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POPULATION CHANGE IN BRUNEI DARUSSALAM

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Thesis submitted for the Degree of Master of Arts in
Social Science in the Faculty of Social Sciences,
University of Durham, England

June, 1987



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To

Pengiran Mohamed

Awangku Anwar Ridhwan

Dayangku Raidah Hayati

Awangku Muhammad Akmal

ABSTRACT

This study attempts to examine the principal aspects of demography which contribute to the growth and change of the population of Brunei Darussalam. The central consideration is the dramatic change which has taken place since the War. The study concentrates in analysing the demographic components, mortality, fertility and migration. In doing so, attempts are made to make the thesis explanatory rather than mere description and interpretation of data. However, this is difficult as relevant local information are very scanty.

Mortality analyses include the trends, age differentials, life expectancy and causes of death. The investigation into fertility is more limited due to lack of pertinent data. However, important aspects such as the trends and fertility differentials are presented. Factors influencing mortality and fertility decline are also incorporated.

The study of migration deals mainly with the trend of labour immigration, and the distribution, composition, and age-sex structure of immigrants, along with government resettlement schemes.

The changes in mortality, fertility and immigration are reflected in the age-sex structure and composition of the population. Fairly detailed analyses of these characteristics

are therefore made as well as the marital status, ethnic and religious compositions.

The socio-economic characteristics, education and the working population are also analysed, including immigrant workers. In general these characteristics should serve as causal factors contributing to the decline of fertility and mortality.

The final chapter summarizes the preceding six chapters. In addition attempts are made to apply the demographic experience of Brunei to the demographic transition model. Finally, brief comments on the desirability of a population policy are attempted.

The thesis is mainly based on the 1971 and 1981 censuses, and throughout the study comparisons are made between Brunei demographic experience and characteristics with those of comparable countries in Southeast Asia as well as the oil-rich countries of the Gulf. Such comparative analyses should provide better understanding of the different demographic aspects of the population of Brunei Darussalam.

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My appreciation goes to my parents for their moral support and pray for my success. Finally, I am especially grateful for the patience of my husband, Pengiran Mohamed, and my children, Awangku Anwar Ridhwan, Dayangku Raidah Hayati and Awangku Muhammad Akmal, who waited without complaining.

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CONTENTS

	Page
Abstract	i
Acknowledgement	iii
Contents	iv
List of Tables	viii
List of Figures	xiii
INTRODUCTION	1
CHAPTER ONE: HISTORICAL REVIEW OF POPULATION GROWTH OF BRUNEI DARUSSALAM, 1947-1984	
1.1 Introduction	5
1.2 Population Growth of Brunei Darussalam, Sabah and Sarawak until 1960	6
1.2.1 The Growth of Indigenous and Non-Indigenous Population	8
1.2.2 The Growth of the Total Population	11
1.2.3 Fertility and Mortality	15
1.2.4 Immigration in Brunei, Sabah and Sarawak ...	17
1.3 Population Growth of Brunei Darussalam and the Gulf Countries, 1965-1984	26
1.3.1 Natural Increase	34
1.3.2 Immigration	41
1.4 Conclusion	46
References	50
CHAPTER TWO: MORTALITY 1947-1984	
2.1 Introduction	53
2.2 Trends in Mortality	54

	Page
2.3 Age-Specific Mortality Rates	58
2.4. Infant and Child Mortality	62
2.5 Mortality Differential by Sex	70
2.6 Life Expectancy	74
2.7 Causes of Death	83
2.8 Factors Influencing Mortality	86
2.9 Conclusion	92
References	94

CHAPTER THREE: FERTILITY, 1965-1984

3.1 Introduction	96
3.2 The Trend of Fertility	97
3.3 Fertility Differentials	108
3.4 Factors Influencing Fertility Changes	113
3.5 Conclusion	119
References	121

CHAPTER FOUR: MIGRATION

4.1 Introduction	122
4.2 Trends in Migration	124
4.3 The Distribution of Immigrant Population	130
4.4 Immigrant Composition by Ethnic Groups	132
4.5 Immigrant Population by Residential Status	135
4.6 Immigrant Population by Sex and Age Groups.....	137
4.7 Differential in the Age-Sex Structure of the Immigrant and Non-Immigrant Populations.....	141
4.8 Internal Migration	146

	Page
4.9 The Government Population Redistribution Scheme...	151
4.10 Conclusion	154
References	157

