviour of an indigenous population of Port Moresby in Papua New Guinea. The data obtained from the survey conducted for the present study in September 2009 to January 2010 will provide insights on the socio-economic and cultural characteristics and their influence on the demographic behaviour of the Motu Koitabu people.

1.2 Research Questions and the Study Objectives

The main argument of the thesis is that the demographic behaviour of the Hanuabada women are primarily determined by the dynamic interactions between family and kin (*Iduhu*), which are associated with old age support, continuations of lineages, and strength and security for the clan groups. Therefore based on the given setting, two key questions are asked.

Question one, ‘What are the underlying factors that shape the demographic behaviour that contribute to the large population in a limited space and other confronting factors such as limited or lack of access to vital urban services such as water and sanitation?’.

Question two, ‘In spite of close proximity to the urban centre (Port Moresby) why have the Motu Koitabu people in Hanuabada remained living in their social and cultural safety nets (clan and family groups) even in the context of the rapid social and economic change?’.

The fact that they belong to the ethnic group that make up the traditional owners of the land where Port Moresby, Papua New Guinea’s, capital city is built, makes them vulnerable in a developing city. They can be relocated to another area more inland, perhaps giving way for modern infrastructure such as a wharf or a hotel. Currently, they are surrounded by the city expansion works towards improving the public roads, schools and hospitals. The Motu Koitabu people from Hanuabada do not benefit directly from the expansion of the city. With the current experiences around PNG on likely benefits from land and minerals, the Motu Koitabu people in Hanuabada are likely to maintain their social and cultural relations. However, the economic hardships of the urbanity are placing pressure on them to make adjustments. Among others, and

given these scenarios and the two questions raised, the study has five objectives to provide explanations to the issues raised. The objectives are;

1. To examine the socio demographic and cultural characteristics of the study population and discuss their implications for the research questions, (this is addressed in Chapters 4 & 5)
2. To examine the differences in the demographic behaviour of the study population (including the behaviour to move or not move), against a backdrop of socio economic factors,(this is addressed in Chapters 6 & 7)
3. To examine the existing family norms in the study population such as desire for children in the context of social structure such as clan system and family support (this is addressed in Chapters 6 & 7)
4. To study the rationality in demographic decision making in the study population in the context of the social structure in a transitional society, (this is addressed in Chapter 7)
5. To discuss the implications of the study findings in view of enhancing existing demographic theoretical perspectives and how the Papua New Guinea population policy can be improved to cater for all population types.(this is addressed in Chapter 8)

1.3 Approaches adopted in the study

The current study has adapted the micro demographic approach employed by prominent demographers among South India's population (Caldwell *et al.*, 1988). This particular study demonstrated several methods of gathering data among specific populations. Traditional demographic methods such as sample surveys were conducted, however as the research expanded, it was found that to establish further understanding of the demographic changes, it was necessary to conduct in depth interviews on a one to one basis. Other strategies were also valuable in capturing what was missing from the data. It was found that besides the influences of improved socio economic factors that influenced demographic behaviour, other factors such as talking with close companions and their households were important in supporting information that explained the changes. The constant companions became confidants to provide additional information (Caldwell *et al.* 1982, p. 689).

Based on the mixed method of data collection and more precisely in demographic studies and much recognized work of Caldwell, this study adapted the micro

demographic approach. All households in Hanuabada village were listed and a sample of these households was selected (details of the sampling design are given in Chapter 3) to acquire a size that could yield sufficient number of women respondents who are the main data sources. The respondents for the focus group discussions were selected from the household members list so as to include both men and women in the focus groups using a set criterion (described in Chapter 3). Details of how the study populations were selected for each data collection method will be discussed in detail in Chapter 3 of this thesis.

Adapting this approach, observations and close contact confidants such as the team leader and the interviewer's knowledge of the village and social processes were found valuable to understand the general way of life for the village people. The Belshaw study from 1951 to 1952 is the resource for the present study, especially in the way the field work and themes have been identified for data collection providing valuable grounding work (Belshaw 1957).

The present research adapted the survey questions from the Demographic and Health Surveys Questionnaires that have been tested worldwide, including PNG. Where appropriate, questions were modified to suit the study population. The focus group discussion questions and the in-depth interview guides were developed to support the findings obtained from the cross-sectional survey. While the survey provided the quantitative data, the in-depth interviews and the focus group discussions provided the qualitative information. The researcher spent some days just sitting among the women at the market stalls chewing betel nut and hearing stories of happenings in the village.

In many cultures of Papua New Guinea, betel nut is offered and is chewed with visitors as a sign of social acceptance. This was one activity that I participated in on many occasions during the field data collection. It was during these occasions that I learnt processes and consequences of reasons for specific activities that took place in the village. The occurrence of village courts to settle disputes were one of the many activities that was very frequent. Many cases were on issues of ownership of spaces to build houses within the village and also the disputes relating to the sale of land to

outsiders. The cases were even between members of the same clan reflecting limited land available for building new houses.

1.4 Significance of the study

In Papua New Guinea, no such study has been conducted. The cultural studies by the early explorers Seligman (1909) and the study by Belshaw (1957) are valuable. However, their scope is both specific to cultural understanding and issues of economic welfare and they place between 50 to 100 years ago. The infrastructure development expansions and their impacts are limitless on the lives of these people. Since the past studies were conducted, socio economic changes have occurred and their cultural relationships are threatened. Obviously there are new changes that are embraced and often have both negative and positive results on the livelihood and hence the life style. Although, a number of small area studies have been conducted, they are mostly clinic establishment base or anthropological studies. The findings from this thesis highlight valuable demographic information for Papua New Guinea government in relation to negotiating resource rights and ownership issues which are of great concern to the government of Papua New Guinea and other developing countries.

The thesis explains the demographic behaviour of one ethnic group of Papua New Guinea, who have retained their socio cultural structure and integrated external ideas in some way in a traditional village placed in the urban boundaries. While the key limitation of the study is non-representation of the country's population and its demographic behaviour, the findings from this study will be valuable as a learning case study in Papua New Guinea. The study points out factors that are now evidently useful for the current times and, in conjunction with reviews of past studies, provides important insights to many of the changes that have occurred in many societies in Papua New Guinea in the recent past.

Moreover, the thesis is seen to make a number of contributions to knowledge in the discipline of population studies. Firstly, it provides empirical evidence towards understanding and explaining the factors that influence demographic behaviour and reasons for changes in transitional societies in developing countries. Secondly,

findings from this study are valuable in supporting and enhancing strategies in which health and information services can be structured to respond to particular needs of women that can be useful in spacing and limiting the number of children they would like to have. Thirdly, as a minority group and being marginalized in a fairly fast developing setting, the unique practices which distinguish the Hanuabada from their urban counterparts can be useful tools for re-orienting urban social services that will cater for all. Most importantly, the thesis provides useful information for policy development for resource owner populations and minority indigenous groups in Papua New Guinea and other developing countries.

1.5 Outline of the Thesis

This aim of the Thesis is to provide explanations on the relationships that exist between the socio economic and cultural factors on the demographic variables of fertility, mortality and migration. The Motu Koitabu people are one ethnic group in the Port Moresby area and they are also traditional land owners who in many ways are deprived of being consulted in regards to the use of their land. Being left out on such important decisions not only deprive them of their rights; but also place them in a disadvantage position in terms of public services with the rest of the Port Moresby residents. As traditional villagers in an urban setting, the many cultural practices are maintained to keep them together as members of their traditional families and clan groups. Many decisions made are effectively for the entire population group. Similarly, many factors affect the decisions that largely influence demographic behaviour. For example, marriage is an event that occurs when two families agree to the arrangements and in many instances, it not an individual decision but a collective one (Mantovani 1993, p. 14; Cavallaro 2005, 58). Such is an example of a collective decision that affects one individual life and acceptable practice that is practiced in many traditional society settings. The overall aim of this research is to provide an explanation about the relationships that exists between the socio economic and cultural factors on the demographic behaviour of Motu-Koitabu women. As stated earlier, the demographic behaviour is primarily determined by dynamic interactions between family and kin (*iduhu*), which are associated with old age support, continuations of lineages, and strength and security for the clan groups.

Chapter 1 presents a background to the study by discussing selected studies that demonstrate the relationships between socio economic and cultural factors and demographic behaviour. It should be mentioned at the outset that there are very few such studies in Papua New Guinea. The specific discussion about the study population introduces the socio economic and cultural practices that exist and demonstrates the importance of the much needed small area demographic behavioural studies and the marginalized groups starved of benefits that would have contributed to improving their social well-being and physical environment.

Chapter 2 presents an overview of the previous small area studies conducted in Papua New Guinea. It makes particular references to the lack of research relating to demographic behaviour. It discusses social science studies that relate to demography and reasons associated with demographic changes. The studies reviewed were mainly conducted in the 1970's, 1980's and the early 1990s and mostly in rural areas. The relationships discussed on socio cultural and socio economic factors with demographic behaviours are illustrated with findings based on the demographic and health surveys from selected developing countries. Finally, some theoretical considerations are presented. Of importance are the 'Demographic transition theory, Fertility transition theory, Intergenerational Wealth Flows, Mosley-Chen framework and Caldwell's micro demographic study as a process used for data collection.

Due to lack of specific data available for such studies in Papua New Guinea, a survey was conducted from September 2009 to January 2010 by the Author. The survey was conducted in two phases. Phase one covered the selected households while Phase two covered the eligible women identified from the household schedule. The design, the content of the household and women's survey and the qualitative data collections is the focus of Chapter 3. The statistical techniques employed to analyse the demographic behaviours of the Motu Koitabu women of Hanuabada are also mentioned but are discussed in appropriate analytical chapters.

To answer the first of the two research questions raised, Chapter 4 presents the Hanuabada village social and cultural profile. It covers the general organisation of the village structure and the socio economic status of the households. It then discussed the

household population's social and demographic characteristics. This enables the thesis to present the background information of the study population.

To understand and situate the demographic behaviours of the population, women were interviewed as they are the main data sources. Chapter 5 describes the socio cultural and socio economic characteristics of the study women as they are the ones that provided information about their own demographic experiences.

Building on Chapter 4 and chapter 5, Chapter 6 examines the experience of child bearing, and it addresses in general the fertility and family planning uses and examines in detail the influences of the socio economic and other factors on the reproduction and family planning. Chapter 6 also examines early childhood mortality in association with education, income and church membership.

Based on the survey on the issues of lack of space for expanding the village boundaries, Chapter 7 examines lifetime migration, intentions and residential preferences based on the survey data. It further explores underlying issues on intentions to move or to stay. It also explores the dynamic interactions between family and kin (*iduhu*) and the demographic behaviour.

Chapter 8 presents a summary of the results found in this study and draws a conclusion. It uses the proposed framework to explore the various settings explored and how they affect the demographic behaviour of the study population. It also discusses limitations and future research in this chapter.

CHAPTER 2 - A REVIEW OF PREVIOUS RESEARCH AND THEORETICAL CONSIDERATIONS

2.1 Introduction

Increased interest in demographic research in developing countries has not only added to the collection of population data but has also inspired analytical work on complex population issues. Efforts to improve demographic data collection have resulted in the conduct of the World Fertility Surveys (WFS), followed by the current Demographic and Health Survey (DHS) (Cleland and Hobcraft 1985; Cleland 1996). These efforts have been complemented by a continued search for sound analytical methods to examine demographic trends, patterns, and behaviour on a comparative basis (Brass 1996).

Many studies have been designed to understand demographic behaviour in the context of various social, cultural and economic conditions (Caldwell *et al.* 1999; Montgomery *et al.*, 2001; Kohler *et al.*, 2001; Smith 2004; Broe and Hinde 2006). Available databases for developing countries, from the WFS and the DHS, have helped to increase research activities which have sought to establish the relationships between socioeconomic factors and demographic behaviour and demographic outcomes (Rustein 2003; Bongaarts 2003; Montgomery and Hewett 2005; Bryant 2007; Macro Inc 2007; Khan and Mishra 2008). The next section reviews selected studies relating to factors that influence fertility, and is followed by a discussion of studies on infant and child mortality and displaced populations.

The International Conference on Population and Development held in Cairo in 1994 (ICPD 1994) is a milestone in the history of population and development. Population is not merely about numbers rather it is about real people (United Nations Fund for Population Activities (UNFPA) 1995, p. 15; Caldwell 1996, p. 71). As a participating country, Papua New Guinea became a signatory to the 20 year Program of Action (PoA) that is built with a new perspective on the successes of the population programs

of the previous decades (UNFPA 1995, p. 36). In this Plan of Action, of particular interest to the present study is the reference to indigenous populations and their distinct, but important, perspectives on their own population and development relationships. 'Their distinct and important perspectives, frequently quite different from those of the populations with whom they interrelate is recognised' (UNFPA 1995, p. 36). To contribute to the well-being of particular indigenous populations in a given setting, researching about and understanding their demographic behaviour is essential for developing policies, programs and further research oriented towards such populations.

Increased attention to population problems in the wake of ICPD 1994 led to an increase in the number and variety of demographic studies in developing countries. Moreover, it was not possible to carry out many demographic studies prior to the 1970s because of a lack of demographic data for the 1940s and the 1950s (Cleland 1996). This is particularly true of Papua New Guinea, where the shortage of demographic data is much more acute.

The Millennium Development Goals (MDGs) are created to provide a comprehensive framework for eight broad development goals and their 47 indicators. They are to serve a useful and politically appropriate function in allowing regular assessments and comparisons of development progress against important goals and bench marks across the broad spectrum of social and economic development (Haberkorn 2008, p. 96; Department of National Planning and Monitoring 2010, p. 2). Generally, the Pacific population presents various fertility, mortality and migration trends and these different trends have several important policy implications. While many Pacific Island countries have addressed the MDGs in various ways, PNG has made progress by developing a number of policies that address population and development goals. The responses come in the form of the national population policy 2000-2010, the national strategic plan 2010-2030, medium term development plan 2011-2015, health policies and education policies which are among the list of where the goal is to improve the lives of PNG people. These policies are now revised and replaced by other policies that address the emerging issues. The 2010 progress report on the MDGs has indicated that the progress on the targets have been slow and it is now recognised that

new and innovative strategies need to be identified in order to move forward (Department of National planning and Monitoring 2010, p.234).

Preparations for the census and surveys with improved questionnaires in specific languages and improved recording of accurate data have since improved the quantity and quality of demographic studies (Cleland 1996, p. 433). At the same time, demographic theories and methods of demographic analysis, particularly in developing countries, were also being continually reviewed and revised to allow for the analysis of complex, emerging factors that affect individuals, families, and the community (Mason 1986). Discussions of theories and structured frameworks for understanding and explaining the demographic behaviours of populations, in particular those on fertility, mortality, and migration have evolved and continued (Davis and Blake 1956,; Freedman 1979; Teitelbaum 1975; Caldwell 1976; 2006; Mosley and Chen 1984; Skeldon 2002; Lee 2003).

The first population census in Papua New Guinea was conducted in 1966, which was only a sample census. Recognizing the negative effect of high population growth on development on the one hand, and the acknowledged influence of socioeconomic factors on the demographic variables of fertility, mortality and migration on the other, efforts to improve the collection and analysis of demographic data in Papua New Guinea were increased.

There are a number of theoretical frameworks which can assist in studying the demographic behaviours of population groups in association with their social, cultural, and economic conditions. Research in Papua New Guinea has been limited to providing demographic indicators concerning trends and patterns at the national level. To understand the contextual background in which demographic behavioural changes occur in Papua New Guinea, the next section overviews the selected studies concerning reasons and explanations relating to these changes. Discussion of fertility, mortality and migration at the national level show a broad demographic map for the country as a whole, which has no indication of specific group demographic behaviour. This chapter further explores selected international investigations into demographic behaviour, mainly in association with the socioeconomic factors in developing

countries. In conclusion, following a review of selected theories and structured frameworks applicable for studying demographic behaviour, the chapter outlines the framework that has been chosen for the present study.

2.2 Papua New Guinea's Cultural and Demographic Profile

2.2.1. Selected cultural norms

Cultural practices and social roles are important aspects of a society. In this thesis, these relate to the way people observe their cultural practices, particularly those which affect their demographic behaviour. In traditional Papua New Guinean societies, marriage, and the payment of bride price, breastfeeding, and sexual abstinence are some examples that directly influence the demographic behaviour, as shown in studies by Stanhope and Hornabrook (1974), McDowell (1988), Mantovani (1993), Mashiro and Ohtsuka (1998), Barlow (2001), Goddard (2001), and Cavallaro (2005). In all of the mentioned activities, an element of exchange of some sort occurs which supports fostering relationships and kinship support as they are reaffirmed through feasts surrounding family or clan functions in connection with marriage or death (Leach 2003, p. 128).

In these discussions, a cultural system refers to a group of people who speak the same language and observe the same social practices (Lepervanche 1973, p. 8, *in* Hogbin 1973). Culture is used as an identifier of the group in discussion and their place of residence and the unique practices of this society (Fricke 2003, p. 472). In these situations, all closely related people live together and associate with each other in various enterprises. This includes supporting and caring for each other. The purpose of referring to culture in this context is that under the cultural practices that govern a particular group in a location at a given time, all members are actors of the same culture (Hammel 1990, p. 458). This study identifies societal and individual characteristics as important elements that make up the Motu Koitabu group in Papua New Guinea.

Further, an important social institution, known as 'exchange relationship' which involves many kinds of exchange among various levels of partnerships, is necessary

in people's lives. The act of sharing and assisting one another is a way of life for many cultures in Papua New Guinea. The practice of the '*Wantok system*', as explained in Chapter 1, continues to foster the traditional way of doing things. However, as changes are integrated into modernisation, certain traditional structures have either being modified or have shown resistance to change. Worth and Henderson (2006, p. 294) identify two most important characteristics in this context.

First, most people practise subsistence economy and continue to live in the rural areas with a strong attachment to their land (Worth and Henderson 2006, p. 294). Land is owned by groups of people and individuals who have rights to use the land. Membership to these groups is attained through birth (Fingleton 2004, p. 97). Being a member of such groups has become a very important characteristic amongst the groups that make up the clans. In recent years, owners of the land where large development projects and mines are located have been making excessive profits through royalties, and this has created hostility, not only between the people and the government, but also amongst factions within groups (Kidu and Homoka, 2001, p. 4). While these issues warrant remedial action, lack of demographic information about the indigenous populations affected by the development projects does not help the government in distributing payments resulting from the extraction of minerals from their land. The lack of such information also does not help the decision makers in formulating and implementing plans for socioeconomic development in all sectors, including the indigenous population affected by development projects.

The second characteristic identified by Worth and Henderson (2006, p. 294) is that many traditional Papua New Guinean social structures and customs have survived in the face of rapidly changing societies as most people in Papua New Guinea comply with the new structures and customs. For example, marriage between a man and a woman is not a simple isolated event. Marriage binds the couple and their families and goes beyond the immediate family (Mantovani 1994, p. 14). This practice has continued to be followed by many groups, and the urban villages in Port Moresby are no exception to this (Cavalero 2005, p. 65). Marriage in these communities involves exchange of food, cash and traditional wealth, such as valuable arm-shells which has had a wide traditional use in coastal Papua for trading and bride price payments. On

such occasions, the exchange involves the participation of the immediate family and clan members of both the bride and the groom.

On the other hand, the European settlements in Papua New Guinea have left their impact on basic traditional structures and customs, in particular, through the work of Christian churches. The churches made greater inroads into the indigenous cultures than the European administrators (Dickson – Waiko 2003, p. 102). The work of the missionaries paved the way for the traditional Papua New Guinean societies to evolve into modern societies by introducing schools and modern health services to achieve better socio-economic status. However, the disadvantage of these introduced modern ideas and institutions was that they discouraged the practise of many of the traditional customs by the indigenous peoples. These traditional customs were not written down but passed on from one generation to the next, therefore not practising them would result in their gradual disappearance (Whitehouse 1998, p. 46). For example, Robbins (2001, p. 903) explains that the nature of saying a sinners prayer, has replaced the customary practice of settling disputes in traditional ways. Both are important and accepted practices, and in no way should one replace the other. Some societies in Papua New Guinea continue to retain the traditional structures or groupings of people. For example the ‘clan groups’ within the coastal Papuan villages have adapted the clan structures to carry out church activities (Goddard 2001, p. 145).

‘Traditional’ societies in Papua New Guinea are based on relationships, responsibilities, and reciprocity manifested in the extended family and clan (Kidu 2001, p. 183). In traditional societies, social relations are primarily kinship relations and this means closely related people living together and associating with each other in various enterprises (Lepervanche, 1973, p. 8, *in* Hogbin 1973). Lepervanche stated that kinship terms are usually extended to include whole classes of people and distant relatives that have associations with one another for four or five generations (Lepervanche, 1973, p. 9, *in* Hogbin 1973). Today, these practices are still very much intact. However there are exceptions, where people see and express their relationships in kinship terms regardless of actual genealogical connections. Many cultures exploit these relationships for their existence and access to social benefits, such as information and economic resources.

The introduction of a cash economy to replace the traditional subsistence lifestyle has, in some ways, altered people's social characteristics. However, this change has not necessarily affected their social and cultural behaviours and practices although they are modified to suit the current conditions. In Port Moresby, the urban population, particularly that living in the urban villages are confronted with the pressures of this rapidly expanding modern city. The infrastructure development of Port Moresby has created employment opportunities for these urban villagers but at the same time it has also created a demand for payment for basic services at the village level. The requirement for paying for public services is accepted at the societal level, and this has forced villagers to seek employment.

However, changes such as infrastructure development of Port Moresby have not affected many other deeply rooted cultural practices of the urban villagers. For example, practices related to birth spacing and birth limitation are difficult to change as they are matters of individual choice based on age-old norms to produce many children in order to ensure the survival of the desired number of children to support the parents in their old age and continue lineages. Anthropological studies which have focused on decision making about family planning and value of children in rural traditional communities have helped in facilitating some understanding of demographic behaviour in Papua New Guinea (McDowell 1988, p. 12).

The inclusion of cultural and social aspects of reproductive practices in the Papua New Guinea's population policy statements indicate the acceptance of the values and practices that exist in many traditional societies (NDPM 1999). However, what is confronting the contemporary Papua New Guinea policy makers is the effect of rapid changes in cultural beliefs and lifestyles that accompany development (Boyd and Ito 1988, p. 45). As these changes occur and are being accepted by the communities, it is likely that their fertility, mortality and migration patterns are going to change. However, the existing supporting infrastructure and service facilities are unlikely to sustain these changes.

2.2.2. Reasons that Sustain Demographic Change

External factors generally have a considerable impact on any society. For example, Western contact has had a great influence on the demographic behaviour of the people of Papua New Guinea (Umezaki and Ohtsuka 1998, p. 411). During initial contact, fertility levels in many sections of the Papua New Guinea population increased as a result of improvements in nutritional status of mothers and the gradual erosion of postpartum sex taboos leading to the shortening of lactational periods (Ring and Scragg 1973, p. 8–9). Although there are other factors responsible for these changes, ‘the social practices and behaviour that protected the health of mothers and children, either by design or as unintended consequences, were widespread in most of its traditional cultures in Papua New Guinea’ (DNPM 1999, p. 18).

McDowell (1988) concluded that a combination of values and practices was the main means of birth spacing in traditional Papua New Guinean societies. These practices were indirectly managing and controlling women’s fertility levels before the introduction of modern contraception. A traditional long period of breastfeeding was one practice that resulted in couples having small family sizes. This indicates that they managed their demographic behaviour through a practice that led to low fertility. The fear of ‘gender pollution’ (women’s hygiene immediately before, during and after menstrual periods), and codes of heterosexual activities in many cultures have gradually disappeared. These are examples of changes in traditional values and practices that have contributed to changing demographic behaviour (Worth and Henderson 2006, p. 294).

The existing rituals in many traditional societies were observed to achieve success in hunting, fishing, and growing the best garden produce. It is observed that in such cases, people practised prolonged breastfeeding and sexual abstinence in order to observe the rituals which were designed to ensure that the hunting or fishing expeditions were conducted successfully and without interruptions from pregnancy (Bulmer 1971; McDowell 1988). However, what people do not apparently see is that these practices indirectly contributed to relatively low fertility. The Papua New Guinea government valued the benefits of prolonged breastfeeding, therefore

encouraged this practice. The practice of breastfeeding was socially sanctioned in PNG in order to enforce the welfare of the mother and child and has been supported and promoted since the 1970s (Agyei 1984). However, breastfeeding practices also depend on individual choice.

Nonetheless, breastfeeding and sexual abstinence reflect the practices of a society that places great value on large numbers of children. According to a study in 18 Papua New Guinea provinces, the only factors which check natural fertility are the cultural ones limiting family size within marriage, such as sexual limitations enforced in the early stages of marriage, postpartum sex taboos, and taboos associated with male rituals or ceremonial activities (Agyei 1984, p. 460). But there are other biological, social and reproductive health factors which are also important and are associated with low fertility, such as late menarche and late marriage, a long interval between marriage and the first birth, a high probability of widowhood at later reproductive ages, and a prolonged lactational period (Bulmer 1971; Wood *et al.* 1985, p. 57; Worthman *et al.*, 1993; Klufio *et al.*, 1995).

Marriage has been nearly universal in traditional Papua New Guinean societies and childbearing outside the institution of marriage was condemned by many societies (Bulmer 1971). Pregnancy before marriage meant that the girl was forced to marry, and on rare occasions, she might have had to marry someone not of her choice because of the pregnancy (Bulmer 1971). Although the marriageable age in some traditional societies was around 16–19 years, the median age at first birth in a traditional society was about three years after marriage (Wood *et al.*, 1985, p. 57). This is partly because many of the girls were married before they had reached puberty and they had to wait for cohabitation with their husbands until after their first menstrual period.

Further, customs and taboos also helped keep the fertility relatively low in traditional Papua New Guinean society. For example, taboos on sexual contact during preparations for hunting or fishing activities, or during a child's breastfeeding resulted in less time in cohabitation, which, in turn, kept fertility relatively low (Bulmer 1971). Gillett (1996, p. 84) found that 'abstinence during lactation was the most common

method of traditional fertility control still used, as many women reported that sexual activity resumed some years after giving birth'. This combination of factors kept the fertility relatively low in traditional Papua New Guinean societies.

In contemporary Papua New Guinea, the social landscape is characterised by extreme diversity, which brings in different experiences, depending on location and the type of society. The various outside contacts have introduced new practices and beliefs that have long lasting effects on how and why people behave in recent times (Worth and Henderson 2006, p. 294).

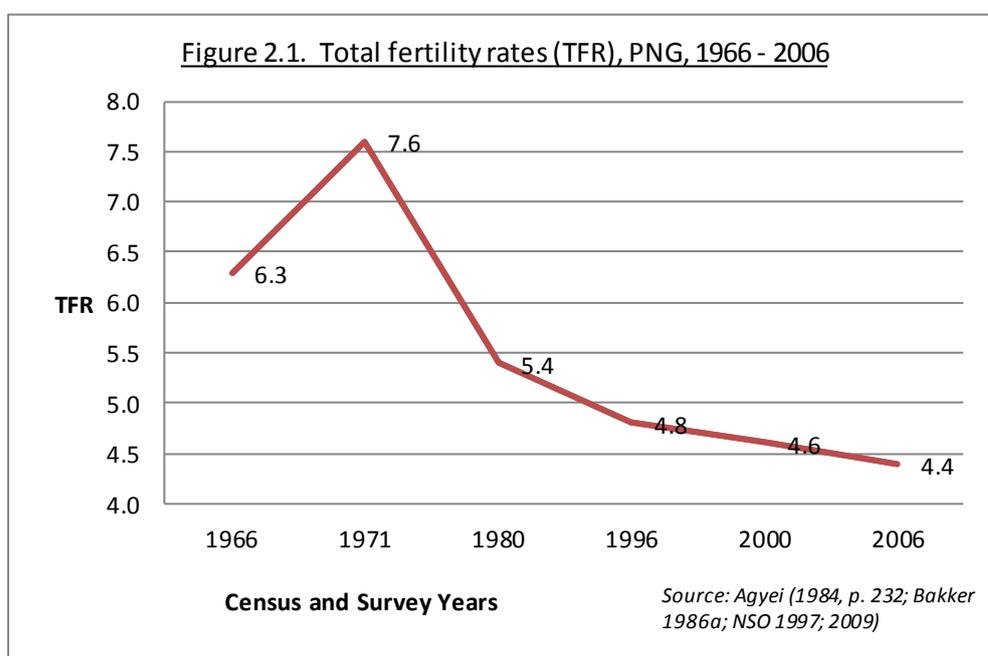
The discussions relating to practices that influence demographic behaviour in the traditional societies offer a contextual background for the present study. However, these findings are specific to certain ethnic groups and in no way reflect the cultural practices that are relevant to the indigenous population within the Port Moresby area. This study aims to explore the socioeconomic and cultural factors that are relevant to the study population.

2.2 3. Demographic Progress

This section describes Papua New Guinea's demographic map. As stated in Chapter 1 of this thesis, rural fertility is higher than urban fertility (NSO 2003; 2009). Explanations for the difference are linked to greater uncertainty of child survival in rural areas, while the lower fertility in urban areas is influenced by either traditional practices of child spacing or longer periods of breastfeeding (Connell 1997). However, although the reports of the 2000 Census and the 2006 National Demographic and Health Survey mention the differences in fertility between urban and rural women, no further analysis has been conducted to identify the factors responsible for the high fertility among rural women and lower fertility among urban women (NSO, 2003, 2009). In contrast, other specific studies (mentioned below) have identified the factors that are responsible for changes in fertility. The following sections describe the fertility trends and the influences of socioeconomic factors on fertility in PNG.

2.2.3.1. *Fertility Trends*

Early demographic work in Papua New Guinea was based on sample censuses in 1966 and 1971, which indicated a total fertility rate ranging from 6.3 in 1966 to around 7.6 in 1971 (Agyei 1984, p. 232; see Figure 2.1). As stated by Agyei (1984), the high fertility among women aged between 45 - 49, with completed families of six to eight children from the 1960s was the beginning of disregarding practices of traditional taboos and customs (Agyei 1984). At the same time, the prevailing social and cultural factors favoured high fertility; any change in these factors with the acceptance of family planning was yet to be seen (Agyei 1984).



The increase in fertility in 1971 is linked to better nutrition and improvements in public health which also contributed to mortality decline. As shown in Figure 2.1, the 1980s began to show a decline in fertility when the total fertility rate (TFR) was estimated at 5.4. The TFR continued to drop to 4.4 per woman in 2006. The downward trend is linked to the gradual acceptance of family planning programs, which started in the 1970's (Agyei 1984). The shift to lower levels of fertility in the latter years is also attributed to maternal and child health clinics (MCH) and increased

family planning activities (NSO 2003, p. 65). However, an analysis of the fertility trends in Papua New Guinea shows that the fertility transition after the 1980s has been progressing very slowly (NSO 2003, p. 65). Indications of the deterioration of Maternal and Child Health (MCH) programs, which maintained the health of mothers and children is one reason why the fertility transition is slow.

At the provincial level, which is the level of the second highest geographical grouping in Papua New Guinea, unlike the patterns indicated in the 1980s where extreme differences between provinces were evident, recent findings indicate insignificant differences at urban and rural, regional and provincial levels (NSO 2003, p. 65). The urban fertility level was lower compared to the rural fertility level and some fertility declines are evident at the provincial level. 'The main conclusions which can be drawn are that fertility transition in Papua New Guinea, which started at the end of the 1970s has made relatively little progress' (NSO 2003, p. 73).

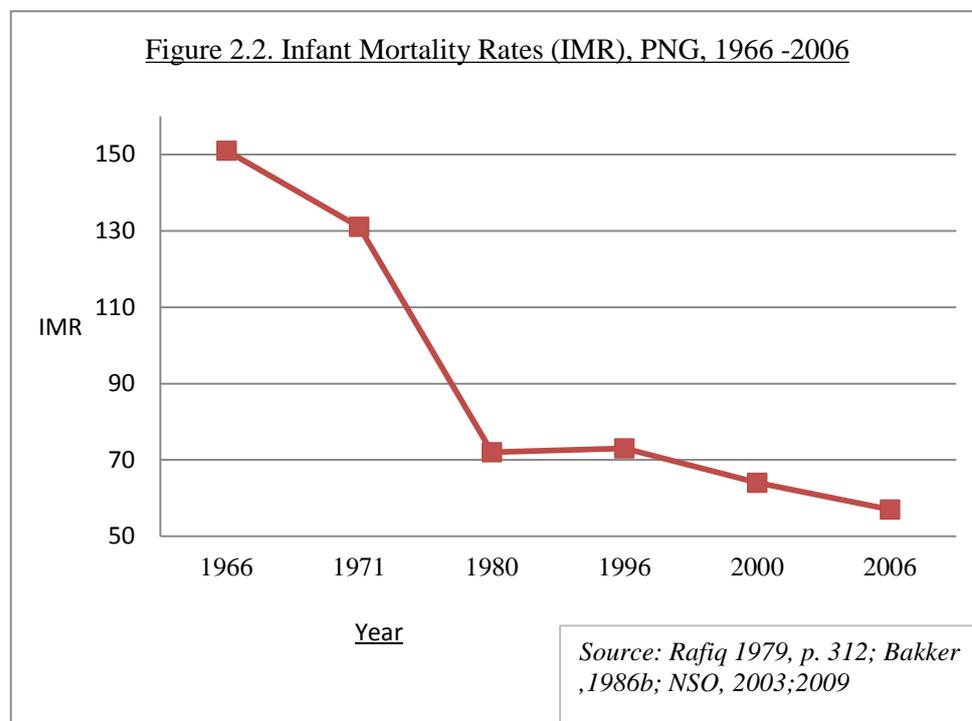
In relation to the four geographical regions of Papua New Guinea, fertility was the highest among the Islands women and the lowest amongst women in the Highlands Region (Bakker 1986a; NSO 1997; 2003). However, in a recent national survey, fertility has been observed to be higher among the New Guinea coastal women, who have replaced the Island women as the highest fertility group (NSO 2009). Notably, the Highlands Region has not shown a change from being the region with the lowest fertility, which has been linked to indications of infertility among these women (Jenkins 1993, p. 79). According to Jenkins (1993), the transmission of infectious sexual diseases was the main cause of infertility. The high incidence of polygynous unions in the Highlands Region and the increasingly promiscuous behaviour also contributed to the incidences of infertility (NSO 1997; 2009; Hughes 2002, p. 132). Passey *et al.*, (1998, p. 120) confirmed that the prevalence of sexually transmitted infections (STIs) among the Highlands population was high and inadequate health care continued to enhance infertility.

In summary, fertility in Papua New Guinea has continued to remain at more than four children per woman since the 1980s and as a result, the population has a very broad based age structure with approximately 40 percent under the age of 15. This shows

that there is a very high level of young dependency and high child woman ratio, which has serious implications for the government plans on socio-economic development (DNPM & UNDP 2004, p. 6). The continuing high fertility makes it essential that the Papua New Guinea government improve and expand public services, such as schools and health services, in order to cater for the growing demands of the young population.

2.2.3.2. Mortality Trends

The prevention of child mortality is one of the important goals of the National Health Policy in Papua New Guinea, and is a major focus of international and bilateral aid in the health sector. This is reflected in Papua New Guinea's health plans and has been given prominence in recent years (National Department of Health 2010). Improvements or deterioration in the health services, especially reproductive health and mother and child health care (MCH), have an almost immediate impact on the level of infant and child mortality in PNG.



Despite such efforts, the mortality situation for PNG is rather a sad one. As shown in Figure 2.2, there is evidence of a decline in infant mortality by more than a half from

1966 to 1980, but from 1980 to the present, the speed of decline has been very slow. The earlier surveys reported very high levels of infant mortality; an IMR of 151 per 1,000 live births in 1966 and 131 in 1971. From the 1980s, the IMR has been below 80. As shown in Figure 2.2, for every 1,000 children born in PNG in 1996, approximately 73 children died before reaching their first birthday. In 2006, for every 1,000 children born, approximately 57 children died before reaching their first birthday, making it the highest IMR among the Pacific island countries [South Pacific Commission (SPC) 2010 estimates]. A closer examination of the data reveal that ‘the rapid decline in mortality that took place before 1980 did not continue at the same pace during the interval 1980 – 2000’ (NSO 2003, p. 32). It appears that, more recently, the mortality transition has slowed down significantly and the decline has been very marginal in the recent period (NSO 2003).

Infant mortality rates are the highest in the rural areas of PNG, which indicates that conditions for child survival are better in the urban areas. This has been the trend since the 1980s. The data also suggest that children whose mother’s education levels are higher tend to have a better chance of survival (NSO 1996; 2003; 2009). These findings suggest that improvements in the health sector are essential, and supporting girl’s education is vital. The government’s programs for ‘accelerating girls education’, under the banner: ‘uneducated mother’ is a way forward to reducing the number of children dying.

2.2.3.3. Migration patterns

As a component of population growth, migration is a very important factor in the decision-making process of the Motu Koitabu people. To contextualise the study, the national migration patterns and types are discussed first. In addition, discussions about displaced populations are also included in this review, as the experiences of the displaced populations are important in the context of the Motu Koitabu people. However, even though the Motu Koitabu people cannot be regarded as displaced people, they face situations similar to those of displaced populations in the sense of being marginalised from the mainstream society. These are further discussed in section “2.3: A review of selected studies from developing countries”.

Studies on migration in Papua New Guinea are limited in number. At the national level, migration is more about internal migration, which has gone through various patterns (Walsh 1987; Connell 1997). In the 1960s, the internal migration was ‘a centrifugal movement from the densely populated centres towards the coastal towns of the mainland, especially Port Moresby and Lae, and to a lesser extent towards areas of resource development’ (Connell 1997, p. 176). In the 1980s much of the migration in PNG was from the Highlands Region and mainly involved single males who had labour contracts, and worked on the coastal and island copra plantations (Walsh 1987, p. 1). High migration rates were associated with more urbanised provinces that were experiencing major developments. The National Capital District (NCD) was the main destination for migrants (Walsh 1987).

The 2000 Census classified the type of migrants through a comparison of place of birth and place of enumeration (NSO 2003). According to the census data, 20 percent of the population were not born at the place of enumeration and were therefore classified as lifetime migrants. Of those people, 37 percent were counted in urban areas (NSO, 2002, p. 35). Some 58 percent of migrants who were enumerated in urban areas were in the NCD. Being the capital city with the attraction of better employment opportunities, more people tended to migrate to this destination (NSO 2002, p. 35).

An estimated 90 percent of the Papua New Guinea citizen migrants migrate to the NCD, much more than any interprovincial migration that takes place in PNG. Most migrants are unskilled people, and have settled on the traditional land, with or without the consent of the Motu Koitabu people or attained these arrangements through their ancestors (Chan and Yala 2008, p. 5). This has enormous implications for the Motu Koitabu population. Because the migrants are mostly uneducated and unskilled, they undertook subsistence gardening around Port Moresby hills and valleys, which has restricted the use of the land by the Motu Koitabu people. They can no longer grow vegetables in their gardens and gather firewood because of the influx of people from other ethnic backgrounds which have brought about fear amongst the Motu Koitabu people to move around freely (Gaudi *in* UNESCO 2001, p. 24).

At this point, it may be pertinent to comment on the definition of migration types which would be valuable for the discussions on the effects of in-migration. Although demographers draw distinctions between international, internal, and local migration, there is one common element in all these types of migration as ‘all of which are deemed to entail a change in an individual’s usual place of residence’ (Rowland 2003, p. 386). In the context of the current study, the displaced and host population concepts are considered as important because the Motu Koitabu people in Hanuabada experience both these phenomena without changing their place of residence. While they are not displaced as one sees it, they display some of the characteristics of displaced populations. Rowland (2003, p. 389) discusses the concept of total displacement, as it required greater adaptations on the part of people moving, as well as entailing greater impacts on the receiving community. From this perspective, the study population falls in the category of a receiving community, where the rights and use of their traditional land are foregone, either illegally or under certain laws of the government or the developers.

The next section discusses the studies that examine the relationships between the socio economic and cultural factors on fertility, mortality and migration in selected populations of developing countries in order to provide a contextual setting for the present study.

2.3 A Review of Selected Studies from Developing Countries

2.3.1. Factors Influencing Fertility

A revolution in demographic behaviour has occurred throughout the developing world. The average number of children has fallen by some 50 percent in many developing countries, although the decline is more marked in some countries than others (United Nations, 2007, p. 1). In particular, fertility decline is associated with higher levels of education, jobs for women outside of their homes, and an increase in the proportion of population living in urban areas. An increase in the use of contraception has been one of the key intermediate factors that have helped translate the changes in socio-economic factors to fertility decline. Further, social and

economic changes have increased the costs of raising children and reduced their benefits to parents. This has led to the desire for smaller family sizes.

Education can affect women's lives, and one aspect of education of women is making decisions about their fertility. Jejeebhoy (1995, p. 1) argued that education can increase access to knowledge, information and new ideas through several channels. These channels are ideal for change, and when used effectively, lead to the change. The United Nations (2004, p. 5) affirms that industrialization, urbanization, and modernization of societies, including wider access to education, improved child survival, and increased adoption of contraception are the major driving forces of fertility decline. While the effects of industrialisation and urbanization are felt at the macro levels, access to education and the adoption of modern contraception are individual choices. These individual decisions are valuable and have a direct effect on demographic change. The findings based on DHS data from 26 countries reveal that there are other higher education factors that are linked to low fertility, such as education enhances women's ability to make reproductive choices (Martin 1995, p.187).

Arguably, modernisation and its attributes are important, as is modern contraceptive use, in effecting fertility decline in developing countries. According to a study conducted in developing countries, 'relatively high levels of contraceptive use and long intervals between births and delayed entry into motherhood have contributed to reduced levels of fertility' (Rutstein 2002, p. vii). In sub-Saharan Africa 'contraceptive use is the leading driver of fertility decline, which appears to be primarily as a consequence of the different reproductive health programs and policies of countries in this region' (Garenne 2008, p. 31). While increased contraceptive use and tailored reproductive health programs for a specific population are significant factors of fertility decline, the literature search based on qualitative research studies conducted from 1970 to 2006 in developing countries conclude that increases in modern contraceptive use require community-wide, multifaceted interventions and the combined provision of information, life skills, support and access to youth-friendly services (Williamson *et al.* 2009, p. 11). Undoubtedly efforts based on such findings are likely to encourage more contraceptive users as questions and misunderstandings

about the use of contraception are corrected and improved through specific programs. In turn these changes trickle down to individuals for informed decision making.

Women in various situations have managed to reach a point in life where they are able to make individual, informed, reproductive decisions while others have yet to make such decisions. Increased decision making by women in family affairs is an important aspect for change. Robinson (1992, p. 445), in his review of the Kenyan fertility transition found that the decline in fertility is linked to changing attitudes to family sizes and increasing contraceptive use. In general, decision making is restricted to the male head of the household or other male members in some hierarchical order of importance in traditional societies, and therefore excludes women. However decision making in some societies are stratified by gender depending on contextual settings. For example, in India, there are differences in decision making by women in the South and the North, where a group in the South has the freedom to make a choice in marriage, while those in the North do not have that choice (Dyson and Moore 1983, pp. 43-44). Such autonomy does influence reproductive decision making. The acceptance of contraceptive use to limit or even space births will only occur if women can make these decisions, and also only when they are well-informed.

The institution of marriage is an important building block for establishing firm relationships in a society. Being married opens up the chances of conceiving and raising children, and therefore increases the status of women. However, in our changing social and economic circumstances, making a decision to marry has a range of implications. For example, in the Asian countries of the Pacific region, changes from universal marriage to women making their individual choice to marry is likely to have been related to the decline of fertility in the region (Jones 2007, p. 455). Although marrying young often does not mean the beginning of childbearing, being educated provides an opportunity for females to make informed decisions about their fertility. Education also prolongs the period to remain unmarried, and it has been found that marriage at adolescent ages is less frequent where secondary education is prevalent (Singh and Samara 1996). However, traditional societies are governed by social norms which do not permit childbearing outside marriage. This also contributes indirectly to low fertility.

Fertility decline is also associated with a person's religion, as it affects their decision making. For example, according to the principles of Christianity, there are values that govern how people live their lives in a society. In the Christian teaching, being married is considered appropriate for all, as it reflects faithfulness in Christianity (Kevin 2004, p. 29). Moreover, in many traditional societies there are values that restrict entry into sexual debut as the couple has to be married before being sexually active. Furthermore, when married, contraceptive use may be desirable in many societies to postpone or stop childbearing, but based on Christian teaching, it is argued by some that the use of contraception is not desirable, as it may be seen as a sign of possible unfaithfulness. This is more a social prejudice towards contraception in a society rather than a Christian principle. However, in many countries, some sections of the population cite religious prohibition as a reason for not using contraception, for example, in Bangladesh (Caldwell and Khuda 2000, p. 242) or Indonesia (Statistics Indonesia 2008, p. 102).

Based on studies on "paired Muslim and non-Muslim communities" from India, Malaysia, Thailand, and the Philippines, Morgan et al (2002, p.533) have found that 'Muslim wives (compared to non- Muslim wives) usually have more children, are more likely to desire additional children, and are less likely to be using contraception when they desire no more children'. The findings reflect the differences in the reasons for not using contraception between different religious groups, as there are underlying issues such as socioeconomic status that exist amongst these groups and contribute to the differences.

An educated woman is very likely to be employed. In societies that maintain traditional family values this change-over raises a conflict between career and home responsibilities. According to McDonald (2000, p.1), 'if women are provided with opportunities nearly equivalent to men in education and market employment, but the opportunities are severely curtailed by having children, then on average women will restrict the number of children that they have'. This results in low fertility. According to Caldwell (1980) the greatest impact of education is not direct, but through the restructuring of family relationships, and hence, family economies and the direction of the net wealth flow (Caldwell 1980, p. 227). In the process of restructuring family

relationships, decisions are made to ensure that every child in the family is educated. This adds costs to the family and the financial stress is undesirable. In turn this reduces the desire to have more children. The economic activities that are relevant for the household are not the same as what an outside workforce has to offer. Women who spend more time working in fulltime employment are likely to reconsider their fertility intentions, as the time that can be dedicated to raising children is not adequate when she is working full time outside the home

2.3.2. Factors Influencing Infant and Child Mortality

It is generally observed that mortality decline is largely attributed to improved standards of living, leading to improved nutrition, improved immunity, and subsequently mortality decline (McKeown *et al.* 1975, p. 391). As commonly hypothesized, the low status of women leads to high child mortality and higher women's status leads to low child mortality. Similarly, children of mothers who have low levels of education are prone to high mortality, while higher participation in income-earning activities leads to increased survival of children. Further, increased survival of children is also associated with urbanization.

Child mortality has declined in developing countries and in particular has declined in most of the countries of Asia and Latin America (Mahy 2003, p. vii). Higher levels of mortality among children are attributed to mothers who have low levels of education or those who live in rural areas. However, there are some exceptions to the trend observed above. Past improvements in child-survival in much of sub-Saharan Africa are being reversed. This is associated with the child deaths related to HIV and AIDS (Weeks 2002, p. 128) and 'also to its very complex socio-political and cultural environment' (Macassa *et al.*, 2011, p. 15). Moreover, the reversal in improved child survival is the result of a serious lack of basic health services and political support, when remarkable advances are being made in other areas..

As mentioned previously, the initial declines in mortality were associated with improved standards of living, leading to improved nutrition and improved immunity. However, expansions of public health programs have also influenced the lifestyles of

the people and inculcated good habits among them, which have been substantial factors in mortality decline (Hill and Pebely 1989; Boerma and Stroh 1993; Soares 2007). Further, in some developing countries, massive public health programs have helped to better educate people about health and hygiene (Chidambaram et al., 1985). However, it should be noted that improvements in the standards of living should continue to be achieved by reducing the inequalities in educational and employment opportunities. Only then will 'the greatest impact on infant and child mortality and morbidity' be achieved (Chidambaram et al., 1985, p. 24).

Female autonomy has been found to be influential in reducing child mortality. Caldwell (1986, p, 182) stated that, 'a substantial degree of female autonomy, a dedication to education, and an open political system' are vital elements in the lives of women that, in turn, will affect child mortality'. It is these characteristics that have contributed to informed decision making by women which has contributed to the decline in child mortality.

The outlook for healthy living is also associated with income and growth. Soares (2007, p. 247) found that improved health is the result of better education and improved nutrition. As indicated in other studies (Mahy 2003), educated women are likely to have fewer deaths among children to whom they give birth.

There are other physical factors that have contributed to the mortality decline. In their analysis of Latin American countries, Palloni and Hill (1997) found that clean water was linked to a reduction in infant mortality and the reduction of other diseases. Other factors such as housing, sanitation and high demands for health services are all contributors to changes in the health of the population (Soares 2007, p. 247). While overall mortality decline is vital for the progress of any society, it is particularly important to achieve reductions in child mortality as they have been acknowledged by national and international organisations as one of the key indicators of development.

2.3.3. Factors Associated with Migration

There are many reasons why people migrate. Some migrate voluntarily while some others migrate because it is forced upon them. The present discussions are about

forced migration as a result of displacement due to development programs, known as ‘development induced displacement’ or DIDs. This type of migration has been clearly articulated by Cernea (1997), in relation to the World Bank funded projects that caused people to be displaced. In this kind of migration there are ‘host populations’ who face situations that are not in their best interests and which disrupt their normal way of life. The ‘host populations’ are usually indigenous populations who eventually accept their current place of residence as their final destination and that is where they would wish to continue to live. Within the context of urbanisation and development projects, the ‘host populations’ are traditional landowners who find themselves marginalised, and to an extent, suffer from effects similar to those experienced by geographically displaced people.

Globally, the after-effects of population displacement are numerous. Development induced population displacement refers to people who may be uprooted from their habitat because there may be a new road construction along their place of residence. They are likely to be forced into making changes to their social and cultural norms. According to Cernea (2000), one of the characteristics of the displaced population is the marginalisation that occurs when families lose their economic power and spiral downward in social mobility (Cernea 2001, p. 16). On the other hand, the host populations are the residents of an area where the displaced persons move to create their new homes. In this regard, the host populations may feel the impact of the arrival of the displaced persons, whether they be refugees or other kinds of migrants. The host populations may often be forced to modify their own way of life to accommodate the new arrivals and their social lives.