CHAPTER FIVE: POPULATION STRUCTURE AND COMPOSITION

5.1 Introduction	158
5.2 Age-Structure	159
5.3 The Growth of Different Ethnic Groups.....	169
5.3.1 Age-Structure of Ethnic Groups	176
5.4 Sex Composition	179
5.4.1 Sex Ratios by Ethnic Groups and Districts ..	183
5.5 Marital Composition	186
5.5.1 Marital Composition by Age and Sex	189
5.5.2 Marital Status by Communities, Sex and Age..	192
5.6 Muslim Marriages	200
5.7 Religious Composition	202
5.7.1 Population of different religions	203
5.7.2 Residential differentiation of religious composition	206
5.7 Conclusion	209
References	212

CHAPTER SIX: RECENT SOCIAL CHANGES IN THE POPULATION OF BRUNEI DARUSSALAM

6.1 Introduction.....	213
6.2 Educational Characteristics.....	214
6.2.1 Literacy Rates of the Total Population Aged 9 Years and Over	216

	Page
6.2.2 Differential in Literacy Rates between Urban and Rural Populations	224
6.2.3 Differential in Literacy between Male and Female Populations Aged 9 Years and Over ...	228
6.2.4 Differential in Literacy between Ethnic Groups Aged 9 Years and Over, 1971 and 1981.	233
6.2.5 Level of Education of Population Aged 9 Years and Over	236
6.3 Economic Characteristics.....	242
6.3.1 Working Population	245
6.3.2 Age-Specific Participation Rates	251
6.3.3 Employment by Major Industrial Sectors	254
6.3.4 Distribution of Male and Female Working Populations by Industrial Groups	257
6.3.5 Immigrant Workers	259
6.3.6 Citizen and Non-Citizen Workers	266
6.3.7 Non-Citizen Male and Female Working Populations by Industrial Groups	271
6.3.8 Occupational Status	274
6.4 The Influence of Literacy, Education and Employment on Mortality and Fertility	278
6.5 Conclusion	284
References	288
 CHAPTER SEVEN: PAST, PRESENT AND FUTURE	 290
 References	 299
 BIBLIOGRAPHY	 300

LIST OF TABLES

Table	Page
1.1 The Growth of the Indigenous and Non-Indigenous Populations of Sabah, Brunei and Sarawak, 1911-60.	9
1.2 Total Population of Sabah, Brunei and Sarawak Enumerated by the Censuses, 1960-81	12
1.3 Population of Sabah, Brunei and Sarawak by Communities, 1921-60	19
1.4 The Proportion of Indigenous and Non-Indigenous Populations of Sabah, Brunei and Sarawak to Total Populations, 1921-60	22
1.5 Summary of Records of Post-War Immigration / Emigration into Sarawak, Sabah and Brunei	24
1.6 Mid-Year Population Estimates of Brunei and the Gulf Countries, 1950-85	32
1.7 Average Annual Growth Rate, 1950-1985	32
1.8 Population Growth of the Gulf States, 1975-80	36
1.9 Estimated Total Population and components of Population Change in Brunei Darussalam and the Gulf States, Mid-1986	39
1.10 Total and Foreign Populations and Labour Force in Labour-Importing Arab Countries, 1980	44
2.1 Annual Crude Death Rates (CDR) of Brunei Darussalam, 1947-84	56
2.2 Quinquennial Crude Death Rates of Selected Southeast Asian Countries, 1945-84	56
2.3 Age-Specific Mortality Rates (nM_x), 1947-84	59
2.4 Selected Annual Infant Mortality Rates (IMR) of Brunei, by Sex, 1955-84	64
2.5 Quinquennial Infant Mortality Rates for Selected Southeast Asian Countries, 1945-84	64