It is the thesis of this research that certain population groups go through the experience of displaced populations, even though they may continue to live in their ancestral locations. These experiences include their marginalisation due to the expansion of urbanisation and infrastructure development. The effects of such expansion and development have yet to be viewed as being beneficial to such population groups. The Motu Koitabu people of Hanuabada represent such a population group experiencing marginalisation due to developments in Port Moresby.

Within the migration process, there are factors associated with the area of origin, destination, intervening obstacles and personal factors that contribute to the successes and failures of the process (Lee 1966, p. 50). Some scholars describe them as factors that attract people to a destination and factors that force people out of their places of origin (Lee 1966, p. 50; Pryor, 1985, p. 1), or pull or push factors (Ravenstein 1889 *in* Weeks 2002, p. 254). With the Motu Koitabu, there might be push factors encouraging them to think about moving out of Hanuabada, yet there might be pull factors, not from another destination, but from within their social and cultural system in Hanuabada, which make them continue to live in Hanuabada. At present the latter of the two factors appears to be stronger.

Studies of forced migration are aimed at understanding the people who are displaced due to infrastructure development that make the indigenous populations 'host populations' on their own land. Their areas of recreation, their hunting, gathering and gardening areas are used for other purposes and often the host populations are expected to know how to integrate into the modern cash economy by gaining employment. In many cases, people are not prepared for the new development that take place in their area of residence. For example, in areas where there are new projects, the indigenous population are expected to find jobs and be part of the workforce as anticipated by those responsible for the new development project, be they the governments or the developers. The people's unpreparedness for the changes that occur on their own land puts them in a no job situation and renders them landless, because their land might be acquired by the project (Cernea 2003, p. 10). These are the situations that create the risk of being marginalised and being displaced on one's own land.

There are cases of land acquisition for the establishment of developmental projects, such as constructing a road on a group's traditional land. Cernea (2003) classifies people affected by development projects into categories such as 'people affected by direct land access restrictions', 'people displaced physically or economically' and the 'populations that own or use the land where the displaced people relocate the 'hosts' (Cernea 2003, p. 10). For the host populations there are issues that affect their lives. For them, traditional gardening and fishing areas no longer exist and therefore their

socioeconomic status changes. Although there may be many casual opportunities of employment in the new projects, lack of education and employment in the formal work force pose serious issues for them. This is not so for the people who are affected by the change. Such people only know what to do and expect from their traditional land or forest.

The economic marginalization which is often accompanied by social and psychological marginalization and a feeling of injustice is experienced as the educated populations move into the project areas for employment (Cernea 2003, p.11). These are confronting issues for populations where development projects operate that are directly contributing to the expansion of a city which directly affects their lives. Although the Motu Koitabu people are not displaced, the problems that they are confronted with are similar to those experienced by a displaced population.

The present study of the Motu Koitabu people of Hanuabada does not contribute to an explanation of the reasons associated with migration; rather it aims to understand the reasons why people choose not to move from their overcrowded village to the outskirts of the village or to reside in other suburbs in Port Moresby city. It may be recalled that these people are among the traditional landowners of the nation's capital, and living along the coastal areas of Port Moresby has been one of the best locations to live in. However, this is not the case anymore. The lives of the Motu Koitabu people have been affected in adverse ways by the many developmental projects associated with the expansion of Port Moresby city, such as the Poreporena Freeway and the expansion of the Fairfax Harbour Development. The ongoing work on these projects has created health hazards for the villages and rendered the environment visibly polluted.

The studies reviewed here have several theoretical orientations. Their frameworks are based on demographic, sociological, or anthropological models, which underpin their analysis. Some of the factors that have been identified as being relevant for the study are education (Jejebhoy 1995; Mahy 2003), women's economic activity (Kirk 1996; Rustein 2002; Bongaarts 2003), place of residence (Muhuri *et al.*, 1994; Mahy 2003), cultural factors (Dyson and Moore 1983), and migration and displacement (Skeldon

1998; 2002; Cernea 2002; 2003). These factors are also examined in the study, but before describing the analytical framework used in the study, some theoretical considerations concerning demographic behaviour of fertility, mortality, and migration are discussed.

2.4 Theoretical Considerations

There are various theories that explain the changes that take place in demographic behaviour related to fertility, mortality and migration via changes in socioeconomic and socio-cultural factors. In the interests of knowing whether the factors mentioned above affect the demographic behaviour of the Motu Koitabu women, selected theories on fertility, mortality and migration are discussed in this section.

Macro-level theories, such as demographic transition theory (Notestein 1945), Caldwell's intergenerational wealth flows theory (1982), and the sociological analyses of fertility (Kingsley and Davis 1945) are all concerned with demographic changes at the societal level. These theoretical perspectives are discussed and followed by the theories that are specific to fertility, mortality, and migration.

2.4.1. Demographic Transition Theory

In general, the changes that take place in a population structure are based on changes in the birth and death rates, and in some cases, migration. 'The demographic transition theory refers to the movement of death rates and birth rates in a society, from a situation where both are high in the pre-transition stage to one where both are low in the post-transition stage. The interval separating the two situations is the transition itself, during which substantial and rapid population growth often occurs, because births exceed deaths' (Rowland 2003, pp. 17-18).

Demographic transition can be observed from two perspectives. Firstly, the experiences of the developed countries where the changes in the birth rates and death rates in their populations have been used to explain demographic transition. In their experience, 'first mortality and then fertility declined, causing population growth rates first to accelerate and then to slow again, moving toward low fertility, long life and an old population' (Lee 2001, p. 165)..

The process of the demographic transition reshaped the economic and demographic life cycles of individuals and restructured populations. Firstly, the industrial revolution, which many believe to have triggered demographic transition led to advancements in technology that contributed to increased agricultural production. More food and the introduction of better public services in health and education improved people's livelihood and lifestyles. Significant declines in childhood and adult mortality occurred due to the influences of rising standards of living leading to better nutrition stronger immunity to diseases and lower death rates (McKeown 1975, p. 391). More people lived longer which eventually resulted in more elderly people in these populations. At the same time early childhood deaths declined. Improvements in the status of women freed them from child rearing as their main role to doing other things, which contributed to decreases in fertility. With declining fertility women found alternative tasks such as working in the formal sector. The developed countries experience took more than 200 years to reach another demographic equilibrium where both fertility and mortality became low.

The experience of developing countries is similar to that of developed countries, but many developing countries have reached this demographic equilibrium in a much shorter time period, and those that have yet to complete their demographic transition are progressing fast towards it. In general, 'demographic transition' emerged as a framework for progress (Weeks 2002, p. 100).

The western, or classical demographic transition occurred in four stages – high stationary stage, early expanding stage, late expanding stage and low stationary stage.

In defining the four stages, Weeks (2002) outlines them as follows. Stage One is the high stationary stage, which refers to a situation where birth rates are high and stable and death rates are high but fluctuating due to drought and disease. Birth rates were slightly higher than death rates which resulted in maintaining the continuity of the population at a near stationary level and produced a young population in age. Stage Two is the early expanding stage, which refers to the transition to a high growth potential because both birth rates continue to be high and stable but the death rates start to decline. Stage Three is the late expanding stage, which refers to the time when

death rates drop to lower levels than in Stage Two, but the birth rate also starts to decline. Population expansion still continues, but at a slower rate. Stage Four is when there are both low birth rates and low death rates, resulting again in a slow growing, near stationary population. It is likely that birth rates will drop well below the replacement level leading to a shrinking population (Weeks 2002).

While there are four stages in a demographic transition, this discussion is centred on Stage Three, which illustrates the situation in most developing countries. This is the stage where both mortality and fertility are declining. People are making conscious decisions about fertility, and improvements in the standard of living occur in segments of populations in a given setting. In this stage, 'societies adapted the 'new institutions that favoured a reduction in fertility to levels more matching with the lower levels of mortality' (Teitelbaum 1975, p. 421). Other factors that contributed to the primary fertility decline were on the changes in the objective structural developmental levels. 'The new aspirations, the changes in the functions of the family, and new perceptions of the costs and benefits of children were seen as the necessary and almost incidental consequences of the developmental changes which lead to the demand for fewer children' (Freedman 1979, p. 2).

This is where the increased use of contraception, urbanisation, and reduction in subsistence agriculture become the norm in many societies. In these societies, social and economic status determines the actions of couples. The decisions which they make are to achieve the goals that they set for their families. Investment in educating children for a better future and other expenses are considered to maintain the social status in a given urban setting. The larger family size in the farming populations and the primary form of insurance for adults in their old age that kept fertility high (Caldwell 2006, p. 92) are not norms that are widely accepted, but modified.

Demographic progress in Papua New Guinea (PNG) has shown that mortality decline has been followed by fertility decline, although the latter is still high compared to many other developing countries. PNG is at a stage where informed decisions are made about reproduction. To a large extent, men and women are aware of family planning and their benefits so that increasing proportions of women practise family

planning to plan and space their children. The current mortality and fertility rates in PNG are responses to the socio-economic changes that are occurring, and as more socio-economic change will happen in PNG, it is assumed that fertility will continue to decline,.

2.4.2. Intergenerational Wealth Flows theory

Generally, this theory is about embracing all activities that are viewed to be beneficial for each individual person in a structure. It is based on a traditional family structure, where social and economic activities justify high levels of fertility. However, any societies that experience change, the social and economic factors that supported the thesis of the theory are foregone. In many populations the original goals of the theory are reassessed, which resulted in reduced fertility.

Based on traditional societies in developing countries, Caldwell (1982) identified and proposed explanations for the fertility situations and reasons why high fertility was justifiable in traditional societies. Similar reasoning is applicable to mortality and migration where appropriate. Caldwell used the concept of 'wealth' instead of 'income' to explain the benefits that were in support of high fertility, and the work that followed explained the onset of sustained fertility decline. In this case wealth flows is defined as 'all the money, goods, services, and guarantees that one person provides to another' (Caldwell 1982, p. 333). In this context, although all transactions were not monetary and material, those that were in kind were also valued as important (Caldwell 1982, p. 333).

He argued that the wealth flows theory is fundamental to an understanding of the nature of family relationships at all times and in all places (Caldwell 1982, p. 333). This includes placing values on all deeds and not just food which also refers to people's present and future safety (Caldwell 1982, p. 334). He termed the wealth benefit flows among generations as 'intergenerational wealth flows'. Parents saw benefits from having many children as long as the net intergenerational wealth flowed from the direction of children to parents, but as soon as the net intergenerational wealth started flowing in the direction from parents to children (i.e., parents could no

longer gain economically and otherwise from having many children) and as soon as the parents realised it, they started to limit their fertility.

Caldwell identified the onset of mass education as a factor which triggered the change in the direction of wealth flows. In many traditional societies decisions about family size are made on the basis of the hierarchy in families and not by the biological parents of the couple alone. However, there are other powerful decision makers in traditional societies. The hierarchical structure brings difficulties in the whole intergenerational approach of couples making the decisions themselves. The processes of decision making change whereby the parents of the couples have less and less say in the matter.

Caldwell identifies two kinds of societies from a demographic viewpoint, one where unlimited fertility is an economic advantage, and the other where fertility is of no economic advantage. The former is characterised by families with an infinite number of children and the latter by families with no children for biological and psychological reasons. However, there are reasons why families become large overtime. 'Most people-nearly everyone in rural areas-equated large families with strong, powerful and successful families' (Caldwell 1982, p. 333). Larger families were able to support each other and their contributions to the society were higher and recognised by the community. The Motu Koitabu society, with its large families fits Caldwell's description very well. In contrast, smaller families were likely to be less recognised by the community as their contributions were usually much smaller compared to the contributions of the large families. .

However, as societies change, so too do the familial relationships and new relationships are confirmed and established. In turn this redirects the flow of wealth in terms of goods and services. The strengthening of the wife husband relationship weakens the extended family relationship. The expanded network weakens, and societies begin to acknowledge the immediate family responsibilities rather than the extended relationships. As this change of behaviour increases amongst populations, reproductive decisions become nuclear family oriented, and therefore smaller families emerge as being more advantageous over larger families.

In summary, fertility behaviour is rational, and fertility is high or low depending on economic benefits to individuals, couples or families. Whether high or low fertility is economically rational is determined by social conditions primarily by the direction of the intergenerational wealth flows (Caldwell 1982, p. 355). In a traditional family setting, the familial production continues to be important. The social order is that wealth flows is primarily upward from younger to older generations, and individual interests are subjected to corporate interests. In such situations, larger families are viewed as profitable and therefore they continue to be in existence. In this case, the existing cultural norms are in support of larger families, not only to support the familial production but also to maintain the lineages to look after the welfare of each member of the clan or even the village. This also true of the Motu Koitabu society.

In contrast, the onset of fertility decline is conditioned by nucleated family ideologies. This is where earning an income instead of having to care for children influences reproductive decision making. Modern societies place their rules on family units and individualism. Here, net wealth starts flowing in the direction from parents to children. Even though parents remain as the primary providers for their children, they begin to expect relatively little in the way of direct economic return from their children. This results in low fertility as a rational response. In turn, this influences the behaviour of the parents whereby they would opt to spend less and therefore the family sizes would be reduced to a minimum. Further, values change and individualism becomes prominent. As a result, reproductive decisions are made for the benefit of the individuals concerned. The corporate or the group interest is foregone in many societies as lives change.

Much of the change that disrupted the traditional values of large families is associated with mass education and the shift in employment opportunities from family production to wage earning markets. Moreover, the acceptance of Western ideas contributed to changes in the traditional family structure and the hierarchy of relations among family members. This weakened the moral obligations of individuals to their traditional extended family, the broader kinship system, and the local community or tribal unit.

While Caldwell's wealth flows theory fully embraces all activities pertaining to a family, whether they be economic activities or non-economic activities, the location and characteristics of the population being studied is important in the wealth flow theory. Studies on traditional or peasant societies show that the overall flow of wealth appears to be downward from parents to children and from grandparents to grandchildren even in the (Kaplan 1994, p. 767).

2.4.3. Sociological Analysis of Fertility

The sociological analysis of fertility perspectives and trends is an integrated approach, whereby relationships are interchangeably examined at the society level, individual group, and, through the person characteristics as units of observations. To best illustrate the differentials in varying socioeconomic settings, this perspective was useful in examining the fertility of different populations (Davis and Blake 1956, p. 211). In each society, it was seen that there were several social groups, and therefore a need to verify the differences in fertility was necessary. The underlying factors that were responsible for reproductive behavioural change, and which, in turn influenced fertility were of key interest. In their seminal work on social structure and fertility, Kingsley Davis and Judith Blake (1956) showed that all socio-economic variables affected fertility indirectly through a set of intermediate variables (Davis and Blake 1956, p. 211). The intermediate variables consist of a total of 11 variables related to intercourse, conception, and gestation and parturition. These intermediate variables affect fertility directly and each of these intermediate variables is in turn influenced by the socio-economic, cultural and other contextual factors. For example, in terms of intercourse variables the factors which influence fertility are the formation and dissolution of marital or sexual unions in the reproductive period, which consist of age of entry into sexual union, permanent celibacy and the amount of reproductive period spent after or between unions. It is believed that if one enters into marriage early, the exposure to intercourse is early. Therefore, the reproductive period is longer and there are greater chances of reproduction. Then there is the permanent celibacy where there is no chance of exposure to sexual intercourse, which therefore limits reproduction.

The entries into sexual union are governed by various norms and social order. In some traditional Papua New Guinea societies, the marriageable age varied between 16 and 19 years, however, these young women normally did not commence sexual intercourse immediately after marriage, as there were unwritten rules but they were closely observed by the young couple as expected of them by the society (Bulmer 1971, p. 114). In such cases, these young women had to wait for at least three years before their sexual debut. This was to allow for their maturity, and also from their partners to be initiated into manhood before sexual intercourse occurred.

Freedman, cited *in* (Jones 1982) clearly summarised how the socio-economic, cultural and geographical factors affect fertility via a sequence of intermediate factors such as (i) socio-economic, cultural and biological characteristics, (ii) as modified by attitudes relating to family size and knowledge of contraception, and finally (iii) their effects on the proximate determinants, which ultimately affect fertility. The example by Freedman takes into account the entire process and the definition. In another example, Tremayne (2001) explains the concept of human reproduction by stating that to guarantee the continuity of generations, reproductive behaviour is influenced by complex social organisations, belief, norms and rituals and they take various forms in different cultures and manifest themselves in kinship, religion, law and economics and politics (Tremayne 2001, p. 1). According to Jones (1982) the sociological analysis of the fertility perspective was expanded by connecting the relationship of social, economic, and cultural factors, and the environment, to impinge on the identified intermediate variables which influence fertility.

2.4.4. Mortality

The studies on child and infant mortality are important in that they reflect the well-being of the population studied. While many developing countries have made progress by gaining increased child survival, many more countries are yet to reach a satisfactory level of child survival. Socioeconomic factors such as education and income are important in reducing early childhood mortality. For example, it has been found that the role of parental education, particularly that of the mother, in reducing infant and child mortality (Caldwell 1978: Hobcraft *et al.*, 1984, p. 336). These

findings has been supported recently where data from developing countries were examined and it was found that additional gains in education levels contributed to reducing child mortality (Gakidou *et al* 2010).

The most widely used conceptual framework is that by Mosley and Chen (1984) to study the determinants of child survival in developing countries. This conceptual framework groups the approach into two; the social science research and the medical research. The social science research focuses on the relationship between social factors and child mortality in populations, while ‘medical research focuses primarily on the biological processes of diseases, less frequently on mortality per se’ (Mosley and Chen 1984, p. 25).

While separate social science and medical research approaches provide major contributions to the understanding of child mortality in developing countries, the meshing of the social science approach and the medical research mechanisms are needed. To address the policy and program recommendations, the approach developed by Mosley and Chen (1984) is a more rational one for both disciplines. This model is based on 4 premises (Mosley and Chen 1984, p. 27). While they are all very useful, in this study, while some of the premises are used, others were disregarded as the study did not collect information that was relevant for their use. Although the framework identifies the individual, household and community level variables as important to contributing to reducing child mortality, not all level variables are collected at one point in time and therefore make it impossible to explore the relationship at the different levels.

For this study, the key to examining the relationships is based on a set of proximate determinants that directly influence mortality behaviour. This is based on the individual bases. All social and economic determinants must operate through these variables to affect child mortality. According to Mosley and Chen (1984, p. 27), the proximate determinants are grouped into five categories, however this study used the information that was of relevance for this purpose. For example, in the maternal factors, which include age, parity, and birth interval, where this information is obtained directly by interview, the age and the parity was used to examine the

relationship between early childhood mortality and socioeconomic factors. The first proximate determinant is known to influence pregnancy outcome and infant survival through its effects on maternal health. This is where, given short birth spaces, particularly young mothers are more at risk of experiencing higher child mortality.

Moreover, the socioeconomic determinants that are treated as independent variables are important in the analytical framework. These variables are categorized to three different groups. They are individual level variables, which include individual productivity (fathers, mothers); and traditions, norms and attitudes. This is where the individual household member's characteristics are measured by educational level, as well as health and time. The fathers' characteristics, in particular, their educational levels associated with their income levels are important in determining the child survival status. The relationship between a fathers educational and income levels are correlated with household socioeconomic status. This study however did not collect the father's education and therefore is not examined.

The mother's characteristics are considered as important, because they directly influence the changes in the proximate determinants. This is because the 'biological links between mothers and infants during pregnancy and lactation and also the mother's health and nutritional status, as well as her reproductive patterns, influence the health and survival of the child' (Mosley and Chen 1984, p. 34). There are other elements that are also important for the infant welfare and it is the mother's duty to make sure that the infants are safe from being sick by visiting baby clinics for immunization.

Other important factors to be considered in this framework are the traditions, norms, and attitudes. These attributes help to shape the society and the people. This is where social order is maintained. For example, in the case of a sick child, the mothers alone are not the decision makers as they are subjected to approval by the fathers of the children as they are responsible for the finances involved, or even someone in the family hierarchy who holds that power. Therefore income is considered as important in managing the children's welfare when they are sick.

Because the analytical framework has been developed to address child survival in developing countries, the health programs and programs that address the disease control measures for the general populations, are not implemented as a result of a lack of education and available information, or even low levels of literacy among the populations. In the case of PNG, where the literacy level is some 53 percent, indicates that another 47 percent are not able to read the educational information about the control measures. This leads to lower levels of results.

Direct estimates on infant mortality can be made for small area populations as data required for estimating infant mortality is perhaps easier to collect and manage. However, in the case of PNG, the collection of such data is challenging as asking a question about the death of one's children is sometimes offensive and therefore it becomes impossible to collect accurate data. In addition, lack of expertise in the field of population studies in the country also contributes to the difficulties experienced in conducting such surveys. Further, areas that require such studies to collect data to estimate demographic factors are often those places where there are safety issues.

2.4.5. Aspect of the Migration process

In a broader context, migration is defined as a system that links origins and destinations, in which the flow is not just of people, but also of money and goods (Skeldon 2002, p.75). This discussion will be specific to the demographic process of migration in the context of the indigenous populations around resource development projects. It is about how people can benefit, or be disadvantaged on the decisions they make when they leave their usual places of residence.

Migration has no biological components in the way that mortality and fertility do, its relationship to the demographic transition is that control of mortality and fertility have historically occurred within the context of urban places (Weeks 2002, p. 248).

As changes occur in the population structure, resulting from declines in mortality followed by fertility, the demographic transition becomes apparent as well as more complex. This is when people become educated, and the growing employment

opportunities in the urban areas become attractive. The situation is attractive for people from outside the urban areas to migrate and embrace the possible opportunities to change their lifestyles. In this context, the demographic transition allows for the contribution of migration, when migrants' characteristics are different from those of the existing residents.

In general, migration has been defined as any permanent change in residence. However, there are various connotations attached to the process, and it is often referred to as a multidimensional notion. Change of residence refers to leaving the usual place of residence and becoming a migrant at the destination. While the migration process involves various moves, this part of the research question is on internal migration within a country, in particular, the impact of migration on the current residents. In this context, the large infrastructure projects that bring in development are otherwise viewed as causes of displacement for the indigenous population.

In relation to the indigenous or villagers migrating to alternative residential areas, this can be by choice or by force. Cernea (2002, p. 1) argues that, in the case of infrastructure development, people are displaced from their place of origin. People are moved, not by choice, but by force. In such cases, decisions are made by the minority, who are leaders of the group, as advised by government authorities. These movements take place 'mainly through the creation of lakes and reservoirs that are the result of the construction of dams, although displacement for roads and urban expansion is also important' (Skeldon 2002, p. 74). In relation to the latter, although classed as least important, they are the main reasons why villagers or indigenous populations are relocated (Cernea, 2002, p. 1). While they improve many people's lives, provide employment, and supply better services, this process does have impositions on some population segments. They restrict population rights through state-power intervention, and are often carried out in ways that cause the affected populations to end up worse off. This raises major issues of social justice and equity (Cernea 2002, pp. 2-3).

There are other types of migration whereby people migrate by choice. In this process, the situation of the original place of residence has inadequate resources to maintain

the given population. Consequently, in search of a better life, the migration process is considered as a bonus. According to Skeldon (2002, p. 75), 'the new locations of migrants broaden the resource base of their households'. In this situation, the migrants move from their usual place of residence in search for employment, with the aim to provide financial support to their families back home. For example, migration of the Pacific Islanders to New Zealand was because of 'the opportunity that they could provide income available to kin or community, enabling capital to flow within new social circuits within a Pacific 'homeland' (Spoonley and Bedford 2010, p. 36).

Other issues of concern relate to threats to security and social and cultural identities (Siddiqui 2005, p. 217). In the process of moving from one location to another, the lives of people change. Such moves can be positive or negative. While there are those who plan to broaden their household-based economy, there are others who are forced to move and are disadvantaged. Where moves are instigated by authorities for project developments, it often has 'disempowered indigenous people by removal out of their habitat' (Cernea and Schmidt-Soltau 2000).

However, there are other reasons that make people migrate. The wars and other natural disasters are classic examples. This migration stream comprised refugees. This brings with it a conceptual challenge to the conventional understanding of refugee - which is confined to people forced out of their countries for political reasons. It is the increasing number of people who are displaced within their own countries - the so-called 'internally displaced people' (IDPs) who greatly outnumber refugees and asylum seekers' (Castles 2004, p. 16). This scenario is important in developing countries, where international migration is often insignificant. The migration notion which is more relevant to such situations is internally displaced populations.

In the context of the Motu Koitabu population of Hanuabada in Port Moresby, the expansion of the city has had many negative effects on their lives. The physical location of the village is now threatened by major infrastructure development adjacent to the village, and has caused environmental problems and led to limited spaces for expansions along the coast. Although the Governor for National Capital District (NCD) has talked about relocating the people, there are implications linked to this

proposal. Relocating them inland from their coastal village instantly threatens their traditional rights to the coastline and increases the scope of marginalisation. The political idea that has been put forward is new, and is likely to be a central idea in future. However, this may not be in the best interest the Motu Koitabu.

2.5 Summary and Theoretical frameworks for the study

This study has discussed approaches for each demographic process of fertility, mortality and migration. To answer the two research questions raised in chapter 1 of the Thesis, each demographic process is examined using the analytical framework shown in the paragraphs that follow. Each is discussed where appropriate and this begins with the fertility analytical framework, followed by the child survival framework and concludes with the migration approach.

2.5.1. Fertility analytical frame work

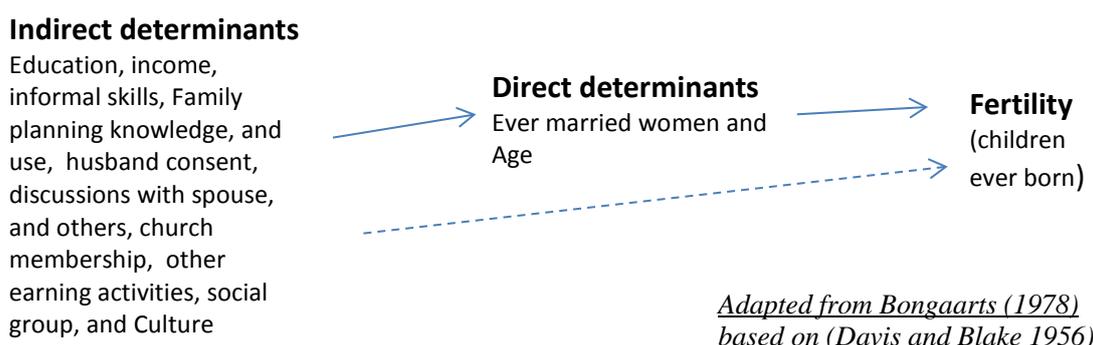
To examine the experiences of child bearing, the analytical framework by Davis and Blake (1956) and modified by Bongaarts (1978) was adapted. The important aspect of the interrelationships between all factors which influence fertility is that each is shaped by a set of cultural and social values and external factors. The indirect determinants must operate through the direct determinants, before influencing fertility, which establishes the primary characteristics of the direct relationship.

The educational level that is attained is an indirect determinant, which would influence the direct determinants, such as delayed age at marriage, or increased use of contraception is a classic example. Further, a woman with more education is likely to delay her marriage which may lead to having fewer children as her reproductive years probably would be shortened, provided she does not give birth to many children in a short time. Moreover, a well-educated woman would also be more favourably disposed to using contraception and using it effectively.

The indirect relationships are examined by the Chi square test while the influences of the direct relationships with the direct determinants are examined through the multiple

classification analysis. Adapting Davis and Blake (1956) framework and Bongaarts (1978) analytical model, this study examined both direct and indirect relationships on fertility. Figure 2.3 demonstrates the plan of the analysis.

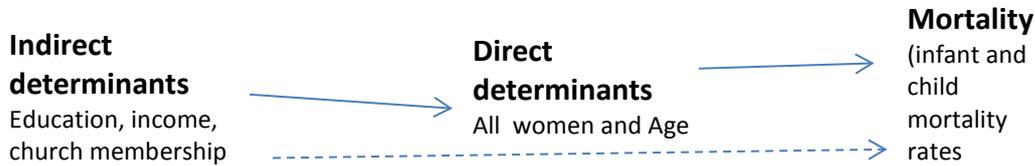
Figure 2.3. Fertility analytical framework for the Motu Koitabu women



2.5.2. Mortality analytical framework

Given a detailed discussions on mortality, based on Mosley and Chen’s child survival, the analytical framework for this study is based on their conceptual framework. In the study analysis framework, there are direct and indirect determinants that influence child survival and this is demonstrated in the analytical framework. In this case, the child survival is represented by infant mortality rate (${}_1q_0$), and child mortality (${}_1q_4$), while a limited number of background factors have shown some associations. The relationships examined are demonstrated in Figure 2.4. However, a detailed analysis of mortality has not been done in this thesis because information was not collected on many of the variables include in the framework, as the study is mainly about fertility and migration behaviour of the Motu Koitabu people. Perhaps a future study of the Motu Koitabu on child mortality could be done.

Figure 2.4. Infant and Child mortality analytical framework for the Motu Koitabu women



Adapted from Mosley and Chen (1984)

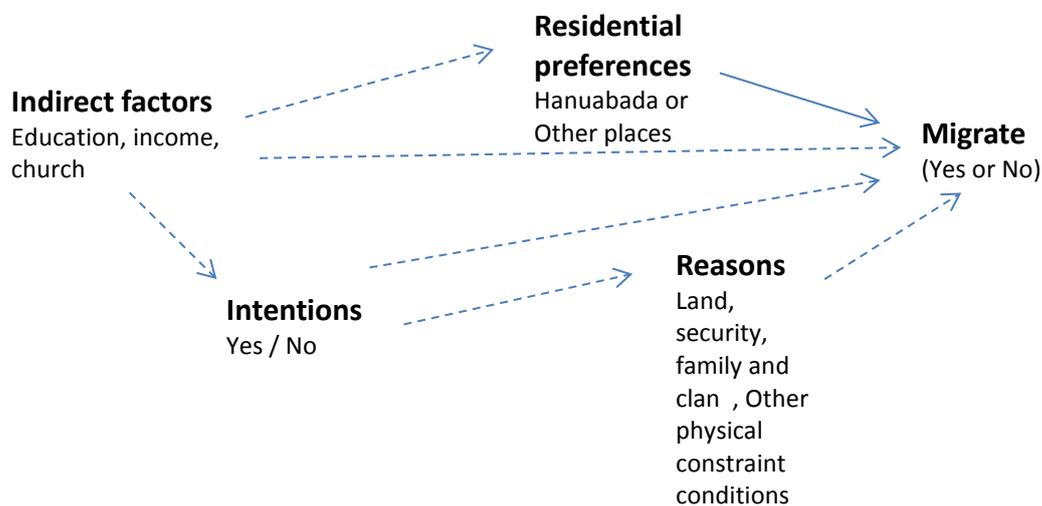
2.5.3. Migration analytical framework

The displaced populations through infrastructure development is important in the case of indigenous populations, and this study acknowledges the characteristics associated with the displaced population but views the Motu Koitabu people as the ‘host’ population. This is because the Motu Koitabu people of Hanuabada are indigenous population of the Port Moresby area and it is possible that in the future they may be forcefully moved from their place of residence as the Port Moresby city expands. However, it is the aim of this study to examine the current population migration and also explore their intentions and reasons relating to migration. The overview on defining migration, the issues on displacement and the migration decision making model are valuable for the study. In this regard, the analytical conceptual framework is based on the population displacement that occurs to make way for roads and urban expansion and these are the very reasons why villagers or indigenous populations are relocated (Skeldon 2002; Cernea, 2002). To explore the intentions and reasons, the study adapts the conceptual framework on migration decision making (De Jong 2000). These approaches are considered as relevant for the Motu Koitabu people in Hanuabada. The conceptual framework for examining and exploring the demographic process of migration is based on this premise.

Figure 2.5 demonstrates the approach undertaken to examine the relationship between residential preferences and their influences on migration. If one was born and has lived all their lives in one place, it is likely that they will not migrate. In contrast, if

someone is found be born in another place other than their current place of residence, the chances are that they could move again. This will depend on other indirect factors such as education, land and other social issues. These factors are likely to have an effect on the decisions made.

Figure 2.5. Conceptual framework on migration for the Motu Koitabu women



To explore the reasons and intentions of the Motu Koitabu people regarding their migration status, other factors may be required to influence the intentions and the reasons. Family, security and land are important factors that influence one’s migration decisions. Intentions are best described by current pressures of the situations that people are facing. Therefore the intentions are made known, however if one has made up their minds about migrating, there are reasons associated with the moves. Only when the reasons are given, then the moves become very necessary or vice versa.

To understand the demographic behaviour of the Motu Koitabu women, it is necessary to undertake data collection to examine the society’s population

demographic behaviour. Therefore, the next chapter describes the study methodology and the data collection strategy and is detailed in chapter 3 of the Thesis.

CHAPTER 3 – METHODOLOGY

3.1 Introduction

There is a dearth of demographic research about specific ethnic groups in Papua New Guinea. The Motu Koitabu community is no exception to this. In the absence of demographic information, studies which are mostly of anthropological nature, continue to dominate the information sources for the Motu Koitabu people (Seligmann 1909; Belshaw 1957; Groves 1954; 1958; Goddard 2001; Goddard and Heekeren 2003; Cavallaro 2005). Although, demographic data have been collected and are available for higher geographical levels such as at the population censuses of Papua New Guinea, each of which contain several ethnic groups (NSO 1997; 2003; 2009), it is not possible to disaggregate these groups and access data for specific groups such as the Motu Koitabu. The limited sample surveys which have been conducted in the country are based on samples that are specifically designed for national representation. As a result, studying the demographic behaviour of specific population groups is not feasible for village-level populations. This data gap mandated the collection of new data to answer the research questions underlying the present study.

Both quantitative and qualitative data are used in this thesis. The quantitative data were collected during my fieldwork in 2009-2010 and is supplemented by data available from the 2000 Census of Papua New Guinea. The qualitative data were collected simultaneously with the quantitative data during the same survey. The majority of the analyses discussed in this thesis are based on these survey data.

This chapter outlines the data collection methodology and describes how the data are used. It begins with a description of the Household and the Women's Surveys, which provide the quantitative data, while the focus group discussions (FGD) and indepth interviews provided the qualitative data. This chapter also briefly outlines the various analytical techniques that have been used throughout this thesis. The methods of analysis and the indicators that have been used are discussed in detail in the relevant chapters.

3.2 Approaches adapted in the study

Demographic research is increasingly using micro demographic approaches to examine a wide range of issues. The micro-demographic approach consists of the traditional demographic sample surveys combined with anthropological methods of data collection. Caldwell *et al.*, (1988) successfully demonstrated the usefulness of this approach in their explanations of demographic change in southern India. These findings have helped to enhance the wider acceptance of this approach to demographic studies. Obermeyer (1997, p. 815) provides detailed explanations of this approach, and their justifications, and how they combine with surveys based on structured questionnaires to understand demographic behaviour. Coast (2003, p. 343) discusses the mechanics of the ethnographic approach, and concludes that such an approach can strengthen demographic research and theory by providing information which cannot be captured through standard demographic surveys.

While a range of anthropological data collection methods are incorporated in demographic studies to study demographic behaviour, two methods are recommended. According to Knodel (1997, p. 848) ‘focus groups and focused indepth interviews, provide a more promising route to qualitative research for most demographers than do anthropological and ethnographic approaches. This is so, not only for practical reasons, but also because these techniques are more compatible with our disciplinary culture’.

In recognition of the micro demographic approach and the value of such an approach in the analysis of demographic behaviour, especially that of small ethnic groups, the current study employed three methods of data collection among the Hanuabada population. The household and women’s surveys were conducted by the author during August 2009 to February 2010. The qualitative data were gathered in conjunction with the survey using focus groups discussions and in-depth interviews. Moreover, observations and close contact confidant’s information, that were necessary to complement the issues about the general way of life of the village people by the participants could not be clearly identified in the quantitative and qualitative data

collection mentioned here. Each data collection method is discussed in detail later in this chapter.

3.3 Resources for data collection

The data collection was made possible through the research grants from the Flinders University in Australia. Subsequent funding from the government of Papua New Guinea and the United Nations Population Fund (UNFPA) enable me to continue field data collection, despite difficulties encountered during the latter part of the field work. Ethical clearance for the research was granted by the Social and Behavioural Research Ethics Committee (SBREC) at Flinders University, in 2009. Local approval to conduct the research in Hanuabada Village was obtained from the Motu Koita Council and the three ward councillors prior to the conduct of the survey taking. However, this took approximately one month because the decision makers only meet once every two weeks. In addition, approval was also obtained from participants below the age of 18 years who gave their informed consent for participation in the survey, by signing the consent forms given to them prior to interviewing them.

3.4 The Household and Women's Survey Methodology

These surveys were conducted in order to fulfil the main aim of the thesis, which is to examine the demographic behaviour of the Motu Koitabu people who live in their traditional village in the nation's capital city, Port Moresby. To establish the demographic and socioeconomic characteristics and the social and cultural behaviour of the Motu Koitabu women, data were collected in four connected surveys. The household and the women's surveys provided the quantitative information regarding descriptions, relationships, and influences of the identified factors concerning the demographic behaviour.

The purpose of the qualitative approach was to complement the data obtained from the household and the women's surveys and to validate their findings. All data collection operations were planned to be conducted simultaneously. However the difficulties that were encountered led to rescheduling of some activities, as the field research progressed. The focus group discussions were delayed but they were

eventually conducted. Detailed discussions on the issues of data collection are in given in Section 3.6 of this chapter.

3.4.1 Survey Method and Sample Design

The target population for the survey comprised female citizens of Papua New Guinea, aged 15 years or over who resided in the households of Hanuabada Village located near the Central Business Centre of the national capital, Port Moresby.

The sampling frame for the survey consisted of all the households located in Hanuabada village. This frame was constructed by listing all the households contained within the village. For the purposes of this thesis, the household definition is adapted from the Papua New Guinea censuses. A household is defined as a group of persons who are related or may not be related but who shared a common kitchen and slept in the selected household prior to the census night (NSO 2003).

The name of each household head was noted so that the selected households could be uniquely identified. Hanuabada Village comprises a number of census units (CU), the smallest geographical unit used in censuses and surveys in PNG (NSO 2003, p. 9). House listing was undertaken separately for each CU. This is to ensure that the study sample was drawn from the whole village listing and not just parts of the village.

Two field data co-ordinators were recruited from the village to conduct the listing. They had previous experience in house listing operations and were highly organised. With the author's guidance, each field data co-ordinator conducted the household listing around his area of residence. A total of 1124 households were listed. Keeping in view the time constraints and resources (including financial resources), a sample size of 800 women aged 15 years and over was considered sufficient for the purposes of this study. Preliminary calculations which were based on the last census (2000 census) revealed that on average, each household in Hanuabada had about 2.67 women. Therefore, in order to achieve a sample size of 800 women, approximately 300 households would have to be selected.

A two-stage systematic sampling design was adopted in this study. In the first stage, 300 households were systematically selected with a random start from each CU within Hanuabada. The sampling interval was 4, which was obtained by dividing 1,124 by 300 which equals to 3.8, rounded up as a whole number of 4. Since the sampling interval was 4, a number between 1 and 4 was randomly selected to start the systematic sampling. In the second stage all women aged 15 years or older who were residing in the selected households were included in the survey. Consequently, as all women in the selected household are included in the survey, the probability of selecting a woman aged 15 years or older was the same as the probability of selecting the sample household.

Based on the planned method, the selected sample yielded a total of 809 women from 297 households with 3 households recorded as non-responses. The difference in the number of women who were estimated to be included in the sample (809) based on the 2000 Census information and the actual number of 809 women included in the sample can be explained by the population growth in the 10 years since the census was taken. Data collected using the household form and the women's form are attached as Appendix 2.

3.4.2. Survey Instruments

The survey instruments consisted of two structured questionnaires, a household questionnaire and a women's questionnaire. Also two unstructured questionnaires were used to guide the researcher in conducting focus group discussions and in-depth interviews.

The purpose of administering the household questionnaire was to collect information about household characteristics and to identify women of reproductive ages who were eligible in the selection of the women's sample. The household questionnaire was used to list all the usual members and visitors in the selected households.

The women's questionnaire was designed to collect detailed information from women of reproductive ages 15 to 49 years, irrespective of marital status at the time of the survey, and who were residing in the selected households. It comprised seven

sections. While all the sections are modified versions of the Demographic and Health Survey Model Questionnaire (ORC Macro 2006), the questions were tailored to suit the study population. The additional section in this questionnaire was included in order to collect information concerning the social and cultural practices of the women. This additional section included questions about personal information, reproduction, breastfeeding, pregnancy, the knowledge and the use of family planning and fertility preferences.

Copies of the survey instruments and their detailed descriptions are given in Appendix 2 and 3.

3.4.3. Training and Pilot test

Selecting female interviewers as research assistants was not difficult, as the researcher had information about the pool of qualified and experienced female interviewers who were available from the National Statistical Office and the National Research Institute. From this pool, five female interviewers were recruited and trained by the researcher. A one week training program was organised and conducted at the National Research Institute by the researcher.

The aim of the training was to familiarise the interviewers with the survey instruments. In order to administer the survey instruments, the research assistants were taught the procedures of conducting interviews and also to locate the selected households. The information regarding the aim of the survey and other valuable elements of the study were also taught by the researcher. Numerous efforts were aimed at filling out the questionnaire as this was essential in the quality of the data collected.

The training included the pretesting of the survey questionnaires and understanding the procedures of approaching and creating rapport with the respondents. Although the arrangement was to meet with the women from Baruni, which is another traditional village not far from the study site, the contact person encountered some difficulties and asked the team to conduct the pretest in another village. The established network through the village Court Magisterial Services assisted the team

by organising the pre-test with a clan in Pari village. Pari village is also a Motu Koitabu village and is about 3 kilometres out of Port Moresby. Five female interviewers and the researcher took part in the pre-test.

The aim of the pre-test was to evaluate the questions in terms of flow and logical sequence, time, and the ease of asking questions. The flow and consistency of questions were also tested. The test was also valuable in getting to know the number of women in a household and their characteristics in such settings. The logistics of conducting interviews and dealing with questions involved in the study were also tested. At the end of the pre-test field work, a meeting was held with the team to discuss the issues that were identified and decide on ways to deal with them. The pre-test was very valuable as it provided comments that were useful to deal with the questionnaires and in correcting minor errors, before producing the final version of the questionnaires to be used in the main fieldwork.

3.4.4. Data Processing

Data processing involved several stages. As it was a selected sample, incoming questionnaires were monitored against a select household list. While the returns from the household questionnaires were monitored against the allocated work load of each interviewer, the return of the questionnaires for the women was a challenge. Several visits to the same household to interview eligible women were challenges that often translated in to a list of excuses. Through the courage and persistence of the interviewers, the return of the required number of questionnaires for the household and the women indicated complete field data collection.

The coding and editing of the forms were conducted by two assistants who were trained by the researcher in manual editing and coding to have the questionnaires ready for computer data entry. The data were entered and formatted into two main SPSS files. Several checks and edits were performed in order to have a clean data set for analysis.

3.5 Focus Group Discussions and Indepth Interviews

Demographic research has increasingly used a combination of quantitative and qualitative data in order to observe and explain demographic change. The application of a combination of demographic and anthropological methods in explaining demographic change has been widely discussed at various levels (Obermeyer Carla Makhlouf 1997; Greenhalgh 1997; Knodel 1997; Coast 2003). Although Knodel (1997) has stated that demographers should limit approaches used in demographic research because they lack anthropological knowledge, the integration of such an approach has been found to be useful. Combinations of quantitative and qualitative methods have been used to study a range of demographic phenomenon in a variety of settings (Caldwell *et al.*, 1988; Rao 1997).

The uses of qualitative data are diverse, and the present study uses data obtained through focus group discussions and the indepth interviews for the purposes of complementing the information obtained through the survey based on structured questionnaires. As described by Coast (2003, p. 339), qualitative data help in 'validating context setting and refining research questions'. The micro approach not only provides information that is specific to the local area, it is essential to facilitate the application of that knowledge to policy formulation for such groups (Brunborg 2005).

The approach described by Mack *et al.* (2005, p. iv) demonstrates the guidelines concerning data collection. Out of the methods discussed, two approaches were used for this study, the focus groups and in-depth interviews. Both approaches have their specific methodologies; 'in-depth interviews are optimal for collecting data on individuals' personal histories, perspectives, and experiences, particularly when sensitive topics are being explored. This study collected all three aspects of the participants interviewed. Focus groups are effective in eliciting data on the cultural norms of a group and in generating broad overviews of issues of concern to the cultural groups or subgroups represented' (Mack *et al.*, 2005, p. 2). The focus group discussions were organised to seek the views of men for validation purposes.

3.5.1. Focus group discussions

Focus group discussion refers to ‘the technique used to assemble a small group of individuals from the population to be studied in order to generate a discussion on preselected topics specified by the researcher’ (Knodel 1997, p. 848). Based on this method, to obtain collective views on certain aspects of demographic behaviour, focus group discussions were held with three groups of men and three groups of women. Each group consisted of some 8 to 10 members. The investigator facilitated the women’s groups, while the nominated male facilitator managed the men’s discussion groups. This was to allow men to talk openly and avoid embarrassments when deliberating on women’s issues. Although, the initial female group discussion were held at the National Research Institute, transport and inconvenience for women leaving their village was a problem. Consequently the rest of the discussions were held at several venues within the village.

The male participants were identified and selected from the household survey data. As a rule, the groups were homogenous in characteristics. All 297 household forms were screened to identify and group the men according to similar characteristics. As the lists were developed, invitation letters were sent to groups of men with similar characteristics requesting them to attend discussions at a given time. The formation of each group was as follows:

Group 1: Consisted of male participants of all ages between 18 – 50 years from all walks of life, and, who were basically villagers. These were men who were always in the village attending to village activities.

Group 2: Consisted of male participants, aged between 30 - 54 years and who were married with children and worked in the private sector. This group earned money from the private sector to support their families’ welfare in the village.

Group 3: Consisted of male participants aged between 30 - 54, who were married with children and worked in the public sector. This group earned money from public service jobs to support their families’ welfare in the village.

Care was taken to ensure that any man was not represented in more than one focus group.

A similar procedure was used to select the participants for the women's focus groups. The women's questionnaires were screened to identify and group women with similar characteristics to form groups. The extension of the selection process was that the names were given to survey interviewers to make an assessment for possible participation. With this input, selected women were notified about their participation through an invitation letter.. The formation of the group participants was as follows:

Group 1: Married women who worked as leaders in church activities and other general community activities. This group consisted mostly of wives of United Church ministers and two general community leaders.

Group 2: Married women in the aged between 20-29 years, with children and who have had an education level at Grade 10 and had obtained a certificate from college. These were women who worked and contributed financially to the welfare of their families.

Group 3: which consisted of women with children irrespective of marital status and aged 30-39 (N=6), and educated at tertiary level and they also work to earn an income to support their families.

Group 4: Married women aged between 40-49 years and who had 5 children or more who were not in wage employment, but made a living by selling betel nut, ice blocks and cooked food.

3.5.2. In-depth Interviews

In-depth interviews comprised a: 'qualitative research method in which a researcher/interviewer gathers data about an individual's perspectives on a specific topic(s) through a semi-structured exchange with the individual. The researcher engages with the individual by posing questions in a neutral manner, listening

attentively to responses, and asking follow-up questions and probes based on those responses' (Mack *et al.*, 2005, p. 116).

In the Hanuabada study, the interviews were designed to be conversations between the researcher and the participants, with guidance from the researcher. The idea was to build a rapport between the researcher and the participants, so that sensitive issues could be discussed at ease. The conversations were held in private, away from partners and other people in the houses. Ten women were interviewed and this was conducted during the survey data collection period.

The participants were categorised in two groups. The first group included five women who were in the ages of 20-29 years and had at least two children. The second group consisted of five women who were in the ages of 30–49 years and had three or more children. All participants were married women and were identified from the survey population. These participants did not participate in any of the focus groups discussions.

As described by Mack *et al.*, (2005, p. iv), all qualitative data approaches that were identified generated various data types. Both approaches that were used in the current study generated field notes and audio recordings. All the notes from the conversations have now been transcribed and filed on computer for further use. The process of re-reading and coding elements of the women's stories helped to define the questions that were asked to obtain the quantitative data in each of the following chapters. The focus group discussions particularly those concerning issues regarding social and cultural practices were re-read and coded and helped to elaborate on the broad overviews of issues regarding the Motu Koitabu women's demographic behaviour.

3.6 Secondary data: The 2000 Census

In order to complement information that were obtained from the fieldwork, tables from the PNG 2000 Census Table Retrieval System (TRS) were used, particularly to examine migration in the study population. The TRS was designed to generate basic demographic data at the local government area level. This was valuable in that

specific tables were generated from the system to estimate total fertility rate for the Motu Koitabu population for consistency purposes.

In addition, specific software known as the 'Redatam' designed to generate specific information from census data was valuable (United Nations Population Information Network (POPIN) 1994). Based on this software, programs were specifically tailored to generate specific data concerning Hanuabada from the PNG 2000 population census records to estimate fertility and mortality.

Although the information collected during the 2000 Census is relevant to the present study, the information on fertility and mortality was supplied by the heads of households. In almost all cases, the heads of the households were males and often they were not the ideal persons to report on birth histories of their wives, mothers, sisters or their sisters in law. All of these sources have implications for the quality of data at the lowest levels.

3.7 Quantitative Data Analysis

Although information obtained from the women's survey is the main data source, the data from the household surveys were also used interchangeably for background information. Information from both sources was obtained from the survey forms.

3.7.1 Descriptive measures

As demographic factors, such as the age and sex form the core of the analysis, several descriptive measures have been described which have been used in making references to the population under study. To describe the study population's characteristics, frequency counts, bivariate and multivariate analyses were used. Each method and the descriptive measures are discussed, where appropriate.

The fertility measures used in this study were based on the reproductive histories of women as provided by the female respondents of the 2009 Hanuabada Women's survey. While the factors that have been identified as responsible for the differences in the fertility behaviour, they will be discussed where appropriate. For the purposes

of this analysis, the information was obtained from women between the ages of 15 - 49 years irrespective of marital status. Several questions were asked of women in the sample survey to obtain the information required for estimating the fertility and child loss indicators. To conduct analysis concerning fertility, information was obtained from a compound question where women were asked to report on the following issues;

1. the total number of children ever born, by sex;
2. the number of children ever born children surviving and living in the household, by sex;
3. the number of ever born children now dead, by sex; and
4. the number of surviving children living elsewhere, by sex.

The useable responses were 1 and 3, while 2 and 4 were primarily consistency checks. From these responses, the average number of children ever born, and the average number of children surviving per woman, was calculated and several other variables were derived.

Individual level variables in the analysis represent the characteristics of the women. Firstly, women were divided into five year age groups ranging from 15-19 to 45-49. Second, the women were grouped according to the number of children to whom they had given birth. In regards to the measures of fertility, the total fertility rate (TFR) and the children ever born are presented in Chapters 4 and 5. In order to examine the associations and correlates of fertility, the children ever born (CEB), (dependent variable) irrespective of age group was operationalised as a dichotomous measure and grouped into 2 categories. These two categories are: (i) women with equal to or less than 4 children ever born, and (ii) women with 5 children or more. This is consistent with the fertility target of a TFR of 3.8 set for Papua New Guinea for the year 2010 (DNPM 1999, p. 67).

The other useful measure that was appropriate for this analysis was the mean number of children ever born (MCEB) in order to show the child bearing experiences of a group. As demonstrated by Muhuri *et al.*, (1994, p. 3) 'MCEB to women aged 40-49, is used to show the childbearing experience of a real age cohort and reflects both current and past fertility behaviour'. This proved to be a useful indication of the

fertility experiences of the Hanuabada women. The Mean CEB is the fertility measure estimated in the examination of the factors contributing to the overall outcome.

3.7.2 Description of variables

As the analyses concern fertility, mortality, and migration, each is briefly described in the appropriate section. Initially, the core demographic variables were age and marital status. These two variables were used in almost all analyses that were conducted. The other important variables are children ever born (CEB) and children surviving (CS). These two variables form the core data for fertility and mortality analysis. The CEB refers to all the biological children of the respondents and includes children living in the households, children who live elsewhere, and children who have died. The CS is the CEB minus the children who have since died. Indirect estimates of the infant and childhood mortality from data on children ever born and children surviving was essential in providing valuable information.

A number of expected relationships were tested, using the various variables. In most cases, the dependent variable in explaining the child bearing was children ever born (CEB), while children ever born dead was used to explain the child loss. Age was a core variable in many of the analyses that were conducted. Other background characteristics including education, income, church, and culture were among many others tested. For example, the following relationships were tested. It is expected that higher levels of education were likely to have a negative effect on fertility. As discussed in Chapter 2, section 2.3.1, women with higher levels of education, and women with high use of contraception and late entry into marriage are those found to have fewer children.

In the mortality analysis, maternal age, the level of women's education, the women's income as independent variables were a few that were tested. It is likely that maternal age is negatively associated with mortality. In addition, those women with higher levels of education and those women who earn more income are less likely to experience child losses. Other relationships tested included church affiliations and social groups. On the other hand, age is likely to affect both fertility and mortality.

3.7.3 Statistical tests used

For Chapters 4 to 7, the demographic measures such as number of persons, proportions and rates were used to describe the background information about the study population. The strength and the direction of relationships of a selected factor (for example, level of education) associated with each nominated demographic variable, (for example, children ever born and children living), were examined through the bi-variate analysis approach, mainly using the Chi-square test (χ^2).

To provide explanations for more than one factor, cross classification relationships were explained by results obtained from the bivariate statistical technique. As indicated earlier, the Chi-square statistics test (χ^2) was requested during the cross tabulation procedure in the statistical package for social scientists (SPSS). This procedure compared the frequency of cases found in the various categories of one variable across the different categories of another (Pallant 2007, p. 212). For example, in the fertility analysis, the dependent variables were children ever born and family planning, against a range of background factors.

The second statistical technique applied that was applied to the data was the multiple classification analysis (MCA). This multivariate technique was undertaken to examine the interrelationship between a single predictor variable and a dependent variable. In this case, several predictor variables were selected and fertility (as measured by the CEB) was the dependent variable. The MCA uses the results of the analysis of variance procedure to compute adjusted mean values of the outcome variable (CEB) in subgroups defined by the categories of predictor variable(s). The technique estimates the mean differences in the CEB after adjusting for the predictors in the model. A key advantage of the MCA is that, while the outcome variable must be at the interval level, the model can handle predictor variables at nominal, ordinal, or interval levels of measurement (Andrews *et al.* 1973). This technique can also address different forms of interrelationships among the predictor variables, or between a predictor variable, and the outcome variable.

In the MCA technique, the model included the background characteristics that were found to have significant associations with the CEB in the bivariate analysis. Among the factors that were selected, the model used the following predictor variables: age at first birth; ideal number of children; basic skills through informal learning; concerns on family planning use; reasons for having another child; discussions with other people about family planning; preferences on the future of having children; husbands consent on use of family planning; informal skills; wages; and belonging to social group, and a dependent variable (as measured by the children ever born) within the context of an additive model.

3.7.4. Software Used and Limitations

The statistical analyses were conducted using SPSS, version 19.0, software (SPSS Inc, Chicago, IL) and the CEBCS application in United Nations Mortpak software, version 4., The required data to estimate the infant and child mortality was obtained using the SPSS software. The data required for the calculation included children ever born (CEB) and children surviving (CS) by the age of the mothers. The other data required were the month of enumeration, the year, and the mean age of mother at childbearing in the population. Although there are two options given to tabulate the CEB, and CS, either by age of the mothers or duration of marriage, the age of the mothers was selected. These data were then were the input data for the CEBCS application in order to estimate the infant mortality rate (IMR) and the child mortality rate (CMR).

The CEBS application is based on the technique developed by Brass *et al.*, 1968 in (United Nations, 1983). Although there are two model life tables, the Coale-Demeny and the United Nations (UN), this thesis has used the UN life table models. In this procedure, the United Nations life table models and fertility schedules models convert the proportion of children dead by the age of the mothers in to probabilities of surviving from birth to exact ages 1,2 ,3 5, 10 15, and 20 (United Nations, 1983, p. 73).

However the CEBCS application produces a total of 9 possible outputs. The UN model produces the IMRs and CMRs based on five sets of regression equations, while the Coale-Demeny models produces the IMRs and CMRs based on four sets of regression equations. To represent the closest mortality situation of Papua New Guinea in the 1966, 1971 and 1980 censuses, the Coale-Demeny 'West' model was selected as it practically represented all life tables.

In the early 1990s, the UN model for developing countries was made available. Closer observations of the UN model, particularly the output tables indicated that of the five sets the 'Far Eastern' pattern of mortality was seen as the best to represent the Papua New Guinea's mortality situation (National Statistical Office, 2003, p. 80). While the previous censuses used the Coale-Demeny 'West' regression equations, the current selections to represent Papua New Guinea's mortality situations are based on the fact that the vital registration systems to record deaths are incomplete as there is no law concerning the compulsory registrations of births and deaths. Also, the national health systems are deficient as they only record hospital based deaths. The primary advantage of this model, and when compared to the original Brass technique is that the UN 'Far East' model life table is a closer match to Papua New Guinea's mortality pattern than the 'West' family of life tables as used by other techniques. Further, the previous analysis indicated that early child hood mortality is similar to adult mortality (Hayes 1996, p. 37). On these bases, the infant and child mortality rates which are based on the 'Far Eastern regression equations' were used.

To explain the child loss experiences, the infant and child mortality rates were used for descriptions. Infant mortality refers to the mortality of live-born children who have not yet reached their first birthday and the Child mortality refers to the mortality of live-born children with a probability of dying between 1 and 4 years (United Nations 1983, p. 58). The Child mortality rate (CMR) is calculated by dividing the total deaths between 1 and 4 years of age by the total live births in a calendar year. In this thesis, the estimations of infant mortality are derived by using the United Nations software package 'Mortpak' version 4. All analyses are restricted to women irrespective of marital status.

3.8 Qualitative Data Analysis

The information obtained from the qualitative methods was exclusively used for validation and societal contextual setting, in that it complemented or explained the information obtained from quantitative data. The validation processes included statements that may be consistent with the estimated indicators, or may act as explanatory statements. In this thesis, the findings from focus group discussions, in depth interviews and observations from the field work were used to verify and support quantitative data. The findings were also used as explanations for the various themes that emerged from the content analysis.

The information obtained from the focus group discussions reflected the societal views of issues under discussions. Perceived social supports in the village were discussed in relation to participation in church activities as members of clan rewards for larger family sizes in terms of land, family size and how the church activities support the strength and composition of the clan. Support that is rendered by relatives during the early days of marriage for couples and their children is a form of assistance which is readily available. Recognising the societal norms is necessary in order to understand the influences that they have on the demographic behaviour of the population which is being studied. Men's views concerning women's lack of use of family planning are important issues in reproductive decision making rationality, in a given cultural undertaking. It is anticipated that the findings will enhance discussions on the implications in view of enhancing existing demographic theoretical perspectives and how Papua New Guinea's population policy can be improved to cater for all population types.

The indepth interviews provided information on a range of issues concerning relationships within families and clans, their reasons for having children, the feeling of greater status in relation to having children, available support, willingness to use family planning services, and discussing family planning with others. While these discussions were with individual women, the information that was deduced from the discussions is rich and diverse. Related issues that were not filtered through the focus group discussions were supplemented by this process.

3.9 Issues during Field data collection in Hanuabada

Field work in Papua New Guinea during the period July 2009 through February 2010 was valuable in providing data for this thesis. However, in the preparation for data collections, several issues emerged, and decisions had to be made to successfully complete them. Although, correspondence requesting permission to conduct the study in the village was delivered in early July 2009 to the Motu Koita Assembly, the permission was finally granted at the end of August 2009. This delayed the planned field work from August to September 2009. Although permission was granted, the enumeration team could not begin the interviews as there were several deaths in the village, and this further delayed the fieldwork. The other major obstacle was the annual celebration that takes place in September to commemorate the famous Hiri trade¹ practised by the Motuans in the ancestral days. All clans in the village participate through dancing, and in a beauty contest. Also, all clans compete for village representations, and a clan group is chosen to participate on behalf of the village. The festival preparations include traditional dance practices, learning about the meaning of tattoos on women's bodies, styles of grass skirts, and dance steps. Almost all clan members from the youngest to the oldest take part either in teaching or learning.

The household listing phase was another factor when it was discovered that the required information (Hanuabada Village listing frame) was not available from the National Statistical Office (NSO) because names had being destroyed after five years of the census taking. The review of the plan was essential as this would enable the

¹ *The Hiri Moale festival is an annual event organised by the Motu Koitabu people to remember the event that took place in the ancestral days. In those days, the Motu Koitabu people used to travel in the westerly direction in huge dugout canoes in order to trade with the people of Gulf province. These trips were very dangerous, but the Motu Koitabu people considered this travel very significant, as this was the only way to acquire food for their families so that the families could survive the severe drought in those days. The return of the voyagers from the trip was the celebration of the region. The Hiri Moale Festival marks the celebration of this trip.*

listing exercise to be conducted so that there would be a base from which to select households for the survey. The listing exercise was eventually implemented and the base frame was ready for use. Following this, the pilot test was organised for Baruni, a village nearby to Hanuabada. However, did not eventuate at the last minute, and again the team had to use the existing network to organise the pilot test at an alternative location at Pari village. To compound this setback, one of the survey interviewers encountered a personal situation, and had to stop work with the team. As a result, another interviewer was trained by the investigator to continue the interviews that had been allocated to the interviewer who left the job.

One of the major challenges for the author of this thesis was to organise the focus group discussions. Several appointments were made with selected groups for the meetings, but the turn out on many occasions was not good and somewhat discouraging. However, following advice from my supervisors and my colleagues, the approach was modified. Instead of just inviting selected women and men to participate, a small incentive was offered, and this turned out to be a positive strategy. The author conducted two women's focus group discussions in one day with a three hour interval at a central location in the village. While a similar approach was organised for the remaining two focus groups for the men, the facilitator from the village opposed the incentive method. With time limitations, the author thought that the best approach was to provide incentives. However, with further explanations from the facilitator as to why the incentives were not an option, an agreement was reached and the allocated funds for incentives were diverted to pay for refreshments for the group discussions.

3.10 Limitations

The study has a number of limitations and each will progressively be discussed. First, the findings from the study are non-representational of Papua New Guinea's population demographic behaviour. Second, the thesis will explain the demographic behaviour of the women in the study and will not make inferences to the Hanuabada village women, due to the clustering effect. This is because all women living under

one roof² are influenced by what goes on in the household and therefore it is the aim of the study to limit the discussions to women in the study. Also, the study is limited to a transitional village situation where people maintain their social cultural structures but at the same time integrate external influences which does not fully reflect a rural village situation.

The next chapter, Chapter 4, is about socio-economic and demographic characteristics of the study sample.

² In some households, multiple women were selected for interview in order to increase the sample size.

CHAPTER 4 – SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF THE STUDY SAMPLE

4.1. Introduction.

This chapter provides a snapshot of the socio-economic and demographic characteristics of the Motu Koitabu people of Hanuabada. The first section is about the social characteristics of the village and is described in terms of its social, economic and political features. The evolving and the clustered village is described based on its past records. Subsequent sections describe the household and the population characteristics. Finally, the chapter explores the relationships between socio-economic and demographic characteristics of the study sample.

4.2 Hanuabada – A Social Portrait

The description of Hanuabada and its social characteristics as the study base provides the background information about this population group. The aim of this description is to explore the social settings at the macro level in which the demographic behaviours occur.

This discussion covers a number of important points. The impact of the Colonial Administration and the influences from the London Missionary Society (LMS) played significant roles in the lives of the Hanuabada people. The arrival of the colonists and missionaries to this area brought with them life changing effects for the local people. These are the central issues, which have been discussed in details elsewhere (Oram *in* Latukefu 1989; Gregory 1980; Goddard 2001). Hanuabada was the focal point of colonisation later developed into centres for commerce, administration and missionary work and eventually into the capital city of PNG. The acceptance of a cash economy and Western education acted as the main channels of change over time.

While acknowledging that modernisation had had its effect on the life of the Hanuabada people, traditional social relations have always played a leading role in

maintaining the family survival. Such relationships are maintained unless threatened by lack of resources which are now weakening the relationships in general in PNG societies (Wardlow and Henderson 2006). Hanuabada is a village that has been exposed to western ideas and has since based their livelihood on these ideas in PNG history. New developments are accepted and eventually incorporated into the existing cultural and social way of life. From a demographic view point, changes are likely in various demographic behaviour and demographic parameters. Caldwell *et al.*, (1982), when examining the demographic behaviour at village levels in southern India found that ‘a range of demographic changes occurred at much the same time neither because of close interrelation nor because of coincidence, but because they are all products of massive social and economic changes during the last half –century’ (Caldwell *et al* 1982, p. 720). In the case of PNG, similar changes have been reported in particular among the Tari people in the Southern Highlands province. The demographic surveillance research between 1979 and 1993 reported changes in fertility and mortality. This was due to western contact and establishment of rural health services (Lehmann *et al.*, 1997, p. 14). The changes in the infant mortality fluctuated and dropped due to the introduction of new pathogens and general growth of cash economy (Lehmann *et al.*, 1997, p. 90). Other general studies conducted among the Ipili people of Porgera mining areas in Enga province have also pointed out that general influences of increase in public services and expansion of infrastructure were beginning of entry in to the modern world (Bonnell 1999, p. 28). This has lasting effects on their demographic behaviour.

The Papua New Guinea National Population Policy (NPP) for the period 2000 – 2010 calls for further studies to identify the factors underlying slow demographic changes that have occurred in the country (Department of Planning and Monitoring (DNPM) 1999, p. 57). However the policy does not have the necessary research to support the claim of slow demographic changes. The present discussion on the impact and influence of colonists and missionaries on the life and times of the people of Hanuabada and the descriptions of the village social and political scene is aimed to situate the study in perspective.

4.2.1. *The Colonial Administration and London Missionary Society (LMS)*

The history of village social change in PNG dates back to the establishment of the first colonial administration in the 1800's (Oram *in* Latukefu 1988, p. 52). In the same era, the city acquired its name from Captain John Moresby of HMS Basilisk. He was the first European to have landed there, on 20 February 1883. Captain Moresby claimed the land for Britain, thus New Guinea became a British colony. The landing of Captain John Moresby at Fairfax Harbour in the vicinity of the Hanuabada area in 1873 was the beginning of colonisation of PNG (Oram *in* Latukefu 1989, p. 8). The establishment of colonial administration had an enormous impact on the lives of the inhabitants of Hanuabada. This was the beginning of life change for this population. Belshaw (1957, p. 1) acknowledged that the people were 'the wage-earners for the town folks and it was around that their whole life was organised'. The traditional way of life of these people was undergoing changes.

The people of Hanuabada continued to work in wage jobs instead of being involved in subsistence farming. This trend became the way of life as the city of Port Moresby expanded which gave the Hanuabada people greater access to employment opportunities and hence use of available public services. The changes from simple subsistence farming and fishing for own consumption to the wage earning market has had significant impact on their lives. The evolution of changes due to the shift from the previous livelihood of subsistence to wage earning occupation as a result of increased development projects such as the expansion of Port Moresby has given rise to increased differentials in education, occupation, wealth and living conditions among the village population. Generally, the changes are embraced by the people but the limited participation in decision making regarding infrastructure development has demoralised their status as Motu Koitabu land owners (Gaudi 2001 *in* UNESCO 2001, p. 23).

Social scientists have raised issues concerning development projects and their potential benefits that the Motu Koitabu people have yet to achieve. Gaudi *in* UNESCO (2001, p. 23) stresses the issue of being 'vulnerable in terms of unfairness in obtaining benefits from the large infrastructure development projects on their land'.

The limitless social problems within the spectrum of urbanisation and limited space are also significant issues. New standards of consumption and expectations are essential for the developers in the changing and expanding Port Moresby city. The great change in the economic life of the people in many aspects has adverse effect on social relations.

The arrival of the London Missionary Society (LMS) in the 1800s not only brought about the teaching of the principles of Christianity, but also included basic education and health (Oram *in* Latukefu 1989, p. 54). The establishment of mission schools and reading Christian literature was the beginning of education in Port Moresby in the 1800s (Oram *in* Latukefu 1989, p. 70). Kidu *in* UNESCO (2001, p. 48) highlighted the need for adapting the way children were taught in the missionary days. This was beneficial to the Motu Koitabu children in a competitive learning environment where children of educated and working people from other parts of PNG attend school. She emphasised that the learning environment must be tailored for them as many parents are ordinary villagers who are not employed in the formal workforce.

In her analysis, Kidu *in* UNESCO (2001, p. 45) also acknowledged the importance of the traditional education system among the Motu Koitabu people. She provides explanations for the success of children from her experience as a school teacher. She states that 'in the traditional situation, the village community was the classroom, the teachers were the elders, both male and female, and the main medium of instruction was by doing. Theory was taught mainly through legends and stories' (Kidu 2001, p. 45 *in* UNESCO 2001).

Although these elements of learning are important for their cultural identity, acquiring employment in the modern economy required formal education as the Motu Koitabu were now placed in the vicinity of the city. Acquiring formal education was vital as all their traditional subsistence means were very limited. The land for gardening, open clean seas for fishing started to become scarce. With the influx of migrants from other parts of PNG, the job market became competitive and usually out of the reach of the Motu Koitabu (Kua *in* UNESCO 2001, p. 17).

Subsistence farming and fishing sites for the Motu Koitabu people have been replaced by infrastructure development, which has also taken over sites previously used for other activities such as traditional art of making clay pots for the annual Hiri trade voyages to the Elema people in the Gulf province (Kidu *in* UNESCO 2001, p. 46). The active economic participation during the annual trade voyages were in the form of 'Barta' exchange system. This was where the clay pots and the dried fish were exchanged for sago and materials for building houses (Oram *in* Latukefu 1989, p. 63). These trips were essential for the livelihood of families, especially during the drought months. The expertise in seamanship, art of building large dugout canoes, weaving of canoe accessories such as the sail, ropes, oars and the most important achievement was for safe return home for the Motu Koitabu men from the long voyages. The return of the men who would be away for three long months was always celebrated for days by their families and clan members (Seligman 1909, p.111). To commemorate this significant ancestral past, the *Hiri Moale Festival* during PNG's independence celebrations usually showcase the traditions, which acts as an educational reminder of past traditions for the younger generation.

The work of the London Mission Society missionaries in the 1800's was limited to building infrastructure such as schools and health centres as they in that they could not communicate and work with the indigenous people, however the assistance by the South Seas missionaries was crucial in integrating mission work with daily chores among the villagers. The whole approach of the church was modified as this group became more involved in teaching and doing mission work directly with the local indigenous people (Oram *in* Latukefu 1989, p. 51).

With such an approach, the membership of LMS churches grew and 'attitudes changed and missionaries were invested with special powers' (Oram *in* Latukefu 1989, p. 73). In the process, many of the indigenous customs and traditions were modified or even stopped. However the missionaries tried not to suppress the traditional marriage exchange and the rituals that went along with it (Oram *in* Latukefu 1989, p. 54). This is an example of integrating existing cultural practice into the accepted way of doing things in the realm of Christianity at the time.

Oram *in* Latukefu (1989, p. 56) explains that the missions developed village churches with a structure that provided new members with new forms of corporate activities. Such arrangements continued to provide leadership and the positions of such leaders are still powerful in this modern era. The current integration of clan activities into the United Church thanksgiving events is one important phenomenon that demonstrates the extent to which the clan system is in operation. Under a clan leadership, careful handing out of responsibilities to each clan member signifies that such events actually promote and strengthen the structures of a social system rather than weakening it.

An individual who identifies with and is a member of the United Church of PNG is given some amounts of responsibility in terms of contributing cash that denotes their financial support. On an annual basis, the church 'Boubou' an event where members of the church congregations present their allocated levy to the church as their contribution to the work of the church takes place. While levy is allocated by the church to set some limits, this makes people work towards some set goal with the underlying notion of thanksgiving.

Such an event brings on responsibilities among the clan members to organise fund raising for the unemployed. Since most people are committed to this activity, everyone assists to contribute their levy's and this includes the unemployed levy's. Although it is not compulsory, each clan member within these villages takes these commitments very seriously and at a nominated time these levies are presented in style which involves dancing, and singing to celebrate the success of reaching the allocated targets. These are important events in the United Church calendar. Activities such as weekly fellowship meetings and prayer meetings are essential activities for spiritual growth. These activities become clan activities which continue to foster the strength of their beliefs.

4.2.2. Allocation of resource and public services

The Motu Koitabu are indigenous people to the areas in and around the coastal locale of the city of Port Moresby and the National Capital District. As pointed out in Chapter 1 of this thesis, they are the traditional owners of the land upon which the city

of Port Moresby is located (UNESCO 2001, p. 6). Issues concerning the Motu Koitabu people are land ownership and lack of participation in the development projects within their area of residence. 'Increasingly all aspects of the lives of the Motu Koitabu – political, economic, social and cultural – have become marginalized' (UNESCO 2001, p. 6).

It was viewed that the passing of the New Organic Law on Provincial and Local-Level Governments in 1975 was a milestone for people deprived of basic services. 'The basic reason for the introduction of the new law was the belief that resources and services were not getting to the village level' (Gedare *in* UNESCO 2001, p.41). So this law brought a hope that basic services will reach the masses at the village level. Whether this law has achieved its primary aim is yet to be achieved.

Among the many aspects of the 1995 organic law in PNG, sharing of responsibilities among various levels of government was a crucial factor. Kua *in* UNESCO (2001, p. 16) describes and identifies the limitations of the law. While interpreting the law has been an issue, the lack of financial support in the implementation process has also become a problem. This can now be seen as the public service that is most needed by the people is inadequate and has serious implications for the livelihood of the Motu Koitabu people in the urban area. For example, the much emphasised basic services of water supply and sanitation improvements are responsibilities of the Motu Koitabu council. However, as financial support is not adequately rendered by the National Capital District Commission (NCDC), the basic services are very limited.

According to Kua (*in* UNESCO 2001, p. 16) the Motu Koitabu people's interests are administered by the Motu Koitabu Council and this political unit comes directly under the National Capital District Commission (NCDC). At the national level, the 250,000 people of the National Capital District (NCD) are represented politically in one regional seat and three open electorates which also include the 30,000 of the Motu Koitabu people. The implication is that the Motu Koitabu people are politically underrepresented in the House of Parliament and therefore their voices are not heard. As indigenous people of the NCD area, it is important that their concerns are heard, however as they are among the 250 000 people of NCD it is difficult to isolate their

concerns. Furthermore, their participation in the decision making process is limited in the development process that takes place in their land. ‘The Motu Koitabu cannot participate actively and effectively in the social and economic development of their locality because existing mechanisms do not provide them with this opportunity’ (Kua *in* UNESCO 2001, p. 16).

Although the Motu Koitabu Council was set up to represent the Motu Koitabu people, the powers and functions of the Council are restricted by the NCDC. The Motu Koitabu people of Hanuabada are represented in the Motu Koitabu Council by Indigenous Ward Members who are of Motu Koitabu origin in the assembly. Each councillor represents people from one section of the village, and at best represents the clan groupings. The Motu Koitabu Council is responsible for the provision and maintenance of basic services and community activities (De Gedare *in* UNESCO 2001, p. 39).

4.2.3. Health Profile including Family Planning

The work of the missionaries on health care and education was an important milestone. The LMS establishments created a new way of life. In terms of health services, the sick were treated with modern medicine after which they recovered in most cases.. The traditional medicines were reluctantly dropped as the modern medicine played a vital role in helping the sick people (Belshaw 1957). The availability health services and the introduction of modern medicine by missionaries were effective as the indigenous people were able to see positive changes. For example people were treated with antibiotics for Malaria in place of traditional beliefs such as sorcery and witch craft. These changes were gradually accepted although with reluctance. The main point is that modern medicine gradually contributed to improved health indicators.

In this regard, the opening of a health centre in the village and operated by the missionaries by the missionaries was a positive milestone (Oram *in* Latukefu 1989, p. 57). With such a service available the management of tuberculosis and leprosy were managed from an isolation hospital in Gemo Island off the Hanuabada village from

1938 as shown in Figure 4.1 (Oram *in* Latukefu 1989, p. 57). There were medical staff working in the hospital treating the sick in the village. This included family planning services for women. Although the traditional family planning methods have been in existence for a long time, the actual use and the successes are not well researched.

These days, the family planning services can only be accessed at the nearby suburb as there are no services in the village. This study obtained information on family planning knowledge, source and ever use and is discussed in Chapter 6 of this thesis.

The effects of the current development projects on the lives of the indigenous population of the locality are serious and have been adverse. As a village located on the coast of NCD, it is directly affected by new developments as the city expands. For example, a prominent development project at Port Moresby's Harbour City, which reclaimed land area has been impressive but it is also causing concerns. An array of anecdotal evidence (such as 'the land reclamation has been advancing into the sea and has impeded the free flow of sea water into and out of the Hanuabada area' provided evidence of such current concerns [http://www.post courier png/](http://www.postcourier.png/) [accessed October 2010]).

A number of serious issues are in consideration. Even though the process of reclaiming land continues along coastal areas of Port Moresby, the consequences of this move directly affect Hanuabada. The villagers are now losing their children's play areas, the roads and their homes are deposited with dirt and raw sewerage. This has created serious health risks and has resulted in water borne diseases such as cholera. With the threat of cholera still a serious concern, the crowded areas like this village are a real domain for health risks.

4.2.4. Social Relations and their significance

Within the Motu Koitabu clan and family relationship, the social relations are very important as in most PNG societies. The dependence on family for support or the 'Wantok system', as explained in Chapter 1 is the source of upkeep of such relations. There are however general threats to the general family relationships and increases the

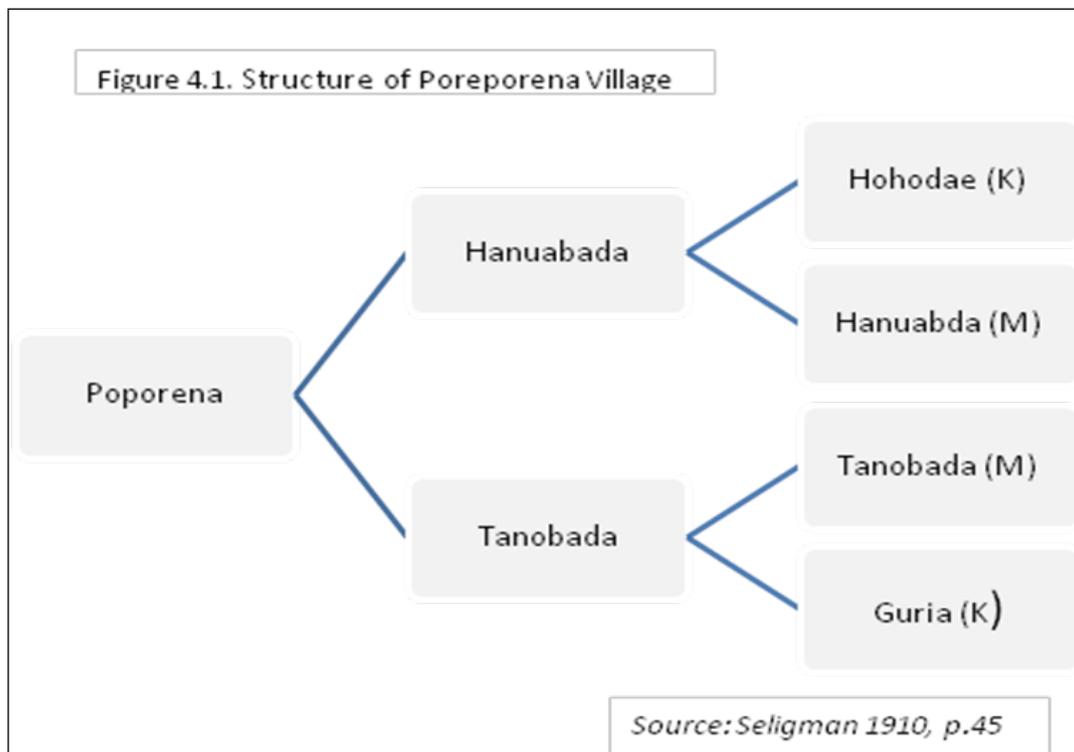
extinct of such relationships due to limited resource for the whole families in the modern cash economy. However, the kinship system is still very strong (Gregory 1980, p. 628). Belshaw (1957, p. 1) made a remarkable assessment of the social changes, such as people depending on cash economy instead of the traditional subsistence for own consumption however, this was an outsider's observation. In his writings he stated that the people of Hanuabada 'still led a very primitive life and also rated the village as 'an organic unity and as it ever was, and the traditional ways of behaving were still of basic importance beneath the outlay of the Western culture that has in part being adopted' (Belshaw 1957, pp.1 -2). Although Belshaw's study was done half a century ago, and much change must have happened in Hanuabada since then, the traditional way of life is still important in Hanuabada in most cases.

As the process of integration between modernisation and culture continuous, one prominent aspect of the Motu Koitabu has remained intact and that is living in family units. While the attractions of a modern nuclear family are desirable for many, living in the village among family members is still prevalent and it is notable. As Gibson *et al* (1996, p. 3) have indicated, the act of sharing responsibilities for one's survival is the key to sustaining long term relationships. The descriptions of the process of voluntary transfers mainly of food and in services and in kind in Hanuabada are well articulated by Gibson *et al.*, (1996, p. 4). While correctly portraying the economic aspects of the way of life for the people, Gibson *et al.*, (1996) rightly acknowledged that these are guaranteed acts of reciprocity. Such gestures continue to maintain the social relationships and in turn link to the larger network of clan groups. Although the arrangements are viewed as important for long term relations, they may not be desirable for the modern economy as the pressures exerted on the people to maintain these relationships are enormous.

4.3 The Village Structure

Hanuabada is the most heavily populated among the eight Motu Koitabu villages in the National Capital District (NCD). At the time of 2000 census, the population of Hanuabada was estimated to be around 9,000 (Community Profile System (CPS) 2002 excel files). While it is tagged as a heavily populated village, the name 'Hanuabada'

was erroneously used to represent a cluster of two contiguous villages instead of ‘*Poreporena*’ (Seligman 1909, p. 45). The two contiguous villages; Hanuabada and *Tanobada* consist of two sub villages each. Figure 4.1 shows the combination of the sub villages that make up ‘*Hanuabada* and *Tanobada* which was the overall ‘*Poreporena*’ village. The ‘M’ and ‘K’ represent Motu and the Koitabu people respectively. The numerous intermarriages over the years have had a significant impact in bringing the two groups together (Goddard 2001, p. 314). For this reason, the people in this village are correctly identified as the Motu Koitabu people rather than isolating any one of the two groups. According to the literature, the original groups had migrated from other parts of Port Moresby area (Seligman 1910, p. 47).



Government records label this village as ‘Hanuabada’ while the church records label it as ‘Poreporena’. The anthropological studies that discussed the village while labeling all the clustered villages in the area as ‘Hanuabada’ also noted the discrepancy in being wrongly labeled (Seligman 1910, p. 47; Groves 1954, p. 75). Belshaw (1957, p. 4) correctly identified the differences and conducted his study in Hanuabada and excluded the village of Tanobada. The emergence of Elevala village

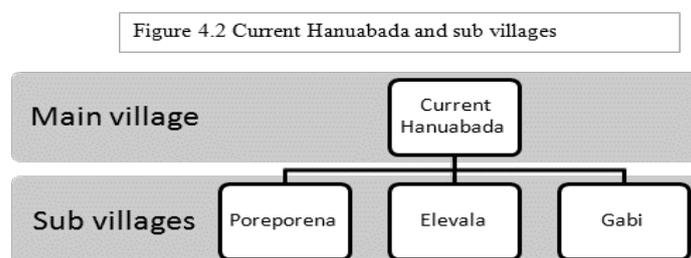
has been mentioned only briefly but not discussed in detail in the literature (Seligman 1910, p. 45). This village was an addition through migration as people feared for their lives from their enemies up hill (Seligman 1910, p. 316). Gregory (1980, p. 628) has discussed the divisions by clan within the big village and their neatly allocated financial responsibilities towards meeting the operational costs of the church.

These days, there is an additional village in Hanuabada, called Gabi. This village consists of people moving from mostly Elevala village as they are not able to find spaces to build their homes within the allocated clan areas. Other residents of the village of Gabi are migrants of other ethnic groups around the Port Moresby area and the Gulf province. The people of Gulf origin form generations of the migrant populations who migrated from the Gulf province during the ‘goodwill friendships’ that were created during the annual Hiri trade expedition period as described in Chapter Three – section 3.10 of this thesis.

Although there are several villages mentioned in past records with reference to Hanuabada, they are inconsistent, and the government records show that all these villages are known as ‘Hanuabada’ (Groves 1980, p. 75; Gregory 1980, pp. 627-628; Goddard 2001, p. 314; NSO 2002, CPS 2002). According to census records, there are eight census units that make up Hanuabada (NSO CPS 2002). The census units comprise groupings according to locations that people occupy within the whole village area.

The present study is conducted among the Motu Koitabu people who live in Hanuabada which includes all sections of the village. The sub villages of Poreporena, Elevala and Gabi make up Hanuabada as illustrated in Figure 4.2. As mentioned earlier, the Motu Koitabu people live in eight villages within and around the Port Moresby city, the capital city of Papua New Guinea and Hanuabada is the largest village among them. Hanuabada is important among the Motu Koitabu villages as it has a large population and the social relationship network is extensive and therefore has enormous influence on other Motu Koitabu villages. Any activities and social changes adapted are replicated in other Motu Koitabu villages. The present study covered the current structure as shown in Figure 4.2. Approximately 48 percent of the

surveyed households are from Poreporena, 31 percent from Gabi and the remaining 21 percent were from Elevala.



Source: Field work 2009 (Lavu 2009)

4.4 Belonging to a Clan

As all Motu Koitabu villages have distinct differences among the people living within a village (Gregory 1980, p. 621), the village selected for the present study also exhibit similar differences. The distinction is based on the clan system. Each Motu Koitabu person belongs to a clan by birth and his/her relationship to others in the clan is acquired through the patriarchal system (Gregory 1980, p. 629; Goddard 2001, p 315). As these are culturally based relationships, they are important for marriage ceremonies, bride prices and death feasts. They form the social alignments in which the support is rendered in the time of important events.

The clan or *Iduhu* system among the Motu Koitabu people has been widely discussed elsewhere (Seligman 1909, p. 316; Groves 1954, p. 78; Lepervanche in Hogbin 1973, p. 15). The explanations differ in a number of ways. 'Membership of an *Iduhu* was determined patrilineally; you belong to the *iduhu* of your father. Married couples resided in the husband's *iduhu*; male children and unmarried female children lived with their father in his *iduhu*. The *iduhu* was thus a patrilineal and patrilocal group residing in a single line of houses' (Groves 1954, p. 78). Further the *Iduhu* draws social, territorial and spiritual identity of each group (Grove 1954, p. 80). Lepervanche in Hogbin (1973, p. 15) identifies with the account given by Grove

(1954) where he further indicated that members of the *iduhu* are ‘associated with residential locality, garden land, certain trading vessels, fishing nets, and ritual paraphernalia. They also engaged in overseas trading expeditions and feast giving’. These characteristics gave a more modern attribute of the clan.

While the descriptions of the core characteristics of the clan provided by the different scholars are valuable, the current and most important characteristic is the residential locations now known as sections. The issue regarding the location of residence is that as the population grows the residence locations become scarce and therefore brings in the issue of relocating to nearby traditional land. In this context, the composition and extension of the kinship is a major issue as the family relations continue to expand. Goddard (2001, p. 315) acknowledges the differences from previous work and then raised points that signifies the importance of the clan’s compositions and characteristics.

The central issue is that there is always a notion of inviting, giving and accepting responsibilities among the Motu Koitabu people. For example, the acceptance of people to join in the *iduhu* activities often results in what could be fragmentations and occasional fusion as termed by the past scholars. Over time, such relationships are gradually embraced and accepted within the Motu Koitabu society. Having access to rights within the *iduhu* and as an *iduhu* member is the most important characteristic when it comes to dealing with especially land rights. This is because owning land is a birth right and only those who are born to a male member of the family can inherit land and there are others who are born to a female member who can only have land use rights. The owners and the rights are important in dealing with land matters especially when it comes to land payment royalties.

The way of life of the Motu Koitabu people is based around these principles. Each *iduhu* group governs its own identity and methods of doing things. Although this gives the crucial identity to each *iduhu* member, the act of displaying the identity is often not practiced in daily life except on special occasions such as marriages, deaths and church thanks giving activities.

Today, the leadership in the Hanuabada village is structured around *iduhu* hierarchical and the church leadership and responsibilities are bestowed on those who are in such a position. It becomes evident that the responsibilities of *iduhu* leadership are bestowed on persons by birth. In a similar way, the leadership in the church hierarchy follows a similar path except that in the case of a church leadership, other members of the *iduhu* are also given opportunities to lead. The *iduhu* leadership remains with the head of the *iduhu*. The *iduhu* leaders attend to *iduhu* matters while the church deacons continue to support the church activities (Gregory 1980, p. 630).

However, while it is acknowledged that many activities are associated with *iduhu* alignments, they are either replaced by other activities or modified to suit the current situation in which these people live. Goddard (2001, p. 318) summarises the issue of instability and collapse of the *iduhu*'s, as this was because of the social consequences of missionisation and colonialism. However it is quite evident from the discussions that the previous scholars agree that the *iduhu* leadership was not only influential in the activities of the church, but also produce hierarchical completion for church thanks giving responsibilities that contributed to the administration and the management of its activities. *Iduhu* leadership is also very influential when it comes to dealing with land rights and ownership. These days, belonging to a clan and recollecting genealogy resembles the powerful knowledge used by clan members to acquire royalty payments for their specific *iduhu* members.

While the family and *iduhu* relationships are dominant in the way of life of the people, the non-genealogical connections among the Motu Koitabu people are also accepted and practiced as inter-marriage between the ethnic group increases. The non-genealogical connections are accepted to a certain degree to complement the genealogical connections under which the pressures of obligatory roles within the community increase to support specific family and clan level obligations. Both the family and the *iduhu* and non-genealogical relationships play important roles by providing financial support to public event or activity of the day in the absence of subsistence farming. This is carried out by contributing money and in kind to support the activity.

According to the environment study conducted in 2001, there were a total of 18 Motuan and 8 Koitabu *iduhus* in Hanuabada (Gaudi *in* UNESCO 2001). Using the base information and no strict selection criteria, the current study collected information from nine *iduhu*'s in Poreporena, seven in Elevala and seven from Gabi (see Figure 4.2). This adds up to 23 out of 26 *iduhu*. The 23 *iduhu* were based on overall frame of Hanuabada village as the selection was not based the *iduhu* but the village census frame and therefore did not cover the 26 *iduhu* frame. Although the *iduhu* is not considered as a unit of analysis in the present study, it provides vital contextual information.

4.5 Family Structure

Families have been very important units in the Motu-Koitabu society. In terms of family structure, we can see how families are defined and described in the anthropological literature. Caldwell *et al.*, (1984, 218) describes two types of family structures among the south Indian populations. He points out the issue of definitions coined by different authors. The 'stem family' and the 'joint family' were important structures among his study population. Caldwell *et al.*, (1984, p. 218) state that 'a "stem family" consists of two married couples of different generations living in the same household, almost invariably where the older couple are the parents of the husband of the younger couple. A "joint family" refers to married siblings (almost always brothers) living together-in the area of study; and a "joint-stem" family is the classical full pyramid where the older couple have with them more than one of their married children and usually grand-children as well'.

The term 'eroded family' describes the arrangement where 'if a widowed mother lives with a younger couple because both couples shared residence before the death of the widow's husband, then this is an eroded stem family' (Caldwell *et al.*, 1984, p. 218). The description of the 'nuclear family' as an ideal type (placed in the Western historical context), the modern nuclear family is a monogamous, patriarchal family consisting of a married couple living with their children, the man working outside the home and the woman being a mother and full-time housewife (Popenoe 1987, p. 174).

These days, the nuclear family is quite popular in the modern world as more and more families are naturally sorted to the nuclear family life style.

The Motu Koitabu society identifies with various relationship structures. The relationships are described and are linked to the patrilineal system (Seligman 1909; Belshaw 1957; Goddard 2001). How one is related on the paternal side and the various relationship names are thoroughly described by Grove (1958). Goddard (2001, p. 316) described the linkages within the *iduhus* and the family connections. However, the issue of prolonged residences as a qualifying element to the *iduhu* can be contested. As discussed earlier, such people may gradually have limited rights in terms of permissions to build a home within the family claimed areas, but will not necessarily have any rights to land claims. The central issue is that clans are not politically oriented as described by the early anthropologists, rather they are kinship based. Currently, clan relationship is an important factor in deciding the rewards for the individual beneficiary families in terms of resource development areas in PNG. Therefore, studying this issue is important for understanding the social and demographic dynamics among the Motu Koitabu.

Families among the Motu Koitabu can be considered to be extended families based on clan structure. Although they are patrilineally based, the female members are also parts of the overall family. The differences are that members from the matrilineal part of the family are helpers in the clan activities when needed. These are reciprocal relationships. The extension of this relationship goes over the blood relationship and this is where the persons related through marriage known as affines are included. Affines as described by Hogbin (1973, p. 237) as 'persons to whom an individual is related through marriage, the spouse of his cognates and the cognates of his spouse. The spouses' siblings' spouses, often important to him, are not affines; they are marriage connections'.

Goddard (2001, p. 330) argues that the relationships within clans are quite extensive which evolve with new family formations. New families continue to be formed and maintained together with the existing families, but scarce resources tend to threaten

the mutually sporting relationships as people struggle to cope with the stresses of urban living.

In this context, this chapter also seeks to examine the demographic characteristics and socio economic status of the households which provides an overview of the Hanuabada village population as this is where the field data were collected.

4.6 The Motu Koitabu people in Hanuabada

The data presented in this section provide a description of the characteristics of Hanuabada and its population. The indicators used for this section are drawn from the PNG 2000 Census data. A specialised data base on census unit profiles known as the Community Profile System (CPS) produced by the PNG NSO is utilised to provide information on the village level socio economic status. Other sources used are cited where appropriate. The 2000 Census data are used as the other national sample surveys conducted in PNG are not designed to provide small area information. The information provided in the next paragraphs are based on the CPS.

4.6.1. Demographic Characteristics

The population of Hanuabada was estimated at 9,000 people, comprising 52 percent males and 48 percent females. The average household size was around 10 (NSO 2002). About 36 percent of the population was under 15 years of age and 2.5 percent of the population were aged 60 years and over which resulted in the dependency ratio of around 62.4 percent. This means that every 100 working age persons had to support 62 dependents or persons of non-working age. About 63 per cent of the females in the marriageable ages were married compared to 57 per cent males in their marriageable ages. About 2 per cent of the males were divorced and 3 per cent of them widowed. The proportion of the females divorced and widowed were 6 and 8 per cent respectively. The household heads continue to be predominantly males (NSO 2002).

Based on information about the age sex structure of the population, some other demographic measures can be estimated. One measure considered as important for this study is the average age at first marriage. This is important because marrying

young has implications. When women marry young, and when they lack in bargaining power in their marriage, they end up having more children than they would prefer to have. The average age at marriage is measured by the singulate mean age at marriage (SMAM). SMAM is the mean age at first marriage among those who ever marry (or those who marry by a given age-limit) (United Nations 1984, pp. 225-229). This is assuming that no females marry before age 15 and after age 50. Among the Hanuabada people, the singulate mean age at marriage is around 27 years for males and 23 years for females (NSO 2002).

4.6.2. Socioeconomic Status

The socio economic status of a population is best examined by educational achievements and to a lesser extent the economic activities of the economically active population. According to the 2000 Census, about 96 percent of the children of 10 years and over attended school in Hanuabada. Among those 10 years and over and those who ever attended school, over 81 percent completed their primary education and almost 30 percent completed secondary schooling (NSO, 2002). While the primary and secondary school completion are high, only about 10 percent completed other educational qualifications, which include secretarial and trade certificates, diplomas and higher degrees (NSO 2002).

For the economic activities of the households, almost 39 percent of the population was categorized as economically active in Hanuabada at the time of 2000 Census. Differentiated by sex, 52 per cent males and 24 per cent of females were categorized as economically active. Overall, the 39 per cent refers to the labour force among the population aged 10 years and over who, during the reference period, were either employed or unemployed. Of the economically active population, about 72 percent reported as employed. Other activities of importance for the households were agricultural activity which accounted for 14 percent and engagement in 'income generating activities' and selling cooked food (22 and 12 percent respectively). The house ownership was 96 percent reflecting a traditional village setting (NSO 2002). The significance of the house ownership is that owning a house in an urban setting is

difficult and it is common that residents of the city do not own houses, so this high percentage reflects a traditional village.

This summary of demographic and socio-economic indicators highlights the different characteristics of population of Hanuabada. The large average household sizes reflect the significance of the place of 'family house' in this society. The family house is a home for the families of the same descent and may date back to two to three generations. This applies to extended family members who have not built a house of their own and continue to live under the headship of the elder in the family. In such a situation several family types are found as illustrated by Caldwell (1984). The 'family house' as it is known among the Motu Koitabu people has another significant role in the society in that it represents social identity and family recognition. It also provides a place for any member of the family in need and it is a place for general family meetings to discuss plans for marriage ceremonies, death feasts and church activities.

Although the current research is empirical, it is important to note that the decisions regarding demographic behaviour are not made in a vacuum. Considerations are important for the influences from the settings where a person lives and the society or the culture in which these settings occur have been explained by the previous sections. The next section describes the broader issues regarding the study households and the population based on the field data collected in 2009.

4.7 Characteristics of the surveyed households

The data presented in this section provide a description of the characteristics related to the surveyed households. It begins with the household amenities and consumable goods, the household demographic characteristics and examines selected demographic behaviour and their relationships with the selected socio-economic factors. The data presented in this section are derived from the survey data collected during field work by the author in 2009.

As stated in Chapter 3 of this thesis, the objective of the 2009 Hanuabada household survey was to identify women of reproductive age who are eligible for a subsequent detailed interview covering demographic, socio economic and cultural issues. The

information collected in the household survey is therefore limited in scope and discusses the essential information to situate the study. The household characteristics, such as housing amenities and ownership of consumer durables are important as they serve as indirect indicators of a household's standard of living. They also reflect a society's material progress, which has implications both for the economic well-being of the population and in turn influences the demographic decisions.

4.7.1. Household facilities

It has been found that the extraordinary efforts of women collecting water for household use at odd hours of the night indicates the hardships women face within the vicinity of the PNG's capital city (Gregory 1997, p. 16). The findings from the 2009 Survey data indicate that not everyone has easy access to water for household use. The data show that about 42 percent of the households have access to water piped into their houses as shown in Table 4.1. Another 30 percent collected their water from outside of the house and 28 percent from the common tap at the foot of the walkway. Collecting water from outside of their homes refers to the communal pipes at a central location near clan walkways. The women assemble at these locations and wait for their turn to fill their containers for the household use. The data presented reaffirms the struggles to have access to clean water in an urban setting.

Table. 4.1 Housing Characteristics

Percentage distribution of households by housing characteristics, Hanuabada 2009.

Characteristics	Number	Percent
Source of drinking water		
Piped water into house	126	42.3
Piped water into yard	90	30.2
Piped into neighborhood -communal	82	27.5
<i>Total Households</i>	298	100.0
Sanitation		
Own and shared flushed toilet	59	19.8
Traditional pit latrine	34	11.4
Improved latrine	28	9.4
Bucket	171	57.4
No facility /sea	6	2.0
<i>Total Households</i>	298	100.0
Fuel for cooking		
Electricity	27	9.1
Gas	45	15.1
Kerosene	106	35.6
Charcoal	1	0.3
Firewood and other	119	39.6
<i>Total Households</i>	298	99.7
Source of lighting		
Electricity	241	80.9
Pressure lamp (coleman)	5	1.7
Kerosene lamps	48	16.1
Candles and other	4	1.0
<i>Total Households</i>	298	99.7
Floor material		
Earth Floor	3	1.0
Wood planks	216	72.5
Polish floor	28	9.4
Cement	4	1.3
Unpolish floor and other	47	15.4
<i>Total Households</i>	298	99.7
House ownership		
Yes	292	98.0
No	6	2.0
<i>Total Households</i>	298	100.0

Source: Fieldwork 2009

A serious health concern in the village is the sanitation management. The survey data reveal that less than 20 percent of the households surveyed had access to flush toilets while 80 percent had access to other types of toilets as shown in Table 4.1. Among the other toilet types, the bucket system is the most common (57 percent). This is where each member within the household uses the same bucket until the buckets are collected by the city authorities for disposal. This is collected twice a week and it does

cause unhygienic situations in crowded households. About 11 percent use the traditional pit toilet facility. The remaining households are either sharing a flush toilet facility or those using improved latrines.