Table	Page
2.6 Death Rates Brunei Darussalam of by Age and Sex, 1947-84	71
2.7a Period Abridged Life Tables for Female Population of Brunei Darussalam, 1947, 1971 and 1981	75-7
2.7b Period Abridged Life Tables for Males Population of Brunei Darussalam, 1947, 1971 and 1984	79-81
2.8 Death by Major Causes, 1965-82	85
3.1 Crude Birth Rates (CBR) of Brunei Darussalam, 1965-84	98
3.2 Age-Specific Fertility Rates (ASFR) of Brunei Darussalam, 1973, 1978 and 1983	101
3.3 Age-Specific Fertility Rates For Selected Southeast Asian Countries, 1979-83	104
3.4 Differentials in Child-Women Ratio by, Ethnic Groups, 1971 and 1981	109
3.5 Differentials in Child-Women Ratio between Urban and Rural Populations, 1971 and 1984	113
3.6 Changes in the Proportion of Married Women by Age Groups, 1971 and 1981	114
3.7 Female Employment Aged 15 Years and Over by Age Groups, 1971 and 1981	116
3.8 Employment of Married Women by Age Groups, 1971 and 1981	117
4.1 Immigrant Population by Year of Arrival, 1961-71 (according to Immigration Department Records)	126
4.2 Immigrant Population by Year of Arrival, 1960-1981	127
4.3 Percentage of Immigrant Population to Total Population by Year of Arrival, 1961-81	128
4.4 The Distribution of Immigrant Population, 1981 ...	131
4.5 The Composition of Immigrant and Non-Immigrant Population, 1960-1981	133
4.6 Immigrant Population by Residential Status, 1971 and 1981	136

Table	Page
4.7 Immigrant Population by Residential Status and Sex	136
4.8 Immigration Population by Age Groups in Brunei Darussalam, 1971 and 1981	138
4.9 The Broad Age Structure and Median Age of Native and Foreign Born Populations, 1981	142
4.10 Native and Foreign Born Population by Age and Sex Groups, 1981	144
4.11 The Growth of Population of the Districts since 1911	148
5.1 Percent Distribution of Population by Broad Age Groups, 1947-1984	160
5.2 Age-Dependency Ratios, 1947-84	163
5.3 Percent of Total Male and Female Populations in Five-Year Age Groups, 1947-84	165
5.4 The Growth of the Total Population by Ethnic Groups, 1921-1981	172
5.5 Percentage of Total Male and Female Populations in Five-Year Age Groups, 1971 and 1981	177
5.6 Sex Ratios for the Age Groups of the Total Population, 1947-84	181
5.7 Sex Ratios of Total Population by Ethnic Groups and Districts, 1960-84	184
5.8 Total Population Aged 15 Years and Over by Sex and Marital Status, 1971-81	187
5.9 Marital Status of Population Aged 15 Years and Over by Age and Sex, 1971-81	191
5.10 Percentage of Population Aged 10 Years and Over by Sex, Marital Status and Ethnic Groups, 1971-81	193
5.11 Percent of Population aged 10 Years and Over by Marital Status, Ethnic Groups and Age-Sex Groups, 1981	195-7
5.12 Median Age of Muslim Brides and Grooms, 1965-84 ..	201
5.13 Religious Composition of the Population of Brunei Darussalam, 1947-81	204

Table	Page
5.14 Total Populations By Religios and Census Districts.....	207
6.1 Percentage of Literacy of the Total Population Aged 9 Years and Over, ...	217
6.2 Literacy Rates Per Thousand Population Aged 10 Years and Over by Age Groups	220
6.3 Literacy Rates Per Thousand Population Aged 10 Years and Over, by Residential Status, 1981	222
6.4 Numbers and Percent Literates of Brunei and the Gulf States Aged 15 Years and Over, by Sex, 1980 .	223
6.5 Literacy of Population Aged 9 Years and Over, Urban and Rural Areas	225
6.6 Number and Percentages of Literates and Illiterates in the Total Population Aged 9 Years and Over, by Sex and age Groups, 1981	229
6.7 Literacy Rates Per Thousand Population Aged 10 Years and Over, 1960-81	231
6.8 Literacy of Population Aged 9 Years and Over, by Ethnic Groups, 1971 and 1981	234
6.9 Numbers and Percent Distribution of School Attendance of Population Aged 5 Years and Over, by Sex and Levels of Education, 1971 and 1981	238
6.10 Gross Enrollment Ratios by Level of Education (expressed as a percentage of age group) in ASEAN Countries and the Gulf States, 1981	241
6.11 Activity Status of Persons, 15 Years and Over, 1971 and 1981	247
6.12 Age-Sex Distribution of Economically Active Population, 1971 and 1981	249
6.13 Age-Specific Participation rates, 1960, 1971 and 1981	252
6.14 Numbers and Percent Distribution of Employment by Sectors, 1971 and 1981	255
6.15 Percent Distribution of Total Working Population by Industrial Sectors, 1960, 1971 and 1981	256