Another important characteristic is the energy consumption of the household. As the Motu Koitabu living in the NCD area have lost nearly all areas for gardening and changed to a modern way of life, it is expected that electricity is likely to be the main means of lighting and cooking. From the data shown in Table 4.1, over 80 percent of the households use electricity for lighting, but only nine percent of the households used it for cooking. Lamps for light that use kerosene oil accounted for almost 18 percent of lighting. Coming back to fuel for cooking, among the households surveyed, 40 percent use firewood, followed by kerosene (36 percent) as cooking fuel. Gas is the next common fuel with 15 percent of the household using this fuel. A particular characteristic of a traditional village in an urban setting is the fact that almost 98 percent of the houses are owned by the people living in them. Seventy three percent of these houses have wood planks as floor material, while other floor types are not so common (Table 4.1).

4.7.2. Household Consumer goods

The information presented for the household consumer durables is an indicator of the socio economic status of households. Households who own a radio or television are able to do so because of their economic ability to purchase such items and they are more likely to have greater exposure to general news and health education messages related to the management of common childhood diseases, family planning and the importance of vaccinating young children. According to the 2009 survey findings, almost three quarters of the surveyed households owned a radio, while two thirds of them owned a television. Regarding communication outside of one's own household, less than 20 percent had access to landline telephones in contrast about 95 percent owning mobile phones (see Table 4.2). The high percentage of mobile telephone users is the result of a recent boost of mobile telephone communications in the country.

Table 4.2. Household durable good

Percentage of households possessing various durable consumer goods, Hanuabada, 2009

Household possession	Number	Percent
Radio		
Yes	221	74.2
No	77	25.8
<i>Total Households</i>	298	100.0
Television		
Yes	199	66.8
No	99	33.2
<i>Total Households</i>	298	100.0
Telephone		
Yes	42	14.1
No	256	85.9
<i>Total Households</i>	298	100.0
Mobile phone		
Yes	284	95.3
No	14	4.7
<i>Total Households</i>	298	100.0
Motor vehicle		
Yes	62	20.8
No	236	79.2
<i>Total Households</i>	298	100.0
Boat		
Yes	40	13.4
No	258	86.6
<i>Total Households</i>	298	100.0
Fishing equipment		
Yes	148	49.7
No	150	50.3
<i>Total Households</i>	298	100.0

Source: Fieldwork 2009

Motor vehicle and boats are owned by very few households (21 percent and 13 percent respectively). On the contrary, although not many households owned boats, 50 percent of the households do own fishing equipment.

4.7.3. Household Demographic Characteristics

As a demographic study, it is pertinent to examine the demographic characteristics of the household members, their interrelationships and their implications for demographic and socio-economic behaviour.

First, in this community a household is regarded as very important and has various implications. As a member of a household, each member has responsibilities. The responsibilities range from caring for the young and old within the households by providing food and other essentials for the household survival. All chores are communally shared especially in the households irrespective of the number of people that it contains. 'A household is usually defined as a group of persons (or one person) who make common provision for food, shelter, and other essentials for living' (Bongaarts 2001, p. 264). In the case of PNG censuses and the surveys, this definition is adapted following the recommendation of the United Nations (1980). On this basis, this study adapted the definition of household based on the PNG surveys as 'as a person or groups of related or unrelated persons who live together and share a common cooking and eating arrangements' (NSO 1996; 2009).

Members of the sample population of Hanuabada comprise the sample population of this study. As a background, the size and age-sex structure of the sample population are discussed first. Thereafter, as indicators of the households, the composition of the sample population by household size, the composition of households by headship and the relationship of household members with the head of household are discussed as adapted from Bongaarts (2001). These indicators are derived and discussed to portray the relationship types in Hanuabada by using the 2009 Hanuabada study.

Population size

To profile the Hanuabada study population, selected demographic characteristics are essential. The 2009 Hanuabada sample study estimated a total population of 3,115 persons, with 1,622 males and 1,493 females (Table 4.3). The overall sex ratio is 108 males per 100 females. With the given population size and the number of households surveyed, the average household size is estimated at 10.5 persons per household (Figure 4.3). This shows that the households in Hanuabada are extraordinarily large in comparison to the average household sizes of 5.2 persons per household found in PNG (NSO 2009). However, the average urban household size is larger than the average rural household size in PNG as a whole (5 persons per household in rural areas versus 7 persons per household in urban areas) (NSO 2009).

The age-sex distribution of the study population reflects a young population, with over a third of the population below 15 years of age. This proportion is slightly lower than what has been found for the urban population and the rural populations in PNG (38 and 44 percent respectively (NSO 2009). However, as it is seen from the age sex distribution, there seems to be underreporting of the population between the age of 10 -14 years. It seems that children in the ages of 11, 12, 13, and 14 are underreported. There is a tendency in Papua New Guinea that people report ages ending in 0 and 5 as shown in the 2000 census data (NSO 2002, p. 92). This is because 0 and 5 are easier to state and remember. This population is no different. In all age groups, the male population is higher compared to the females as shown in Table 4.3

Table 4.3. Percentage distribution of the sample population (5 year age-group), Hanuabada, 2009

Age group	Sex		Total (%)	Sex ratios
	Male (%)	Female (%)		
0-4	13.5	12.7	13.1	115.3
5-9	12.5	10.7	11.6	126.3
10-14	8.9	8.0	8.4	121.0
15-19	9.7	11.8	10.7	89.8
20-24	10.0	10.2	10.1	106.5
25-29	9.4	9.8	9.6	104.1
30-34	7.7	8.4	8.1	99.2
35-39	6.0	5.8	5.9	112.8
40-44	5.3	6.0	5.7	95.6
45-49	5.7	4.8	5.3	127.8
50-54	4.5	4.8	4.6	102.8
55-59	2.7	2.5	2.6	118.9
60-64	1.5	1.5	1.5	113.6
65-69	0.5	1.1	0.8	50.0
70-74	1.0	0.9	1.0	130.8
75+	1.0	1.0	1.0	106.7
Total	100 (N= 1622)	100 (N=1493)	100 (N=3115)	108.6

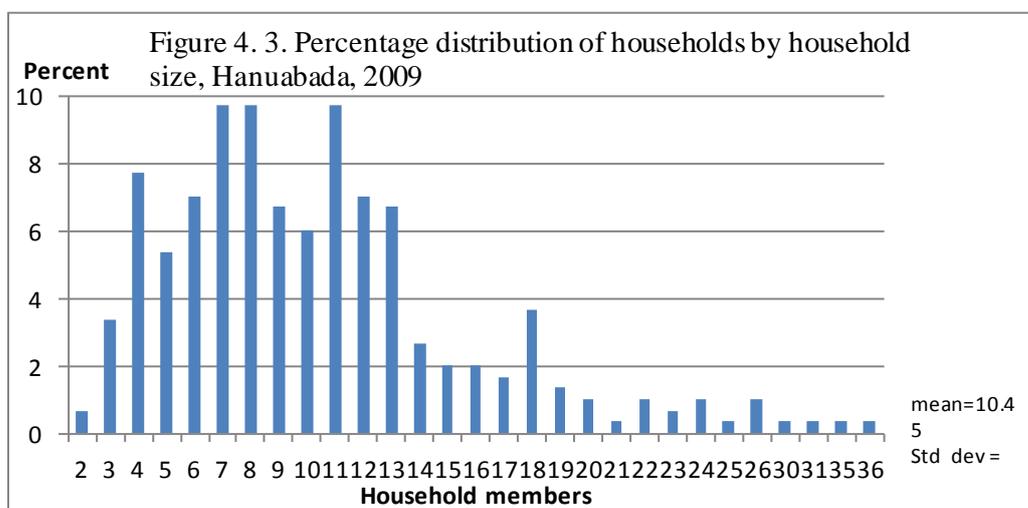
Source: Field work 2009

Population composition

‘Progression through the traditional family life cycle has become less common as people remain unmarried for longer, cohabitation and union dissolution have become easier and more acceptable, and the remarriage rate has declined’ (Jiang and O’Neill, 2007, p. 565).

While these changes have occurred in developed countries, traditional family types continue to dominate households with such compositions as stem family or joint families in developing countries. Hanuabada, as a society in a modern and progressing city has no doubt experienced changes. It is broadly representative of a village caught between tradition and modernisation. Therefore the social adjustments reflected in demographic measures of household characteristics are central in the influences it exerts on the demographic behaviour. Secondly, the size and the composition of the households do influence the allocation of the resources and in turn affect the living conditions of individuals in these households.

To understand the factors that contribute to influencing the living standards, examining the household membership and the number of members it contains are important demographic characteristics. This includes visitors who stayed in the surveyed households prior to the night of the interview. In most cases the visitors were likely to be relatives from the next house or those from the other side of the village. Linked to this classification, the household members were categorised in groups to determine size. Firstly the households are large as demonstrated by the average household size which is around 10 persons per household.



As shown in Figure 4.3 and Table 4.4, the households range from a 2 persons household to a 36 member household. Although the 36 member household is an extreme, it is not an isolated case as there are households that contain fairly large numbers.

A second grouping is based on age and this is categorised in two distinct groups; the children and the adults as shown in Table 4.5. This reflects the children (aged <18) per household and the number of adults (aged 18+) per household. Of all the households surveyed, children account for 42 percent of the population while adults account for 58 percent.

Table 4.4. Percent distribution of households by sex of head of households, households size, Hanuabada 2009

Characteristics	Number	Percent
Sex of head of household		
Male	236	79.2
Female	62	20.8
Total	298	100.0
Household members		
	Number	Percent
2	2	0.7
3	10	3.4
4	23	7.7
5	16	5.4
6	21	7.0
7	29	9.7
8	29	9.7
9	20	6.7
10	18	6.0
11	29	9.7
12+	101	33.9
Total	298	100.0
Mean household size	na	10.5

Source: Fieldwork 2009

To identify the household headship, this study adapted the demographic and health survey (DHS) interviewer’s manual definition, where ‘the head of the household [is] the person who is considered responsible for the household. This person may be appointed on the basis of age (older), sex (generally, but not necessarily, male), economic status (main provider), or some other reason (DHS 1990, p. 32). The head of the household in this study was appointed on the basis of seniority and recognised by members that a particular person would be the head of the household irrespective of economic status.

Headship

The findings in Table 4.5 shows that 79 percent of the households were headed by males while another 21 percent heads were females. Of the 79 male heads, about 50 percent of them were in the age range of 50 years and over (not shown). Such a result

shows a high male dominance leadership in families which reflects a typical male dominance culture.

Table 4.5. Number of members per household by relationship to head, Hanuabada, 2009

Relationship to head	Number	Percent
Adults		
Head	298	16.5
Spouse	221	12.2
Son/daughter	455	25.1
Son-/daughter-in-law	219	12.1
Grandchild	65	3.6
Parent	37	2.0
Parent-in-law	8	0.4
Brother/sister	157	8.7
Niece /nephew by blood	98	5.4
Niece /nephew by marriage	16	0.9
Other relative	217	12.0
Adopted/fostered	9	0.5
Nonrelative	9	0.5
<i>Total</i>	<i>1810</i>	<i>100.0</i>
Children		
Son/daughter	386	29.6
Grandchild	582	44.6
Brother/sister	12	0.9
Other relative	299	22.9
Adopted/fostered	20	1.5
Nonrelative	6	0.5
<i>Total</i>	<i>1305</i>	<i>100.0</i>
<i>Total Population</i>	<i>3115</i>	<i>n.a</i>

Source: Fieldwork 2009

Member's relations to the head

'Every household has a head and most heads have spouses who reside with them' (Bongaarts 2001, p. 267) however there are other adults who reside in the same household. Other adults are parents or parents-in law, adult offspring, sons/daughters-in-law, other relatives of the head (e.g., brother or sister), and nonrelatives. Based on the identifications of the relationships, the Hanuabada data reflect that households predominantly contain five types of adults: the head (one per household), spouse of head, and sons and/or daughters, son and daughter in laws, brother or sister and other relatives. Based on the information presented in Table 4.5 these five group types account for close to 78 percent of adult household membership. However, as expected

a large percentage (25 percent) of the adult population are sons or daughters of the head shown in Table.4.5.

Children enumerated in the households are distributed among own sons or daughters, grand-children and other relatives. These three types account for 97 percent. The majority (23 percent) of the children are sons and daughters of the head. However the category 'grand-children are the most important with 45 percent, followed by other relatives that account for 23 percent.

Marital Status

The age-specific marital status of men and women of the sample population of Hanuabada is shown in Table 4.6. Compared to men, proportionately more women are married, divorced or widowed. Conversely, only 24.3% of the women of all ages is never married, whereas a higher percentage of men of all ages (38.2%) is never married. Women start getting married earlier than men as evidenced by the much greater percentage of women aged 15-19 years (14.2%) in the married category compared to that of men (3.2%) of the same age-group. The early marriage of women of the sample population is also borne out by the lower singulate mean age at marriage of the sample women (21.1 years) than that of the sample men (25.4 years), as mentioned in Section 5.6.2 of this thesis. The proportion of married rises for both men and women from age 15-19 to age 35-39 years. The prevalence of widowhood and divorce is also higher among the women compared to men. However, the very high proportion of women in each of the peak reproductive age-groups from 20-24 to 40-44 years indicates the potential for high fertility. This shows that women are already drawn into the life of childbearing and family building from an early age, which prevents them from achieving equality with men (Weeks 2002, p. 380).

Table 4.6. Percentage distribution of the sample population by marital status according to sex and age, Hanuabada, 2009.

Age group	Marital Status				Total	(Sample size N)
	Never Married	Married	Divorced	Widowed		
Males						
15-19	96.82	3.18	0.00	0.00	100.00	157
20-24	62.11	37.27	0.62	0.00	100.00	161
25-29	35.33	63.33	0.67	0.67	100.00	150
30-34	26.83	67.48	5.69	0.00	100.00	123
35-39	16.67	82.29	1.04	0.00	100.00	96
40-44	14.12	78.82	3.53	3.53	100.00	85
45-49	15.22	78.26	4.35	2.17	100.00	92
50-54	15.07	72.60	1.37	10.96	100.00	73
55-59	4.55	81.82	2.27	11.36	100.00	44
60-64	8.00	76.00	8.00	8.00	100.00	25
65-70	0.00	87.50	0.00	12.50	100.00	8
70+	8.00	52.00	4.00	36.00	100.00	25
Total	38.21	56.69	2.12	2.98	100.00	1039
Females						
15-19	84.66	14.20	1.14	0.00	100.00	176
20-24	36.60	58.82	3.27	1.31	100.00	153
25-29	12.33	81.51	6.16	0.00	100.00	146
30-34	8.73	80.95	9.52	0.79	100.00	126
35-39	2.33	89.53	5.81	2.33	100.00	86
40-44	4.49	86.52	3.37	5.62	100.00	89
45-49	4.17	73.61	9.72	12.50	100.00	72
50-54	2.82	70.42	11.27	15.49	100.00	71
55-59	8.11	64.86	2.70	24.32	100.00	37
60-64	0.00	50.00	0.00	50.00	100.00	22
65-70	0.00	56.25	0.00	43.75	100.00	16
70+	0.00	19.23	7.69	73.08	100.00	26
Total	24.31	62.94	5.29	7.45	100.00	1020

Source: Field work 2009

4.7.4. Socio-economic characteristics of the household population

This section discusses the socio-economic characteristics of the household population in the sample. The socio-economic characteristics refer to educational achievements and economic activity of the household members, which provide a general overview of the socio-economic status of the households.

Socio-economic status can vary widely between and within small areas. In this study, socio-economic status is indicated by the percentage of people who have been to school, those with differential educational achievements and the percentage of people engaged in various economic activities.

Educational attainment

Education is a means for dealing with the challenges faced by the people. Most notably it is important and valued among the people of Hanuabada as illustrated by the high proportion (96 percent) of children who attended school (NSO 2002).

In PNG the education system was restructured in 1995 and categorized into three main levels, namely (i) Primary, which consists of Elementary One to Grade 8; (ii) Secondary, which comprises Grades 9 through to Grade 12; and (iii) Tertiary, which includes those who attend colleges and universities for certificates, diplomas and degrees. The groupings used in the present study are based on these 1995 reforms. In this study a person with no education is a person who has never been to school or who started school but did not complete Grade 1. This is because children who are in grade 1 are often not able to read and write as they are still learning to recognize objects and colours in PNG education system. All analysis is based on the population aged 5 years and over.

According to the 2009 Hanuabada survey, among the sample population of both sexes, more than 90 per cent of those aged 5 years and over has attended school (not shown). Among those persons of both sexes who have ever attended school, about 57 per cent have completed primary education while another 29 per cent completed secondary education (not shown). For the purposes of the study, the tertiary includes

certificates, diplomas and degrees. Only about 8 per cent of the people of both sexes have completed a certificate, diploma or a degree.

Table 4.7 shows the distribution of the sample population aged 15 years and over by highest grade completed. It may be mentioned at the outset that males and females aged 15-19 and to some extent those aged 20-24 have not had time to proceed far through secondary and tertiary education and that some of them will proceed further in the next few years.

It is seen in Table 4.7 that those who are categorised under no education account for 6 per cent for each of males and females. Proportionately more females (60%) have completed primary education compared to males (55%) and almost an equal proportion of males and females have completed secondary education (29.3% and 28.9% respectively). The proportion of males completing tertiary education is nearly double that of females (10.1% and 5.3% respectively). This probably reflects that women in general do not get a chance to pursue education beyond secondary because of marriage, child bearing and rearing and home duties. But it is interesting to note that only about 8% of men aged 30-44 have tertiary education, but over 30% of those in their fifties (and over 40% of those aged 50-64) have completed tertiary education. This indicates the importance given to education among the villagers before PNG gained its independence. There was a push for education as more teachers and health workers were needed and therefore many men were trained to be school teachers who were then sent to remote areas of PNG to work with the locals while the expatriates worked in the urban areas. The younger generation found jobs more easily in the urban areas in the service industry for which secondary education was sufficient, and therefore tertiary training was not pushed as was done in the past.

Table 4.7 Educational level of Household population by age 15 and over by highest grade completed , Hanuabada 2009.

Age group	No education	Primary	Secondary	Tertiary	Total	Number
Males						
15-19	0.6	66.9	30.5	1.9	100.0	154
20-24	1.9	48.4	42.7	7.0	100.0	157
25-29	1.4	55.5	35.6	7.5	100.0	146
30-34	0.0	52.1	43.0	5.0	100.0	121
35-39	0.0	51.0	40.6	8.3	100.0	96
40-44	2.4	47.6	38.1	11.9	100.0	84
45-49	1.1	39.8	39.8	19.3	100.0	88
50-54	0.0	29.6	42.3	28.2	100.0	71
55-59	0.0	33.3	23.8	42.9	100.0	42
60-64	4.2	25.0	29.2	41.7	100.0	24
65-69	0.0	28.6	14.3	57.1	100.0	7
70-74	0.0	50.0	0.0	50.0	100.0	14
75+	7.7	38.5	23.1	30.8	100.0	13
Total	5.6	55.0	29.3	10.1	100.0	1017
Females						
15-19	1.7	59.8	36.8	1.7	100.0	174
20-24	2.1	46.5	45.1	6.3	100.0	144
25-29	1.4	53.1	39.9	5.6	100.0	143
30-34	0.0	56.9	32.5	10.6	100.0	123
35-39	2.4	59.0	34.9	3.6	100.0	83
40-44	0.0	64.4	31.0	4.6	100.0	87
45-49	1.4	54.3	32.9	11.4	100.0	70
50-54	1.5	58.8	29.4	10.3	100.0	68
55-59	0.0	57.6	36.4	6.1	100.0	33
60-64	5.6	55.6	22.2	16.7	100.0	18
65-69	0.0	72.7	18.2	9.1	100.0	11
70-74	30.0	60.0	0.0	10.0	100.0	10
75+	0.0	90.0	0.0	10.0	100.0	10
Total	5.6	60.2	28.9	5.3	100.0	974

Source: Fieldwork 2009

According to the 2009 Hanuabada survey, among the sample population over 90 percent of the population aged 5 years and over has attended school (not shown). Among those who have ever attended school, about 57 percent completed primary education while another 29 percent completed secondary education. For the purposes of the study, tertiary education includes certificates, diplomas and degrees. Only about 8 percent of the persons of both sexes completed a certificate, diploma or a degree. Those who are categorised under no education account for 6 percent of the sample as shown in Table 4.7.

Educational differentials by various levels for males and females are almost same however as the education levels increase, the disparities become apparent. In Table 4.7, about 60 per cent of the females and 55 percent of the males are educated at the primary level. Almost equal percentages of males and females (around 29%) are educated at the secondary level, but there is a large disparity in the percentages of males and females educated at the tertiary level, with 50 percent more males educated at tertiary level than females. In contrast, nearly 100 percent of the females in the age group of 10-14 years are attending primary schools, which is a little higher than the percentage of males attending primary school in the same age group.

Under normal circumstances and where there is universal education, the percentages in primary education decline by age, and those in secondary and tertiary levels rise by age. In the sample population of Hanuabada, the percentages in primary education for both males and females do not show a smooth decline with age, rather there are fluctuations. Even if some of these fluctuations may be attributed to age-misreporting there are some fluctuations which cannot be explained by such misreporting alone. For example, the increase in the percentage in primary education between the age-groups 20-24 and 25-29 years for males and from age-group 20-24 through age-group 40-44 for females clearly suggest a discontinuity in education for these age-cohorts. This discontinuity could be related to school fee issues and to children (especially female children) being often withdrawn from school to participate in activities to help their mothers to sell goods or carry out other activities that are more attractive than going to school.

Household economic activity

The information on economic activity was collected for those who were 15 years old and over. Three questions were asked to establish the economic activity of the household population. For those who said that they were working, they were then asked to describe what they did for salary, wages or profit. About 73 percent of the household male population and 27 percent females indicated that they did some work salary, wages or profit. For those who did not work in the last week for salary, wages or profit, about 51 percent of males and 49 percent females indicated they were involved in either fishing or growing food.

Table 4.8 Work status distribution by sex for those aged 15+					
	Worked last week	Male	Female	Total	N
	Yes	73.2	26.8	100.0	635
	No	40.9	59.1	100.0	1,446
	Total	50.8	49.2	100.0	2,081
	Grow food /fish	Male	Female	Total	
	Yes	51.3	48.8	100.0	240
	No	38.7	61.3	100.0	1,208
	Total	40.7	59.3	100.0	1,448
Activity in the last week	Male	Female	Total		
Full time student	17.6	11.6	13.9		
Home duties	25.3	72.5	54.2		
Looking for work	13.9	2.8	7.1		
No work available	6.6	1.6	3.6		
Too old sick or handicap	8.6	7.0	7.6		
Other	28.1	4.2	13.4		
Not Stated	0.0	0.3	0.2		
Total	100.0 (N=467)	100.0 (N=741)	100.0 (N=1,208)		
<i>Source: Fieldwork 2009.</i>					

While the two groups who work for wages, salary or profit and grow food and fish to sustain their livelihood are identified, the other group that is important are those who are involved in non-monetary activities as shown in Table 4. 8. For this group, among the women, about 73 percent are involved in home duties and the next largest group

are students. Among men, 28 percent are involved in other activities and 25 percent are in home duties. Other activities include doing nothing, adhoc church work, and making and selling homebrew alcohol. Home duties involve mending fishing nets, just idling around the house and attending to domestic chores. Further 18 percent are students and 14 percent are looking for work. The results show that over 50 percent of the people are in non-monetary activities and involved in minor domestic chores.

For those who were engaged in salary or wages or profit, almost 60 per cent of the people were clerks, service workers, shop, and market workers. Almost 14 per cent of the people were engaged as professionals, teaching and other associate teaching, followed by elementary occupations (12 %).

Table 4.9. Percent distribution of employed people by occupation, Hanuabada, 2009

Occupation	Employed in wage jobs		
	Persons	Males	Females
Legislators, Senior officials & Managers	2.0 (13)	2.8 (13)	0 (0)
Professional, Teaching & associate professionals	13.9 (88)	15.3 (71)	10.0 (17)
Clerks, Service workers, Shop & Market sales workers	58.4 (371)	51.8 (241)	76.5 (130)
Agricultural, Animal & fishery workers	5.5 (35)	6.9 (32)	1.8 (3)
Craft & building trade workers	2.0 (13)	2.8 (13)	0.0 (0)
Plant & machine operators & assemblers	7.7 (49)	10.5 (49)	0.0 (0)
Elementary occupations	10.4 (6)	9.9 (46)	11.8 (20)
Total	100 (635)	100 (465)	100 (170)

Source: Lavu 2009 Field work

This pattern was also evident among the males, over 50 per cent were engaged as clerks, service workers, shop, and market workers while 15 per cent stated their occupation as professional, teaching and associate professionals. Others stated their occupations as plant and machine operators and assemblers and elementary occupations (11% and 10% respectively). More (77%) females were found to be engaged as clerks, service workers, shop and market sales workers. The other main occupation was in elementary (11.8%) and another 10 per cent reported their occupations as professional, teaching and associate professionals. It is evident that no females are engaged in legislators and senior official jobs, craft and building trade workers and plant and machine operators and assemblers. The elementary occupations are jobs such as house maids, cleaners and babysitters.

4.8 Relationship between the background characteristics and the selected demographic factors

This section discusses the general relationship between household population age, sex, marital status and household population education and economic activity of the sample households.

The age distribution portrays a young population and reflects a male dominated society. Most heads of the households are males and the composition of the households depicts an extended family and even to the extent of the clan membership. The reporting of sons/daughters in law and grandchildren as members of the household indicate that the heads of households are not necessarily the breadwinner. In Hanuabada, the houses are owned by grandfathers and in this case, they were identified as the heads of the households at the time of the survey. This reflects the authority and continued cultural hierarchical order in the households.

Further, nearly every one eventually marries. More women marry and the proportions married increases with age. However, both men and women experience a shift in their marital status from married to widowed or divorced starting from age 25-29 but at different levels. In total more women reported that they were widowed, divorced and separated compared to the male population. The higher percentages of women in other marriage categories indicate that the women experience more instability in the marriage than men.

Being educated is important as one has to find employment in both private and public sector to survive in this village. Over 90 percent indicated ever being to school and most reach primary level education which can land them a waitress or a housekeeping job in a hotel. Fortunately almost 30 percent have reached the secondary education. In terms of educational achievement, coincidentally, exactly the same percentage of men and women (5.6%) have reported no education. Proportionately more women are educated at primary level but proportionately more men are educated at secondary and tertiary levels. As mentioned before, there appears to have been a discontinuity in education at the primary level for males between the cohorts aged 20-24 and 25-29

years and for females between the age-groups 20 -24 through 40-44, which could be related to school fee issues and children often being withdrawn from school to help their mothers in selling goods and doing other activities which may be more attractive in the short-term in generating income than going to school.

In terms of household economic activity, more men indicated that they were engaged in an activity that earned them a salary, wage or made profit. Among those who did not work, again more men were engaged in growing or fishing for own consumption or some income. However, more women were engaged in home duties reflecting the continuous dependency on menfolk for their survival in the absence of the agricultural activities.

While this village is located in the urban area, the demographic and the socio economic behaviour is reflective of a traditional village. Although the female children attend school, it is likely that they are taken out of school because of school fee issues while every attempt is made to make sure the boy goes on to secondary education. The participation by men and women in the economic activity indicates that women will continue to rely on their menfolk for their livelihood in the village. For those already participating in an economic activity, it is evident that they are mostly engaged in service work such as working in hotels as bar maids, housekeeping and those found in public sector, they are likely to be engaged in clerical jobs. These jobs are not high paying work and therefore being a member of a family is essential to sustain their livelihood in this village.

4.9 Summary

This chapter has found that the Western influences in the colonization period and the intrusion of missionaries on their society had a great impact on the lives of the Motu Koitabu people in Hanuabada.

These influences change their mindset. For example, decisions were made that favoured modern medicine over the traditional beliefs in terms of health. Being educated in another culture was also bravely favoured over just simply being a Motu Koitabu person. Recognition of young talented men into the colonial administration

was a life change. The wage earning mechanism substituted for the subsistence gardening and fishing for own consumption. These changes were enforced by the ruling administration at the time.

However this study has also found that while education and employment were embraced in the society long ago, the basic services needed for urban way of life have not improved over the years. Notably, having access to water and flush toilet in the house is not enjoyed by everyone. The bucket system which is not hygienic is used by many households and depicts unhealthy living. Further, most people still access water at odd hours of the night in the communal pipes at the foot of the main walkways, which is not a normal characteristic of a normal urban suburb. While electricity is the source of lighting, some still use kerosene lamps which one should find mostly in the rural Papua New Guinea villages.

This study also found that the household composition reflects various family structures but all point to the extended family type. In one household one can find adult sons and daughters, their spouses, and grand-children and other brothers and sisters of the head and this creates large households. These family households are managed by a head that may not be the bread winner but based on seniority. The extended families continue to dominate the family types which are important for comfort and economic survival.

In regards to the socio economic status, the fact that the primary education is high but does not guarantee them jobs in the job market in the urban sector is a situation that these people face. The lowly educated within the community are employed by relatives who own small business as contractors and therefore often do not require high education levels to work. The continued support provided for one another in this community reflects the importance of family and clan support. Even though there is less education, those willing to work for wages or salary are supported by those who own a small business to maintain the family.

The remainder of the thesis seeks to explore various features in their lives of the Hanuabada women. The next chapter, Chapter 5 examines the women's socioeconomic and demographic characteristics

CHAPTER 5 – SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF MOTU KOITABU WOMEN OF HANUABADA

5.1 Introduction

This chapter presents the socioeconomic, cultural, and the demographic characteristics of the sample of women chosen for the present study. The aim of the chapter is to identify the distinct socioeconomic and cultural attributes of the women which would be helpful in examining their relationships with their demographic behaviour analysed in subsequent chapters of this thesis. The first section of this chapter describes the socioeconomic characteristics and the second section presents the demographic characteristics of the women. Both these sets of characteristics are important for understanding the demographic behaviour of this very specific group of people.

The source of data for this thesis consists of a sample of 809 women aged 15 to 49 years living in 297 sampled households of Hanuabada, the urban village of Port Moresby.

The chapter begins with the presentation of the educational attainment and skills learned by these women, their work status and their economic activity. Information is also collected about their involvement in social groups defined by kinship and clan, socially directed religious activities through the church and cultural obligations such as sharing of bride prices and other activities, which are reflective of practices of being a Motu Koitabu woman. Further, information is collected about these women's exposure to mass media which provide important information about family planning and other happenings in their surroundings. Such exposures to mass media are necessary for making informed decisions on various matters for themselves and their families. The next section of the chapter discusses demographic characteristics of the women such as age, marital status and age at marriage. The women's parity and survivorship of their children ever born are valuable data which in turn are used to

estimate the fertility and child mortality measures using indirect demographic techniques.

Historical changes have altered some of the cultural norms, concepts and values underlying various attributes of the people of Papua New Guinea. However, many of these attributes have remained unchanged and strong in many parts of the country, especially in villages (Asian Development Bank, 2006, p. 5; Worth and Henderson 2006, p. 294). In many other cases, the people of Papua New Guinea have combined the old with the new and followed modified cultural norms. The participation of women in church fellowship groups organised around clans represents the integration of the Motu Koitabu culture with modernisation. However, the discussions that follow are specifically about the study women in Hanuabada.

5.2 Socio-economic characteristics

5.2.1. Educational attainment

Education is an important tool for accessing relevant information that supports improvements in the lives of women and their families. Female education specifically has a powerful influence on various aspects of women's lives, particularly reproductive behaviour and child survival (Jejeebhoy 1995, 15). Irrespective of the place of residence, women with higher educational levels are likely to make decisions that are valuable in improving their lives and those of their families. Most of the study women had attained some level of education, which is not surprising given that they live in an urban area. Table 5.1 shows that, among the women interviewed, about 96 per cent have completed some form of education, and only about 4 per cent reported they had received no education. This would be low compared to the overall proportions for the Papua New Guinea women at the national level, where about 45 percent had no education (NSO 2009, p. 17). For those who have some education, this study found that overall, more than one half (56 percent) had completed primary education and about one third (32 percent) secondary. Only eight percent had completed tertiary qualifications. Although the categories used to group educational levels in this study are different to those used for the Papua New Guinea national demographic and health survey, the pattern for increase in all educational levels is

similar, except that the national level proportions are at lower levels (NSO 2009, p.17).

5.2.2. Skills attainment

Weaving, sewing and crafting earrings and necklaces and other traditional costumes are significant skills acquired by the Motu Koitabu women which helps them with their survival in Hanuabada. This is so because the acquisition of such skills enables them to produce something to sell in order to sustain their livelihood in a setting where farming and fishing are no longer the main sources of subsistence. The skills discussed in this section (shown in Table 5.1) are acquired through informal learning and by watching and observing them being practised and taught at informal meetings. Of the 809 women interviewed, only 123 (i.e., 15.2 per cent) reported that they possessed some informal skills. Of these 123 women, the largest proportion, about 45 per cent had acquired training in sewing, followed by nine per cent who had learned earring crafting. A large proportion of these 123 women (35 per cent) reported having skills that were not specified under any of the categories mentioned in Table 5.1. These are shown as “Others”, which include cooking, knitting, making traditional pots, church leadership skills and tattooing. Nearly all of the skills were likely to be attained through women’s fellowship meetings.

Table 5.1 Women's selected background characteristics

Percent distribution of women by selected socio economic characteristics, Hanuabada, 2009.

Educational Level	Percent	Number
No education	3.8	31
Primary	56.0	453
Secondary	32.0	259
Tertiary	8.2	66
Total (% =)	100.0	N= 809
Skills attainment		
Earnings	8.9	11
Sewing	44.7	55
Traditional Dancing	6.5	8
Others	39.8	49
Total (%)	100.0	N= 123
Paid salaried jobs		
Yes	16.3	132
No	83.7	677
Total (%)	100.0	N = 809
Other income earning activities		
Selling betelnut	17.1	116
Selling ice block	3.8	26
Selling cooked food	8.6	58
Dependent on other	58.3	395
Other	12.1	82
Total (%)	100.0	N= 677

Source: Fieldwork 2009

5.2.3 Employment status and participation in economic activities

As in most developing countries, the work that the Motu Koitabu women do is at least partially determined by the opportunities available to them by virtue of their skills or educational levels. These women use their skills to earn money depending on the financial needs of their households. While all the three factors mentioned above are important, financial need is often the most important factor in determining a woman's need to work, because, as already mentioned there is limited subsistence farming and fishing in Hanuabada. To know more about the livelihood of these women, a question was asked about whether they were currently working in a job where they received any salary. Of the 809 women interviewed, 132, or about 16 percent were in a salaried job, but the large remainder (677 or 84 percent) reported that they were not in any

salaried job (Table 5.1). The women with no salaried employment were asked about their means of income. More than one half (58.3 percent) of the women with no salaried income reportedly depended on others, while 17 percent sold betel nut, nine percent sold cooked food and four percent sold ice blocks (Table 5.1).

Employment by selected background characteristics reflects the levels of education and also indicates the level of engagement of the women in both the formal and informal sectors in Hanuabada. As shown in Table 5.1b, 132 women are in salaried jobs, which represent their employment in the formal sector. The engagement of women in salaried jobs by age shows a pattern which is typical of labour force participation in the formal sector in that it increases with age and peaks at age 25-29 years and decreases with age thereafter. Informal activities such as selling betel nut and cooked food and frozen cordial blocks represent informal sector employment in which the majority of the working women are engaged. These activities are widespread across all ages and not concentrated at any particular age unlike in the case of salaried employment in which the majority of the employed women are aged between 20 and 39 years (Table 5.1b). To work in a salaried job one has to have some education for which age is an important factor, but it is not so in the informal sector jobs which these women are engaged in. Those not working but reportedly depending on others are mostly younger women.

There are four levels of education: “No education”, “Primary”, “Secondary” and “Tertiary/College”. Most of the women working on salaried jobs have secondary education or higher, but most of the women working in other jobs or depending on other family members have primary education. The results also indicate that some primary education is necessary for one to be engaged in informal sector jobs as these activities involve exchange of money.

The majority of the women in the study are members of the United Church, followed by Pentecostal and Catholics. The category “Others” comprises of Lutherans, Anglicans, Seventh day Adventists and Jehovah witness and Latter Day Saints. In all the economic activities except the category “Others” and “Dependent on other family

members”, the majority of the women are members of the United Church, followed by Catholics and Pentecostals.

Table 5.1b Employment status by background Characteristics

Percent distribution of women by economic activities, according to selected characteristics

Background characteristics	Salaried jobs	Selling betelnut	Selling cooked food and cordial	blocked Others	Total working	Not working - Dependent on other members	Number of women
Age							
15-19	9.1	16.4	7.1	14.6	11.8	28.4	161
20-24	15.2	18.1	11.9	13.4	15.0	23.5	155
25-29	22.0	12.9	25.0	17.1	19.1	14.4	136
30-34	21.2	16.4	16.7	14.6	17.6	11.4	118
35-39	14.4	11.2	15.5	13.4	13.5	7.6	86
40-44	8.3	11.2	11.9	15.9	11.4	9.1	83
45-49	9.8	13.8	11.9	11.0	11.6	5.6	70
<i>Total</i>	100 (132)	100 (116)	100 (84)	100 (82)	100 (414)	100 (395)	809
Educational Level							
No education	2.3	6.9	4.8	6.1	4.8	2.8	31
Primary	21.2	69.8	76.2	61.0	53.9	58.2	453
Secondary	55.3	19.0	17.9	25.6	31.6	32.4	259
Tertiary / College	21.2	4.3	1.2	7.3	9.7	6.6	66
<i>Total</i>	100 (132)	100 (116)	100 (84)	100 (82)	100 (414)	100 (395)	809
Christian Denomination							
Others	7.6	3.4	2.4	6.1	5.1	4.3	38
Catholic	9.8	14.7	14.3	7.3	11.6	12.9	99
United	74.2	72.4	70.2	74.4	72.9	64.6	557
Pentecostal	8.3	9.5	13.1	12.2	10.4	18.2	115
<i>Total</i>	100 (132)	100 (116)	100 (84)	100 (82)	100 (414)	100 (395)	809
Income							
< K100	4.5	56.9	28.6	25.6	28.3	n.a	140
K101-K200	16.7	22.4	36.9	22.0	23.4	n.a	141
K201-K300	21.2	9.5	22.6	15.9	17.1	n.a	174
K301-K400	25.8	6.0	7.1	12.2	13.8	n.a	154
>K401	31.8	5.2	4.8	24.4	17.4	n.a	200
<i>Total</i>	100 (132)	100 (116)	100 (84)	100 (82)	100 (414)	100 (395)	809
Woman has child aged less than 6 yrs							
Yes	43.9	43.1	54.8	43.9	46.9	40.3	353
No	56.1	56.9	45.2	56.1	53.1	59.7	456
<i>Total</i>	100 (132)	100 (116)	100 (84)	100 (82)	100 (414)	100 (395)	809

Source: Fieldwork 2009 (Lavu 2009)

In terms of the income they earn, the majority of women on salaried jobs (formal sector activities) earn more than K300 per fortnight, while the majority of women selling betel nuts or cooked food (informal sector activities) earn less than K300 per fortnight. In the case of “Other” activities, the income earned in a fortnight seems to be spread across all income groups.

In all economic activity groups, the 395 women who said they depended on others could be classified as not being in the labour force. But they contribute to the sustenance of their household by washing clothes for the family, cooking and attending to other family events. Their roles as mothers or daughters in the household are valuable as they are engaged in housekeeping for the large households. However, this does not constitute an economic activity, as their work does not generate pay or profit.

The results reveal that being engaged in formal activities (i.e., in salaried jobs) has good returns in that the women in salaried jobs tend to earn more money than those engaged in informal activities. Further, the women working on salaried jobs have the highest levels of education of all women in the sample. However, even among those women who are engaged in informal employment, most have at least primary education.

In terms of childbearing and employment, the results in Table 5.1b show that more women with no young children were involved in the employment categories presented compared to those with young children. At least over 50 percent of those engaged in any one of the activities were those with no young children. However, the results also indicate that, a higher percentage of women who were engaged in selling cooked food and blocked cordial were mothers with young children. Therefore the results suggest that less participation of mothers with young children in the employment sector can be linked to formal time requirements and interest of the young children. Formal work times are inconvenient for many mothers with young children. On the one hand, preparations of food and blocked cordial are convenient for mothers with young children as they can also feed their young children in the process.

5.2.4 Participation in social and cultural activities

Women's involvement in various social and cultural groups plays an important role in their having access to information about issues ranging from learning about life and living a life based on the principles of their respective religious beliefs and about general upkeep of a family. For the Motu Koitabu people, belonging to a cultural group is generally inherited from ancestors. Being a member of a clan automatically confers upon the individual obligatory duties that are passed down generational lines. For example, women are expected to carry out a considerable amount of work relating to clan activities. This includes cooking food and spending long hours in a mourning house when the occasion arises. Similar duties are also expected to be performed in preparation for bride price events. These events are important and women feel obliged to attend to these duties. The present study acknowledges the importance of such customary obligations, but asked the women some specific questions about their affiliation with social groups and the activities they perform.

It was rather surprising that the majority (74 percent) of the women said that they did not belong to a social group (Table 5.2). The high proportion of them did not identify with a social group because they are already involved in activities of their respective clans as described earlier. However, the minority (26 percent) that did belong to a social group are important for this discussion. Nearly all of the 209 women (94%) who said that they belonged to a social group were involved in women's church fellowship groups (Table 5.2). This is where women commit themselves to weekly activities such as prayer meetings and helping those in need within the village in terms of basic necessities for livelihood. Such activities are commonly found in 'United Church' women's fellowship groups (not shown in the table). The United Church, founded in 1968, for example, builds on the work of the former Methodist missionaries, the London Missionary Society and the Presbyterians (Hauck *et al.*, 2005, p. 7). The United Church based teaching has influenced the way of life for the Motu Koitabu people since their entry in the 1800's. While many women reported their church as the United Church, the Pentecostal church has become popular over the years and the most prominent church (Haucker *et al.*, 2005, p. 6), the Catholic

Church is now one of the least common churches for women as reported by the women in the sample. The membership of the other churches is not significant.

Participation of women in church activities is important as their involvements in fund raising activities are often the main source of funds for church infrastructure projects. The funds from selling of art and craft and cooked food are donated to church overall administration costs and workers' allowances. Other activities are also very important which include visitations to the sick in hospitals and prisoners in jail. Such activities involve many hours of work and women volunteer to carry out these good deeds weekly. This is their way of life in this village.

People of the Motu Koitabu culture follow certain cultural practices to achieve the purpose of living in their society. The reasons for following such practices are varied, such as caring for the old, continuation of lineages and the expectation of being cared for in one's old age to name a few. In order to study their reasons for following these cultural practices, the study women were asked why they followed their cultural practice that made them feel like a Motu-Koitabu person. Among the possible reasons or expectations that are of customary nature, the most common reason or expectation was continuation of lineages, which was cited by a third of the women (32.6%). The next most common reason for following Motu Koitabu culture is celebratory ritual or belief, cited by 15.2% of the women, followed by old age support, cited by 12.0% of the women (Table 5.2). About 17 percent of the women stated that they did not follow any of the Motu Koitabu cultural practices.

Table 5.2. Social groupings

Percent distribution of women by social groups and cultural practices, Hanuabada, 2009.

Background characteristics	Female Population	
	Percent	Number
Belonging to a social group		
Yes	25.8	209
No	74.2	600
Total (%)	100.0	N = 809
Group		
Church	94.3	197
Non government	5.7	12
Total (%)	100.0	N = 209
Reasons for practising Motu Koitabu culture		
Old age support	12.0	97
Continuation of lineages	32.4	262
Security for the clan group	8.8	71
Other value	14.6	118
Celebratory ritual or belief	15.2	123
Did not follow Motu Koitabu culture	17.1	138
Total (%)	100.0	N=809
Sharing of bride price consumer goods		
Food - (garden food and pig)	3.6	29
Food (rice /flour /sugar)	5.2	42
All of the above	86.0	696
None	5.2	42
Total (%)	100.0	N = 809
Marriage approval		
Individual family (bride's or groom's)	3.8	23
Support from both families	19.4	117
My choice	76.7	462
Total (%)	100.0	N= 602
Husbands ownership of land		
No land	7.6	46
Users of land / land rights	8.8	53
Owners of land	83.6	503
Total (%)	100.0	N= 602

Source: Fieldwork 2009

With nearly one third of the women stating the continuation of lineages as the reason for following Motu Koitabu cultural practices, it is evident that these women will continue to have children to fulfil their Motu Koitabu customary expectations, where children are of great value. As for celebratory ritual or belief and other values, these

traits are also necessary to keep and maintain relationships within the group. The Motu Koitabu people celebrate births of the first born child and observe various customs that represent the mourning of a dead relative. For example, the wife of a dead man has to shave her hair off and choose to stay in a confined area in the house to observe her period of mourning and sorrow, except when she has to leave the confined area to answer nature's call. Such confinement ends only after a feast is organised to clear the way for the woman to walk freely around the village. Arranging and contributing to such feast activities, which are costly affairs, reflects a family member's solidarity and continuation to maintain their ties with the clan.

Bride price is also a very common social obligation that has always been significant in the lives of the Hanuabada people. In the traditional Motu Koitabu society, bride price payments used to include arm shells³ and food such as banana, yam, pigs and fish as the main items. In traditional Motu Koitabu villages, arm shells represented money, so that goods and services were paid for with arm shells. While arm shells are no longer used for payment for goods and services, they represent traditional money and are now used only at customary events such as bride prices and during mourning's.

Today cash is more rewarding for parents of the bride than arm shells. Although the other items of bride price are still valued, they are set aside for sharing amongst the extended family and clan members while the money is kept by the immediate family.

To collect information about bride price and its associated practice, the women were asked: 'Do you share with the clan groups wealth obtained from bride price?' Although garden produce was isolated from the processed goods such as rice, flour and sugar, nearly everyone that responded to the question said that they participated in all of the options, such as sharing of raw food such as garden food and pigs, processed food such as rice/flour/sugar, and Arm shells.

The practice of sharing bride price wealth is universal in the community. About 95 percent of the women said they shared the bride price wealth with their clans. These comprised over 80 percent who shared all kinds of bride price goods such as garden

³ An arm shell is made from Cowry shells and is carved out to fit the arm of a woman as she is the custodian of the shell.

produce, pork meat, rice, flour and sugar, five percent shared only rice/flour/sugar and three percent shared pork meat and garden produce (Table 5.2).

Information about marriage approval and husband's status on land ownership was collected only from married women. The Motu Koitabu people adhere to some important customs in relation to marriage and its associated practices. For example, only marriages recognised under Motu Koitabu custom are honoured with bride price because these payments constitute a large contribution to the status and well-being of the family. Further, in approving the marriage of a daughter, the groom's family status has to be approved by the bride's family. The act of marriage binds the two communities' together (Mantovani 1993, p 14). The Motu Koitabu people value the institution of marriage and related activities in their society against the customs mentioned above (Cavallaro 2005, p. 58).

In the old days, marriage decisions among the Motu Koitabu people were communal. This was where partners were identified and selected by family members, such as the girl's relatives or the boy's relatives. As long as the parties agreed to the arrangements, the marriages were approved (Cavallaro 2005). However, it appears that the current practice of the Motu Koitabu people is far from the customary point of view mentioned above. As shown in Table 5.2, about 77 percent of the marriage decisions among the women interviewed were made by the women themselves and in only about 18 percent of the cases, approval was given by both the parents of the bride and the groom. Decision by one individual family was rather uncommon.

Land is a very important asset among the people of Papua New Guinea, irrespective of where they live. The land belonging to the Motu Koitabu people is of interest in this study as current development projects and new settlements around the national capital continue to grow rapidly. As only three percent of the total land area of Port Moresby has been delineated for further development, the majority of the new settlements are being developed on land held under customary title (Chan and Yala 2008 p. 1) especially in the nation's capital city. The land where the nation's capital – Port Moresby is situated is owned by the Motu Koitabu people. They receive benefits such as rent, compensation for the land used in infrastructure projects, and even land

royalty payments to owners of the land. These have caused family disputes because some land owners do not get the benefits.

Recognising the recent dilemma in the mishandling of family disputes among recognised land owners, sometimes leading to violence, the respondents were asked a question about their husbands' land ownership status in order to determine the current ownership of land. The question was directed at the husband's status rather than the women's status, because the Motu Koitabu are a patrilineal society. Information obtained from this question shows that nearly 84 percent of the women were married to men who owned land (see Table 5.2). About seven percent of the husbands had no land and another eight percent were tenant farmers, i.e., they did not have land but had rights to farm other people's land, which could raise future ownership issues, in that often over several generations, people tend to claim ownership of land if they have farmed it for long periods.

The predominance of land ownership and land rights has implications for any royalty payments from development projects in the rest of the capital development area. If everyone has some rights to the land, then any one particular group would not demand royalty payments from development projects (Filer 2011, p. 17). These are current issues that hinder development within the urban areas and development projects in Papua New Guinea in general.

5.2.4 Exposure to mass media

Mass media play an important role in influencing people's opinions and attitudes about issues that affect their lives. For example, behavioural change communication (BCC) messages were found to be associated with increased use of contraception and intentions to use them (Gupta, Katende, and Bessinger 2003, p. 23). In this survey, the respondents were asked about their exposure to mass media by type of the medium. Table 5.3, shows the percentage of women interviewed according to their exposure to the three types of mass media: print media (newspapers) visual media (television) and audio media (radio) according to age, educational level and church affiliation.

In relation to the mass media, women access information that may influence their opinions and attitudes about issues affecting their lives. Radio was found to be the most popular medium, followed by the print media and television. Radio (at least in the form of low-cost transistor radio) is perhaps the most affordable of the three media types and television is perhaps the least affordable. Reading newspapers could be costly, being a recurring expenditure in order to buy fresh editions every day or every week, and it could also be restricted to only those who could read and understand the print media.

Reading a newspaper is linked to increased education and perhaps also listening to radio. It is clear that comprehending these two types of media requires some education. With highly organised women's fellowship groups, it is likely that members of the United Church are those who come from households that have TVs and radios and access to newspapers. They will listen to radio, read newspapers and watch television.

Table 5.3 Access to mass media

Percent distribution of women by mass communication media,
according to age, education and christian church, Hanuabada, 2009

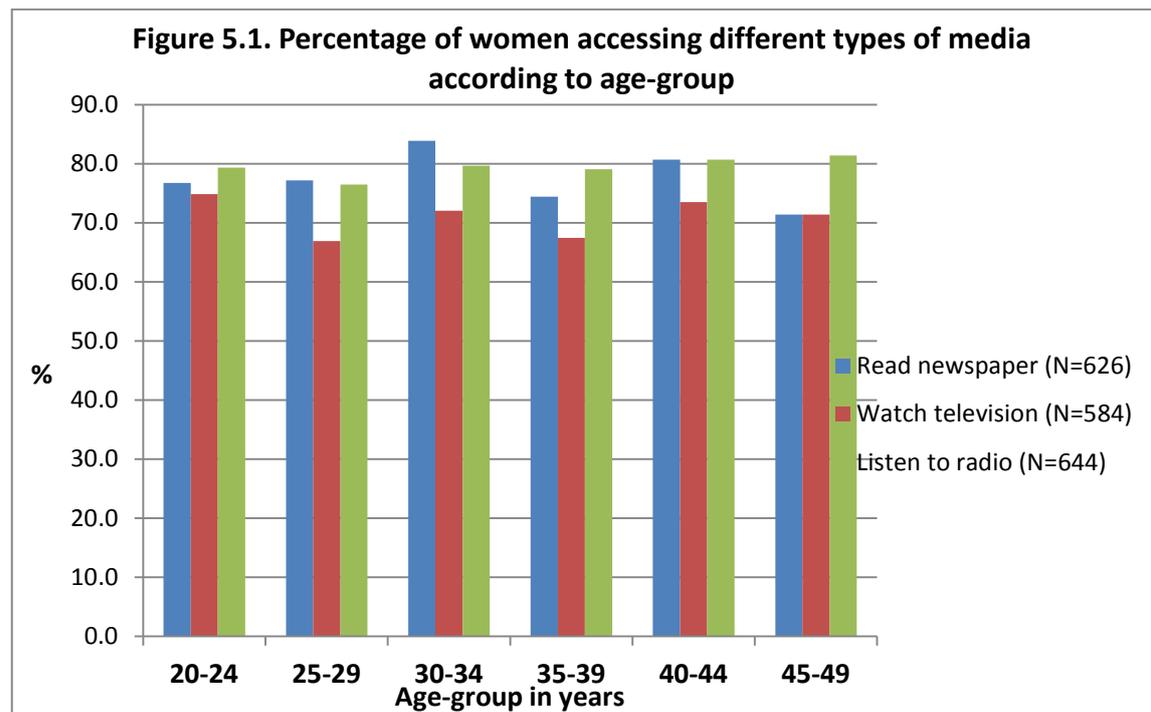
Background characteristics	Mass communication media			Number of women
	Read newspaper	Watch television	Listen to radio	
Age				
15-19	75.8	76.4	81.4	161
20-24	76.8	74.8	79.4	155
25-29	77.2	66.9	76.5	136
30-34	83.9	71.2	78.8	118
35-39	74.4	67.4	79.1	86
40-44	80.7	73.5	80.7	83
45-49	71.4	71.4	81.4	70
Total	77.4	72.1	79.5	809
Educational Level				
Never attended :	68.7	76.4	65.8	31
Primary	93.1	83.0	84.6	453
Secondary	92.0	92.0	80.0	259
Tertiary / Colleg	97.0	90.9	75.8	25
University	100.0	87.5	87.5	33
Total	79.0	79.8	73.1	801
Christian Church				
Lutheran	66.7	33.3	66.7	6
Catholic	73.5	70.4	75.5	99
United Church	80.9	74.1	78.4	557
Anglican	100.0	100.0	75.0	4
Pentecostal	74.8	65.2	73.9	115
SDA	100.0	100.0	100.0	2
Jehovas witness	100.0	66.7	83.3	18
Other	87.5	87.5	87.5	8
Total	79.7	72.2	77.6	809

Source: Fieldwork 2009 (Lavu 2009)

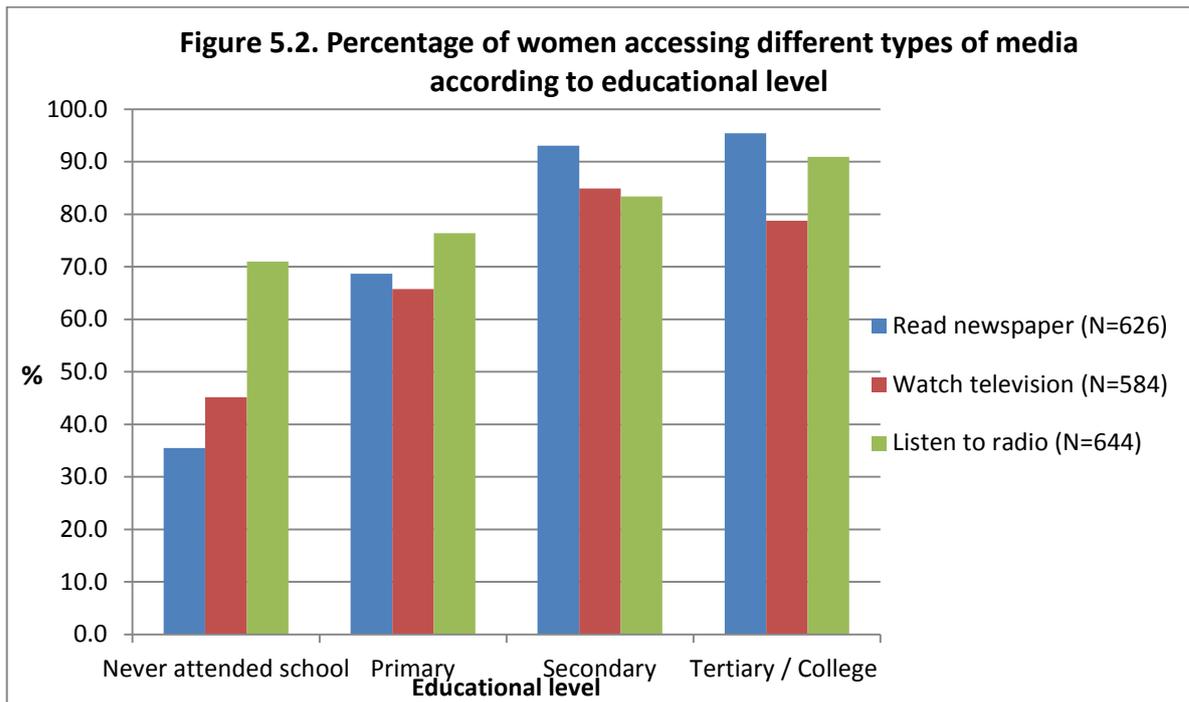
Overall, there is a high level of exposure of the Motu Koitabu women to all three forms of mass media (Table 5.3). However, there is no discernible age pattern or church pattern of exposure to any one form of mass media. But, it is found that education does exhibit some pattern in this respect. In general, the percentage of women accessing any form of mass media increases as educational level increases.

In order to obtain a better view of women's media access according to background characteristics, the data in Table 5.3 have been shown in the form of bar-diagrams (Figures 5.1, 5.2 and 5.3). These figures reveal no discernible pattern of media access either by age-group or by Church group affiliation, but there is a pattern according to educational level of the women. In general, the percentage of women accessing any

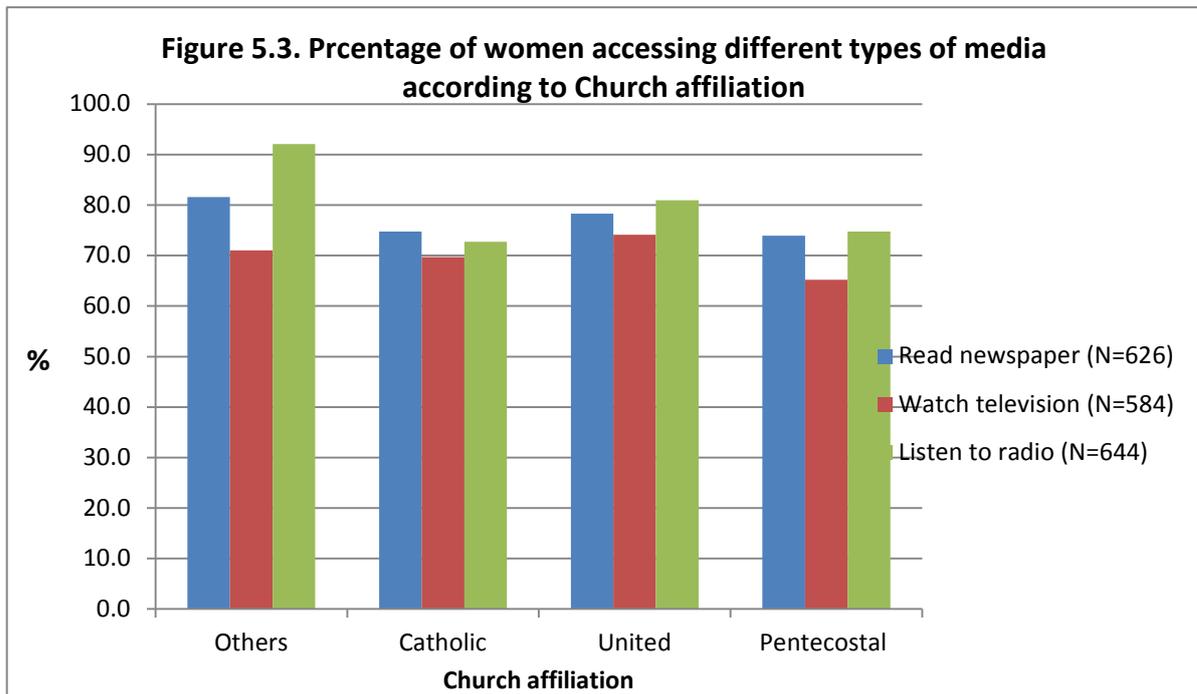
form of mass media increases as educational level increases, particularly with respect to reading newspapers and listening to radio. While listening to radio is the most prevalent of the three media types for women with Primary or lower levels of education, reading newspapers is the most prevalent media type for women with secondary or higher levels of education.



Source: Computed by the author from data collected in Fieldwork 2009.



Source: Computed by the author from data collected in Fieldwork 2009.



Source: Computed by the author from data collected in Fieldwork 2009.

5.3 Demographic characteristics

5.3.1. Marital status and age distribution

Marital status plays an important role in determining the chances of childbearing in societies where bearing children out of wedlock is not approved or practised. In some cultures, child birth occurs in marriages and marriage is almost universal (Pitso and Carmichael 2003, p. 189). In addition, the mean age at first marriage or union also is an important factor in the reproductive behaviour of couples and has far reaching consequences, such as on their health. In many developing countries, women marry young and are at the risk of child birth as often they are not physically ready to give birth. This study asked a question on marital status and recorded responses from individual women. About one quarter of the women said that they were never married, over 60 percent were currently married or living together in a union and 11 percent were either widowed, divorced or separated (Table 5.4).

In demographic studies, women aged 15 years to 49 years are recognised as those in the reproductive age group. As stated earlier in this chapter, this study interviewed a total of 809 women in the reproductive age group from 297 sample households in Hanuabada. Of these women interviewed, almost 40 percent are younger than 25 years of age. The median age of the woman is 28 years old. Table 5.4 shows that more than 50 percent of the women were aged below 35 years, the peak period of child bearing in moderate to high fertility populations, which implies the potential for high fertility. The age-distribution of the currently married women is, however much different from that of all women. First of all, less than five percent of the currently married women are aged below 20 years, but 57 percent are in the peak child bearing ages of 20 -35 years, or more than 70 percent in the extended child bearing ages of 20-40 years (Table 5.4).

Table 5.4 Distribution of women according to marital status and age-group, Hanuabada 2009

Marital Status	N		%	
Never married	207		25.6	
Married / living together	513		63.4	
Widowed	21		2.6	
Divorced	12		1.5	
Separated	56		6.9	
Total	809		100	

Age	All women		Currently married women	
	N	%	N	%
15-19	161	19.9	23	4.5
20-24	155	19.2	92	17.9
25-29	136	16.8	110	21.4
30-34	118	14.6	93	18.1
35-39	86	10.6	75	14.6
40-44	83	10.3	71	13.8
45-49	70	8.7	49	9.6
Total	809	100	513	100

Source: Field work 2009, (Lavu 2009)

5.3.2. Singulate mean age at marriage (SMAM).

The singulate mean age at marriage (SMAM) is a measure that refers to the mean age at first marriage among those who ever marry (United Nations 1983, pp. 225-229). This measure is based on the assumption that no marriages occur before age 15 or after age 50. This measure is based on the proportions single or proportions who are never married by age. The calculated SMAM of the women and men included in the sample is 21.1 years and 25.4 years respectively (for details of the calculation see Appendix Table 4.6). This reflects a slightly younger average age at marriage compared to the overall SMAM for PNG women, which is 21.8 years (National Statistical Office 2003, p. 95) and much younger compared to Fiji (22.9 in 1996), Indonesia (23.4 in 2005), Malaysia (25.11 years in 2000), Vietnam (23.3 years in 2007) and Thailand (24.1 years in 2000), but higher compared to Bangladesh (18.7 in 2004) or India (20.2 years in 2005) (United Nations 2008). In other Melanesian countries, such as Solomon Islands and Vanuatu the reported SMAMs are 21.2 and

22.6 years respectively, indicating similar average ages at marriage (<http://data.un.org/Documentsdata.aspx?id=22>).

5.3.3. Fertility and child mortality

Information about the number of children ever borne by these women and the number of children surviving, classified by age of the women has been used here to estimate the age-specific and total fertility rates of the Motu Koitabu women of Hanuabada and the infant and child mortality rates experienced by their children. The method of estimation is based on an indirect technique, developed by William Brass in 1968 and modified by various authors (United Nations 1983). The United Nations has recently developed a computer software known as MORTPAK (2003) incorporating several of the modifications mentioned above first.

The basic data used for estimating fertility and infant and child mortality consist of the number of children ever born and surviving, classified by age of women (all women, regardless of marital status), which are obtained from a set of questions asked of women during the survey. The total number of children ever born by sex was calculated as the sum of the following numbers:

- (1) The number of children ever born children and living in the household by sex;
- (2) The number of children ever born but now dead by sex;
- (3) The number of surviving children living elsewhere by sex.

Table 5.5 shows the number of children ever born and surviving by age-group of women.

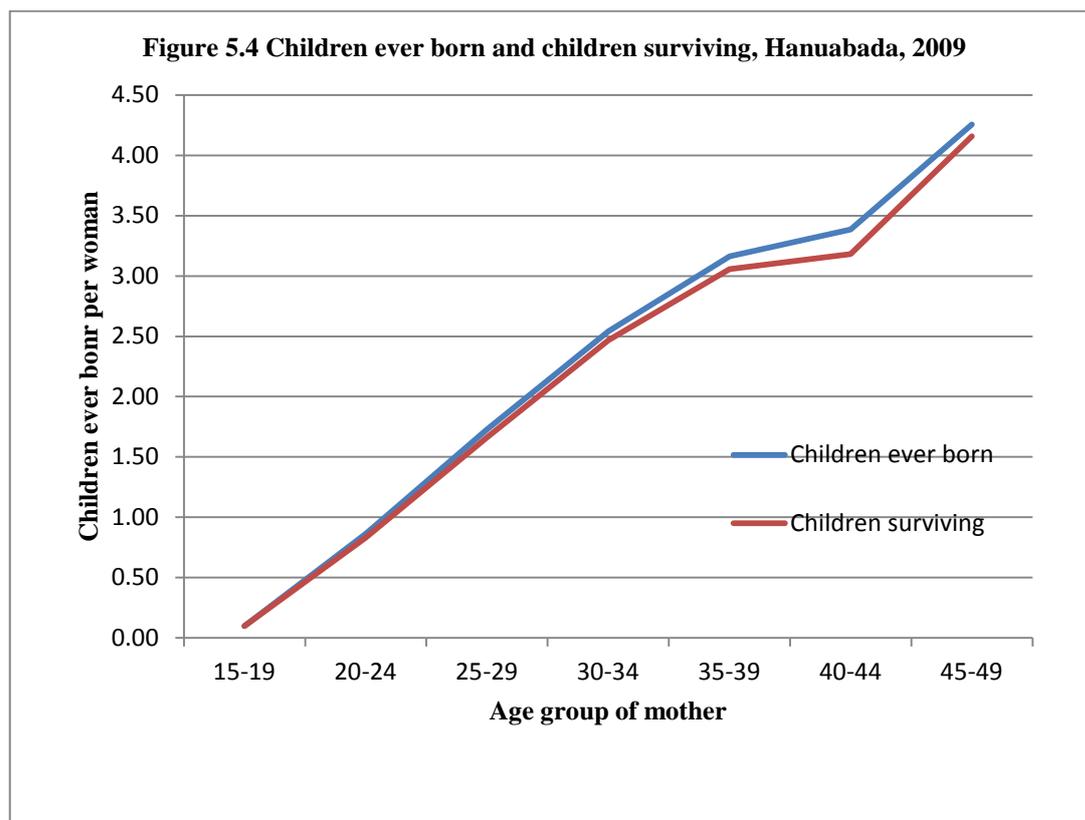
Table 5.5. Percentage distribution of all women (regardless of marital status) by the number of children ever born and surviving and mean number of children ever born and surviving by five year age groups, Hanuabada, 2009

Age group	0	1	2	3	4	5	6	7	8	9	10	Total children	No. of women	MCEB
Number of children ever born														
15-19	91.9	6.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	161	0.0994
20-24	41.3	36.1	19.4	1.9	0.6	0.6	0.0	0.0	0.0	0.0	0.0	134	155	0.8645
25-29	16.2	27.2	31.6	18.4	5.9	0.7	0.0	0.0	0.0	0.0	0.0	235	136	1.7279
30-34	8.5	13.6	27.1	28.0	15.3	4.2	3.4	0.0	0.0	0.0	0.0	300	118	2.5424
35-39	5.8	9.3	27.9	14.0	17.4	16.3	7.0	2.3	0.0	0.0	0.0	272	86	3.1628
40-44	9.6	13.3	7.2	19.3	21.7	15.7	6.0	6.0	1.2	0.0	0.0	281	83	3.3855
45-49	7.1	7.1	5.7	15.7	14.3	20.0	17.1	5.7	5.7	0.0	1.4	298	70	4.2571
Total	32.4	17.7	17.6	12.4	8.7	5.9	3.3	1.4	0.6	0.0	0.1	1536	809	1.8986
Age group	0	1	2	3	4	5	6	7	8	9	10	Total children	No. of women	MCS
Number of children ever born surviving														
15-19	91.9	6.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	161	0.0994
20-24	41.3	36.8	18.7	2.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	129	155	0.8323
25-29	16.2	29.4	30.9	18.4	4.4	0.7	0.0	0.0	0.0	0.0	0.0	226	136	1.6618
30-34	8.5	14.4	28.8	28.0	13.6	4.2	2.5	0.0	0.0	0.0	0.0	291	118	2.4661
35-39	5.8	10.5	26.7	16.3	17.4	16.3	7.0	0.0	0.0	0.0	0.0	263	86	3.0581
40-44	9.6	15.7	7.2	19.3	24.1	13.3	8.4	2.4	0.0	0.0	0.0	264	83	3.1807
45-49	7.1	7.1	5.7	15.7	15.7	21.4	15.7	7.1	2.9	0.0	1.4	291	70	4.1571
Total	32.4	18.7	17.4	12.7	8.5	5.7	3.3	0.9	0.2	0.0	0.1	1480	809	1.8294

MCEB: Mean number of children ever born; MCS: Mean number of children ever born surviving

Source: Field work 2009 (Lavu 2009)

The number of children surviving should not exceed the number of children ever born, and that the gap between the number ever born and the number surviving should widen with the age of the mother because of the longer exposure of the children to the risks of mortality. These conditions are met as apparent from Figure 5.4 which shows the data on the number of children ever born and the numbers of children surviving by age-group of women are consistent.



Source: Computed by the author from data collected in Fieldwork 2009

5.3.4. The distribution of women and life time fertility

The number of children ever born to a woman is a measure of her lifetime fertility. The results shown in Table 5.5 indicate that overall, the women from the sample have given birth to 1.9 children on average and the average number of children surviving per woman is 1.8. It is also seen from the upper panel of Table 5.5 that about 7 per cent of the women interviewed were childless (i.e., percentage of the 45-49 year olds who have not given birth to any child). This is rather high compared to Papua New Guinea 2006 as a whole where childlessness is reported to be 6 per cent (Demographic and Health Survey, Papua New Guinea 2006, Table 3.5), and much higher than the 4.9 percent childlessness in Indonesia reported at either the 2002-03 or 2007 Demographic Health Survey of Indonesia. On the other hand, the completed fertility of Motu Koitabu women, as indicated by the mean number of children ever

born (MCEB) of all women aged 45-49 years is 4.26, which is indicative of high fertility

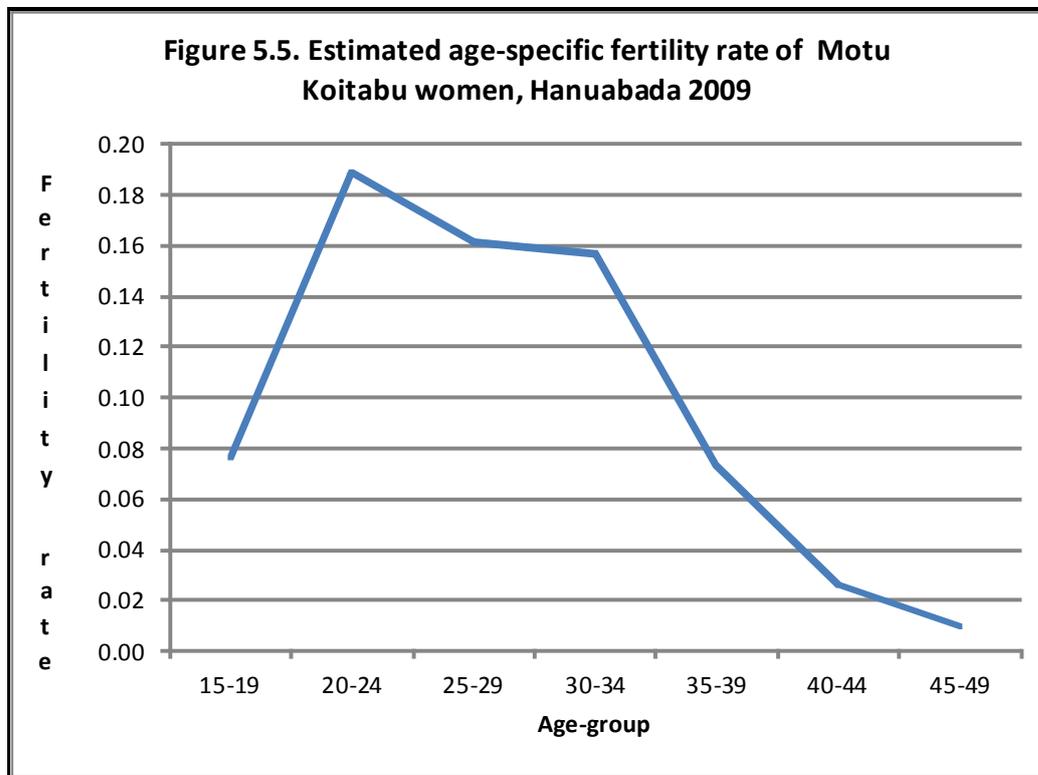
5.3.5. Estimates of current fertility

To estimate the current fertility rate for the study women, the P/F ratio method developed by Brass and others has been used (Brass *et al.*, 1968). This method adjusts recorded age-specific fertility rates for under-reporting with the help of multipliers based on the ratio of the number of children ever born or parity (P) at a specific age of the woman and cumulated fertility of the woman at the same age (F). An assumption of the Brass P/F ratio method is that fertility should have remained constant. It may be that this assumption is not met fully in the case of the Motu Koitabu women who, living as they are in the national capital territory, would surely have experienced some fertility decline. On the other hand, Papua New Guinea has experienced a very slow fertility decline. To overcome this problem of declining fertility, albeit at a slow pace, the Arriaga variation of the Brass P/F method in the MORTPAK FERTPF application has been applied for estimating current fertility of the Motu Koitabu women.

The method involves applying a correction factor based on the P/F ratio in different age-groups. According to the proponents of the method, this correction factor is best selected from one of three age-groups, namely 20-25 years, 25-30 years or 20-30 years because it is assumed that the reporting of the number of children ever born is most consistent among younger women of these ages. The output of the computer program provides estimates of women's mean age of child bearing, and age-specific fertility rates (ASFRs) and total fertility rates (TFRs) according to adjustment factors based on the three age-groups mentioned above.

In the present case, the estimate of the mean age of childbearing is found to be 26.57 years, and the estimates of TFR to be 3.24, 3.33 and 3.28 according to adjustment factors based on age-groups 20-25 years, 25-30 years and 20-30 years respectively. In order to get the benefit of consistent reporting from a wider age-span, the TFR corresponding to adjustment factors based age 20-30 years has been chosen here, which is 3.28. The age-specific fertility rates corresponding to this TFR are shown in Figure 5.5, which reflect the pattern of early childbearing peaking at 20-24, with a

plateau between age 25 and 30 and then declining again. The plateau is probably not real but rather the result of possible errors in the data.



Source: Computed by the author from estimates of fertility based on data collected in Fieldwork 2009

5.3.6. Estimates of early childhood mortality

This section presents the estimates of early childhood mortality comprising mortality between birth and the first year of life (infant mortality rate or IMR) and mortality between ages one and five (childhood mortality rate).

The method basically consists of converting the proportions of children dead by age-group of mothers into estimates of probabilities of dying between birth and ages 1, 2, 3, 4, 5 and so on, with help of a set of multipliers, originally developed by Brass (1968) and subsequently modified by Trussell, Heligman, Palloni and others (United Nations 1983; 2003). Data needed for this method are the number of children ever born (CEB) and the number of children surviving (CS), tabulated by age of mothers. The proportion of children dead among mothers aged 15-19 years corresponds to the

estimate of infant mortality (i.e., probability of dying between birth and age 1 year), the proportion of children dead among mothers aged 20-24 years corresponds to the estimates of the probability of dying between birth and age 2 years, the proportion of children dead among mothers aged 25-29 years corresponds to the estimate of the probability of dying between birth and age 3 years and the proportion of children dead among mothers aged 30-34 years corresponds to the estimate of the probability of dying between birth and age 5 years (United Nations 1983). The application called CEBCS contained in MORTPAK for Windows (Version 4.0) (United Nations 2003), allows one to estimate various measures of early childhood mortality. The choice of the estimates depends on which age-specific mortality pattern is the most appropriate for the data under investigation. The outputs of the CEBCS program comprise estimates referring to nine models of mortality.

Past experience in estimating early child hood mortality in PNG is closely aligned with the reasons of incompleteness and deficiency of death registration by the Civil Registration Systems (NSO 2003). As the vital registration system is yet to improve, an appropriate model has to be chosen for the present estimation. In the present case, the Far East Model of the United Nations Palloni-Heligman Equations (Bakker 1986a; Hayes 1996) has been used because past estimates of mortality in PNG have been based on this model. The reason for choosing the Far Eastern pattern is that adult mortality rates are high relative to infant and child mortality (Hayes 1996 p. 26).

Further, estimates of infant mortality rates, based on the proportion of children dead among mothers aged 15-19 years are seldom used, because of instability of data due to generally small sample sizes of mothers in this age-group, and the very high risk of infant mortality among children of mothers as young as 20 years or less. These would not represent the true infant mortality rate across the entire population sample being examined. Instead, the estimate of the probability of dying between birth and age 2 years, based on the proportion of children dead among the children ever born to mothers aged 20-24 years, which is more stable is used for estimating infant mortality rate based on the appropriate model life table.

Based on information given in Table 5.6 and the appropriate model life tables, the infant mortality rate was 33 per 1,000 births. The estimate of IMR for Papua New Guinea 2001-2006 is 57 per 1,000 live births (Demographic and Health Survey of PNG 2006).

5.4 Summary

In this chapter, the socio-economic and demographic characteristics of the study women have been analysed. A knowledge of these characteristics is essential in understanding social change and how the study women respond to such change.. Generally, most of the study women are found to be educated to primary level; higher levels of education are rare in this society. In general the women are found to be engaged in some economic activities because financial needs are paramount in the face of very limited subsistence fishing and farming. Some of the women are engaged in salaried jobs, while other women are engaged in informal economic activities to sustain their livelihood in this village. While the salaried jobs are valuable in that they provide income, the other informal economic activities such as selling betel nut and cooked food with blocked iced cordial provide substantial contributions to the family survivorship. A significant number of the women depend on other household members for their livelihood.

Under local cultural norms people continue to live in their own group as they need the support to live in an urban environment. Many women were married to landowners, which supports their quest for maintaining the continuity of their clan lineages. These customary norms are valuable as marriage and benefits from the bride price payments provide considerable support to these people's way of life. Family support is maintained through cultural activities, such clan gatherings, church groups and social gatherings.

In relation to the mass media, women access information that may influence their opinions and attitudes about issues affecting their lives. Radio was found to be the most popular medium, followed by the print media and television. Radio (at least in

the form of low-cost transistor radio) is perhaps the most affordable of the three media types and television is perhaps the least affordable. Reading newspapers could be costly, being a recurring expenditure in order to buy fresh editions every day or every week, and it could also be restricted to those who could read and understand the print media.

In addition, reading a newspaper is linked to increased education and perhaps also listening to radio. It is clear that comprehending these two types of media requires some education. With highly organised women's fellowship groups, it is likely that members of the United Church are those who come from households that have TVs and radios and access to newspapers. They will listen to radio, read newspapers and watch television.

In relation to the current fertility situation for these women, estimates for the mean age at childbearing is found to be 26.57 years, and the estimates of TFR to be 3.24, 3.33 and 3.28 according to adjustment factors based on age-groups 20-25 years, 25-30 years and 20-30 years respectively. In order to get the benefit of consistent reporting from a wider age-span, the TFR corresponding to adjustment factors based on age 20-30 years has been chosen here, which is 3.28.

Based on information on children ever born and children surviving and the appropriate model life tables, the infant mortality rate was 33 per 1,000 births. The estimate of IMR for Papua New Guinea 2001-2006 is 57 per 1,000 live births (Demographic and Health Survey of PNG 2006).

The remainder of the research builds on the background characteristics by assessing relationships with the backdrop of the demographic behaviours such as fertility, mortality and migration. To an extent aimed at describing the reasons relating to these relationships. Chapter 6 will model the relevant characteristics against the experiences of childbearing and child loss.

CHAPTER 6 - EXPERIENCE OF CHILDBEARING AND CHILDLOSS IN HANUABADA

6.1 Introduction

Socioeconomic and cultural factors are central to the understanding of fertility and mortality and their differentials in populations. Any association of socioeconomic and cultural factors with fertility and mortality has significant impact on planning social programs, population policies and population research in general, as these factors guide the formulation of appropriate policies and programs. This chapter examines the experience of child bearing and child loss among the Motu Koitabu women of Hanuabada in order to understand the fertility and mortality dynamics in this population group. Section 6.2 – 6.7 of this chapter is devoted to analysing the experience of child bearing and Section 6.8 – 6.9 is devoted to analysing the experience of child loss and the socio-economic and cultural factors associated with them. Section 6.10 provides the summary.

6.2 Background

In general, traditional societies of Papua New Guinea favoured high fertility where women were encouraged to have a large number of children (Agyei 1984, p. 323; McDowell 1988, p. 11). Fertility was kept high because of high infant and child mortality (Agyei 1984, p. 328). In addition, high fertility was associated with support in old age, happiness for the family, financial advantage (more children will bring in more income) and the status and strength of the clan/family (Agyei 1984, p. 328). However, in the course of time, improvements in the availability and provision of health services contributed to declining infant and child mortality. With fertility remaining high, this led to a greater number of surviving children in the family. The Motu Koitabu society, located in the urban setting of Papua New Guinea's capital city – Port Moresby is no exception to the social norm of high fertility described above. However, as the Motu Koitabu society adapts modernisation into their social and cultural way of life, their childbearing behaviour is expected to change. Hanuabada, the site of the present study is a Papua New Guinean traditional village that has for many years been exposed to

western influence, which has had a long standing impact on their demographic behaviour (Belshaw 1957, p. 1). For this reason, as mentioned earlier this makes it an ideal village for the present study.

The experience of childbearing among women of Papua New Guinea has been influenced by several socio-economic and cultural factors such as belonging to social groups and fellowship programs. In more modern times, the use of family planning by women of Papua New Guinea has been identified as a factor contributing to changes in child bearing (NSO 2009, p. 56). In this context, women's knowledge about family planning and source of family planning methods is important in understanding their ability to make informed decisions about using family planning to control their fertility. Such knowledge enhances their ability to delay and limit the number of children (Charlie et al., 2011, p. 14). In this context, the influence of various factors on family planning use will be discussed here.

First, the chapter aims to investigate selected background factors influencing women's childbearing as indicated by their fertility taking one factor at a time (i.e., through a bivariate analysis). Second, this chapter examines the use of family planning methods by these women and the factors that are associated with such use. Third, this chapter examines the simultaneous influence of several background factors on child bearing experience (through multivariate analysis). Finally women's experience of child loss is examined against the backdrop of similar background factors. Estimation of fertility and child mortality and data issues are discussed where appropriate.

6.3 Experience of Childbearing by Background Factors

The data presented in this section provide a description of the characteristics related to having children and using family planning for married women in the ages of 15-49 years. Among a list of characteristics identified from the data obtained from fieldwork, Tables 6.1 provides data for the discussions about childbearing experience against a backdrop of selected background factors.

6.3.1. Respondent's Profile

The profile of all women in the sample has been discussed in Chapter 5. The present chapter presents the profile of ever married women aged 15-49 years only because almost all of the women who have children are married. Even if a woman became pregnant before marriage, arrangements were made to get her married, sometimes to a man who did not father the child (Bulmer, 1971. 138). This is also observed to be true of the Motu Koitabu people.

According to the results of the present study, over 20 percent of the women are in the youngest age group, over 50 percent are in the ages of 20 – 39 year of age, and almost one third are older. The mean age of the ever married women in the study is 32.37 years and the mean age at first marriage is 21.23 years. The mean age at first child birth is 21.92. Further, the mean number of children ever born (MCEB) per ever married woman was 2.52.

6.3.2. Childbearing according to background factors

It is argued that 'the higher densities and non-agricultural economies of urban places generally serve to reduce the demand for children, and with fewer children to deal with, women, in particular, are better able to improve their educational levels, participate more fully in the paid labour force, and become financially more independent, all of which provide additional incentives to limit the level of reproduction' (Weeks *et al.*, 2004, p. 74). While the characteristics of Motu Koitabu could possibly fit Weeks's description mentioned above, because they live in a non-agricultural economy in an urban setting, but their situation does not fully conform to that described by Weeks. For example, they live in extended families in a traditional village surrounded by urban setting. They also live in larger households as discussed in Chapter 4 of this Thesis. This creates difficulty in making decisions that are not just about their individual well-being but also about their immediate families and the extended family within a household.

The association of all the background factors thought to be related with fertility of Motu Koitabu women has been tested by using the χ^2 (Chi-squared) statistic. Those background factors that showed no statistically significant association with fertility have been omitted from further discussions. About six background factors were found to have statistically significant association with fertility and the subsequent discussions are limited to the significant factors.

Columns 2 and 3 of Tables 6.1 show the percentages of ever married women in the age range 15 to 49 years according to children ever borne (CEB) by them in association with selected background characteristics. In Table 6.1, women have been classified into two groups: those with 4 or fewer children and those with 5 or more children. This grouping criterion (4 and less and 5 and more) is based on the PNG Government's aim to achieve a total fertility rate of 4.0 by 2015 (PNG Medium Term Development Plan 2010-2015. p. 92).

Of the six variables identified as being significantly associated with fertility, the age of the woman is the most important factor that influences the number of children ever born to a woman. In fact, all the associations shown in this table may be confounded by the influence of age of the women. With a chi-square value of 135, it is the most important factor that contributes to fertility. As, age of the woman increases, the proportion of women having 5 or more children ever born also increases. This is to be expected, as age of the woman signifies the length of exposure to chances of child bearing. Therefore, the effect of age must be controlled for in order to examine the effects of the other factors on CEB. This has been done later in this chapter by using the statistical technique of Multiple Classification Analysis.

The ideal number of children a woman would like to have is an aspiration, especially when there are many obstacles that prevent them from achieving the ideal number that they would like to have. In this study information about 'ideal number of children' was collected based on a hypothetical question addressed to mothers, and to women who have not had a child yet, asking them to imagine going back to the start of child bearing and to state the number of children they would like to have in their entire reproductive life.

Table 6.1 Percentage distribution of ever married women according to demographic and socioeconomic variables and the number of children ever born (CEB), Hanuabada, 2009.

Demographic and Socioeconomic variables	Percentage of ever married women by CEB*		Total (parentheses show the number of women)	χ^2
	≤ 4	≥ 5		
Age				135.129 ^a
15-19	100.0	0.0	100 (27)	
20-24	99.1	0.9	100 (108)	
25-29	99.2	0.8	100 (123)	
30-34	91.8	8.2	100 (110)	
35-39	73.8	26.2	100 (84)	
40-44	70.7	29.3	100 (82)	
45-49	48.5	51.5	100 (68)	
Total			100 (602)	
Ideal number of children				126.605 ^a
1 child	100.0	0.0	100 (17)	
2 children	96.7	3.3	100 (92)	
3 children	94.2	5.8	100 (103)	
4 children	84.3	15.7	100 (223)	
≥ 5 children	48.9	51.1	100 (94)	
No answer	100.0	0.0	100 (73)	
Total			100 (602)	
Age first birth c				39.100 ^a
≤ 18 years	65.0	35.0	100 (40)	
18 years	68.9	31.1	100 (45)	
19-20 years	83.6	16.4	100 (116)	
21-24 years	83.2	16.8	100 (214)	
≥ 25 years	92.2	7.8	100 (116)	
Total			100 (531)	
Modern family planning use				15.726 ^a
Yes	92.1	7.9	100 (229)	
No	80.2	19.8	100 (373)	
Total			100 (602)	
Income (PNG Kina)				12.110 ^b
Less than K100	73.7	26.3	100 (95)	
K101-K300	87.5	12.5	100 (80)	
More than K301	89.0	10.6	100 (160)	
No wages	85.0	15.0	100 (267)	
Total			100 (602)	
Skills through informal learning^d				7.552 ^b
Yes	76.1	23.9	100 (109)	
No	87.5	12.5	100 (415)	
Total			100 (524)	
Belong to a social group				17.816 ^a
Yes	75.5	24.5	100 (188)	
No	88.1	11.9	100 (414)	
Total			100 (602)	

* CEB of 4 and 5 and more is based on the PNG government's aim to achieve a total fertility rate of 4.0 by 2015 (PNG Medium Term Development Plan 2010-2015, p. 92)

a: $p < 0.01$ b: $p < 0.05$

c: excludes women who did not give birth; d: excludes those with formal training.

Source: 2009 Field work (Lavu 2009)

It is found that the actual fertility performance of the Motu Koitabu women (as indicated by the number of children ever born) is consistent with their ideal number of children. For example, more than one half (52.1%) of the women with high fertility (CEB ≥ 5) have stated their ideal number of children as more than 5. On the other hand, more than 65% of the women with low fertility (CEB ≤ 4) have stated 3 or 4 children as their ideal number. In this society, where children are highly valued, the fear of being childless and even fewer children reflecting them as unworthy women and wives. However, an element of rationalisation in stating the ideal number of children cannot be ruled out, in that women with larger number of children would also state larger number of children as their ideal because women who already have a large number of children ever born to them would not state a smaller number as their ideal and give the impression that some of their ever born children are not ideal or desired.

A woman's age at first birth signifies the start of her childbearing and symbolises her transition into motherhood. The results in Table 6.1 suggest that more women started child bearing early. This is consistent with the fact that as women enter into child bearing early, their early entry gives them a longer period of exposure to sexual intercourse and in turn increases the chances of conception and having successful births.

The results also indicate that the younger the age at first child birth, the greater are the chances of the women having had 5 or more CEB. This might not be true if the women starting childbearing early had practised family planning to space and to limit child bearing. Table 6.2 shows that 229 out of 602 or only 38 per cent of the women had used a modern method of family planning. It is also seen from Table 6.1 that a much greater proportion of women using a modern method of family planning had 4 or fewer children compared to those not using a modern family planning method. In the Motu Koitabu society, the birth of a child is an event of great social and individual significance and its importance is recognised by the society. The birth of a child signifies the transition of a couple into a new social status. Couples with a newly born child move into being parents with all its related expectations and responsibilities. In Papua New Guinea, childbearing mostly occurs only within marriage, but in some traditional societies of the country, if an unmarried girl becomes pregnant and if this is

considered taboo, the girl is married, before the child is born, to the man who fathered child. But sometimes the pregnant girl is made to marry some other man (who did not father her child) who is not of her liking (Bulmer 1971, p. 138). This creates unhappiness in the family.

With limited farming and fishing for family sustenance, cash economy has dominated the people's way of life in Hanuabada. It is likely that the demographic behaviour of the Motu Koitabu living in Hanuabada is likely to be that of urban women. This places them in a cash economy working environment. Past studies have found that women who work for cash for a non-family enterprise have lower fertility than non-working women (Muhuri *et al.*, 1994, p.7). This is also the case for Hanuabada. According to the results obtained from the study, income is found to influence childbearing. This is consistent with the Bongaarts model that explains the influences of socioeconomic factors on fertility, in particular higher education and higher income is associated with decreasing fertility (Bongaarts 1978).

As shown in Table 6.1, the proportion of women with four or fewer children tends to increase with increasing income. Conversely, in particular, the proportion of women with five or more children decreases with increasing income. In other words, women's income is inversely associated with fertility (see Table 6.1). While the small family norm is true for women who were earning an increasing income, it is not true for those who were not earning an income but were dependent on other members of the family. A higher proportion of these dependent women also had a small family size, compared to the lower income category in the group. These women are supported by members of the same household who work for money and their reproduction decisions are influenced in some way by those that provide the support.

The women who are dependent on the household members are mostly members of the United Church (66%). About 57 percent use family planning and the majority (59%) are with primary education qualification (see Appendix Table 6d). These women are dependent on other members for their survivorship and it may be that the household environment is conducive to the small family size norm. This dependence is not only limited to being fed when they need food, but extends to other factors that influence

these women's decision, including their reproductive decision. For example, a 37 year old woman with 3 children said when responding to this question; Are there other people who influence your decisions about your family sizes?.

My husband and I make these choices as he works for money and I have to support him in any way I can. If he thinks he should have another child, I will gladly have another boy. (A 37 year old woman)

Another respondent to the same question had this to say,

In my marriage life, only my husband and I talk about issues relating to family. This includes family planning and how many children we should have. After the death of our other 3 children, he decided that we should stop as three infant deaths were too painful. So really even if people especially women come and comment and say that I should have one or two more children, my husband has the last say. (A 42 year old woman)

In the two cases, reproductive decisions are made by the couple and in both cases, having another child is dependent on the husband's decisions. However community members also try to exert their influence as stated by these 42 years old woman.

Acquiring skills through informal learning in this society is important for a number of reasons. Firstly, learning an art such as making earrings or necklaces, sewing and cooking are valuable skills. A completed item is usually sold to earn money to support the family in buying food and other necessities. A large proportion of women reported small family sizes whether they acquired informal skills or they did not (76% and 88 % respectively). This is similar to the findings that are represented by income and fertility in this study as discussed earlier. However the informal skills acquired by the 24 percent with larger family sizes in the study are important as learning a new skill is important as they need such skills to create items to sell to support their families.

The skills that are gained through informal learning refer to learning life skills from other women during women's fellowship gatherings. There is one day set aside in each week for women to participate in these meetings. The women's fellowship meetings are guided by four programs. Each woman belongs to a fellowship group. The groups follow four themes, which are education, service, devotion to God and

recreation. For example, in the education program, often skilled women are invited as guests to speak on a specific issue or teach women a specific art or cooking a special dish. The main activities relate to life skills such as basic hygiene, sewing, earring and necklace making, sewing and cooking. Service programs include visitation to the prisoners and hospitals where women share the word of God and donate small gifts in the form of food and basic hygiene to prisoners and sick people and their careers. Recreation is about physical fitness, where sports such as volleyball and netball are played. Most importantly, the devotion day is based on Christian bible teaching, praying and singing. The aim of these weekly fellowships are to help women to be more resourceful in their daily lives as the majority are homemakers and often do not have the privilege to learn new skills.

However, only a small minority of the women interviewed join the fellowship groups as many who said that they did not join these social groups are heavily involved in the clan fellowships. Every woman belongs to a clan in Hanuabada- it may be her maternal clan or the husband's clan. The clan fellowships programs are a replica of the women's fellowship programs. More women participate in clan activities with their respective clan members than they do in church women's fellowship activities, because it is obligatory on the women's part to participate in clan activities. This is because any activity carried out by women in their respective clans is regarded as ultimately an activity of the clan carried out for the church and the society. In addition, the women's fellowship programs are usually held at times which may be inconvenient to the women as they have their household chores to attend to. This is not to say that the local church women's fellowships and their activities are not important. Rather, as mentioned before, all the activities these women participate in at the clan level are recorded as activities for the local church women's fellowship who in turn report to the Church assembly. The local church women's fellowship represents the voice of Hanuabada women outside of the village.

Women of the Motu Koitabu community belong to the electoral constituency of the only woman politician in the Government of Papua New Guinea, and this woman politician advocates informal skills training. She represents her constituency with the hope that new values, aspirations, and a new outlook on life as well as skills required

for further opportunities are acquired by her constituents. While formal education has its own value, the low keyed women's fellowship meetings and the gossips that occur among these women are quite important in their daily lives. This in turn increases the opportunities for them to make decisions that are beneficial for them and their families.

According to the results obtained from the study, belonging to a social group is found to influence childbearing. In Table 6.1, high proportions of women with 4 children or less were either in the category of belonging to a social group or they were not. By categories, about 76 percent of those with 4 children or fewer belong to a social group and 89 percent did not belong to a social group. The 25 percent that had 5 children or more are likely to be in the social groups for economic and social support, as feeding many children in this village is a struggle according to observations during field work.

In this society, although large household sizes are supposed to be the origins of social support and creators of extensive social networks, the daily livelihood of each individual family shows a different situation. Families do not receive adequate support, a situation that continues to exist as indicated by the individual in-depth interviews with the sample women. One woman expressed such view who feels that life is not as easy as it seems. The pressure of having many people in one household was a concern to this woman and this is what she had to say:

'If I have another child, where is our bedroom? This is our space, the rooms inside the house are all full. My husband has to try every day to catch fish so I can sell them and buy soap and biscuits and flour for the children' [a 25 year old woman with three children].

In contrast, there is still hope of living a reasonable life if there is one working person amongst the family members. However, reproductive decisions of having more children are also dependent on the household situations as indicated below.

'I want to have more children as you can see. I only have two but I see that life is hard for me as there are too many of us in the house. My husband is the sole bread winner and the 10 of us depend on his fortnightly wages and this is hard, but having one meal is fine' [a 29 year old mother].

The pressure of the urban lifestyle dictates their reproductive decision making. While their intentions are to have children, the support for family sustenance is not adequate.

Other factors such as being members of a particular church and culture were found to have no association with the number of children ever born (CEB) to women (not shown here). It seems that whether women attend women's fellowships or other Church meetings, their decisions about the number of children are taken at the family level. The specific issues on cultural norms such as old age support, continuation of lineages and rituals and celebratory values observed in this community were found to have no significant associations with CEB (see Appendix Table 6a). Rather, women's child bearing experiences are dependent on other factors shown in Table 6.1 and are discussed where appropriate. Still other social and cultural factors such as marriage, or approval and ownership of land by spouses did not have a significant relationship with the women's childbearing experience. The cultural practices of benefitting from bride price wealth and to share among families also did not have a significant relationship with their fertility. See Appendix Table 6a for these results.

The demographic and family planning variables such as age, age at first birth, and ideal number of children and family planning use were significantly associated with childbearing as shown in Table 6.1. Overall, about 85 percent of the ever married women had 4 children or less (see the category totals in Table 6.1). Despite the higher percentage of them having less than 4 children, highly significant variations were found between the categories in each of the background factors concerning fertility (Table 6.1). The age of the woman is obviously the most important factor that influences the number of children ever born to a woman. As, age of the woman increases, the proportion of women having had 5 or more children ever born also increases. This is to be expected, as age of the woman signifies the length of exposure to chances of child bearing. Since the woman's current age is related with other

factors such as age at first child birth, income, and ever use of contraceptives, the effect of age must be controlled for in order to examine the effects of the other factors on mentioned above on the CEB, This has been done later in this chapter by using the statistical technique of Multiple Classification Analysis.

Women's age at first birth is an indicator of the start of childbearing and this symbolises a woman's transition into motherhood. It plays an important role in the future life of each woman and has a direct relationship with childbearing. The results in Table 6.1 suggest that more women started child bearing early. This is consistent with the fact that as women enter into child bearing early, their early entry gives them longer period of exposure to sexual intercourse and in turn increases the chances of conception and having successful births.

The results also indicate that the younger the age at first child birth, the greater are the chances of the women having had 5 or more CEB. This might be true if the women starting childbearing early had practised family planning to space and to limit child bearing. As seen in Table 6.2, 373 out of 602 or 62 percent of the women had used modern family planning. It can also be seen from Table 6.1 that a greater proportion of women who had used modern family planning had 4 or fewer children compared to the women who had not used family planning. Thus the use of family planning has an effect on the study women as a much larger majority of women reporting 4 children or fewer had ever used family planning, compared to women having 5 or more children.