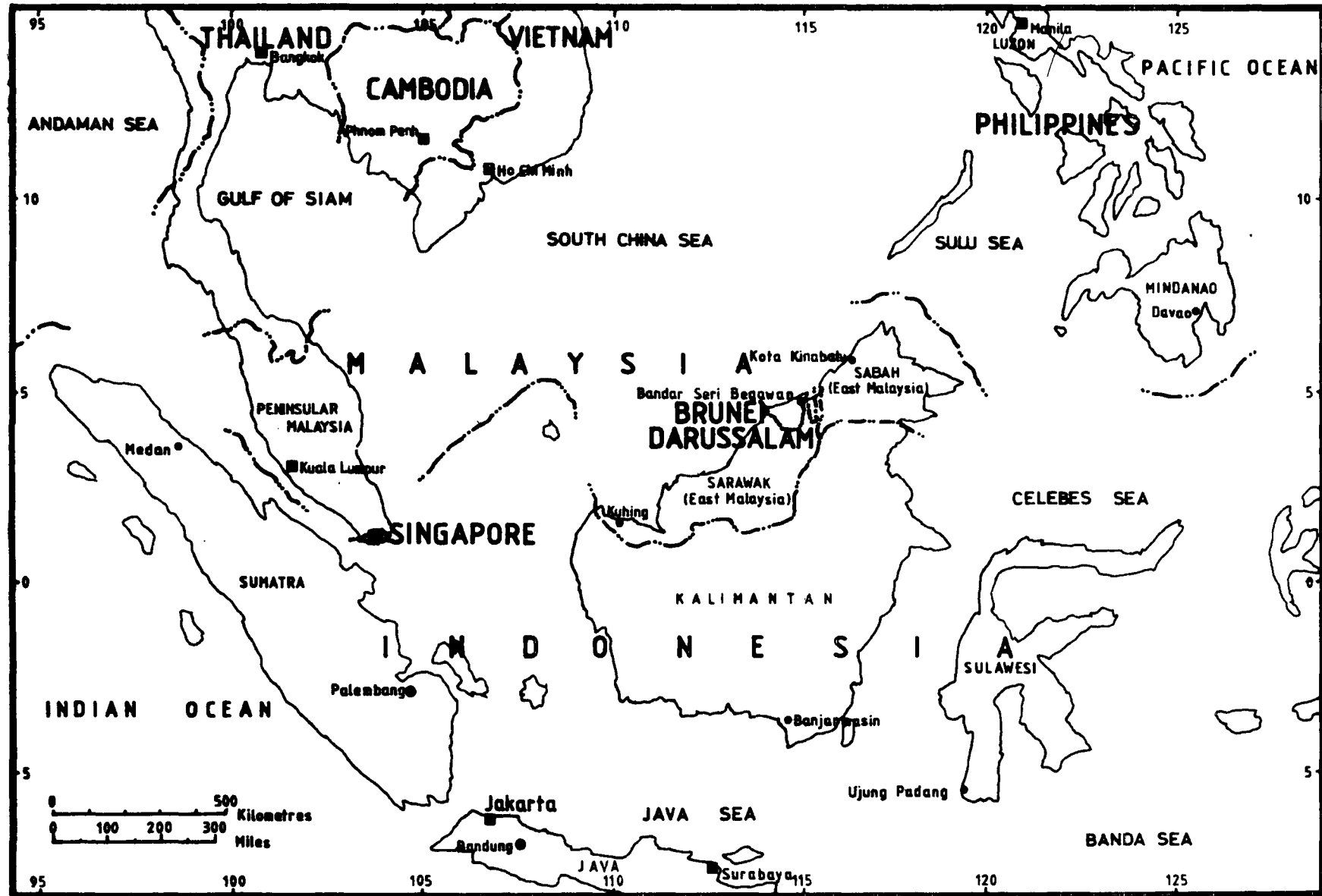
Table	Page
6.16 Percent Distribution of Working by Industrial Groups and Sex	258
6.17 Working Immigrants by Major Industrial Groups and Districts, and Proportions to Total Working Population, 1971	261
6.18 Immigrant Population by Major Occupational Groups and Districts, and Proportion to Total Working Population, 1971	262
6.19 Working Population by Major Group Industries, Occupations, Districts and Residential Status, 1971 and 1981	269
6.20 The Proportion of Working Citizens and Non-Citizens to Total Working Population by Major Industrial Groups, 1971 and 1981	270
6.21 The Proportion of Working Citizens and Non-Citizensto Total Working Population by Occupational Groups, 1971 and 1981	272
6.22 Percent Distribution of Male and Female Non-Citizen Workers by Industrial Groups, 1971 and 1981	273
6.23 Percent Distribution of Total Population Aged 15 Years and Over by Type of activity Status and Sex, 1971 and 1981	275
6.24 Unemployment by Residential Status, 1981	277

LIST OF FIGURES

Figure	Page
The Location of Brunei Darussalam in Southeast Asia	xv
1.1 The Trend of Population Growth of Brunei and the Gulf States, 1950-1985	33
2.1 Crude Death Rates of Brunei, 1947-1984	57
2.2 Quinquennial Crude Death Rates of Brunei, Peninsular Malaysia and Singapore, 1945-84	57
2.3 Age-Specific Mortality Rates (nM_x) of Brunei, 1947, 1971 and 1981	60
2.4 Infant Mortality Rates of Brunei by Sex, 1955-1982.	65
2.5 Quinquennial Infant Mortality Rates of Selected Southeast Asian Countries, 1945-1984	65
2.6 Age-Specific Mortality Rates Rates	72
2.7a Curves of Life Table Function, nq_x , nd_x , I_x and e_x of Females, 1947, 1971 and 1984	78
2.7b Curves of Life Table Function, nq_x , nd_x , I_x and e_x of Males, 1947, 1971 and 1984	82
3.1 Crude Birth Rates for Asian Countries, 1983	99
3.2 Age-Specific Fertility Rates of Brunei, 1973, 1978 and 1983	102
3.3 Comparison of Curves showing Age-Specific Fertility Rates among Selected Southeast Asian Countries	106
4.1 Immigrant Population by Year of Arrival, 1971 and 1981	139
4.2 Age-Sex Structure and Age Groups of Immigrant and Non-Immigrant Population of Brunei, 1981	145
5.1 The Changing Proportion of Four Age Groups of Brunei, 1947-1984	161

Figure	Page
5.2 Population Pyramids of Total Males and Females in Five-Year Age Groups	166
5.3 The Growth of the Population of Brunei by Ethnic Groups, 1921-1981	173
5.4 Population Composition of Brunei by Ethnic Groups, 1921-1981	175
5.5 Age-Sex Pyramids of Male and Female Population by Community in Five-Year Age Groups, 1971 and 1981 ..	178
5.6 Sex Ratio for Age Groups of the Total Population, 1947-1984	182
5.7 Marital Proportion of Population Aged 15 Years and Over	188
5.8 Religious Composition of Total Population, 1947-1981	205
5.9 Proportion of Religious Groups in Brunei Darussalam, 1981	208
6.1 The Growth of Literacy of Total Population Aged 9 Years and Over, 1931-81	218
6.2 Literacy Rates Per Thousand Population by Age Group, 1947-81	221
6.3 Percentage Literate and Illiterate in Total Population Aged 9 Years and Over, by Sex and Age Group, 1981	230
6.4 Literacy Rates of Population Aged 10 Years and Over by Sex and Age Groups, 1961, 1971 and 1981 ..	232
6.5 Economically Active Population by Sex and Age Group, 1971 and 1981	250
6.6 Age-Sex Specific Participation Rates, 1960, 1971 and 1981	253
7.1 Demographic Transition in Thirty Eight Countries With More Than 50% Muslims (excluding Western Shara for which no data are available)	294

THE LOCATION OF BRUNEI DARUSSALAM IN SOUTHEAST ASIA.



INTRODUCTION

The main concern of this thesis is the study of the changes in the demographic trends and characteristics of the population of Brunei Darussalam. The investigation is confined to the period prior to World War II and the post-war years, but attention is concentrated on the demographic experience between 1960 and 1984. In order to provide more meaningful statistical interpretations of the findings, the results of analyses are compared with those of other comparable countries, especially the oil-rich Islamic countries, Bahrain, Kuwait, Oman, Qatar and the United Arab Emirates; whenever appropriate, comparisons are made between Brunei and other countries in the Southeast Asian region.

The first chapter explores the historical demographic experience of Brunei both before and after World War II, hence the chapter mainly contains two sections: the first compares the demographic changes between Brunei and the two East Malaysian States of Sabah and Sarawak during the years prior to the War, while comparative study in the second section is made between Brunei and the Gulf States for the period after the War. The demographic factors considered are mortality, fertility and immigration, all of which affect population growth.