In the Motu Koitabu society, the birth of a child is an event of great social and individual significance and its importance is recognised by the society at large. Birth of a child signifies the transition of a couple into a new social status. Couples with a newly born child move into being parents with all its related expectations and responsibilities. As mentioned earlier, childbearing in papua New Guinea occurs mostly only within marriage, and in some traditional societies of the country, it is considered taboo if an unmarried girl becomes pregnant. In such cases the girl is married off before the child is born, to the man who fathered child. But to the unhappiness of the family, sometimes the pregnant girl is made to marry some other man (who did not father her child) who is not of her liking (Bulmer 1971, p. 138).

The ideal number of children a woman would like to have is often an aspiration, especially when there are many obstacles that prevent them from achieving the ideal number that they would like to have. In this study information about ‘ideal number of children’ was collected based on a hypothetical question addressed to mothers, and to women who have not had a child yet, asking them to imagine going back to the start of child bearing and to state the number of children they would like to have in their entire reproductive life.

Women were asked the number of children they would have liked to have if they were to start child bearing all over again. This is termed as ideal number of children. It is found that the actual fertility performance of the Motu Koitabu women (as indicated by the number of children ever born) is consistent with their ideal number of children. For example, as the ideal number of children increases greater proportions of women are seen to have 5 or more children ever born. In this society the fear of being childless and even fewer children will reflect badly for them as women and wives. Children are valuable in this society. However, an element of rationalisation in stating the ideal number of children cannot be ruled out, in that women with larger number of children would also state larger number of children as their ideal because women who already have a large number of children ever born to them would not state a smaller number as their ideal and give the impression that some of their ever born children are not ideal or desired.

There are additional factors that may influence the desired family size; as stated by a 36 year old woman who operated a roadside stall where she sold iced blocked cordial and biscuits, she says,

My intentions were to bear 10 children. This idea was my dream as my grandmother had ten children and in her old age she had many children who were caring for her. I saw the care and support given and I think this should be given to me in my old age but with the situation I am in, with my husband not working and we have 4 boys, it may not happen (36 year old with 5 children).

Others shared the similar reasons why they desire for their ideal family size;

Children are important for me and having many children is good. They need each other to be happy together. In future they will support each other and look after each other. For example now my two big boys are fishing and selling and the money they earn help the family to buy rice for dinner. I will not have the number of children I want (35 year old mother)

Family planning plays an important role in limiting the number of children that women would like to have. Among the study women, family planning knowledge is high and also a high proportion of them know a source (see Table 6.2). This is consistent with what has been found in other developing countries as in most countries, the majority of women know of a family planning method and their knowledge about family planning sources are also high (Khan, *et al.*, 2007, p. 10). While there may be variations in the knowledge of what methods they know, according to this study, a high proportion of women indicated that they had less than four children irrespective of whether they ever used modern family planning or never used modern family planning. It can be summarised that more women in the study using family planning had smaller family sizes and proportionately more women not using family planning had larger families. But this could all be influenced by age, as younger women would have a greater propensity to use family planning. As mentioned towards the beginning of this section, all the associations shown in this table may be confounded by the influence of age of the women.

6.4 Family Planning - knowledge, source and use

6.4.1. Introduction

Knowledge about family planning methods and where to obtain them (source) is important in helping women in making decisions to use them. Family planning use is important in protecting women's health and rights, and impacting upon fertility and population growth. While more and more women are becoming aware of their responsibilities to delay and limit their childbearing, other factors are considered important in a traditional Papua New Guinea village situation. Making decisions about family planning use provides valuable information to create future policies for family planning.

Bongaarts and others (1984, p. 516) grouped the demographic factors that influenced fertility into two general groups: those that are responsible for higher fertility (shorter periods of breastfeeding, shorter periods of postpartum abstinence, and declines in pathological sterility), and those that are responsible for lower fertility (rising age at marriage and higher contraceptive use). On the basis of these groups of factors, the family planning methods are grouped in two; the modern family planning methods which include condoms, oral pills, intra uterine contraceptive device (IUCD), injectables, and female and male sterilisation, and traditional methods which include rhythm and withdrawal methods and other methods such as herbs and *special water*. *Special water* is prepared from ordinary water and given to woman to prevent conception. This is only administered by a person who inherits the powers of making special water from older family females. This is just an ordinary drinking water that has been chanted on by a person annointed in the spiritual world. It may work for a waman who believes in the powers of *special water* but there is no scientific proof to indicate that it is a successful family planning method. But again, this needs further research.

6.4.2. *Knowledge of Modern and Traditional Family Planning*

Women were asked about various ways by which couples can delay or avoid pregnancies, ways or methods that they have heard about and the sources from which they could obtain such methods. Knowledge of family planning is considered the first stage toward the adoption of a contraceptive method. Globally, knowledge of contraception is high, and it is almost universal in most countries studied although there are variations (Khan *et al*, 2007, p. 9). According to the results presented in Table 6.2, almost 100 percent of the women interviewed have heard about a family planning method. These included both modern and traditional methods. Previous studies in Papua New Guinea have revealed the existence of some awareness or knowledge of some form of contraception among the majority of respondents. On an average some 45% of the rural female respondents knew at least one method and 56% of urban females knew so (Agyei 1984, p. 328). Therefore the Motu Koitabu women's

knowledge about family planning methods is consistent with that found Agyei's study cited above and the findings of the study by Khan (2007) cited below.

6.4.3. Source of family planning methods (modern and traditional)

The main source of family planning methods in Port Moresby and Hanuabada, as reported by the sample women are health clinics and the retailer shops. According to the study, about 90 percent of the ever married women knew of a source where they could obtain a family planning method. They could either buy from local retail shops or the health clinics where they are charged for services. For those who knew about traditional methods, it was indicated that the sources of the herbs and the *special water* are people who have that special gift. It is believed that only gifted people within the community are vested with special powers to give the *special water* to women to stop conception. During the field work for the present study, conversations with women selling betel nut and cigarettes revealed detailed information about *special water* and the people who are gifted to supply it. It is obvious from Table 6.2 that the sources of this *special water* are widely known in the community.

6.4.4. Use of family planning

Knowledge of contraception is almost universal in most developing countries as indicated in the 2007 study (Khan 2007). The findings from this study are not far off from the other countries. This study asked a question about whether the ever married women had ever used a family planning method. Of all the ever married women, 62 percent stated that they had ever used a modern family planning method compared to 38 percent who stated that had never used any modern family planning method. For those that did not use family planning after the last child, it is evident that a high percentage (40%) stated that clinics were too far away and another 37 percent reported side effects as reasons for non-use. With regard to traditional methods, about 37 percent of the ever married women stated that they used a traditional family planning method. Apart from withdrawal and rhythm methods, *special water* and boiled herbs were also mentioned. As mentioned before, *special water* and boiled herbs are given by gifted people to women to drink to stop conception (Table 6.2). There are many traditional

herbs and incantation forms of healing in Papua New Guinea and they are specific to each culture (Macfarlane 2009). This is one of those traditional beliefs that the Motu Koitabu people have. But there are many women who do not use traditional family planning because they regard this as unspiritual and only a myth.

Women are likely to be cautious when they are introduced to new family planning methods and women who have ever used or never used family planning may have some concerns about the methods. To identify the concerns, all ever married women were asked if they were concerned about new methods as many would be just relying on *special water* and herbs. Of all the ever married women, about 53 percent were concerned about the side effects of the family planning methods. Another 16 percent were concerned that the family planning methods were not effective and they might not have children again as they still wanted children. Included in this 16 percent were women who were concerned about family planning that they might have trouble getting pregnant. Over 20 percent did not state their reasons or gave other reasons other than the ones shown in the table. But over 4 percent stated that their husbands oppose family planning (Table 6.2).

Table 6.2. Family Planning

Distribution of ever married women according to family planning use, knowledge of family planning methods and their source and reasons for not using family planning and concerns about using family planning. Hanuabada, 2009

Family Planning	Number	Percent
Have knowledge about family planning		
Yes	599	99.5
No	3	0.5
<i>Total Women</i>	602	100.0
Knowledge of family family planning source		
Yes	539	89.5
No	63	10.5
<i>Total Women</i>	602	100.0
Use of modern family planning		
Yes	373	62.0
No	229	38.0
<i>Total Women</i>	602	100.0
Use of traditional family planning method		
Yes	221	36.7
No	381	63.3
<i>Total Women</i>	602	100.0
Reasons for not using family planning		
Side effects	224	37.2
Afraid could not give birth again	29	4.8
Not effective	23	3.8
Husband / Othe relatives opposed	12	2.0
Clinic too far away	243	40.4
Not stated	71	11.8
<i>Total Women</i>	602	100.0
Concerns on Modern Family Planning		
Side effects	319	53.0
Not effective/ afraid could not give birth again ^a	97	16.1
Husband/others opposed	26	4.3
Cost too much	15	2.5
Want children ^b	12	2.0
Promotes promiscuity	5	0.8
Not stated ^c	128	21.3
<i>Total Women</i>	602	100.0

Source: Fieldwork 2009 (Lavu 2009)

a: includes afraid could not give birth again; trouble getting preganant

b: includes desires many children

c: includes other reasons

6.4.5. Use of family planning according to socio-demographic factors

The discussions that follow are based on the results presented in Table 6.3 and refer to the ever use of modern family planning according to the socio demographic

characteristics of ever married women. Of all the selected socio-demographic factors, a significant association was found between age at child bearing, children ever born, number of living children and ideal number of children with ever use of family planning. Therefore, the discussions will be limited to these four variables. Ever use of family planning also includes current use. .

First, the age at first child birth appears to be directly associated with the number of children ever born (Table 6.3). For example, as the age at first child birth increases, proportionately more women are seen to have ever used a family planning method. This result suggests that women have used family planning to delay the birth of their first child, and these women are likely to be younger than those whose age at first child birth is younger. This association is statistically significant ($p < 0.05$).

The number of children ever born (CEB) to a woman is an indication of her cumulative fertility as at the time of the survey. For women aged 45-49 years, i.e., those who have reached the end of their reproductive period, the CEB indicates their lifetime fertility. With respect to the use of family planning, it is found that women with lower fertility (i.e., women with 4 or fewer children) appear to have a greater propensity to use family planning (41.4 percent having ever used family planning) compared to women who have higher fertility, i.e., have CEB of 5 or more (19.6 percent having ever used family planning). Women of lower fertility would tend to be younger (because CEB is smaller for younger women), and younger women would be more progressively disposed towards family planning than older women.

The pattern of ever use of family planning according to the number of living children is similar to that according to the number of children ever born in that women with fewer living children are more likely to have ever used family planning.

Table 6.3. Distribution of ever married women by ever use of family planning according to socio-demographic characteristics and use of family planning methods, Hanuabada, 2009

Socio-demographic characteristics	Percentage of ever married women by ever		Total (parentheses show the number of women)	χ^2
	Yes	No		
Age at first child birth ^b				45.492 ^a
<18	27.5	72.5	100 (85)	
18	26.7	73.3	100 (45)	
19-20	27.6	72.4	100 (116)	
21-24	35	65	100 (214)	
>25	41.5	58.6	100 (116)	
Children Ever Born (CEB)				15.726 ^a
≤4 children	41.4	58.6	100 (510)	
≥5 children	19.6	80.4	100 (92)	
Number of living children				66.929 ^a
None	n.a	n.a	100 (74)	
1 - 2 children	43.1	56.9	100 (274)	
3 - 4 children	26.9	73.1	100 (171)	
≥5 children	14.5	85.5	100 (83)	
Ideal number of children ^d				15.818 ^a
No answer	n.a	n.a	100 (296)	
1 child	52.9	47.1	100 (17)	
2 children	46.7	53.3	100 (92)	
3 children	29.1	70.9	100 (103)	
4 or more children	25.5	74.5	100 (94)	

a = p < .01 : p < .05 c: n.a = not applicable

b = excludes women who did not give birth.

Source: Field work, 2009 (Lavu 2009)

Ideal number of children a woman would like to have is important and has a bearing on the use of family planning. Women with smaller ideal number of children are more likely to use family planning as shown Table 6.3. This shows that women are prepared to back up their stated ideal number of children with the practice of family planning methods.

6.5. Use of family planning according to concerns about family planning and cultural variables

Family planning programs are being implemented in Papua New Guinea since the 1970's (Agyei 1984, p. 269). There are clinics and retail stores where modern family planning methods are sold. However, these methods can be accessed if there are no obstacles. Women especially experience many situations that prevent them from accessing the family planning methods. As Tremayane (2001, p.1) argued that in

order to guarantee family continuity, reproductive behaviour of couples is regulated by a set of complex social organisations, belief, norms and rituals, which take various forms in different cultures and manifest themselves in kinship, religion, law and economics and politics.

Certainly, couples who prefer to have many children are unlikely to use family planning. However, with additional knowledge on family planning benefits, women are more confident to discuss family planning with their spouses so their relationship is not affected in any way if the woman intends to use family planning. The use of family planning is a factor that is either taken to limit or delay births, and the couples discussing the issues of family planning and husbands' consent are those highly regarded in women's lives in different societies. The women interviewed in this study are found to observe these norms. This is a response from one mother;

'My husband and I make those decisions. When I had two girls, I went on family planning, but my husband insisted that I have to have at least three more boys as he is the only male member of the family. So I went off the family planning and had three more boys, at least to fulfill my husband's desire' (42 year old wife).

In the Motu Koitabu society, the choices of using family planning are influenced by what couples prefer. There is an indication that family planning is openly discussed and this is reflected in the in-depth interview;

'Chatting about family planning is a normal thing to do. I discuss family planning with my husband and other young people who I talk with. This are mostly girls and mothers as I find that there is always an opportunity to discuss these issues. I can talk about these issues freely even outside of my own contact group' [35 year old mother].

Table 6.4. Distribution of ever married women by ever use of family planning according to family planning and cultural variables, Hanuabada, 2009

Background characteristics	Percentage of ever married women by ever use of family planning		Total (parentheses show the number of women)	χ^2
	Yes	No		
Knowledge about source				4.911 ^a
Yes	62.3	37.7	100 (599)	
No	0.0	100.0	100 (3)	
Family planning concerns ^c				18.603 ^a
Side effects	63.6	36.4	100 (319)	
Not effective	67.1	32.9	100 (76)	
Husband/Other relatives oppose	46.2	53.8	100 (26)	
Trouble getting pregnant	93.3	6.7	100 (15)	
Want children	80.5	19.5	100 (87)	
Other reasons	62.5	37.5	100 (8)	
Couple discussing family planning ^c				49.088 ^a
Yes	75.5	24.5	100 (387)	
No	44.3	55.7	100 (131)	
Husbands consent ^c				27.915 ^a
Yes	76.9	23.1	100 (347)	
No	51.9	48.1	100 (135)	
Talking with ^c				16.586 ^a
None	55.3	44.7	100 (179)	
At least 1 person	73.6	26.4	100 (106)	
Between 2 to 3 people	69.2	30.8	100 (120)	
More than 3 people	74.6	25.4	100 (126)	
Persons that they discuss with ^c				18.900 ^a
Friends	67.5	32.5	100 (77)	
Young people	81.8	18.2	100 (22)	
Other women	68.7	31.3	100 (147)	
Other relative	77.0	23.0	100 (113)	
Children	37.5	62.5	100 (8)	
None	56.4	43.6	100 (165)	
Social group				5.994 ^a
Yes	69.9	30.9	100 (188)	
No	58.7	41.3	100 (414)	
Motu Koitabu culture				18.759 ^a
Old age support	57.8	42.3	100 (64)	
Continuation of lineages	58.5	41.5	100 (200)	
Clan security	75.9	24.1	100 (58)	
Other value	75.6	24.4	100 (90)	
Celebratory and rituals	50.0	50.0	100 (90)	
None	62.0	38.0	100 (100)	

a = p < .01 ; p < .05; b = excludes women who did not give birth.

c = excludes non responses from the analysis

Source: Field work, 2009 (Lavu 2009)

Table 6.4 shows the distribution of ever married women by use of family planning according to family planning and cultural variables. Almost all the women (599 out of 602) knew the source from which to obtain family planning methods, but 62.3 percent had actually ever used a family planning method.

It is interesting to see that in most cases where women had concerns about family planning, the majority had ever used family planning. In other words, more than one half of the women had used family planning, but were concerned about its side effects, that the use of family planning might not be effective, that it would make it difficult for them to become pregnant again, or concerned about other reasons. The exception is where women were concerned about husband's or other relative's opposition, in which case the women were less likely to have ever used a family planning method (only 46.2 percent had ever used).

Many studies have found that discussion of family planning with each other and obtaining husband's consent are very important in ensuring the use of family planning (see, for example, Sharan and Valente 2002). The findings of the present study confirm this. More than three-quarters of the women who had discussed family planning with their husbands or who had obtained their husband's consent had ever used a family planning method. In societies where patriarchy is the way in which social order is maintained, the husband's assurance and consent are essential to accepting new ideas, particularly in the use of family planning.

Social influence is the dominant means by which social networks affect women's contraceptive use (Kohler *et al.*, 2001). This study found that talking with other people about family planning is important in the use of family planning methods, as women were much more likely to have ever used a family planning method if they had talked about it with other people. The persons who appeared to have the most influence on the woman's use of family planning methods are young people, other women, friends and other relatives. Interestingly, talking with children about family planning appeared to discourage women from using family planning, as a large majority of the women who had talked with children about family planning had never used a family planning method. Talking with children about family planning may be a

strange concept, but the question about who the women had talked with about family planning was an open ended question and eight women had mentioned that they had talked with children, and most of them had never used family planning.

Women belonging to a social group have a slightly greater propensity to have ever used family planning. In this context, not belonging to a social group and not talking about family planning with any one show almost similar proportions of women having ever used family planning, the respective percentages being 58.7 and 55.3. The main conclusion to draw from these two sets of findings (i.e., talking about family planning and belonging to a social group) is that whether or not women talk with someone about family planning or whether or not they belong to a social group, a majority of them still had ever used family planning, but the percentages using family planning increased if they had talked with other people about family planning or belonged to a social group. The implication is that it is important for women to discuss with other people, either directly or through a social group to ensure any demographic behaviour change including the adoption of family planning.

Discussion of family planning between couples and husband's consent have the strongest associations with ever use of family planning in terms of the size of the χ^2 (Chi-squared) statistic, followed by family planning concerns, discussing family planning with other people and Motu Koitabu culture. The other associations, though statistically significant, are weak in terms of the value of χ^2 .

In this analysis, the Motu Koitabu culture was created to assess if the characteristics that made up the Motu Koitabu culture had some influences on the use of family planning. These characteristics were found to be significantly associated with the ever use of family planning. This included women that are aware of the importance of old age support, continuation of lineages, clan security, other values such as respecting elders and husbands as head of family, celebratory and rituals and others that do not participate or believe in the reasons given. In this regard, all the categories likely to support the Motu Koitabu culture show that over 50 percent of the women in each category use family planning. In particular, women observing clan security and other values viewed as important for Motu Koitabu culture, in both categories, about 76

percent ever used family planning. While the results partly do not support the Motu Koitabu culture because of high use of family planning which limits or delays conception, there could be other reasons. Perhaps in this case, the women use family planning to space their children and not limit the number of children they would like to have.

6.6 Fertility Preferences

6.6.1. Ideal number of children compared with actual number of children

The ideal number of children a woman would like to have reflects her desired fertility if she were to start child bearing all over again. Some women would have liked to have more children than they actually have but are not able to realise their ideal because their child bearing decisions are affected by the prevailing social, cultural and demographic factors. Around the globe, the ideal number of children is usually reported as being lower than the actual number of children a woman has. In contrast, in Table 6.5, it is seen that overall, women of each age-group prefer to have more children than the number of children they have actually given birth to (3.8 versus 2.5). Women of every age-group have stated a larger ideal number of children than the number of children ever born to them. The gap between the actual number of children and ideal number of children is large in the youngest ages, but starting with age 20, this gap gradually narrows down. For women aged 35 years and over, the actual and ideal number of children are closer together. It is also interesting to see that women aged 15-19 have stated an ideal number of children which is near replacement level fertility.

Table 6.5. Children ever born (CEB) and Ideal number of children according to current age of women

Current age (age group)	Average number of children ever born	Average ideal number of children	Difference (ideal minus actual)
15-19	0.52	2.18	1.66
20-24	1.18	3.28	2.1
25-29	1.85	3.33	1.48
30-34	2.7	3.91	1.21
35-39	3.23	3.89	0.66
40-44	3.43	4.04	0.61
45-49	4.38	4.55	0.17
Total	2.52	3.75	1.23

Source: Field work, 2009 (Lavu 2009)

6.6.2. *Desire for additional children*

As shown earlier, women of the Motu Koitabu society prefer to have more children than they actually have. Closer examinations of the data reveal that the age of woman and number of living children are significantly associated with the women's ideal number of children. Table 6.6 shows that women of all age-groups desire to have more children in addition to what they already have. Overall, 65 percent of the women indicated that they would like to have additional children. Although this reflects the desire for large family sizes among a large majority of the women interviewed, the 35 percent who did not want additional children is worth considering as they could become the source for spreading messages about smaller family norm in the society.

6.6.3. *Desire for Additional Children by Age of women*

Although nearly two-thirds of the women interviewed had expressed a desire to have additional children it would be of interest to see how the extent of this desire is prevalent among women of different age-groups. Table 6.6 shows that the percentage of women desiring additional children decreases with increasing age of women. For example, 90 percent of the women aged 15-19 years desired additional children and the percentage of women desiring additional children declines in the subsequent age-groups. This pattern is to be expected, as the younger women have given birth to only

a few children and their desire for additional children may be influenced by the existing family size norm they see around them.

But the fact that nearly one half of the women aged 40 years and above still want additional children is worth noting. The large percentages of women wanting additional children from the youngest to the oldest ages of the reproductive period may be indicative of a potential fertility pattern where childbearing starts early and continues till late in the reproductive period. The fact that a larger proportion of the younger women want more children is important and deserves programming attention, but their ideal number of children is not large (Table 6.5). However, the women in the older age groups wanted additional children, which show that the majority of the older women are not satisfied with the number of children they have. While the data does not support what is expected in the reproductive life of a woman where desires for additional children decreases with age, this could be expected in this society. As women grow older, their busy life evolving around raising children also declines and the desire to foster and adopt children is a possibility which is common in Papua New Guinea.

6.6.4. Desire for additional children by the number of living children

The number of living children influences the desire to have additional children. Table 6.6 shows that the prevalence of the desire for additional children declines as the number of living children increases. For example, 72 percent of the women with 1 or 2 living desired additional children while just over a half of the women with 5 or more children wanted additional children.

The large proportions of women aged over 40 or those with 5 or more children wanting additional children bear further examination. Women aged over 40, particularly those aged 45-49 are mostly also the women with 5 or more children, and it is clear that they may not be biologically capable of further child bearing. Probably most of these women are also aware of their biological limitations for further child bearing. Thus, the only way to interpret the present findings is that these women are

probably referring to missed opportunities of having more children or to the number of children they have lost due to mortality.

Table 6.6. Percentage distribution of ever married women by desire for additional children according to background characteristics

Background characteristics	Desire for additional children		Total (parentheses show the number of women)	χ^2
	Yes	No		
All women	65.5	35.5		19.364 ^a
Age of women ^c				34.944 ^a
15-19	90.9	9.1	100 (11)	
20-24	86.6	13.4	100 (67)	
25-29	68.4	31.6	100 (95)	
30-34	67.4	32.6	100 (95)	
35-39	61.3	38.7	100 (75)	
40-44	44.6	55.4	100 (74)	
45-49	53.8	46.2	100 (65)	
Number of Living children				15.825 ^a
1 - 2 children	72.2	27.8	100 (234)	
3 - 4 children	65.2	34.8	100 (92)	
≥ 5 children	52.6	47.4	100 (156)	

a = p < .01 ; b = p < .05

c = excludes women who did not give birth.

Source: Field work, 2009 (Lavu 2009)

The bivariate relationships between the number of children ever born (CEB) and various other factors inform us about the influence of one factor on CEB at a time, but it is also of interest to examine the simultaneous relationship of CEB with the various socio-economic factors taken at a time, i.e., by using multivariate analysis. The bivariate relationships between the number of children ever born and various other factors are influenced by one overriding factor, which is the age of the woman. The number of children ever born to a young woman will be obviously less than that to an older woman and this fact will vitiate the relationships between the number of children ever born with factors such as education, employment or practise of family planning. The bivariate relationships discussed above, important as they are in their own right, need to be tested by controlling for age. This study takes into account the importance of age of the women and uses it as covariate in the analysis of the data in

relation to fertility, as indicated by the number of children ever born. The suitable technique for the multivariate analysis in this case is the Multiple Classification Analysis (MCA). The following section describes the results of the analysis based on MCA using the women's background characteristics as independent variables, and women's age as a covariate. The variables selected for the MCA analysis are based on the fact that they showed relatively stronger influences on CEB in the bivariate analysis. The following variables met this requirement; age at child first birth, ideal family size, income, informal skills, social group, reasons for another child, and Motu Koitabu culture.

6.7. Association between child bearing and background factors

In this section, the multiple classification analysis (MCA) technique is employed to examine the multivariate relationship between the background characteristics and fertility. The bivariate analysis showed indirect relationships between the background factors on child bearing experience, while the MCA shows the interrelations between variables as in a single cross tabulation, but then further shows the results of the cross tabulations with many other related variables at the same time (Andrews *et al.*, 2003). The overall pattern of comparisons is summarized in the results of a Multiple Classification Analysis (MCA) presented in Table 6.7.

It is noted that, of all the background characteristics in the dataset that have been identified as having significant associations with CEB, eight best fitting predictors and a control variable (age of respondents) were selected on empirical model fitting procedures for the multivariate analysis MCA. Table 6.7 presents the results of the analysis in which both the adjusted and unadjusted mean number of children ever born (CEB) for each predictor variable, the eta (η), the beta statistics and the grand mean CEB. Each individual mean is basically seen to be a deviation from the grand mean given at the bottom of the table. Some predictors show relatively stronger influences on child bearing and others have weaker effects and those excluded from the MCA analysis are found to have no significant effects on the dependent variable. The relationship between some of the significant predictors (such as education and

occupation) and child bearing was found not in the expected direction. Therefore they were not included in the model.

In Table 6.7, the beta (β) coefficients indicated in the last column shows the level of importance of the individual variable selected. The larger the value of beta (β), the greater its effect on fertility (children ever born) is and on these bases, the most important predictors explaining the variability in the dependent variable in order of prominence are: Age at first birth, ideal family size, income, reasons for having another child, informal skills obtained from informal learning or informal meetings, social groups and family planning use. In Table 6.7, the percentage of variations in children ever born explained by the predictors as well as the covariates was 53 percent ($R^2 = 0.53$) and the grand mean children ever born for all the 602 ever married women was computed as 3.00.

Table 6.7. Results of the multiple classification analysis (MCA) for mean CEB (children ever born) by selected background characteristics with age, Hanuabada, 2009

Variables	N	Unadjusted Mean CEB	Eta (P)	Adjusted Mean CEB	Beta (β)
Age at first child birth ^b			0.325		0.259 ^a
≤18	49	3.531		3.489	
19 - 20	73	2.945		3.089	
21 - 24	116	2.655		2.768	
≥25	70	2.114		1.807	
Ideal family size			0.388		0.189 ^a
1 child	6	1.833		2.517	
2 children	37	1.351		2.044	
3 children	66	2.197		2.476	
4 + children	199	3.206		2.964	
Income			0.188		0.079
No wages	136	2.537		2.782	
Less than K100	47	3.404		2.991	
K101-K300	41	3.024		2.645	
K301+	84	2.560		2.579	
Reason for another child			0.165		0.076
Love children	167	2.695		2.709	
Old age security (incl.family)	45	3.400		3.052	
Gift from God	96	2.510		2.649	
Informal skills			0.158		0.056
Yes	254	2.614		2.695	
No	54	3.333		2.951	
Social Group			0.272		0.047
Yes	98	3.429		2.860	
No	210	2.419		2.684	
Culture			0.054		0.037
Motu Koitabu culture	260	2.700		2.713	
No participation	48	2.958		2.888	
Modern Family planning use			0.170		0.005
Yes	110	2.345		2.729	
No	198	2.960		2.747	
Summary statistics					
R ²	0.53		Grand mean	3.001	

a: $p \leq 0.003$; b: $p > 0.003$

Source: 2009 Fieldwork data (Lavu, 2009)

In many developing countries, it has been found that later start of childbearing is important in that the women can spend less time in child bearing and more time on other activities such as education or work (Westoff 2003). As women enter into child bearing early, their early entry gives them longer period of exposure to sexual intercourse and in turn increases the chances of conception and having successful births. With these given relationship, in Table 6.7, the beta values indicate that age at first child birth is the most important variable in affecting the number of children ever born. The mean number of children ever born among the married women varied across all ages of women at first birth. The deviation of the adjusted mean from the grand mean was significantly high for those who started child birth at age 18 years or less and was on the decline for those who started at age 19 – 20 years and the decline continued for the remaining age categories. For example a woman who gave birth to her first child at age 18 years or less has, on average 0.49 child more than the grand mean. This pattern continues for the age group 19-20 years but at a lower level. For those who started at 21-24 has, on average 0.23 child less than the grand mean. For those who started at age 25 year or more has, on average 1.19 child less than the grand mean.

Overall, the deviation of the adjusted mean from the grand mean was highest among women who started child birth early. The birth of the first child at an older age tends to reduce the number of years available for childbearing in comparison to women who begin their child bearing earlier in the course of their reproductive lives. This is consistent with the findings from the bivariate analysis.

Ideal family size was found to be the second prominent factor in explaining the overall fertility behaviour. It has been hypothesised that women form their own desires about the number of children they would have liked to have in view of their own reproductive experience. For example, a woman may actually have four children, but she had suffered reproductive illnesses and had financial difficulty in raising the four children, in the light of which she would say that she really needed to have two children. On the other hand, a richer and healthier woman may actually have two children, but felt that she could have afforded to have four children for various reasons, than she would express fewer children as her ideal family size. When the

women in the study sample were asked how many children they would have liked to have if they were to start all over again, the responses varied.

In Table 6.7, women who desired for 1 child had, on average 0.48 less children compared to the grand mean CEB, while the women who desired for 2 children, had on average almost one child fewer than the grand mean CEB. The decline from the grand mean continued for the other women who had had desired for a larger ideal number of children. The findings confirm that the higher the parity, the desire for more children becomes common.

The next important variable responsible for the overall effect on CEB is income. According to McDonald (2000, p.1), 'if women are provided with opportunities nearly equivalent to men in education and market employment, but the opportunities are severely curtailed by having children, then on average women will restrict the number of children that they have'. This results in low fertility. In the present analysis the discussions are based on those who earn an income starting from the group less than K100 to K301 plus. As shown in Table 6.7, the CEB starts to decline among women who earn K100.00 or less and continues for the other two higher income groups. For example a woman who earns less than K100.00 has, on average 0.01 child less than the grand mean of (3.00). Those who earn between K101-K300 have, on average 0.36 child less than the grand mean. For those who earned K301 have, on average 0.42 child less than the grand mean.

In summary women with the lowest income are those with the highest fertility. This indicates that as women earn more money, the idea about having more children is replaced with values of a good life that they would like to live and therefore they limit their family sizes.

Among these women, there is a group who do not earn any income but are dependent on other members of household for their survival. For this group, a woman has, on average 0.22 child less than the grand mean. Additional examination of the data revealed that these women have primary education, a majority of them use family planning and they are mostly members of the United Church. These are women who depend on other members and it is the common way of life where people support each

other in times of need. As stated by this young woman in her response to; 'Do you think family and clan relations are important for in people's lives?'.

'Yes, family and clan relationships are important to me because members of the family supported me when I could not survive on my own when we moved back to Hanuabada. My paternal aunt took us in her home and we have been living with them. Her husband works and supports us all in the house. I think that it is important to maintain these relationships as people need each other to survive' [27 year old woman with 3 children].

Another woman in her 30 s also had this to say to the same question.

'The family and the clan relations are important for people's livelihood as in this village they depend on each other to survive. The subsistence gardening and fishing are now activities of the past. People depend on money to buy food to eat. Therefore me as woman with many children I am unable to keep up with this type of living. My educational levels are low and I have many children and I cannot possibly leave them on their own as they are young. My sisters mainly come and visit me and help where they can. Although my husband does not earn enough for us to contribute to family bride price activities, we still receive some benefits as my husband is the only member in his family of girls' [39 year-old woman with 6 children].

The next variable that had an effect on CEB is "reason for additional child". There are various reasons why women want additional children to the number they already have. In relation to Caldwell's Intergenerational Wealth Flows theory, the issue of how comprehensive the wealth flows are relates to the range of guarantees of assistance such as 'of help in the years of scarcity or devastations, of assistance if one's neighbour raises his hands against one, of a presence that will ward off robbers, of old age support, of assistance against bureaucrats and so on' (Caldwell 1982, p. 337).

The women were asked if they wanted to have another child after the birth of their most recent child. The analysis reveals that women who wanted another child would tend to have higher fertility than those who did not want another child after the birth their last child.

To a certain extent, the old age support was considered as important. In Table 6.7, the findings indicate that CEB is high for those women who wanted an additional child

for old age support. In saying this it is seen that a woman who wanted an additional child for old age support has, on average 0.05 child more than the grand mean of (3.00). For those who wanted an additional child for the love of children and an additional child as a gift from God the mean was lower (0.35 and 0.03 respectively) than the grand mean. These results suggest that women value their children most for old age security. In the case of the Motu Koitabu people, it appears that bearing a large number of children is an important aspect of their tradition.

Informal skills in this research refers to those skills acquired from women's fellowships and other *ad hoc* based programs that non-government organisation groups conduct in villages in Papua New Guinea. These skills are important for women who do not gain exposure to formal training. Women who participate in informal meetings such as women's fellowship groups where they are taught basic life skills had, on average 0.14 children less than the grand mean CEB. Women who did not participate in such informal learning workshops had, on average 0.32 child less than the grand mean CEB. Whether women acquired informal skills or not did not matter much, as both the groups had, on average fewer children than the grand mean CEB.

Further, participating in a social group is a way of life for many families in the study village. People value relationships so that their family and social relationship networks are strengthened. The question was asked on whether they joined a social group and what type of group it was. In Table 6.7, a woman who participates in a social group had, on average 0.14 children less than the grand mean CEB and for those who do not participate had, on average 0.32 child less than the grand mean CEB.

The Motu Koitabu cultures are important and they are observed very closely by the people. A question was asked on issues of old age support, continuation of lineages, strength and security for the clan group and tribe, or other values such as celebratory rituals or beliefs. It is assumed that women who participate and observe the listed issues would be practicing Motu Koitabu cultures. On these bases, these issues were then grouped under Motu Koitabu cultures and the other group as non- participation in Motu Koitabu cultures. In Table 6.7, a woman who did observe the Motu Koitabu

culture had, on average 0.29 of a child less than the grand mean CEB of 3.001. Women who did not observe the Motu Koitabu culture had, on average 0.11 of a child less than the grand mean. This shows that whether women observe Motu Koitabu culture or not, their adjusted births are lower than the grand mean. The women who observe and practice the Motu Koitabu culture tend to have a lower fertility than the women who do not.

A number of meaningful relationships have been observed between the background factors and the number of children ever born (CEB) and also to a certain extent family planning. Since the focus of the research is to examine the demographic behaviour of women in the Motu Koitabu community, the next section explores the experience of child loss among women in the study, as indicated by the estimates of fertility and child mortality based on indirect methods of demographic estimation.

6.8 Background

Generally, increasing political attention has been focussed on addressing health issues in Papua New Guinea but such attention needs to be accompanied by evidence on the contribution of specific factors responsible for ill health of the population. 'Many deaths occur early in life and that saving of infants under 1 year of age and children of 1 to 4 years of age has been a major public health policy and calls for accurate statistics and rigorous measures to identify the extent of the problems and monitor progress' (Rowland 2003, p. 198). In Papua New Guinea, early childhood mortality is high. At the same time new threats such as HIV/AIDS put additional burden on the country's resources and as such it is necessary to focus public policy on protecting the gains in child survival already made.

The measures of infant and early child mortality are seen as among the most important indicators of how well a society meets the needs of its people. Increases in child survival require good care for the new born child because it is totally dependent on others for survival. Further, a mother plays a dominant role in, and is responsible for the survival of her child under various circumstances in a society. In the study area, inadequate health services, costs of health care and other social and cultural

factors are issues that the mothers encounter as factors that contribute to their experience of child loss.

The scenario described above is experienced by the Motu Koitabu people in their real life. Ethnically, the Motu Koitabu are a heterogeneous cultural group. These groups face competition with the urban suburban populations to enter into wage employment to meet the expenses of urban living and its services. They are a population group that have long been in transition from rural to urban characteristics. They live in a traditional village where the structure of the village and the houses are unplanned and do not conform to urban rules and regulations in terms of housing and public utilities, but they are in a state of rapid change. Because of their location within the city boundaries, it is often considered that they have access to urban facilities such as education, health, and strong medical interventions. With no accurate grouping status, they represent neither urban nor rural populations and present a unique challenge to study their mortality experience.

6.9 Child loss by background factors

This section examines the rates of infant and child mortality among the Motu Koitabu women according to selected background factors. The background factors are: age, education, income and church affiliation of the women. By using the Chi-square statistics to test the significance of the relationships, it is found that infant and child deaths are significantly associated with women's age and income ($p < 0.05$). Women's education and Church affiliation are found to have no significant association with infant and child mortality (see Appendix Table 6a). The measures used for examining child loss are infant mortality which refers to deaths between birth and one year and childhood mortality which refers to deaths between the ages of 1 and 5 years (Rutstein and Rojas 2006, p. 95).

6.9.1. Child loss according to Age

In Table 6.8, it is seen that while the youngest women did not experience infant and child deaths, all the other women experienced some child loss. Under conditions of declining or constant mortality, the proportion of children dead generally increases with age of the women. However, this expected pattern is not seen in Table 6.8, especially the large drop in the proportion for women aged 45-49 years. It is speculated that these could be due to fluctuating mortality in Papua New Guinea over the past 50 years or incorrect reporting by the women of their age, number of children ever born or the number of children dead. The proportions of children dead according to age of women is converted to estimates of infant and childhood mortality by an indirect technique developed by Brass (1978) (United Nations 1983, pp. 73-96). The computer software, known as MORTPAK (United Nations Population Division (CD-ROM) 2003, developed by the United Nations Population Division (United Nations Population Division 2003) has been utilised to convert the proportions of children dead to estimates of infant and childhood mortality. The estimates shown in Table 6.9 are based on the Coale-Demeny West Model based on the proportions children dead for women aged 20-24 years, which is considered to represent the best picture of the mortality situation as the information given by these women is considered more stable with respect to social and cultural status (United Nations 1983). For this reason the final estimates presented are based on women aged 20-24.

Table 6.8. Total number of children ever born and dead, the proportion of children dead by age group of women, Hanuabada, 2009.

Age group	No of children ever born	No of Children dead	Proportion of children dead	No of women
15-20	16	0	0.0000	161
20-25	134	5	0.0373	155
25-30	235	22	0.0383	136
30-35	300	11	0.0300	118
35-40	272	8	0.0331	86
40-45	281	47	0.0605	83
45-50	298	58	0.02349	70
Total	1536	56	0.0365	809

Source: 2009 Hanuabada Survey (Lavu 2009)

The infant mortality rate thus derived for the Motu Koitabu is 35 per 1,000 live births and childhood mortality rate (between the ages of 1 and 5 years) is 9 per 1,000 live births. This is similar to the overall urban rates for Papua New Guinea, where the IMR is 31 per 1,000 live births and CMR is 12 per 1,000 live births (NSO 2009, p. 105) (see Table 6.9). The experience of infant mortality amongst the Motu Koitabu women is in the vicinity of the overall infant mortality rate for PNG urban women at 31 per 1,000 births (NSO 2009, p. 105). The Papua New Guinea urban women's experience is slightly better than the Motu Koitabu women of Hanuabada. However this is not to say that they are far worse off, because the rural IMR is 62 per 1,000 live births and the CMR is 18 per 1,000 live births (NSO 2009, 105). The women in the urban sectors have better access to urban clinics and they are in a position to make decisions to bring their children to clinics as they may be able to afford the fees.

6.9.2. Child loss according to Income

Improvements in child mortality and income are both the consequences of new ideas and new technology, although one might or might not cause the other (Cutler et al., 2006, p. 117). These debates are continuously finding right pathways to understanding the relationship between income and health in general between countries and within countries. This study examines the relationship between child loss and the income earned by women in one society. In a society where options for earning cash income are limited, especially for women, it can be stressful to earn the income needed by the mothers to pay for public services such as health and education. The results show a significant association between the income earned and early child hood mortality. The results in Table 6.9 confirm the hypothesis that the higher the income of mother, the lower the infant and child mortality. The results show that women who earned an income of less than K200.00 in a fortnight were experiencing an IMR of 54 per 1000 live births. This is followed by 34 per 1000 live births experienced by women who earned between K201 –K400. The IMR declined to 13 per 1000 live births for those women who earned more than K401.00 in a fortnight. A previous study conducted in Papua New Guinea shows that the differentials in income and child mortality were negligible as more women were under the category of housewives (Bakker, 1986, p.

23). The data from demographic and health surveys conducted in Papua New Guinea have not examined the relationship between income and child mortality (NSO, 1997, 2009).

Living in an urban village is challenging as many women do not have the necessary qualifications for the high earning jobs. This has implications in that previously the public health services were free to all until early 2001 when the government introduced a pay policy system for public health services. This is where health seekers have to pay a fee for any health services that they may require at the public health hospitals operated by the government. The pay policies in regards to health and education services are yet to be understood and accepted by the villagers. The money earned from salary is better spent on food than medical services. To seek medical services the issue of cost is a major factor and this study demonstrates this by showing that women with low income experience more infant and child deaths than those who earn a higher income.

6.9.3. Child loss according to Education

Early childhood deaths decline with increasing educational levels. ‘The importance of women’s education is likely a result of the fact that, as primary caretakers, women are most likely to implement the behaviours that can improve their children’s health. To the extent that education improves an individual’s ability to undertake these changes, more educated mothers will have healthier babies’ (Cutler et al., 2006, p. 110). For example, women with more education are in a better position to make decisions in relation to their sick child. A woman who has higher education and who is employed with an income, but is also responsible for other expenses around the house, would tend to opt to pay for her ill child’s medical bills and therefore, her child’s chance of survival is higher. In contrast, a woman with low levels of education is happy that she has support, but with no financial independence of decision making for an ill child’s medical bills, in the light of which she would not bring the child for medical treatment. Therefore her child’s chances of survival are usually not good.

Cleland and Ginneken (1988, p. 1357) found that 'increasing education levels of women adds to increasing child survival'. Mothers with higher levels of education are far more likely to use the health services, and feed their children regularly as they are likely to be engaged in paid employment. These groups are also likely to use contraception to space and limit the number of children and act in various ways to improve on traditional means of health care. According to Caldwell et al., (1985. p. 36), the key issue is not the increased social standing of the educated women but the changes in their behaviour and attitudes. The knowledge gained from reading public campaigns about a few basic hygiene rules can help to avoid unnecessary infant deaths.

While acknowledging the gains in education by mothers, the results in Table 6.9 do conform to the hypothesis that woman with higher levels of education generally are those that experience low infant and child mortality. Such a relationship is observed for this study population. Early childhood mortality decreases with high levels of education achieved by the mother. Based on the Coale-Demeny life tables, the results in Table 6.9 shows an infant mortality of 34 per 1,000 live births for women with primary education and less and declines to 29 per 1,000 live births for women with secondary education and other tertiary educational level. This is consistent with what has been found in Papua New Guinea at the national level (Bakker 1986, p. 17).

Clearly, the cost factor and understanding of campaigns on basic hygiene are main obstacles for those women with primary education or less. These women in the category of primary education or less are disadvantaged in that they probably cannot afford to take their babies to clinics when they are ill. The messages through radio and advertisement on TV are not understood by the women with primary education or less and therefore are not viewed as important, in particular for child immunisation.

Table 6.9. Estimates of early childhood mortality by background characteristics, Hanuabada, 2009

Background characteristics	Coale-Demeny Models - West	
	IMR	CMR
All women	36	10
Income		
≤K200.00	54	19
K201-K400	34	9
≥K401.00	13	2
Education		
Below primary	34	9
Secondary +	29	7
Church affiliation		
United	33	9
Pentecostal	13	2
Catholic	42	13
Others	91	43

Source: Field work, 2009 (Lavu, 2009)

The data also reveal a significant relationship between education and income [$p < 0.05$]. The data show that women with no education are also found in the lower bracket of income while the women with higher education are in the group with higher income [see Appendix Table 6c]. This also means that women in the lower end of income and education are those that cannot afford medical services and therefore the higher infant mortality rates are experienced by these women.

It is when women in such settings that gain more education fail to observe these taboos and therefore this behaviour contributes to low child survival and therefore they are also characterised by high fertility.

6.9.4. Child loss according to Church affiliation

The churches and the early childhood mortality are statistically insignificantly associated (see Appendix Table 6c). Therefore belonging to a particular church does not have an influence on the early childhood loss. Each church designs their own programs and women participate in these programs. In Table 6.9, the results indicate

that women who attend other churches (this includes Anglican, Jehova's and SDA) experienced a high infant and child mortality (92 per 1000 live births and 48 per 1000 live births).

With the main line churches (such as United, Pentecostal and Catholic), the women belonging to the Catholic church experienced the highest infant and child mortality rates (43 per 1,000 live births and 13 per 1,000 live births respectively). This is followed by women following the United church and Pentecostal church members respectively. The majority of the members of the Pentecostal are not earning an income and about 20 percent are earning less than K100.00 and this places them at a disadvantaged position compared to other groups. However, about 98 percent of them had primary and secondary education (see Appendix Table 6 e). This places them in a better position to manage their children's health. Pentecostal churches are more recent addition to the list of churches in Papua New Guinea. They have come with more modern approaches where people are also encouraged to take care of their families. Husbands and wives are responsible for each other's welfare. Children are regarded as gifts from God, they have a special place in the family and they have to be taken care of well.

6.10 Summary

The analysis carried out in this chapter has revealed that the experience of Motu Koitabu women's child bearing and child loss are associated with a number of background factors.

Women's family size has been grouped into two categories, namely four or fewer children and five or more children based on the PNG Government's realistic appraisal that the total fertility rate in the country will possibly decline to only 4.0 by 2015. In the present context, let us define the category of four or fewer children as a smaller family size that with five or more children as the larger family size. The analysis shows that family size, as defined here is associated with various categories of background factors such as, income and skills gained from informal meetings and

members of social groups. Women's current age, age at first birth and ideal number of children and use of family planning are also seen to influence family size.

The bivariate analysis reveals that fertility is associated with income, skills in informal learning, belonging to a social group, age, age at first birth, ideal number of children, and ever use of family planning. However when controlling for age in the multivariate analysis, the age at first birth, ideal family size and income emerge as the most important factors in explaining the difference in family sizes.

Age of the woman is the deciding factor of a woman's fertility. Almost all the younger women (aged 15-24 years) have a small family size, defined in Papua New Guinea as having 4 children or less. However, this is not so among older women (aged 25-49 years), who have smaller proportions with 4 or less children compared to their younger counterparts.

A similar pattern is found for the age at first child birth. Those women who began child birth at younger ages have high fertility. This is consistent with the fact that as women enter into child bearing early, their early entry gives them longer period of exposure to sexual intercourse and in turn, increases the chances of conception and having successful births. It may be mentioned here that the concept of a small family in the context of Papua New Guinea's targeted fertility of 4.0 by 2015 is not conducive to any one making efforts to achieve a "real" small family norm of two children as followed in most developing countries.

The findings also indicate that the small size family is also associated with ideal number of children a woman would like to bear. As stated earlier in the chapter, the actual fertility performance of the Motu Koitabu women (as indicated by the number of children ever born) is consistent with their ideal number of children. However, an element of rationalisation in stating the ideal number of children cannot be ruled out, in that women with larger number of children would also state larger ideal number of children because they would not regard any one of their ever born children to be not ideal or not desired.

Small family size is associated with higher income. The results reinforce previous findings that earning an income are an important factor that contributes to reducing fertility (Rutstein 2002). Rich people or high wage earners would like to have children of high quality (in terms of education and health), which makes it more costly to have children. In this study, women with high income are those who may view that many children are costly and they would rather spend their money on other essential things, given that they are in an urban area.

Use of family planning is also examined in the context of knowledge of source, family planning concerns, couples discussing family planning; husbands consent to use family planning, and communicating family planning with others, joining social groups and influences of Motu Koitabu culture. While the results showed high proportions of women knew about family planning and their source, their other factors such as those mentioned above are important in translating the knowledge about method and source into use of family planning.

Generally, the use of family planning is associated with some concerns about it. In the present study, the use of family planning is found to be associated with a number of concerns. A high proportion of women used family planning although they were concerned about their side effects, effectiveness in preventing conception, trouble getting pregnant again and other reasons. These results are somewhat not expected, such as many women had used family planning in spite of being concerned about side effects. These need further research.

At a personal level, women tend to ever use family planning more if they had discussed it with their husbands / spouses and obtained their permission. Effective communication between spouses and husband's consent on use of family planning are necessary for the use of family planning methods. This increases the use of family planning within the context of the patriarchal social order in the community.

At the community level, discussing family planning is important as shown by the study results. Use of family planning is high among those who talked about family planning with more people in general and with people other than their own children.

The most important fact is that the use of family planning is high among those women who discussed family planning in a social group setting.

There is an unexpected relationship between the use of family planning and Motu Koitabu culture, in that many women wanted continuation of their lineages used family planning. Some possible reasons of why women practise and observe Motu Koitabu culture do not support the cause. One would have expected that for these women to follow their cultures, higher proportions should use family planning. This finding indicates that there needs to be further research on this issue.

The overall conclusion of the analysis presented in this chapter is that age at first birth and ideal family size are the most important factors explaining the variations in childbearing among the Motu Koitabu women. Those who start child birth at an earlier age are likely to continue to bear children right throughout the course of their reproductive lives. Income is another important factor in child bearing. In this community, earning an income is important and in this case it influences women to have fewer children.

Women's age is a risk factor associated with child mortality. The present findings confirm what has been established in numerous other studies (Mahy 2003, p.11; Finlay *et al.*, 2011). Lower child mortality is observed among very young women while higher child mortality is found among older women. For older women, the children would be exposed to risks of mortality for longer periods. Moreover, perhaps the older women find modernisation too confronting and seeking health care services a challenge for them.

Infant and child mortality is seen to decrease with increasing income. Women who earn more are able to pay for the health services and can be able to take their sick child to a clinic because they can afford to. This is not true of those who earn less income as there are more important expenses such as buying food and paying for power. Living in an urban village is challenging. The pay policies in regards to health and education services are yet to be understood by the villagers. The public clinics do not provide free health services. To seek medical services, cost is a major obstacle and

this study demonstrates this by showing that women with low income experience more infant and child deaths than those who earn a higher income.

This study acknowledges the gains in education as important in that women with higher education are more likely to care for and to bring their sick children to the health clinics. However, the analyses also show that there is a link between education and income earned. Women with no education are those who earn less income and therefore place them in a disadvantageous position. The health services associated with the fee paying policies are not accessible in many cases for those women that do not earn enough income. In this context, the role of Pentecostal churches is important. Being a recent addition to the list of churches in Papua New Guinea, they have come with more modern approaches for taking care of the family. The churches aim to create better family surroundings with specific aims such that husbands and wives are responsible for each other's welfare and children are gifts from God and they have special place in the family.

The next chapter, Chapter 7 examines and explores the residential preferences and the importance of cultural and social safety net in Hanuabada.

CHAPTER 7 - RESIDENTIAL PREFERENCES AND IMPORTANCE OF CULTURAL AND SOCIAL SAFETY NET IN HANUABADA

7.1. Introduction

The dynamics of migration decision-making are particularly important in less developed country contexts in that populations are migrating because of economic and social reasons rather than due to natural causes such as marriage. Skeldon (2008, p. 3) argued that one misunderstanding that 'pre-dated current concerns were the idea that migration was caused by a lack of development: that people left poor areas or poor countries because of a lack of opportunities at home'. He however pointed out that this was not the only reason. The issues surrounding such dynamics in migration decision making have changed over time. There are now additional benefits gained from development projects which come in the form of employment opportunities and inspire more educated people to migrate resulting in an increase in migration. In this complex dynamic, migration is viewed as an agent of change and development.

Further, migration decision-making has important implications for population dynamics, particularly when viewed from the stand point of indigenous groups. In the context of the study population, while their society has undergone years of change and modernisation, the urge to migrate is not about moving elsewhere but retaining their traditional land nearby. Their actual residential preferences obtained by the study necessitate explanations. This population is of demographic and policy interest as it illustrates the ways in which population change and population pressures interact with social institutions such as family and clan. The existing relationships are challenged in a traditional village context within the scope of urbanisation. It is important to know that any residential move made by the Motu Koitabu people has to be within a commuting distance of their current location so that they can still remain within reachable distance of their clan and extended family for support whenever needed. Moreover, they like to stay within the reach of schools and health services which they have been used to in their current place of residence.

Residential preference is a factor of migration decision-making, with individuals as the units of analysis. In this context, this chapter examines the Motu Koitabu women in the reproductive age as the units of analysis. These women are already living in the vicinity of a major urban area. For them there are opportunities and pressures of moving to other nearby suburbs. These moves however involve collective decisions, with the women's family/clan. As Weeks (2002, p. 258) pointed out, 'migration decisions are not made in a vacuum as they are influenced by the socio-cultural environment in which the individuals live'. Migratory decisions made by women are supported by the family and clan networks in this society. The reality is that moving out of their current place of residence – in this case, the urban village of Port Moresby is a challenge. In the recent past considerable efforts by the Port Moresby city authorities to have the Motu Koitabu people relocated has failed, as the proposal to move has not been accepted at the community level. As such, the focus of this chapter is on explaining the migration decision-making process by examining the study women's lifetime migratory status, their residential preferences and the underlying issues that contribute to their decisions about migration.

7.2. Method of analysis

For this particular chapter, the information for the analysis is based on data collected in the first-wave of the women's survey where data about demographic characteristics, education, work status, life time migration status, residential preference, fertility and child mortality were obtained. While the survey also collected individual information on these women's intentions about moving, the focus group discussions collected the collective views of the community on their migration decision-making.

The first part of the chapter is based on specific information obtained by asking questions about the respondent's place of birth, duration of residence at the current place and place of previous residence. The other important information included that on residential preferences as indicators of their future migration intentions. The underlying issues that contribute to decisions about residential preferences are related to land ownership and congestion problems encountered in the current place of

residence. The chapter ends with the reasons for remaining in Hanuabada given by those who do not intend to move. The analysis is guided by an analytical framework based on a general model for migration decision making (De Jong 2000), which consists of seven factors that are identified as uniquely relevant for the study of migration decision-making. These seven factors are: (i) expectations/values, (ii) perceived family migration norms, (iii) gender roles, (iv) residential satisfactions, (v) migrant networks, (vi) direct behavioural constraints and (vii) facilitators (De Jong 2000, p. 310). All these factors are important in understanding migration decision dynamics. The present study, however, examines the intention to migrate, which is related to some of the factors mentioned above, namely expectations/values, perceived family migration norms, residential satisfaction and migrant networks. As mentioned in the chapter on methodology, the survey for this research consisted of both qualitative and quantitative data collection. The qualitative data obtained through the focus groups give considerable insights to living in constrained conditions, future migration intentions and issues related to non-Motu-Koitabu persons coming to live in Hanuabada. In addition, the focus group discussions also helped in uncovering other issues which they might face if they considered living in a suburb of Port Moresby other than Hanuabada. As a corollary, these discussions also revealed the reasons why they would continue to remain in Hanuabada.

7.3. Measures and descriptions

In this study, migration is discussed in relation to those who are born elsewhere but currently living Hanuabada (lifetime migrants) and those who had been resident in a place other than Hanuabada, but currently residing in Hanuabada (recent migrants). With respect to intentions to move, information was collected for those women, (i) who had no intention of moving and the reasons why they would not like to move; and (ii) for those who did intend to move, information was collected about why they wanted to move (such as overcrowding, inadequate services in an urban areas) and their preferred destination.

7.4. Lifetime migration and recent migration

In demographic terminology, a lifetime migrant is a person whose place of birth is different from his/her place of enumeration. A recent migrant (or latest migrant) is a person whose place of current residence is different from his/her place of residence a given length of time previously (IUSSP 1992, p. 93). The present study collected data on both types of migration, but unfortunately for the recent migration data no questions were asked about the time when the person moved from the place of previous residence to the current one. The absence of a question about the time when a woman moved from her place of previous residence to Hanuabada is due to the fact that most women were born and living in Hanuabada, and those who were not born in Hanuabada but living there do not remember when they moved to Hanuabada. This is perhaps the reason why a question about the length of recent migration was not asked in the 2000 population census. Thus the main discussion in this case will be focused on lifetime migration, and recent migration will be discussed without referring to time.

In the rural villages in PNG, often there are very few women who would be born in places other than their place of current residence. This is because the migration streams in PNG mostly consist of male labour migrants working on coastal plantations. The last available population census data of PNG in 2000 revealed that most migrants were young men (Walsh 1987, p. 1; NSO 2002, p. 35).

It can be seen in Table 7.1 that more than three-quarters (77.3%) of the women were born in their current place of residence, Hanuabada. Thus the life-time migrants consisted of 14.3 percent born in the other villages and 8.0% were born in the other suburbs within Port Moresby city or other towns in PNG. These life-time migrants are probably those women who were born outside Hanuabada but moved there as a result of getting married to Hanuabada men. This is indicative of brave decisions in conservative societies where sometimes women would have to leave their place of birth for marriage.

Table 7.1 Distribution of study women by place of birth and place of previous residence, Hanuabada, 2009

Place of birth	Percent	Number
Hanuabada	77.6	628
Other suburbs in the city	8.0	65
Other villages	14.3	116
Total	100.0	N=809
Previous residence	Percent	Number
Other suburbs in the city	9.6	78
Other villages	12.7	103
Born in Hanuabada	77.6	628
Total	100	N = 809

Source: Fieldwork 2009 (Lavvu, 2009)

The breakdown of the study sample according to place of previous residence (i.e., recent migrants) is similar to that about lifetime migrants, with minor differences. Most of the recent migrants came from other villages as did the lifetime migrants, but the proportion of recent migrants (12.7%) coming from other villages is slightly smaller than the proportion of lifetime migrants (14.3%) born in other villages. Correspondingly, a slightly larger proportion of the recent migrants (9.6%) came to live in Hanuabada from the city compared to those born in the city and living in Hanuabada (8%). It may be noted that there is a difference of 13 women with respect to place of birth and place of previous residence when “Other suburbs in the city” and “Other villages” are considered. For example, there are 65 women born in “Other suburbs in the city”, currently living in Hanuabada, but there are 78 women who lived in “Other suburbs in the city”, currently living in Hanuabada, i.e., a difference of 13 women. A similar difference can be noted in terms of the number of women born in “Other villages”, currently living in Hanuabada (116) or previously living in “Other villages”, currently living in Hanuabada (103). This is because of the 116 women who were born in “other villages”, 13 moved, first from their place of birth to “Other suburbs in the city”, then moved to live in Hanuabada. Information about the length of time with respect to place of previous residence would have helped in explaining this difference.

7.4.1. Lifetime migrants by selected socio economic characteristics

Migration is influenced by demographic and socio economic factors. Although migration among indigenous populations, affected by infrastructure development projects is likely to be discouraged by family and friends, the high vulnerability of the indigenous people in terms of their employability in the new environment because of their low or no skills, and the continuing absence of essential urban public services often lead these people to overcome the opposition of family and friends and make them to decide to move (De Jong 2002). This particular section examines such issues that require further research to determine whether this actually happens in populations, such as the Motu Koitabu people.

The migration history of Papua New Guinea indicates that migrants originate in the Highlands Region and consist mainly of single males who have labour contracts, and work on the coastal and island copra plantations (Walsh 1987, p. 1). High migration rates are associated with more urbanised provinces undergoing major development. The National Capital District (NCD) of Papua New Guinea, namely Port Moresby has been the main destination of migrants (Walsh 1987).

This section of the present chapter describes the women's life time migration using the Hanuabada study data. Of the 809 women in the sample, 181 (or 22.4 per cent) can be considered as migrants as they were either born in other Motu Koitabu villages or in other urban areas besides Hanuabada.

Usually migrants are young and educated (Skeldon 2002). Skeldon's findings relate mainly to those persons who migrate in search of employment, and such persons have been mostly males. However, the present study refers to women who might have come to live in Hanuabada from their place of birth, and not necessarily in search of employment. Furthermore, the lifetime migrants among the Motu Koitabu being discussed here are aged 15 to 49 years, in other words the age data do not span all years of life from age 0 to the highest age.

The age distribution of the lifetime migrants among the Motu Koitabu women is presented in Table 7.2. Within the age-span of 15 to 49 years, the lifetime migrants

born in urban areas (i.e., other town and city) are older than the lifetime migrants from rural areas (other villages) as indicated by their median ages. The lifetime migrants from both the birth places of origin are heavily concentrated in the age range 20-39 years. More than two-thirds (68%) of the migrants from other villages and more than one half (57%) of the migrants from other town/city are in this age bracket. A test of association with the χ^2 statistic confirms that age and place of birth are strongly related, in that the women born in the other town/city tend to be older than the women born in other villages.

Table 7.2 Percentage distribution of women by place of birth (lifetime migrants) and age, Hanuabada survey, 2009.

Age	Other Villages (N=116)	All others (N=65)	Total (parentheses show the number of women) (N=181)	χ^2
				30.281 ^a
15-19	7.8	13.8	18	
20-24	16.4	12.3	27	
25-29	23.3	10.8	34	
30-34	16.4	18.5	31	
35-39	12.1	15.4	24	
40-44	11.2	16.9	24	
45-49	12.9	12.3	23	
Total women			181	
Median age	30.8	33.5	31.8	

a = $p > 0.05$

Source: Fieldwork 2009 (Lavu, 2009)

Of the three background factors selected as independent variables for examining life time migration of the Motu Koitabu women, only education level of the women was found to be significantly associated with migration. Often the educated and workers move from a village to a town, and either return at a later stage, or move to extend the resource base of their families (Skeldon 2002, p. 73). However in this case, the discussions are about women who have migrated from other Motu Koitabu villages and other urban areas to Hanuabada.

More women born in other towns/city have higher levels of education and of income than those born in other villages (Table 7.3). About two-thirds of the women who were born in other villages were educated at below primary level and about a third at higher educational levels. In contrast, less than one half of the women born in other town/city had low education and more than one half had high education. Overall, among all the lifetime migrants, more than 60 percent had lower education. It is likely that most of the lifetime migrants among the Motu Koitabu women married men from this village and settled down in Hanuabada.

Table 7.3. Percent distribution of women by place of birth (lifetime migrants) and background characteristics, Hanuabada, 2009.

Background Characteristics	Place of birth		Total (parentheses show the number of women) (N=181)	χ^2
	Other Villages (N=116)	Other urban areas (N=65)		
Education				12.041 ^a
Below primary	67.2	47.7	109	
Secondary and higher	32.8	52.3	72	
Income				12.524 ^b
<K100	21.6	18.5	37	
K101-K200	20.7	9.2	30	
K201-K300	22.4	21.5	40	
K301-K400	12.9	15.4	25	
>K401	22.4	35.4	49	
Median income	K235.60	K306.20		
Churches				2.202 ^b
Other Churches	5.2	6.2	6	
Catholic	15.5	9.2	18	
United	67.2	61.5	78	
Pentecostal	12.1	23.1	14	

a = p < 0.05; b = Not significant

Source: 2009 Hanuabada survey (Lavu, 2009, Field work)

There is not much difference in the distribution of women by church affiliation between the women born in the city and those born in other villages, except that among the city born women there are proportionately more Pentecostal church followers and fewer Catholic church followers. The Pentecostal church is of more

recent origin in Papua New Guinea and their entry into the country started through the city.

7.4. 2. Recent migrants by selected socio economic characteristics

It was mentioned earlier that data on recent migration for the Motu Koitabu women was collected only on the basis of place of previous residence. There is no information about the period of migration in these data. Therefore, the discussions about recent migrants in this section are made without the mention of the migration interval or the period since when the person moved into Hanuabada.

The age distribution of the recent migrants among the Motu Koitabu women is presented in Table 7.4. Within the age-span of 15 to 49 years, there are slight differences in the age distribution of recent migrants, but overall their median ages are equal, nearly 32 years. As with the lifetime migrants, the recent migrants from both the places of last residence, are concentrated in the age range 20-39 years, although less so than the lifetime migrants. Nearly two-thirds (66%) of the recent migrants from other town/city in this age bracket, while about 62% of the recent migrants from other villages are aged 20-39 years. Similar to the case with lifetime migrants, age is found to be statistically and significantly associated with place of previous residence as indicated by the χ^2 statistic. Women living previously in the other town/city tend to be older than the women living previously in other villages.

Table 7.4 Percentage distribution of women by previous place of residence and age, Hanuabada, 2009.

Age	Other Villages (N=116)	All others (N=65)	Total (parentheses show the number of women) (N=181)	χ^2
				41.531 ^a
15-19	10.3	9.7	18	
20-24	15.4	14.6	27	
25-29	17.9	19.4	34	
30-34	16.7	17.5	31	
35-39	11.5	14.6	24	
40-44	12.8	13.6	24	
45-49	15.4	10.7	23	
Total women			181	
Median age	31.9	31.8	31.85	

a = $p < 0.05$

Source: *Fieldwork 2009 (Lavu, 2009)*

Similar to lifetime migrants, a larger proportion of the recent migrants from other town/city have higher educational attainment and the recent migrants from other town/city have higher income. However, unlike the lifetime migrants, the distributions by Church affiliations are very similar between the recent migrants from other villages and those from other town/city (Table 7.5).

Table 7.5. Percentage distribution of women by previous place of residence and background characteristics, Hanuabada, 2009.

Background Characteristics	Place of birth		Total (parentheses show the number of women) (N=181)	χ^2
	Other Villages (N=103)	Other urban areas (N=78)		
Education				13.059 ^a
Below primary	68.9	48.7	109	
Secondary and higher	31.1	51.3	72	
Income				22.463 ^a
<K100	23.3	16.7	37	
K101-K200	19.4	12.8	30	
K201-K300	27.2	15.4	40	
K301-K400	10.7	17.9	25	
>K401	19.4	37.2	49	
Median income	K227.8	K329.6		
Churches				7.704 ^b
Other Churches	4.9	6.4	10	
Catholic	15.5	10.3	24	
United	65.0	65.4	118	
Pentecostal	14.6	17.9	29	

a = p < 0.05; b = Not significant

Source: 2009 Hanuabada survey (Lavvu, 2009, Field work)

7.5. Intentions about migration and residential preferences

Since the late 1880s, the social setting and physical environment of Hanuabada village has undergone several modifications in response to the ongoing social and economic changes, which have also affected people's intentions about migration and their residential preferences. As more people work outside of the village, the intentions become diverse. This village is located in an urban area where each day women are exposed to various changes occurring around them which inspire them to make changes in their own lives. For example, seeing a beautiful home built on their land by people who have migrated through employment from other parts of Papua New Guinea could be a motivation for change. Or seeing that children from other provinces are excelling in their educational achievements which are valuable in an urban setting, opening the way for future secure jobs with better salaries could also be a motivational factor to move out of Hanuabada and settle in a city suburb.

Resources in the form of home and landownership are important in the lives of the people of Hanuabada as they are in most societies in Papua New Guinea. These have important implications for the future of the family and clan in these societies. Land ownership is a birth right for the people of Hanuabada, but many of them are selling off their land to obtain the cash needed to sustain modern living in the city.

In the general model of migration decision-making there are a number of factors that influence one's decision to stay or move. These factors range from migrant networks, family norms, expectations, values, residential expectations and behavioural constraints and facilitators (De Jong 2000, p. 310). While the factors listed above are valuable in influencing people's intentions about migration, which in turn change their migration behaviour, the present study explores the issues surrounding migration that are currently relevant and important in Papua New Guinea context.

The focus of discussion in this section is based on responses to the following questions asked of the respondents of the survey:

- For most of the time until you were 12 years old, did you live in Hanuabada, or another town, or in another village?
- Just before you moved here, where did you spend most of your time?
- If there is a chance to move from the current place of residence, would you move?: Yes/No
- If you decide not to move why would this be? - My land/Nowhere to go/Others (specify)
- Where would you like to move to? Outskirts of Hanuabada/Other villages in NCD/Other parts of the city/My own land nearby

It can be seen in Table 7.6 that about 54 per cent of the women indicated that they would like to move from their current place of residence. For these 438 women who wanted to move, about 73 per cent of the 438 women indicated that they wanted to move to their own land nearby and 17 per cent said that they would move to other villages in NCD.

In contrast, another 46 per cent, or 371 women indicated that they did not want to move from their current place of residence. One half of these women who wanted stay in Hanuabada did so because they were living on their own land, and another 17 per cent said they did not want to move because they had nowhere else to go. A sizeable

proportion (about one third) said they did not want to move for a variety of reasons, such as

‘my parents brought us to Hanuabada so we are not going to leave, this is our home, we deserve to be here as we contribute to the community requirements such as giving money to the church’ or ‘we would stay because it is our family home and land’.[women focus group No. 6].

These responses are mostly from migrant women. Any alternative land is either owned by traditional land owners or the state government therefore the options are to remain in Hanuabada.

Table 7.6. Intentions, reasons for not moving and alternative residential preferences, Hanuabada, 2009.

Intentions to move	Percent	Number
Yes	54.1	438
No	45.9	371
Total (%)	100.0	N = 809
Reasons for not moving	Percent	Number
My land	50.4	187
Nowhere to go	17.3	64
Other reasons	32.3	120
Total (%)	100.0	N = 371
Residential preferences	Percent	Number
Other villages in NCD	9.6	42
Other parts of the city	17.4	76
My own land nearby	73.1	320
Total (%)	100	N = 438

Source: 2009 Hanuabada survey (Lavvu, 2009, Field work)

The implications from these results show that because they are already living in the vicinity of the city, the other residential preferences are on their traditional land not far from the village or other suburbs in the city. It is unlikely that they would consider migrating out of the city area. The intentions of moving from current locations are due to limited spaces for building new houses and therefore nearby land are now considered to be areas for new establishments of hamlets. In contrast, for those who said that they did not want to move from their current place of residence it was due to ownership of land and their established home. People feel safe to live in a traditional village in spite of closer proximity to the city suburbs. Further, living together as family units and looking out for each other is a norm in this community. Drawing

social and territorial identity of each group consolidates their strength and this is the way to live.

7.6. Underlying issues on intentions to move or to stay

The Motu Koitabu women are already living in the urban area and their intentions to move or not to move is driven by the factors that affect their livelihood. Residential preference is a dimension of an individual decision model of migration. While previous studies have raised the issues surrounding the lack of housing and choice of neighbourhood (De Jong 1974, p. 137), the indications of congestion and overcrowding in the current places of residence are the reasons that may provide opposition to continue staying in the current place of residence. The descriptions and analysis of the residential preferences and the underlying issues that are of relevance to the preferences are based on the collective views of the selected members of the community. These collective views were brought out in the focus group discussions which were conducted during the survey.

A total of seven focus groups were organised for discussing the issues that were important for the study. In these discussion groups, the study was able to obtain views of a wider cross section of the people of Hanuabada. As described by Coast (2003, p. 339), qualitative data help in ‘validating context setting and refining research questions’. In this case, information obtained from the focus group discussions are used to validate findings based on the quantitative data obtained from the survey. These responses are also used to explain reasons relating to the aim of the study.

In each group, the number of participants varied from 5 to 15 people. The descriptions of the focus groups are outlined below.

Group 1, which consisted of village men aged 20 – 54 years (N=7). These men said that they wanted to *‘just stay in the village and do their daily activities to earn a living, such as fishing or participating in community life or activities such as church meetings’*

Group 2, which consisted of male participants aged between 30 -54 (N=10) years, who were married and had children and who worked in the private sector. The members of this group were earning money from the private sector to support their family's welfare in the village.

Group 3, which consisted of male participants aged 30 – 54 years (N=15) married with children and worked in the public sector. The members of this group were earning money mainly from the public service jobs to support their family's welfare in the village.

Group 4, which comprised married women who worked as leaders in Church activities and in other general community activities. They were aged between 15-55 years (N=7). They were mostly wives of United Church ministers and two general community leaders.

Group 5, which consisted of married women aged of 20-29 years (N=10), who had children and were educated to Grade 10 level and who had obtained a Certificate from a college. These were women who worked and contributed financially to the welfare of the family.

Group 6, which consisted of married women aged 40-49 years (N=8), had five or more children and were not in a wage employment, and they made a living by selling betel nut, frozen cordial (known locally as *ice block*) and cooked food.

Group 7, which consisted of women with children irrespective of marital status and aged 30-39 (N=6), and educated at tertiary level and they also work to earn an income to support their families.

A number of issues were raised in these focus group discussions. However, this section discusses the issues relating to why the people of Hanuabada do not want to migrate out of Hanuabada even when the conditions are not conducive to comfortable living and the housing and other amenities are not as adequately serviced as they are in the other suburbs within Port Moresby city. The paragraphs that follow raise the

issues relating to the constrained living conditions faced by the people, in spite of which they wish to continue to live in Hanuabada.

7.6.1. Constrained conditions of living in Hanuabada

To an outsider, there appear to be genuine reasons that would make the people of Hanuabada move out of their current places of residence. These people, once they know about the better job opportunities elsewhere, which is a function of their education, would, for all logical reasons, like to move towards those opportunities (Skeldon 2008, p. 4). In contrast, there are also people who choose to continue to stay in their own place of residence in spite of deemed difficulties. These respective decisions are associated with social and cultural obligations and expectations. With reference to the Hanuabada women who did want to move, about 73 per cent wanted to move to their own land nearby (Table 7.6).

The intentions of these women represent the views of those who would like to move from their current place of residence to their traditional land away from their current overcrowded and noisy areas. However, these moves may only take place when they are able to afford to build a new house in their land nearby, which would become their home.

The intentions of these women are diverse. While the physical environment might push them to think about moving, the moves would still be oriented towards securing their traditional family land nearby. Any moves that might take place among these people would be related to their resettlement on a traditional land where only members of the family and the clan have user rights, which would keep their families intact. Eventually, the choice of moving to the traditional land nearby with other family and clan members would ensure the continuation of their traditional family ties and would further strengthen their clan existence.

In Papua New Guinea societies, land is treated as an important identification factor. People relate to land, which is known to be the single most important material asset of the people of Papua New Guinea (Fairhead *et al.*, 2010, p. 1). Land in PNG is broadly classified into two major types — land held under formal tenure, and land held under

customary tenure. Only three percent of the total land in PNG is under formal tenure administered by the *Land Act* 1996. The rest, 97 percent in total, is held under customary tenure, administered by custom. Given over 800 distinct languages in PNG, customary land tenure varies widely across the country (Fairhead *et al.*, 2010, p. 2). It is important to note that land, under customary tenure is collectively held by a social unit, consisting of clans or tribes. This makes it difficult for one person to say that they are sole owners of a piece of land and to negotiate for any form of development on that land.

Making political decisions to acquire land from customary landowners for building and supplying social and economic infrastructure such as schools, health clinics, roads, ports, and electricity, water and sewerage services is a challenging task (Manning and Hughes 2008, p. 244). As 97 percent of the land in Papua New Guinea is customarily owned, it is necessary to make elaborate negotiations to acquire a piece of land before any social and economic infrastructure project is started. However, this process is difficult because, as mentioned before, customary land is owned by a clan or a tribe. The land is for their own use such as gardening and more recently, for building homes for families.

Based on the issues raised above, the collective views of the community on constrained conditions and desiring that they could be living in another suburb of Port Moresby city is the focus of the subsequent discussions. To contextualize the collective views of the groups, the descriptions of the constrained conditions of the current place of residence as viewed by the groups are valuable.

The features and the characteristics of Hanuabada village described by the focus groups suggest that it is overcrowded. Based on the focus group discussions, the issue of constrained conditions described above reflect the situation that people are confronted with. Collective views from the 6 groups indicate that they do live in constrained conditions. At one time there can be 15 people living in one house. This would require money to buy food and pay for medical expenses and public utilities such as water and sewerage. Some members of specific focus groups indicated that the lack of spaces to study in these houses does not allow school going children in

these houses to study or do their home work. Overcrowding also robs people, especially married couples of any privacy. However, we cannot blame those additional people living in a house as they are also entitled to live in that particular house because they are members of the extended family or clan.

The overcrowding issue brought out the importance of having 1 or 2 children in Hanuabada as they thought having 3-4 children is too many to manage in crowded houses. If there are 15 people living in one house, then one has to pay for food, telephone, medical expenses and other public utilities for all these people. Overcrowded household make it difficult not only to adequately support the members of the household, but to provide support to other households in times of need because each overcrowded household is burdened with its own problems. But they still have to live together because of traditional and cultural expectations.

Socially, limited housing and limited available land within the village pose a challenge among the people of Hanuabada. According to the focus group discussions, 'because of all these house and land problems we all live together in the *family house*'. In the Motu Koitabu culture, the 'family house' is a common meeting place for the extended family and clan members. People feel suppressed in this village as there are limited opportunities to build new houses and with the accepted lifestyle, they have to cope with such pressures. Added to this situation are the disturbances that frequently occur when people get drunk and play loud music, which is not pleasant for the older people and young children.

'Our houses are built together and we cannot make extensions to our houses either forwards or backwards, it's really a shame,' a 54 year old woman [Focus group No. 4].

There are also environmental issues that were raised during the focus group discussions. Hanuabada is a village where many houses are built on stilts extending more than 150 metres into the sea (see Figure 1.2). This kind of housing makes it almost unbearable for living, especially for the women. Nearly all the women focus group discussants raised the issue of toilets being built in places which lacked even the basic privacy and created unbearably unhygienic situations.

'Even there are pigs fenced next to our bedrooms and they are so close to the rooms where we sleep, this matter should be reported to the authorities', [Focus group No. 4].

In relation to the economic situation, there is enormous pressure on women. For example, women who sell *ice blocks* (frozen cordial) encounter situations where they are obliged to let their own children drink the ice blocks for free. This creates unprofitable business. Thus it makes it difficult to have access to extra money for food or other essentials. The women selling betel nuts also face a similar situation as it is likely that almost every adult chews betel nut, often taken without paying. In this community, it is difficult to make additional money as one feels obliged to let someone take a betel nut even if it is not being paid for. It is just the norm.

In the focus group discussions, participants raised another issue of comparing a villager's livelihood to that of the working people. It is clear that although they all live in the city, however,

'people who work for money can pay for food and other services, while we struggle as most of us are just simple villagers, we have to pay for food and services such as water, electricity and sewerage. We must understand and accept that one must pay for goods and services, unfortunately we are yet to understand that'. A working woman [Focus group No. 5].

But they continue to live in Hanuabada even if it has become difficult due to prices of goods and services as we are within the urban centre.

The issues regarding law and order are seriously affecting the cultural norms of respect for the authority of the clan leader and even of the Motu Koitabu Council ward members. The ward members are those that represent the people from each ward in Hanuabada at the Motu Koitabu Assembly. Often the values and beliefs in particular relating to respect are often ignored. According to the male focus group discussants, his (the council member's) is viewed as uncontrollable behaviour and this kind of behaviour is not a good example for the children. People indulging in such behaviour are supposed to be role models for the children of the community.

Further, as mentioned earlier, it is becoming evident that people are building houses along walkways that lead out to the sea, with as many as 14 -15 houses extending into the sea. While there is lack of space for building new houses, such closely situated

houses are also beneficial for the clan and family as they continue to live in one place. In the past, people were living by rules. There were berths that were large enough for fishermen to leave their canoes or when they came on shore. These spaces are now used for house extensions; people build extensions where there is a gap. They should move to the hills and leave the rows for canoes to come in after fishing.

According to the points raised by the members of the focus groups, the current Hanuabada physical features include overcrowding as indicated by the houses which have been built next to each other in small areas. The expanding population has forced the families to extend their existing houses and build more new houses outwards from the coastline to the open sea to accommodate their extended families. Further, the expansions of these family houses have overtaken the spaces reserved as canoe berths. The expansions of the houses are for accommodating more members of the family and because this is their family house, it is naturally where most family members live. In their attempts to keep the extended family intact, the responsibilities for maintaining canoe berths, an important aspect of Motu Koitabu culture, suffers.

In Chapter 4, (Section 4.7.3), the findings reveal that the average household size in this village is 11 persons per household. However, it is generally observed that there are houses that accommodate between 15 and 30 people each. This implies higher expenses on basic needs such as food and public utilities, which also raises issues of concern. The participants of the focus group discussions felt that a lack of direct water supply to the households, lack of basic sanitation, and continuous disturbances from nearby houses, especially with drunken behaviour are serious matters of concern for the families. These discussions lead to the conclusion that basic services such as water supply, sanitation and electricity are urgently needed in this area as these are essential for living in an urban environment.

7.6.2. Remaining within the cultural safety nets

As mentioned before, the descriptions of the constrained conditions of living in Hanuabada identified by the members of the focus groups indicate that the required public utilities are inadequate for their existence in the city environment. The social and economic changes reshaping the village provide sufficient reasons for the

inhabitants to leave and settle elsewhere. Yet most people want to remain in Hanuabada.

There are reasons that make people want to remain in Hanuabada. Hanuabada is a village and the Motu Koitabu people will not leave this village for another suburb in Port Moresby city (in PNG context, traditional villages it is regarded as much safer to live among your own ethnic groups). Also in difficult times, members of the family can help those who are in need. The need becomes every one's business when it is discussed in the family house. Maintaining the 'family house' as described in Chapter 4 strengthens the family unit, which helps to enhance clan support.

'The family house is a symbol of social identity and family recognition; the need to preserve people's culture and history through their house is crucial to achieving sustainable housing and decent livelihood' (Jiboye 2010, p.118). Although this may be described on the basis of another society, the essence of the family house is well established in the Motu Koitabu society as well. In relation to family related events, the family members meet in the family house and discuss the issues relevant at the time. The entire extended family strengthens the family unit, which helps to enhance clan support. In the Motu Koitabu culture, the family house is the neutral place for meetings. For example, in the event that a family member dies, everyone gathers in the family house. During the entire mourning period the family members and clan members live there. They do not leave the family house until a feast is made to create freedom for everyone to leave and go about their usual business. The Motu Koitabu people closely observe such customs. Further, any family member who does not have a house has the right to reside in the family house. The place of the family house is unique in that it can provide support when needed. For example if a woman is abused by her husband, she can always move to the family house for safety. While the family house can be used for shelter and a social interaction forum area, it is also a setting for pursuing a livelihood as discussed earlier. Because the family house is not just a shelter, it is best described as an avenue where a generation of families expresses its existence and preserves the history and identities of lineage. 'The family house is thus a symbol of social identity and community recognition. A house without the members

of the family lineage living in it loses respect in the community as described' (Jiboye 2010, p.118).

The focus group members referred to the 'village' of Hanuabada as their home and their rightful birth place, where family support is readily available when needed and where people feel safe in their own 'village'. This is confirmed by one participant of the focus group, who said:

'It is our culture - we will stay together and share when and what we can. This is our way of life' (a twenty year old mother of two). [Focus Group No. 5].

In support of the prevailing culture, another participant of the same focus group said:

'Our ancestors came here and we will always live here in Hanuabada'. (Focus group No. 5).

The responses suggest that even if the village is not the best place to live in compared to the other urban suburbs, the focus group participants felt that living in Hanuabada remains their prerogative in order to maintain their cultural heritage. This is confirmed by the participant of, who said:

'Even if it has become difficult especially when we are in the urban areas, and price of goods and services are high, as we do not earn regular income, we will continue living in Hanuabada'. [Focus group No. 1]

Hanuabada is the home of the Motu Koitabu. They have been living there for generations where they feel safe and protected. In the Motu Koitabu culture, being residents of a place is a birth right, which in turn links the residents to land ownership. Nearly all societies in Papua New Guinea, 'the tenure to land is group based, and individuals have rights to land as a result of their membership by birth into a group, or of some other relationship to the group (for example, marriage to a member, or adoption into the group)' (Fingleton 2004, p. 97). This also true for the Motu Koitabu people. There are important factors that are relevant for this study as well in that land use is 'largely in the hands of individuals—members of the group, their spouses, siblings, children or other close kin' (Fingleton 2004, p. 97). Further, land tenure and land use provides that balance between group and individual rights and obligations. 'It is a traditional balance, but one which can, when necessary, be shifted in the direction

of strengthening the rights of individual group members and relaxing group controls, to allow for the new demands of modern living kin' (Fingleton 2004, p. 97).

Maintaining one's allocated land by building on it reinforces one's clan rights, strengthens family ties and increases clan support. This chain of processes leads to the strengthening of the cultural safety net and clan arrangements. However, there are other reasons that bind people together as illustrated by one of the young male participants of the focus group, who said:

'Privacy is what people want these days, to live like white people and these come with good education and good jobs but we are still in the village because we have to be a family' (A young men working in the public sector. Focus Group No. ..).

Other responses include a collective view from the men who work in the public sector, who said:

'As the conditions of the village life deteriorate, people consider moving but the moves will have to be to our traditional land and this will involve families and clan members to be together and continue our own way of life - where one can visit and eat in another relative's house with no hesitation' [Public sector workers, Focus Group No 3].

There is however a small minority among the focus group participants who do not want to continue to live in Hanuabada. According to them, the main reasons for not wanting to continue to stay at Hanuabada were associated with continuous cultural obligations such as contributing to bride price payments and expenses on feasts associated with death and its cultural formalities. The obligations to supporting these activities and to support an ever increasing number of household members are putting pressure on individual incomes and the time and effort need for care-giving, particularly by women. These focus group participants further feel that by contributing to these types of activities, there is often no money left for meeting the basic needs of life such as food and clothing. In the end life becomes unbearable. However this is only a minority view of two young women [Focus Group No. 5].

7.7. Summary and Conclusions

Living in Hanuabada, a traditional village in an urban setting is not only becoming more complex because of increased urbanisation, but the continuous increase in the population living in a limited area is becoming a matter of great concern to the people living there. Large household sizes comprising 11 persons per household on average contribute to the already enormous pressure on the 'family house'. Options for expanding household areas is much restricted because space available for additional housing is very much limited. The other option of completely moving to other places of residence is not popular, as indicated by the information gathered in this survey, particularly through the focus groups discussions. It appears that while there is an increase in number of women who have moved to Hanuabada from nearby Motu Koitabu villages and from other suburbs of the city, the intentions of moving out from Hanuabada and the surrounding traditional land is not a popular option.

It is important to note that while the majority of the responses in the main survey indicated that the women wanted to move out from their current place of residence, but they still intended to settle in another place which is part of their traditional land nearby, albeit out of the main village areas. This is an indication that these women would still prefer to live on their own family and clan land. According to them any resettlement of new houses have to be built on their own clan land which keeps the families together. This is confirmed by the responses from the focus group discussions where the main answers were based on living with their own village and if the current place of residence is not an ideal place to live in, they would rather improve on it than move out.

In conclusion, in spite of the close proximity to the city and many available suburbs to move to, the people of Hanuabada will continue to live in Hanuabada in their social and cultural safety nets (family and kin arrangements), even in the face of rapid social, cultural and economic change.

CHAPTER 8: CONCLUSION

8.1. Introduction

This chapter provides the conclusion to the thesis. Its foremost aim is to discuss the findings of this research, explain the value of the research, its potential contributions as well as to draw attention to its limitations. The chapter also raises issues for further research.

8.2. What is the thesis about?

This thesis has explored the demographic behaviour of the Motu Koitabu women of Hanuabada. The aim of this study was to examine the factors that influenced the demographic behaviour of these women with respect to fertility, mortality and migration. The factors considered to have influenced the demographic behaviour of these women comprise socio-economic, socio-demographic, cultural and family planning variables.

The main argument of this thesis is that the demographic behaviour of the Motu Koitabu people is primarily determined by the dynamic interactions between family and kin, which are associated with old age support, the continuation of lineages, and the strength and security within the clan groups. The cultural and socioeconomic conditions that shape the overall demographic behaviour of this group are especially significant.

8.3. How has this research been done?

To examine the demographic behaviour of the Motu Koitabu people, a sample survey of women aged 15-49 years, six focus group discussions comprising three groups consisting of men and three other groups consisting of women and in-depth interviews of a sub-sample of women aged 15-49 years were conducted in Hanuabada. The data collected through these enquiries were processed and analysed. The analysis was guided by three different analytical frameworks developed for this study on the basis of a review of relevant literature.

To examine fertility, the analytical framework developed by Bongaarts (1978), based on the intermediate variables of fertility, first formulated by Davis and Blake (1956) was adopted. This study identified a number of socioeconomic, socio demographic and cultural factors and used them to determine the outcome of their relationship with fertility of the sample of Motu Koitabu women.

The child survival framework by Mosley and Chen (1984) was used to explore education, income and the influence of church affiliation and their relationship with child loss among the women. This study undertook the child mortality analysis on the understanding that there are direct and indirect determinants that influence child survival, which is demonstrated in the analytical framework.

In terms of population movement, or a lack of population movement among the Motu Koitabu, this study has adopted the ideology of displaced populations through infrastructure development. The approach undertaken to examine relationships between residential preferences and their influences on migration are guided by an analytical frame work based on a general model for migration decision making (De Jong 2000), which consists of seven factors that are identified as uniquely relevant for the study of migration decision-making. These seven factors are: (i) expectations/values, (ii) perceived family migration norms, (iii) gender roles, (iv) residential satisfactions, (v) migrant networks, (vi) direct behavioural constraints and (vii) facilitators (De Jong 2000, p. 310).

The argument of this thesis is that even though a substantial proportion of the Motu Koitabu do not want to move from their current place of residence, and most of those who do wish to move, wish to do so to a land nearby and owned by them. For both these groups of people, the need to cling to their family and clan groups for comfort and security is of paramount importance. However, even if these people have not moved, they suffer from the same problems as do development induced displaced populations in terms of being marginalised from the mainstream.

8.4. Results

8.4.1. Introduction

This section begins with revisiting Research Question 1 about the underlying factors that shape the demographic behaviours that contribute to the large population in a limited space lacking in basic services in an urban environment. Firstly, the demographic behaviours related to fertility and mortality replicate those of urban women's behaviour in PNG. The improvements in health services in the city have contributed to lowering the total fertility rate (TFR) to 3.28 and infant mortality rate (IMR) to 33 per 1,000 live births which are consistent with the corresponding demographic parameters of urban PNG, namely a TFR of 3.6 (NSO 2009, p. 41) and an IMR of 31 (NSO 2009, p.104). However, the continued existence of a large population in a limited space is due to the underlying issues of the importance of interactions between family and kinship which in turn influence the demographic behaviour of the people. Following their cultural traditions, people continue to live in their respective groups as they need the support of the groups in order to cope with the living conditions of the urban environment.

Further, the young also care for the old, and the Motu Koitabu people continue to support each other under very demanding and intimidating circumstances where food is not grown, as much of their traditional land has been acquired by the state for the expansion of the capital city. Their subsistence fishing grounds are already taken up, which has made it difficult to maintain their livelihood. Therefore, they need each other's support. The importance of these factors is accentuated because there is no direct social security support from the government of Papua New Guinea (PNG). Although, the village conditions have deteriorated over the years, the Motu Koitabu people in Hanuabada will continue living in their traditional location because they will not get the support of the family and clan elsewhere.

Research Question 2 explores the reasons why the Motu Koitabu people in Hanuabada continue to live in their social and cultural safety net (clan and family groups) even when rapid social and economic changes are taking place all around them. This study concludes that interactions between family and kinship are important factors that influence demographic decisions. There are a number of reasons why they choose not to leave their traditional village even if there are better alternative locations. They prefer to live among their people because the people continue to live in their respective groups as they need the support of the groups in order to cope with the living conditions of the urban environment. Issues of poverty, safety reasons and maintaining and keeping custody of their traditional land are among the reasons given for not leaving their social and cultural safety nets.

The subsequent sections and paragraphs discuss the specific findings of the demographic behaviours on fertility, mortality and migration.

8.4.2. The Socio-cultural profile of the Motu Koitabu people

Overall, this study has confirmed the findings of past research that Western influences during the colonisation of Papua New Guinea (PNG) and the intrusion of missionaries on the PNG society had had a great impact on people's lives including the lives of the Motu Koitabu people of Hanuabada. To a large extent, these influences have changed the traditional way of life of the people. For example, they started using modern medicine instead of their traditional beliefs of health care, or they accepted Western education to replace ways of learning in the traditional way. Similarly, the traditional ways of subsistence gardening and fishing for own consumption were replaced by talented young people earning their living by working for the colonial administration.

This study has found that while modern education and modern employment were embraced in the PNG society long ago, the changes did not go hand in hand with the basic services needed for urban way of life. Notably, having access to water and flush toilets in the house is not enjoyed by everyone. The bucket system of night soil disposal, which is not hygienic, is used by many households and this depicts unhealthy living. Further, most people still access water at odd hours of the night in

the communal pipes at the foot of the main walkways, which is not a normal characteristic of a normal urban suburb. While electricity is the main source of lighting, some families still use kerosene lamps which one should find mostly in the rural Papua New Guinea villages.

This study has found that the various kinds of household composition of the people surveyed reflect different family types. The extended family type is universal in the Motu Koitabu society. One household can be found to consist of the head of household and his/her adult sons and daughters and their spouses, grand-children and other brothers and sisters, which comprises a large household. These large, extended family households are managed by a head who may not be the main bread winner, but the most senior member of the household. Extended families continue to dominate the family types of the Motu Koitabu, who find it very important for comfort, security and economic survival.

8.4.3. The Socio-economic profile of the Motu Koitabu people

With respect to socio economic status, most of the women interviewed had completed only primary education, but this is sufficient for them to obtain employment in the urban job market. Moreover, completion of secondary education continues to be biased towards males and the therefore these women's chances of entry into the formal labour workforce are really very limited. The lowly educated women within the community are employed by relatives who own small businesses which often do not require high education. Such support for one another in this community reflects the importance of family and clan in providing the support. Thus, even though most of the women have attained low educational levels, those women who are willing to work for wages or salary are employed by family/clan members who own small businesses. This helps the lowly educated women to maintain their families.

It was found that, in general the women are engaged in some economic activity because the need to earn money has become paramount for them in the near absence of subsistence fishing and farming opportunities. The women are engaged, either in salaried jobs or in informal economic activities to sustain their livelihood in the

village. While the salaried jobs are the main sources of income for those who have generally completed relatively higher educational levels, for those with lower educational levels, the informal economic activities such as selling betel nuts and cooked food with frozen iced cordial provide substantial income to the family for its survival. However, still a significant number of the women have to depend on other household members for their livelihood.

It is hypothesised that, living in an urban area, the women have to have access to information that is valuable for them and their families. The main source of information for these women is the mass media that provides them with helpful information for their well-being. Exposure to mass media also influences their opinions and attitudes about issues affecting their lives. Radio was found to be the most accessed popular mass medium, followed by the print media and television. Radio (at least in the form of low-cost transistor radio) is perhaps the most affordable of the three media types and television is perhaps the least affordable. Reading newspapers could be costly, being a recurring expenditure in order to buy fresh editions every day or every week, and it could also be restricted to only those who could read and understand the print media.

Following their cultural traditions, people continue to live in their respective groups as they need the support of the groups in order to cope with the living conditions of the urban environment. Many of the women interviewed are married to men who own land, which gives them enough economic security to start a family and have children. This, in turn supports their quest for maintaining the continuity of their clan lineages. Another customary norm is payment of bride price. This is valuable because a marriage and the benefits from the bride price associated with this marriage provide considerable support in terms of adding another family to the clan and in terms of providing economic benefit from the bride price. Family support is maintained through cultural activities, such as clan gatherings, church groups and social gatherings.

8.4.4. Fertility and Family planning

Current fertility

Bearing and rearing of children is of paramount importance in a women's life in any Papua New Guinean traditional society (McDowell 1988). This belief has kept the fertility in the country comparatively high. The latest estimate of the total fertility rate (TFR) for Papua New Guinea, according to the 2006 Demographic and Health Survey, is 4.4 for the country, 2.7 for urban areas and 4.5 for rural areas. This is high compared to estimates of contemporary fertility rates in the Asia-Pacific region. The estimated TFR of the Motu Koitabu women of Hanuabada, based on information about the number of children ever born classified by age of women, is 3.28. The age-specific fertility rates corresponding to this TFR indicate an early childbearing pattern, peaking at ages 20-24, which is consistent with those of rural women as found in the 2006 Demographic and Health Survey. However, even though the TFR of the Motu Koitabu women is closer to that of Papua New Guinea urban women (NSO 2009, p.39), its higher level and early childbearing pattern reflect the traditional demographic behaviour of the Motu Koitabu.

Factors influencing fertility

This sub-section summarises the findings about factors influencing the fertility of Motu Koitabu women, based on their family size, i.e., the number of children ever born (CEB). Women's family size has been grouped into two categories, namely four or fewer children and five or more children based on the PNG Government's realistic appraisal that the total fertility rate in the country will possibly decline to only 4.0 by 2015. In the present context family size, based on the number of children ever born has been grouped into two categories, small family size (four or fewer children) and large family size (five or more children). It should be mentioned here that the concept of a small family in the context of Papua New Guinea's targeted fertility of 4.0 by 2015 is not conducive to people making efforts to achieve a "real" small family norm of two children as followed in most developing countries.

The analysis shows that family size, as defined here is associated with various background factors such as income and skills gained from informal meetings and membership of social groups. Women's current age, age at first birth and ideal number of children and use of family planning are also seen to influence family size. The relationship of these factors with fertility has been analysed first by considering fertility and one influencing variable at a time (bivariate analysis) and by considering fertility and all the influencing variables at the same time (multivariate analysis). Further, since the use of family is a direct (proximate) determinant of fertility (Bongaarts 1978), another analysis was carried out by considering the use of family planning as the dependent variable.

The bivariate analysis of the association between CEB and various factors reveals that fertility is associated inversely with income, skills in informal learning, age at first birth and ever use of family planning, and directly with current age, belonging to a social group (yes or no) and the ideal number of children

However, because all the factors mentioned above generally act simultaneously to affect fertility, a multivariate analysis was carried out in order to analyse the simultaneous effect of the factors on fertility. Further, since the indicator of fertility, CEB is influenced by the current age of women, the multivariate analysis appropriate in this situation is Multiple Classification Analysis (MCA), which controls for the effects of age. After thus controlling for age, age at first birth, women's income and ideal family size emerged as the most important factors in explaining fertility of Motu Koitabu women.

Those who start child birth at an early age are likely to continue to bear children right throughout the course of their reproductive lives. Women who earn higher incomes tend to have to have fewer children than those whose incomes are lower. The actual fertility performance of the Motu Koitabu women (as indicated by the number of children ever born) is consistent with their expressed ideal number of children. However, an element of rationalisation in stating the ideal number of children cannot be ruled out, in that women with larger number of children would also state larger

ideal number of children because they would not regard any one of their ever born children to be not ideal or not desired.

Factors influencing the use of family planning

Use of family planning has been examined with respect to knowledge of the source of family planning, women's concerns about family planning, discussion of family planning between husband and wife, husband's consent to use family planning, communicating about family planning with others, membership of social groups and the influence of the Motu Koitabu culture.

The results show that a high proportion of the Motu Koitabu women have knowledge about family planning and where to obtain contraceptives. In addition, other factors such as those mentioned above are important in translating the knowledge about method and source into increasing use of family planning.

A large proportion of women have used family planning although they had several concerns about its use. Most women had concerns about the side effects of family planning methods. Some women also indicated that they were concerned that family planning was not effective in preventing conception. The other concern was that they feared that they may face difficulty in falling pregnant again after stopping the use of family planning.

In general, women tended to use family planning more when they had discussed its use with their husbands and obtained their permission to use family planning. This confirms previous findings that effective communication between spouses and husband's consent are necessary for the use of family planning methods. This is especially true in patriarchal societies such as those prevailing in the Motu Koitabu society.

At the community level, discussing family planning with people outside the family is important in that the use of family planning tended to be high among those who talked about it widely among many people in the community.

This study revealed an unexpected relationship between the use of family planning and Motu Koitabu culture. Intentions to continue the family lineage and clan require bearing sufficient number of children. This study found that while many women wanted a continuation of their lineages and also followed the traditions of Motu

Koitabu culture, they continued to practise modern family planning. One would expect that women following their culture would be averse to using modern family planning. This particular relationship needs further research. However, it is also possible that the women who have ever used family planning have already given birth to sufficient number of children to ensure the continuation of their families and clans, as indicated by the estimated total fertility rate of 3.27, which is more than one child in excess of replacement level TFR of 2.1.

8.4.5. Experience of Child loss among the Motu Koitabu women

Based on information on children ever born and children surviving and the appropriate model life tables, the infant mortality rate (IMR) among the children of Motu Koitabu women was estimated as 33 per 1,000 births. This means that if the Motu Koitabu women gave birth to 1,000 children, they lost 33 before the children reached their first birthday. While this level of IMR is high, it is much lower than the estimated IMR of 57 per 1,000 live births for Papua New Guinea during 2001-2006, but very close to Papua New Guinea's urban IMR of 31 per 1,000 live births (Demographic and Health Survey of PNG 2006). The estimate of rural IMR for Papua New Guinea during 2001-2006 is 62 per 1,000 live births.

Factors influencing early childhood mortality

Maternal age is strongly associated with infant and child mortality. The present findings confirm what has been established in numerous other studies (Mahy 2003, p.11; Finlay *et al.*, 2010). The relationship between mother's age at child birth and infant and child mortality is like a U-shaped curve, meaning infant and child mortality is high when mothers give birth below the age of 20 or above the age of 35 or 40.

Among all the socio-economic factors considered in this study, only mother's income was found to be significantly associated with early childhood mortality, in that mothers with higher levels of income generally tended to be have experienced lower mortality risks of children at early ages. This is because women who earn more are able to pay for the health services and are able to take their sick children to a clinic because they can afford to do so. This is not true of those who earn less income for

whom buying food and paying for other basic needs take the priority. Living in an urban village is challenging. The policies requiring payment for health and education services are yet to be understood by the villagers. The public clinics do not provide free health services. To seek medical services, cost is a major obstacle and this study demonstrates this by showing that women with low income experience more infant and child deaths than those who earn a higher income.

This study acknowledges the gains in education as important in that women with higher education are more likely to care for and to bring their sick children to the health clinics. However, the analysis does not show education as a significant factor in child mortality because there is a close association between education and income earned. Women with no education are those who earn less income and therefore they are at a disadvantageous position with respect to child survival. The health services associated with the fee paying policies are, in many cases not accessible to the women who do not earn enough income.

In this context, the role of Pentecostal churches appears to be important. Mothers who are members of this comparatively recent addition to the list of churches in Papua New Guinea suffer lower child mortality compared to the members of the other churches. The Pentecostal churches have come with more modern approaches for taking care of the family. The churches aim to create better family surroundings with specific aims such as that husbands and wives are responsible for each other's welfare and that children are gifts from God and they have special place in the family.

8.4.6. Migration and intentions to move

Data collected on place of birth and place of previous residence provided information on both lifetime and recent migration among the Motu Koitabu women. In relation to lifetime migrants, there are two main groups – (i), those who were born in other villages but living in Hanuabada, and (ii) those who were born in town or city and living in Hanuabada. The lifetime migrants from the other town/city tend to be older than those from other villages. The prevalence of higher education is greater among the lifetime migrants from other towns/city compared to lifetime migrants from other

villages, and the lifetime migrants from other town/city have higher income than those from other villages. It is likely that most of the lifetime migrants among the Motu Koitabu women settled in Hanuabada as a result of being married to men from the village.

The recent migrants from other villages and town or city have similar attributes to those of the lifetime migrants from other villages and town or city respectively.

The recent migrants from other town/city tend to be older than the recent migrants from other villages. The prevalence of higher education is greater among the recent migrants from other town/city compared to the recent migrants from other villages and the recent migrants from town or city tend to have higher income compared to their counterparts from other villages. However, unlike the lifetime migrants, for whom the distributions of women by church affiliation vary considerably between the two birth place groups, the recent migrants from both the places of previous residence exhibit very similar distributions by church affiliation.

The Motu Koitabu, an ethnic group of Papua New Guinea, are the traditional owners of the land where the nation's capital, Port Moresby is built. The Motu Koitabuans have been living in Hanuabada, a traditional urban village of Port Moresby for ages, but they are now facing the pressures of an expanding capital city. From a rational viewpoint though, the social and economic changes reshaping Hanuabada are sufficient reasons for them to leave and settle elsewhere, but they have so far resisted any move out of this place because they do not wish to leave their comfort zone formed by social and cultural networks. However, the economic hardships of urban living are putting pressure on them to move or make adjustments to living in increasingly difficult situations.

According to data collected in the survey, the Motu Koitabu people live in large households comprising up to 11 persons. This confirms the enormous pressure on the 'family house'. The family house is supposedly meant for extended and clan gatherings but they have become homes for the entire extended family house.

The overcrowding has created another dimension to the issue of limited spaces in the traditional village grounds. It is now obvious that the spaces for building new houses and keeping the anchorage spaces for their fishing boats are now used for building new houses for young family members. The available space for additional housing is limited and the erection of new houses outward to the sea is now the pattern. While this creates a hardship situation, no one is interested in leaving their traditional village or the customary lands nearby.

The data show that changing places of residences is not one of the popular options among the Motu Koitabu people. While it is evident that some of the study women have moved to Hanuabada from villages and from other urban areas, the intentions of moving out from Hanuabada and the surrounding traditional lands is not an option for them. It is important to note that while the majority of the responses indicated that they wanted to move from their current place of residences, those who did intend to move, did so only to another place situated on a traditional land nearby.

The residents of traditional villages in Papua New Guinea are not likely to leave their villages in search for a better environment, unless it is for education purposes for the young. Following a similar reasoning, the Motu Koitabu people will not leave their traditional village, even to land nearby. Building a house away from the main village indicates that one wants to be living independently.

This study however has found that the Motu Koitabu people will continue to live on their own family and clan land. They will build any new house on their clan land. This is because another member of the family or the extended family member or the clan member will build his house next to his clan men's house. This will continue as this is the way to keep the family clan together. This is confirmed by the responses from the focus group discussions where the main answers were based on living in their own village and if the current place of residences is not an ideal place to live in, they would rather improve on it than move out. Another reason to move was to avoid losing their customary land nearby. The Motu Koitabu believe that Hanuabada is their birthplace and rightful home where they feel safe. Moves to alternative locations, if considered should be made in family groups to clan-oriented lands nearby.

8.5. Limitations of the study

The study has a number of limitations. First, the findings from the study do not represent the demographic behaviour of the people of Papua New Guinea in general. But that was never the intention of this study. Papua New Guinea's population is represented by more than 800 language groups that have their own ethnic and cultural identifications. Therefore there are many beliefs and customs that are likely to dictate their demographic behaviour. Motu Koitabu group is one unique population and has its own customs and beliefs that dictate the demographic behaviour.

This study has explored the demographic behaviour and has attempted to explain the demographic behaviour of the women who have been selected in the study sample. Strictly speaking, the findings of the study cannot be generalised even for all Motu Koitabu women of Hanuabada and other Motu Koitabu villages. This is due to clustering effect, as all women living under one roof are influenced by what goes on in the household and their behaviour is influenced by the household behaviour. Therefore, this thesis has limited the discussions to women in the study. This population group has also undergone changes because of the external influences, perhaps in the form of better health facilities and education. This makes Hanuabada a transitional village situation where people maintain their social cultural structures but at the same time integrate external which does not fully reflect a rural village situation.

8.6. Value of the Thesis

Theoretical value

The research presented in this thesis has drawn on theoretical contributions from multiple demographic processes and the social sciences more broadly. A multi theoretical approach has been necessary to build an understanding of the explanation of the three main demographic processes, the fertility, mortality and migration that Motu Koitabu population has to offer.

Scholars such as Caldwell *et al.*, (1982) in their approach to understanding the demographic behaviour of specific population groups have advocated the use of traditional demographic surveys in conjunction with focus group discussions and in-depth interviews. By taking such an approach this study has not only discussed the fertility, mortality and the migration situation of the small population group of the Motu Koitabu people, but has to some extent provided some insights to the changes in these population processes by way of understanding and accepting the respondents stories and opinions shared by focus group members and what the women said in the in-depth interviews.

The analytical approaches in fertility analysis that build on the theoretical approach by Davis & Blake (1956) on the social structure and fertility is an important basis for this study. While studies have used this approach to explain the fertility differences, no studies about the Motu Koitabu people have used this approach to explain their fertility situation. It was intentional to test the relation between such factors as belonging to a social group and informal learning skills which proved to be significantly associated with fertility. This is a positive outcome as it means that the cultural factors such as continuation of lineages perhaps need better explanations to the respondents during fieldwork.

A significant outcome of this work has been to identify the supremacy of the cultural element over other factors in making decisions to remain in the safety nets of the Motu Koitabu society. The family and clan kinship support continues to maintain their economic safety net as well where they depend on other family members for their livelihood. As such they are not likely to move from their cultural safety nets and any modern public services must be oriented to their specific situations. Any demographic decision is family and kinship oriented as however seen. In general, the traditional customs are very much part of people's lives in Papua New Guinea as demonstrated by the Motu Koitabu demographic behaviour and no one particular ethnic group represents the hundreds of groups in Papua New Guinea. The ambition held for this research is that it will prove that there are always demographic differentials and this research broadens the domain.

Policy implications

In the National Population Policy 2000- 2010 for Papua New Guinea, the policy Goal No. 7 refers to strengthening and support for family (DNPM 1999). This study has found that this is true in the case of the Motu Koitabu population. Generally, the family and clan kinship support continues to maintain their economic safety net as well as their social safety nets. This will continue to be part of the new policies that are now developed for the country.

The study also indicates that the women who have used family planning are those who obtained their husbands' permissions and who talked about family planning with others. Therefore more education on family planning should be developed for both men's and women's benefits. This would create a better understanding among men and women about family planning and remove any preconceived and unfavourable views of women using family planning. .

Public services such as health need more user friendly approaches. No matter where the women are located, sometime the women's low level of literacy and confidence becomes a challenge for them to even seek services when they desperately need help. It is on this basis, that modern public services must be oriented to their specific languages and help services where explanations are provided where needed.

Most importantly, this study has demonstrated that family and clan play important roles in determining the demographic behaviour of the people. That is, extended family and clan are the basis for social support and economic security. This study showed that any desire to move from Hanuabada has to be on a traditional land nearby and within commuting distance from the houses of their clan and the greater extended family. Settling on traditional land would keep the families together. But a very important finding of the study is that, even if the current place of residences turns out to be not an ideal place to live, the people of Hanuabada would rather improve on their current houses than move out. For the people of Hanuabada, the availability of family and clan support are highly desirable options for demographic decision making.

In conclusion, the availability of family and clan support is crucial for making demographic and other decisions by the Motu Koitabu people. Family and clan are very important for encouraging demographic behavioural change among the Motu Koitabu and they are also beneficial in determining fair dealings about traditional land matters which is an important factor in the lives of indigenous populations, as this gives them enough economic security to start a family and have children. Further, among the Motu Koitabu people, as among other indigenous groups of Papua New Guinea, no individual person or family takes a decision without the blessings of their clan or extended family. These include decisions on demographic matters of child bearing, child rearing and migration. While decisions about child bearing and child rearing, affecting fertility and child mortality respectively are more personal affairs and remain mostly within individual families, migration, involving moves of entire families are demographic matters which can be more readily noticed by outsiders. Therefore, it is more difficult to execute a decision to move unless the clan or extended family approves of such a move.

Therefore, those families who are living in much constrained conditions in Hanuabada and who want to move from there, should be facilitated to do so, through government help and through permissions of clan leaders for which they (the clan leaders) need to be appropriately educated and motivated.

APPENDICES

Appendix 1: Appendix Tables

Table 4.6 -Calculations of the singulate mean age at marriage (SMAM), using the Hagnal's method, Hanuabada Survey, 2009

Age group	Index of age (i)	Total			Male			Females						
		Total population	Never married	Proportions U(i)	Age group	Index of age (i)	Total population	Never married	Proportions U(i)	Age group	Index of age (i)	Total population	Never married	Proportions U(i)
10-14	1	263	263	1.00000	10-14	1	144	144	1.00000	10-14	1	119	119	1.00000
15-19	2	334	301	0.90120	15-19	2	158	152	0.96203	15-19	2	176	149	0.84659
20-24	3	316	158	0.50000	20-24	3	163	102	0.62577	20-24	3	153	56	0.36601
25-29	4	300	74	0.24667	25-29	4	153	55	0.35948	25-29	4	147	19	0.12925
30-34	5	251	44	0.17530	30-34	5	125	33	0.26400	30-34	5	126	11	0.08730
35-39	6	183	19	0.10383	35-39	6	97	17	0.17526	35-39	6	86	2	0.02326
40-44	7	176	16	0.09091	40-44	7	86	12	0.13953	40-44	7	90	4	0.04444
45-49	8	164	17	0.10366	45-49	8	92	14	0.15217	45-49	8	72	3	0.04167
50-54	9	144	13	0.09028	50-54	9	73	11	0.15068	50-54	9	71	2	0.02817
		2131	905	3.21183			1091	540	3.82892			1040	365	2.56669

Calculations

	Total		Males		Females		
RS1	16.0592	← 5 times the sum of U(i) →	RS1	19.1446	← 5 times the sum of U(i) →	RS1	12.8335
RS2	26	← 10.0+RS1 →	RS2	29.1446	← 10.0+RS1 →	RS2	22.8335
RN	0.09697	← ((U(8)+(9))/2) →	RN	0.151429	← ((U(8)+(9))/2) →	RN	0.03492
RM	0.90303	← 1-RN →	RM	0.848571	← 1-RN →	RM	0.03492
Rs3	4.84841	← 50.0 times RN →	RS3	7.571471	← 50.0 times RN →	RS3	1.74589
SMAM	23.423	← (RS2-RS3)/RM →	SMAM	25.4229	← (RS2-RS3)/RM →	SMAM	21.088

Appendix Table 5.5a. Children ever born and number of children living

Age	CEB	CEBS
15-19	14	14
20-24	127	122
25-29	228	220
30-34	297	288
35-39	271	262
40-44	281	264
45-49	298	291
Total	1516	1461

Source: Field work, 2009 (Lavu, 2009)

Appendix Table 6a. Results of the chi square tests - Fertility by background factors

Background characteristics	Asymp. Sig. (2-sided)	Pearson χ^2 value
Age group x CEB	0.000	209.121
Age at first birth x CEB	0.000	598.324
Prefer children x CEB	0.000	335.997
Ideal number of children x CEB	0.000	102.770
Belong to a group x CEB	0.000	23.374
Modern family planning use x CEB	0.000	53.017
Education x CEB	0.797	1.663
Church x CEB	0.718	3.691
Income x CEB	0.001	21.569
Culture x CEB	0.651	0.857
Read newspaper x CEB	0.332	2.269
Age at marriage x CEB	0.064	8.892
Survival means x CEB	0.018	11.926
Informal skills	0.021	7.768
Reasons that supports being a Motu Koitabu woman x CEB	0.382	10.688
Married into a clan type x CEB	0.271	5.161
Marriage approval x CEB	0.682	5.600 ^a
Share wealth obtained from bride price consumer goods x CEB	0.078	14.142 ^a

Source: Fieldwork, 2009 (Lavu, 2009)

Appendix Table 6b. Results of the chi square test on childloss by background factors

Background characteristics	Asymp. Sig. (2-sided)	Pearson χ^2 value
Age group x CEBD	0.000	209.121
Age at first birth x CEBD	0.388	15.913
Prefer children x CEBD	0.084	11.149
Ideal number of children x CEBD	0.340	13.415
Belong to a group x CEBD	0.040	8.332
Church x CEBD	0.136	13.634
Education x CEBD	0.835	0.869
Income X CEBD	0.028	18.663
Culture x CEBD	0.651	0.857
Reason for another child x CEBD	0.075	15.647
Income x Education	0.000	37.696

Source: Fieldwork, 2009 (Lavu, 2009)

Appendix Table 6c. Distribution of women by income group according to education level

Income	Percentage of all women by Education		Total (Parentheses the total number of women)	χ^2
	Primary and less	Secondary +		
Income				37.696 ^a
≤K100	80.9	19.1	100 (141)	
K101-K200	77.2	22.8	100 (145)	
K201-K300	66.1	33.9	100 (174)	
K301-K400	63.6	36.4	100 (154)	
≥K401	52.8	47.2	100 (195)	
Total	67.0	33.0	100 (809)	

Appendix Table 6d. Characteristics of the women that do not earn an income

Age	Income				Total
	No wages	Less than K100	K101- K300	K301+	
15-19	6.4%	3.2%	5.0%	1.9%	4.5%
20-24	25.1%	14.7%	13.8%	10.0%	17.9%
25-29	20.2%	16.8%	12.5%	26.9%	20.4%
30-34	15.7%	22.1%	17.5%	20.6%	18.3%
35-39	10.9%	13.7%	20.0%	16.3%	14.0%
40-44	13.1%	16.8%	16.3%	11.3%	13.6%
45-49	8.6%	12.6%	15.0%	13.1%	11.3%
Total	267	95	80	160	602

No wages	Church				Total
	United	Pentecostal	Catholic	Other churches	
	175	48	32	12	267
	65.5%	18.0%	12.0%	4.5%	100.0%

No wages	Education			Total
	No education	Primary	Secondary +	
	12	157	98	267
	4.5%	58.8%	36.7%	100.0%

No wages	Modern famplan use		Total
	No	Yes	
	114	153	267
	42.7%	57.3%	100.0%

Appendix Table 6e. Distribution by Church groups according to education and income

Background characteristics	United (N=413)	Pentecostal (N=88)	Catholic N=(73)	Other churches (N= 28)	Total women (N=602)
Education *					
No education	5.3%	2.3%	4.1%	.0%	27
Primary	55.4%	53.4%	57.5%	39.3%	329
Secondary +	39.2%	44.3%	38.4%	60.7%	246
Income *					
No income	42.37%	54.55%	43.84%	42.86%	267
Less than K100	15.01%	19.32%	15.07%	17.86%	95
K101-K300	13.80%	11.36%	15.07%	7.14%	80
K301+	28.81%	14.77%	26.03%	32.14%	160

*p>0.05

Source: *Fieldwork, 2009 (Lavvu, 2009)*

Appendix 2: Survey Questionnaire

HANUABADA SURVEY - HOUSEHOLD FORM

Name of Head of Household: _____

Household No.(From the house list):

--	--	--

Dwelling No. .(From the house list):

--	--	--

Clan name and number: _____

Sub Village (name and number): _____

Main Village (name) _____

Do you agree to be interviewed? Yes _____ No _____

Name and Signature of Interviewer: _____

Date: _____ Time for interview : _____

Result codes	Record Time	Data Entry Code																
<ol style="list-style-type: none"> 1. Completed 2. No household member /no competent respondent at home 3. Entire household absent for extended period 4. Refused 5. Dwelling destroyed 6. Dwelling not found 7. Other (specify 	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 0 10px;">Hour</td> <td style="padding: 0 10px;">Minutes</td> </tr> <tr> <td style="width: 50px; height: 30px;"></td> <td style="width: 50px; height: 30px;"></td> </tr> </table>	Hour	Minutes			<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td style="width: 33px; height: 33px;"></td><td style="width: 33px; height: 33px;"></td><td style="width: 33px; height: 33px;"></td></tr> <tr><td style="width: 33px; height: 33px;"></td><td style="width: 33px; height: 33px;"></td><td style="width: 33px; height: 33px;"></td></tr> <tr><td style="width: 33px; height: 33px;"></td><td style="width: 33px; height: 33px;"></td><td style="width: 33px; height: 33px;"></td></tr> <tr><td style="width: 33px; height: 33px;"></td><td style="width: 33px; height: 33px;"></td><td style="width: 33px; height: 33px;"></td></tr> </table>												
Hour	Minutes																	

A. HOUSEHOLD FORM

Line No.	Usual Residents and Visitors	Relationship to the head of the household	Sex	Residence		Age	Marital status	Eligibility
a.	<p>1. Please give the names of the persons who usually live in your household and guests of the household who stayed here last night, starting with the head of the household, Record the Head of the household first. After listing the names and recording the relationship and sex for each persons, ask Q4 –Q8</p>	<p>2. What is the relationship of (name) to the head of the household? See codes below</p>	<p>3. Is the (name) male or female? M = 1 F = 2</p>	<p>4. Does (name) usually live here? Yes = 1 No = 2</p>	<p>5. Did (name) stay here last night? Yes = 1 No = 2</p>	<p>6. How old is (name)? Write in years</p>	<p>7. What is the person's (name) current marital status? 1 = Never married 2 = Married or living together 3 = Divorced / Separated 4 = Widowed.</p>	<p>8. Circle line number of All women aged 15-49</p>
01		Head of the household – 01						01
02								02
03								03
04								04
05								05
06								06
07								07
08								08
09								09
10								11
11								12

LINE No.	Usual Residents and Visitors	Relationship to the head of the household	Sex	Residence		Age	Marital status	Eligibility
a.	1. Please give the names of the persons who usually live in your household and guests of the household who stayed here last night, starting with the head of the household, Record the Head of the household first. After listing the names and recording the relationship and sex for each persons, ask Q4 –Q8	2. What is the relationship of (name) to the head of the household? See codes below	3. Is the (name) male or female? M = 1 F = 2	4. Does (name) usually live here? Yes =1 No = 2	5. Did (name) stay here last night? Yes = 1 No = 2	6. How old is (name)? Write in years	7. What is the person's (name) current marital status? 1 = Never married 2= Married or living together 3=Divorced / Separated 4 = Widowed.	8. Circle line number of All women aged 15-49
12								13
13								14
14								15
15								16
16								17
17								18
18								19
19								20

CODES FOR Q. 2: RELATIONSHIP TO HEAD OF HOUSEHOLD

01 = HEAD	09 = BROTHER OR SISTER
02 = WIFE OR HUSBAND	10 = NIECE/NEPHEW BY BLOOD
03 = OWN SON OR DAUGHTER	11 = NIECE / NEPHEW BY MARRIAGE
04 = SON-IN-LAW OR DAUGHTER-IN-LAW	12 = OTHER RELATIVE
05 = GRAND SON OR DAUGHTER	13 = ADOPTED / FOSTER CHILDREN
06 = STEP SON OR DAUGHTER	14 = NOT RELATED
07 = PARENT	98 = DON'T KNOW
08 = PARENT-IN-LAW	

A. HOUSEHOLD FORM

Line No.	Mother alive		Father alive	Education (If 5 years and over)			Economic activity (If 15 years and over)			
	9. Is (name) own mother still alive? 1= Yes 2 =No -> Q11. 8. Don't know -> Q11.	If Q 9 = 1 10. Does (name) natural mother lives in this household? If yes, record mothers person number If No enter 00		11. Is the (name) own father still alive? 1 = Yes 2 =No 8 = Don't know.	12. Has (name) ever been to school? 1 = Yes 2 =No-> Q15 8 = Don't know -> Q15	13. Is (name) currently attending a school? 1 = Yes 2 =No 8 = don't know -> Q15.	14. What is the highest educational level completed/attended by (name)? 00 = no grade completed 01-12 school years (write in grade completed) 13 = Trade certificate 14 = Other certificate 15 = Diploma 16 = Bachelors degree 17 = Post graduate 98 = Don't know	15. Did (name) do any work last week for salary or wages or profit? 1= Yes - > Q17 2= No	16. Did (name) do any work last week to grow food or catch fish or make articles for own use or for sale? 1= Yes 2= No -> Q 18	17. What kind of work did (name) do most of the time last week? (Interviewer = describe the kind of work) ->Q19
01										
02										
03										
04										
05										
06										
07										
08										
09										
10										

Line No.	Mother alive		Father alive	Education (If 5 years and over)			Economic activity (If 15 years and over)			
	9. Is (name) own mother still alive?	10. Does (name) natural mother lives in this household? If yes, record mothers person number If No enter 00		11. Is the (name) own father still alive?	12. Has (name) ever been to school?	13. Is (name) currently attending a school?	14. What is the highest educational level completed/attended by (name)? 00 = no grade completed 01-12 school years (write in the grade completed) 13 = Trade certificate 14 = Other certificate 15 = Diploma 16 = Bachelors degree 17 = Post graduate 98 = Don't know	15. Did (name) do any work last week for salary or wages or profit?	16. Did (name) do any work last week to grow food or catch fish or make articles for own use or for sale?	17. What kind of work did (name) do most of the time last week? (Interviewer = describe the kind of work)
a.	1= Yes 2 =No -> Q11. 8. Don't know -> Q11.		1 = Yes 2 =No 8 = Don't know.	1 = Yes 2 = No -> Q15 8 = Don't know -> Q15	1 = Yes 2 = No 8 = Don't know -> Q15.		1= Yes - > Q17 2= No	1= Yes 2= No -> Q 18		
11										
12										
13										
14										
15										
16										
17										
18										

19.	How many people stayed here last night? (including babies and visitors) Interviewer: confirm numbers from Q1, Q3, and Q4 & Q5 and complete these numbers.	Number of males _____ Number of females _____	
20.	How many women are between the ages 15 and 49 years who are usual residents and visitors of this household? (Please write their names in the next column)	Names of the women aged 15-49 1.----- 2.----- 3.----- 4.----- 5.-----	
SECTION 2. HOUSEHOLD AMENITIES AND SERVICES			
21.	What is the main source of drinking water your household uses?	Piped water into house Piped water into yard Piped into neighborhood (communal)	1 2 3
22.	What kind of toilet facility does your household have?	Flush toilet Own flush toilet Shared flush toilet Pit/latrine toilet Traditional pit latrine Improved latrine Bucket No facility / sea	1 2 1 2 3 4
23.	Does your household have?	Electricity Yes No Radio Yes No Television Yes No Motor vehicle Yes No Telephone Yes No Motor bike Yes No Mobile phone Yes No Boats (dinghies) Yes No Fishing equipment Yes No	1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2
24.	What type of fuel does your household mainly use for cooking?	Electricity Gas Kerosene Charcoal Firewood Other (specify)-----	1 2 3 4 5 6

25.	What is the main source of lighting your household uses?	Electricity Pressure lamp (Coleman) Kerosene lamps Candles Open firewood Other (specify)-----	1 2 3 4 5 6
26.	What is the main material of the floor? Interviewer – record by observation	Earth floor Wood planks Palm / bamboo Polished floor Ceramic tiles Cement Unpolished floor Other (specify)-----	1 2 3 4 5 6 7 8
27.	Do you own this house?	Yes No	1 2
28.	If there is a chance to move from the current place of residence, would you move? If option 2 is selected, ask Q29. If option 1 go to Q30.	Yes No	1 2 →Q30
29.	If you decide not to move why would this be?	My land My home Nowhere to go Family and relatives Others (specify) -----	1 2 3 4 5
30.	Where would you like to move to?	Outskirts of Hanuabada Other villages in NCD Other parts of the city My own land nearby	1 2 3 4

Thank you so much for taking time to answer these questions. Your assistance is appreciated

WOMEN'S FORM

A: Indicative information

Respondent's Name and line number (from the Household Form):

Name of Household Head: _____

Household Number

--	--	--	--

Dwelling Number

--	--	--	--

Clan name and number

Sub Village name _____

Main Village (name): HANUABADA

Name and Signature of Interviewer:

Date: _____ Time for interview : _____

<p>Respondent Code</p> <table border="1" style="width: 100%; height: 20px;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table>			<p>Record Time</p> <table style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;">Hour</td> <td style="width: 50%; text-align: center;">Minutes</td> </tr> <tr> <td style="text-align: center;"> <table border="1" style="width: 100%; height: 20px;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table> </td> <td style="text-align: center;"> <table border="1" style="width: 100%; height: 20px;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table> </td> </tr> </table>	Hour	Minutes	<table border="1" style="width: 100%; height: 20px;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table>			<table border="1" style="width: 100%; height: 20px;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> </table>			<p>Office Use only</p> <p>Data Entry Code</p> <table border="1" style="width: 100%; height: 50px;"> <tr> <td style="width: 20%;">1.</td> <td style="width: 30%;"></td> <td style="width: 30%;"></td> <td style="width: 20%;"></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2.</td> <td></td> <td></td> <td></td> </tr> </table>	1.								2.			
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1.																								
2.																								

1. Response Code
2. Completed
3. No household member /no competent respondent at home
4. Entire household absent for extended period
5. Refused
6. Dwelling vacant/address not a dwelling
7. Dwelling destroyed

SECTION 1: PERSONAL INFORMATION

These questions will apply to women in the ages of 15 – 49 years of age and identified from the household form. (Please write in the answers or circle the appropriate answers)				
1.	In what month and year were you born?	Month		
		Don't know	98	
		No answer	99	
		Year		
		Don't know	98	
		No answer	99	
2.	How old were you on your last birthday?	Age in completed years		
		Don't know	98	
		No answer	99	
3.	For most of the time until you were 12 years old, did you live in Hanuabada, or another town, or in another village?	Hanuabada	1	
		Town	2	→Q 5
		Village	3	→Q 5
4.	How long have you been living continuously in Hanuabada?	Years	1	
		Since Birth	2	
		Visitor	3	→Q 6
5.	Just before you moved here, where did you spend most of your time?	City	1	
		Town	2	
		Village	3	
6.	Have you ever attended school?	Yes	1	
		No	2	→Q 10
7.	Are you currently attending any school?	Yes	1	
		No	2	
8.	What is the highest level of your school completed	Never attended school	1	
		(E/ prep – grade 8) Primary	2	
		(Grade 9 -12) Secondary	3	
		Vocational	4	
		Technical	5	
		Tertiary / College	6	
		University	7	
9.	Have you attended any formal skill training (e.g. tertiary institution)?	Yes	1	→Q 12
		No	2	
10.	Have you attended any basic skills through informal/traditional means (e.g. NGO workshop, apprenticeship, initiation)	Yes	1	
		No	2	→Q 12
11.	What have you learned through informal/traditional means? (e.g. NGO workshop, apprenticeship, <i>Hiri Moale</i>	Earrings	1	
		Shell necklace	2	
		Sewing	3	

	dance practices and initiation) (For example, earrings and shell necklaces, clay pot making, basket making, sewing etc.)	Clay pots Traditional dancing Meaning of Tattoos Others None	4 5 6 7 8	
12.	Can you understand a letter or newspaper easily, with difficulty or not at all in any of the following language? (<i>Circle the appropriate response, multi responses allowed</i>).	Easily in English With difficulty in English Not at all in English Easily in Motu With difficulty in Motu Not at all in Motu Easily in Tok Pisin With difficulty in Tok Pisin Not at all in Tok Pisin	1 2 3 4 5 6 7 8 9	
13.	Do you usually read a newspaper or magazine at least once a week?	Yes No	1 2	
14.	Have you ever been married or lived with a man?	Yes No	1 2	→ Q17
15.	Are you now married or living with a man, or are you now widowed, divorced, or no longer living together?	Now married/living with a man Widowed Divorced No longer living together	1 2 3 4	
16.	How old were you when you started living with your first husband/partner?	Age..... ...		
17.	Are you currently working in a job where you get paid a salary?	Yes No	1 2	→Q 21
18.	How do you make a living?	Selling betelnut Selling ice block Selling cooked food Dependent on other members Other (please specify)	1 2 3 4 5	→Q 21 →Q 21 →Q 21 →Q 21 →Q 21
19.	Is there anyone else who brings income to the household?	Yes No	1 2	→Q 22
20.	Does he/she work in government or private sector or informal activity?	Government Private sector Informal activity Other _____	1 2 3 4	
21.	How much money do you /they make per fortnight? (Please record the answer in the nearest Kina)	Less than 100 100 - 200 200 – 300 300 – 400 400 – 500	1 2 3 4 5	

		500 –600	6	
		600 plus	7	
22.	What is your religion?	Christian	1	
		None	2	→Q 24
		Other (specify) _____	3	→Q 24
23.	Which Christian denomination do you belong to?	Lutheran	1	
		Catholic	2	
		United	3	
		Anglican	4	
		Pentecostal (AOG, CLC, etc)	5	
		SDA.	6	
		Jehovah's Witness	7	
		Other _____	8	

SECTION 2: REPRODUCTION

24.	Have you ever given birth?	Yes	1	
		No	2	→Q 46
25.	How many of your sons are living at home?	Number	_ _	
26.	How many of your daughters are living at home?	Number	_ _	
27.	How many of your sons are living elsewhere?	Number	_ _	
28.	How many of your daughters are living elsewhere?	Number	_ _	
29.	How many of your sons are not alive?	Number	_ _	
30.	How many of your daughters are not alive?	Number	_ _	
31.	<p>(i) Total number of children ever born <i>(Interviewer to add the responses in Q25, Q27, and Q29 to confirm the number of boys and add Q26, Q28 and Q30 to confirm the number of girls) The total number of boys and girls should add up to total number of children ever born</i></p> <p>(ii) Total number of children still living <i>(Interviewer to add the responses in Q25 and Q27 confirm the number of boys still living and add Q26 and Q28 to confirm the number of girls still living) The total number of boys and girls should add up to total number of children ever born</i></p>	<p>Total no. of children ever born</p> <p>Boys</p> <p>Girls</p> <p>Total no. of children still living</p> <p>Boys</p> <p>Girls</p>		

Now I would like to record the names of all your births, whether still alive or not, starting with the first one you had. Record twins and triplets on separate lines. (If there are more than 10 births, use additional form (photocopy), starting with the top row and inserting in column 1 – person 12 and etc).

32. What name was given to your first/next baby?	33. Were any of these births twins? Single = 1 Multiple = 2	34. Is (NAME) a boy or a girl? Male = 1 Female = 2	35. In what month and year was (NAME) born? Probe: what is /her birthday? Month Year	36. Is (NAME) still alive? Yes = 1 No = 2 (Go to Q40)	37. How old was (NAME) at his last birthday? RECORD AGE IN COMPLETED YEARS 00 =less than 1 year	38. Is (NAME) living with you? Yes = 1 (Go to next birth) No = 2	39. With who does (name) live? Father = 1 Relative =2 Someone else = 3 Own house = 4 (Go to next birth)	40. How old was (NAME) when she/he died? If 1 years probe: How many months old was (name)? Days =1 Months = 2 Year = 3	41. Were there any other live births between (NAME OF PREVIOUS BIRTH) and (NAME), including any children who died after birth?
01									
02									
03									
04									
05									
06									
07									
08									
09									
10									
11									

SECTION 3: FAMILY PLANNING KNOWLEDGE AND USE {for all eligible women (15-49)}

Now I would like to talk about family planning – the various ways or methods that a couple can use to delay or avoid a pregnancy. Which ways or methods have you heard about?
Circle code '1' in Q51 for each method mentioned spontaneously. Then proceed down the column, reading the name description of each method not mentioned spontaneously. Circle code '2' if method is recognized and code '3' if not recognized, then for each method with code '1' or code '2' circled in Q51 and ask Q52 and Q53 before proceeding to the next method.

Descriptions of each method	42. Have you ever heard of (Method)? <i>Read description of each method.</i>	43. Have you ever used (method)?	44. . Do you know where a person could go to get a method?.
Pill: Women can take pill every day to avoid becoming pregnant?	Yes/spont.....1 Yes / probe.....2 No.....3	Yes1 No.....2	Yes1 No.....2
IUD: Women can have a loop or coil placed inside them by a doctor or a nurse?	Yes/spont.....1 Yes / probe.....2 No.....3	Yes1 No.....2	Yes1 No.....2
Injections: Women can have an injection by a doctor or a nurse which stops them from becoming pregnant for several months?	Yes/spont.....1 Yes / probe.....2 No.....3	Yes1 No.....2	Yes1 No.....2
Diaphragm/foam/jelly: Women can place a sponge diaphragm or jelly before intercourse?	Yes/spont.....1 Yes / probe.....2 No.....3	Yes1 No.....2	Yes1 No.....2
Condom: Men and women can use rubber sheath during sexual intercourse?	Yes/spont.....1 Yes / probe.....2 No.....3	Yes1 No.....2	Yes1 No.....2
Female sterilization: women can have an operation to avoid having any more children?.	Yes/spont.....1 Yes / probe.....2 No.....3	Yes1 No.....2	Yes1 No.....2
Male sterilization: men can have an operation to avoid having any more children?	Yes/spont.....1 Yes / probe.....2 No.....3	Yes1 No.....2	Yes1 No.....2
Rhythm method: Every month that a women is sexually active she can avoid pregnancy by not having sexual intercourse on the days of the month	Yes/spont.....1 Yes / probe.....2 No.....3	Yes1 No.....2	

she is likely to get pregnant?			
Withdrawal: Men can be careful and pull out before climax?	Yes/spont.....1 Yes / probe.....2 No.....3	Yes1 No.....2	
Have you heard of any ways or methods that a woman or men can use to avoid pregnancy?. Specify_____	Yes/spont.....1 No.....2	Yes1 No.....2	Yes1 No.....2

SECTION 4: FERTILITY PREFERENCES (This section applies to all selected women aged 15-49)

45.	Think back to when you were expecting, would you have liked another or would you prefer not to have any more child?	Have another child? No more children Not up to me to decide	1 2 3	→Q57 →Q58
46.	Would you have liked to have a boy or a girl?	Boy Girl	1 2	
47.	What is the main reason why you would like another child?	Love for children Family wish' Husband's wish Old age security Gift from God Recent child health Other	1 2 3 4 5 6 7	→Q58 →Q58 →Q58 →Q58 →Q58 →Q58
48.	What is the main reason why you would not like another child?	Medical reason Financial reason Have enough children For career reason Single parent Other	1 2 3 4 5 6	
49.	Who would decide how many children you have?	You Husband You and husband My mother My mother in law Husbands clan My clan	1 2 3 4 5 6 7	
50.	If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?	Number ----- -----		
51.	After the birth of the last child, why did you decide not to use child spacing/ family planning?	Side effects Afraid could not give birth again Not effective	1 2 3	

		Husband/other relative opposed Clinic too far away Costs too much Trouble getting pregnant Wants another child Desires many children Promotes promiscuity Other reasons_____	4 5 6 7 8 9 10 11	
52.	As you know, there are now new methods for child spacing and for family planning; such as, pills, injections, the loop, and others. What are your biggest concerns about using any of these methods?	Side effects Afraid could not give birth again Not effective Husband/other relative opposed Clinic too far away Costs too much Trouble getting pregnant Wants another child Desires many children Promotes promiscuity Other reasons _____	1 2 3 4 5 6 7 8 9 10 11	
53.	And what about the traditional methods? I mean the herbs or medicines, or ejaculation/climax outside, or abstinence (have a break) or the rhythm method (periodic). What are your biggest concerns about using traditional methods?	Side effects Afraid could not give birth again Not effective Husband/other relative opposed Trouble getting pregnant Wants another child Desires many children Promotes promiscuity Other reasons _____	1 2 3 4 5 6 7 8 9	
54.	Do you think that women who use modern child spacing/family planning methods might not be able to have more children when they want?	Yes No Don't know	1 2 98	
55.	Have you and your husband/partner ever talked about using modern child spacing/ family planning? <i>If a woman is widowed or separated, ask about the time before Husbands death or separation.</i>	Yes No Don't know	1 2 98	
56.	If you wanted to use modern child spacing/ family planning, do you think he would agree?	Yes No Don't know	1 2 98	

57.	How many people have you chatted with about modern methods of child spacing/family planning? I mean people other than your husband or partner?	None	1	
		At least 1 person	2	
		Between 2 to 3 people	3	
		More than 3 people	4	
58.	Who do you discuss these issues with?	Friends	1	
		Young people	2	
		Other women	3	
		Other relatives	4	
		Children	5	
		No one	6	

SECTION 5: SOCIAL AND CULTURAL PRACTICES

No.	Questions	Coding categories	Skip to	
59.	Do you belong to a women's group?	Yes	1	→Q 70
		No	2	
60.	Is it a church group or a non government group?	Church	1	
		Non government	2	
61.	Is there something that you currently practice that makes you feel like a Motu-Koitabu person: old age support, continuation of lineages, strength and security for the clan group and tribe, or other value/principle, celebratory ritual or belief?	Old age support	1	
		Continuation of lineages	2	
		Security for the clan group	3	
		Other value	4	
		Celebratory ritual or belief	5	
		None	6	
62.	Are you married into a clan that owns no land, some land rights, and main land owners?	No land	1	
		Users of land/land rights	2	
		Owners of land	3	
63.	Was your marriage approved by your family, your husband family, your own choice?	Family	1	
		Husbands family	2	
		Both 1 & 2	3	
		My choice	4	
		Other	5	

64.	Do you share wealth obtained from bride prices in clan group?	Food – (garden food and pig)	1	
		Food – (rice/flour/sugar)	2	
		Arm shells	3	
		Other household items	4	
		All of the above	5	
		None	6	
		None	6	
65.	If there is a chance to move from the current place of residence, would you move?	Yes	1	→ Q76
		No	2	

66.	If you decide not to move why would this be?	My land Nowhere to go Others (specify) ----- -----	1 2 3	
67.	Where would you like to move to?	Outskirts of Hanuabada Other villages in NCD Other parts of the city My own land nearby	1 2 3 4	

Thank you so very much for taking time to answer these questions. Your assistance is appreciated.

Appendix 3 Detailed descriptions of Questionnaires

3.1 The Household Questionnaire

The purpose of administering the household questionnaire was to identify and collect information about household characteristics and women in reproductive ages eligible for the selection of the women's sample. In search for the eligible women, the household questionnaire was used to list all the usual members and visitors in the selected households. Based on the demographic and health survey approach, selected basic information was collected on the characteristics of each person listed in the household. In addition, information was collected about the dwelling itself. To collect such information, the questionnaire was divided into several sections. Each section is described under their respective headings and modified to reflect the contents of survey beginning with the general description of the questionnaire as suggested (Macro International 2006, pp. 1-2)

Background information

This section provides useful background information about the household where the selected respondent lives. The household questionnaire contains general demographic information of all persons listed in the selected household. This includes relationship with the head of the household, sex, usual place of residence, current place of residence, age, marital status, survival status of own mother and survival status of own father. In addition, information was collected about the dwelling itself, such as the source of water, type of toilet facilities, and ownership of various consumer goods. The next paragraphs that follow will discuss selected variables collected through the household questionnaire.

Education

Questions on education were asked of each member of the household. These included questions on whether the respondent had ever been to school, and the respondent's current school attendance and highest educational level attained.

Economic Activity

The household members were asked about their economic activities. In line with the international labour organization (ILO) Convention No. 138: Minimum Age, 1973, Article 2, allow for any employee to be over 15 years or more (<http://www.ilocarib.org.tt/projects/childlabour/legislation.htm>). On these bases, the questions were asked to individuals aged 15 years and over as to whether they worked for salary or wages or profit over 1 week. For those who did not do any of those activities, they were asked whether they did any work relating to own use or for profit. For those who were involved in some kind of activity, specific activities were listed to identify their own status.

Household facilities and various consumer goods

The household form contained questions to elicit information on household facilities and consumer goods owned by the household. The household facilities which included source of drinking water, toilet facility (type of toilet), fuel for cooking, source of lighting, access to electricity, type of floor material and house ownership. The household consumer goods included ownership of radio, television, motor vehicle, telephone, motor bike, mobile phone, out board motor boats, (dinghies) and fishing equipment.

3.2 The Women's Questionnaire

As the main data source, the women's questionnaire was designed to collect detailed information from women of reproductive ages 15 to 49 years, irrespective of marital status at the time of the survey and residing in the selected households. . The women's questionnaire comprises seven sections. While all the sections are modified versions of the Measure DHS module (ORC Macro International 2007), the questions were tailored to suit the study population. The additional section in this questionnaire was included for collecting information on social and cultural practices of the women. This additional section included questions about personal information, reproduction, breastfeeding, pregnancy, knowledge and use of family planning and fertility preferences.

The questionnaire was administered by female interviewers with at least Grade 10 education and some experience in census and survey interviewing in the recent past. These female interviewers were recruited from Hanuabada and were trained by the present researcher to administer the questionnaires to the selected respondents on a one to one basis. The details of the training are outlined in section chapter 3 of section 3.4.3. The paragraphs that follow describe the contents of the women's questionnaires.

Section 1 Background Q1 – Q2

This section covers general demographic questions on dates of birth, age in completed years, place of birth, length of residence and previous status of moves. Both the month and year of birth and the age at last birthday were asked. Although the interviewer was instructed to reconcile birth date and age in case of inconsistencies, nearly all respondents had their dates of birth recorded. Woman's birth dates and age are among the most important information of the interview, since almost all analysis of the survey data depends on the respondent's age.

Childhood residence and mobility Q3 – Q5

Questions asked were on child hood residence and also mobility. These questions are intended to provide a basis for developing an index for migration. Such an index has shown greater analytical power for explaining childhood or current residence.

As contracting HIV is high in PNG and this village is surrounded by the nation's capital city. This is where high rates of in migration occur. The un seen indulgence of extra marital relations are channels of unwanted diseases and this behaviour bring the potential for high-risk sexual behaviour that can increase an individual's chance of exposure to HIV and other sexually transmitted diseases.

Education and Literacy Q6 – Q8

Education is an important factor in examining the demographic behaviour of a society. It segregates groups according to categories where behavioural changes become evident. Each woman was asked three questions relating to her education status. This included questions on school attendance, current school attendance and highest educational level.

Skills training Q9 – Q11

The skills attained from informal gatherings and workshops are an integral part of a woman's life. Skills acquired from these informal gatherings are necessary when creating art and craft in a woman's life particularly in a village situation. This is another means of earning some money that supports the family's income in an urban setting. Questions were concerning whether women attended formal skills training as well as informal skills. List of possible skills were listed for the respondents to choose from.

Literacy Q12 – Q13

The women were also asked questions relating to understanding in three different languages. They were given three language options to choose from, English, Motu and Tok Pisin as the three are recognised main languages in the country. The second question was about reading a newspaper or a magazine. Exposure to information and contemporary ideas through newspapers and magazines are an important tool in adopting healthy attitudes and behaviours, fertility control, and a healthy lifestyle. Both are important to estimate the proportion of various groupings. The responses recorded were what the respondents said. These questions are intended to provide a simple index of such exposure.

Marriage Q14 – Q16

Questions asked concerning marriage began with respondent's history of being married or living with a partner or husband. It then asks about the respondent's current marital status and then age at marriage or when living with a partner started. These are core data for compiling demographic variables as they determine demographic behaviour.

Economic activity Q17 –Q21

This set of questions enquired about the work status and earnings of the women. For those who worked for a salary or a wage, a range of numbers were given to establish their income. However, in the case where the respondent did not earn money through a paid wages or salary, a question was asked on who was helping them to survive in this village. Another question was asked to find out whether they were working for

the private or public or informal sector. The income questions were of all persons who earned some money for survival in the village, however these questions were of special significance for women.

Religion Q22 – Q23

These questions are useful as the information obtained through them has implications for the demographic behaviour of those who are active Christian church goers. Women in this village live their lives centred on church activities. Although in most cases, they are not paid for attending the Church services, it is an activity out of home duties and is considered important. The identity of what church they affiliate to is also important.

Section 2 Reproduction Q24 – Q41

Lifetime fertility questions are standard preliminary questions aimed at determining the total number of births (and infant/child deaths) in the woman's history and set the stage for the detailed birth history. Questions in the present study elicited information about live-born children of each sex living at home, those living away, and those who have died. The series of questions, categorised by sex improves reporting.

The detailed birth history is the heart of the questionnaire and provides the data from which estimates of fertility and infant and child mortality rates are derived. Complete birth histories clearly have the advantage of supplying a much richer dataset to study fertility. The current study implemented the detail questioning.

Section 3 Contraception Q42 – Q44

This group of questions conveys the concept of contraception to the respondent and asks about her knowledge and ever use of a list of contraceptive methods and the sources where they can obtain the methods. The method-by-method recital provides the framework for subsequent questions about family planning and is critical to obtaining complete reporting of both ever use and current use of contraception. However, in the present case, the respondents were asked only about ever use of contraception.

Section 4 Fertility preferences Q45 – Q58

This particular section asked questions relating to women's desire for additional children since most the recent birth, and the reasons why they would like/would not like another child. The other questions elicited information about the respondent's decision on family size, why they do not want to use family planning, concerns about using modern and traditional family planning methods. Information was also collected on general communication about family planning with various people in a woman's life indicating social network interactions.

Section 5 Social and Cultural features Q59 – Q67

The aim of this group of questions was to obtain information concerning the women's daily participation in activities that reflected their social and cultural characteristics and their social networks. This included their participations in social groups, their thoughts relating to old age support, continuation of lineages, deeds of sharing and participation relating to activities of marriage and mortuary events. This included sharing, land ownership and use rights, and decision making types relating marriage.

The three last questions were concerning their desire to move, and why, and where they would like move to. This was to determine whether they were happy with the current place of residences as the original village livelihood have shifted from own consumption subsistence to cash economy.

APPENDIX 4: EXAMPLE OF A FOCUS GROUP DISCUSSION QUESTIONS

Introduction

My research is about understanding the demographic behaviour of the Motu Koitabu people. I would like to add to what I have gathered in the survey about the general feeling of the way people live and how they relate to each other. My work is focused on Hanuabada. I would be grateful therefore if during this interview I could develop an understanding of the socioeconomic factors and the customs that support the decisions that are made in their demographic behaviour.

My questions will be along the lines of:

What is a large or small family in your opinion?.

Does a large or small family size affects decisions and behaviour related to having children?.

Are large families rewarded by a greater share of land belonging to the lineage or clan?"

How important are church activities for kinship/ family relations?

Is there any opportunity for people in the village to get knowledge about family planning from the Church, NGOs or family planning department/ministry of health? If yes, is this kind of learning important for your family's decision making about having children?"

Why are women of Hanuabada not using family planning to limit and space their family sizes?

If there are no family planning services available in the village, why do you think women will not visit other clinics in other parts of the city?

Do you think Motu-Koitabu people live in constrained conditions in Hanuabada? If yes, why?

What made non Motu-Koitabu persons come to live in this village?

Do people of Motu Koitabu origin wish that they were living in another suburb in the city?

How do the Motu Koitabu people feel about possible benefits from the developments of the Liquefied Natural Gas (LNG) projects within the area?

Thank you very much for answering the questions.

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