More detailed and recent analyses of these demographic components are dealt with separately in Chapter Two, Three and Four. These are thought to be necessary as knowledge of their evolution may help to understand the present demographic characteristics.

Mortality, which is examined in Chapter Two, is concerned mainly with mortality changes before and after the War. Detailed investigations into infant mortality, age-specific mortality, and differential in mortality are included. In addition causes of death, life expectancy and factors responsible for mortality changes are attempted.

Chapter Three is confined to the study of fertility changes. This chapter is relatively short due to unavailability of relevant data. However, important aspects such as the trend of fertility, differentials in fertility and factors influencing fertility changes are incorporated.

The fourth chapter deals with migration. The focus of investigation is the trend of immigration, especially since the discovery of oil. The composition of immigrants by sex and ethnic origin, and their distribution by residential status are considered. Internal migration, both voluntary and organized by government through its resettlement schemes are also presented.

In Chapter Five, detailed investigation into changes in the characteristics of the population of Brunei takes place.

Important aspects that are explored include age-sex structure and composition, as well as marital composition and the ethnic diversity of the population and the growth of the ethnic groups. Furthermore, marital composition by age and sex is revealed, with special reference to Muslim marriages and religious composition of the total population.

The sixth chapter is on socio-economic characteristics, which mainly deal with changes in literacy, education and the working population. Although these aspects of population are not really demographic in nature, they are nevertheless important as they have indirect effects on mortality and fertility, and consequently population growth. The chapter is divided into three sections: educational and economic characteristics, and their demographic effects. The educational characteristics cover the historical developments of literacy, differentials in literacy by residence, sex and ethnicity, as well as the population ever-attended and attending the various levels of education in 1971 and 1981. The second section deals with the economically-active and the working population by industrial and occupational groups. Investigation into immigrant workers is restricted to 1971; the more recent numbers of foreign manpower in Brunei (1981) are included using data based on residential status: Brunei citizens, permanent residents, temporary residents and others; these are reclassified into Brunei citizens and the rest as non-citizens. The final section is devoted to the

effects of socio-economic evolution on the demographic aspects, fertility and mortality.

The final chapter summarizes the findings of the six preceeding chapters. The demographic transition model is applied to the previous population growth and the demographic changes of Brunei. In addition an account of integrated population and socio-economic policy is attempted.

The main sources for data of this thesis are derived from the 1971 and 1981 censuses, the *Brunei Statistical Yearbooks* and the United Nations Demographic Yearbooks. More of a problem has been finding local literature relevant to the study. Although there have been many studies on the population of Southeast Asia, unfortunately, study of the population of Brunei is very rarely included. In fact it is not an exaggeration to say that demographic study on Brunei, especially for recent periods, is almost non-existent. Therefore it has been the modest aim of this thesis to provide some general knowledge and perception of the demographic situation and trends in Brunei Darussalam. The main interest of the thesis is the study of the changes of the demographic components which contribute to the growth and changes of the population, and they are linked to the changes in the socio-economic characteristics: education and working population, including foreign workers.

CHAPTER ONE

HISTORICAL REVIEW OF POPULATION GROWTH OF BRUNEI DARUSSALAM, 1911-1984

1.1 INTRODUCTION

This chapter is concerned with a review of the demographic aspects of population growth, namely fertility, mortality and migration. The study is comparative in nature, between Brunei and the East Malaysian States of Sabah and Sarawak, and the period of analysis largely concentrates on demographic changes between 1911 and 1960. Later in the chapter, a similar study is made but between Brunei and some small Muslim oil-rich exporting countries of Western Asia: Bahrain, Kuwait, Oman, Qatar and the United Arab Emirates (UAE). Investigation of demographic changes in this section is mainly confined to the period between 1965 and 1984.

Several reasons prompted the undertaking of such study. One is that Brunei, Sabah and Sarawak had experienced certain similar demographic changes in their population growth. Another is that these countries had also undergone social and economic changes which had implications on their populations one way or another. The discussion which follows will only focus on natural increase and immigration.

As for the Gulf Countries, they are chosen to be compared with Brunei because besides having a common religion, they derive similar source of wealth and like Brunei, they also have relatively small population size. It is therefore interesting to investigate the demographic experience of Brunei and the Gulf Countries, especially regarding population growth as affected by fertility, mortality and immigration.

1.2 POPULATION GROWTH OF BRUNEI DARUSSALAM, SABAH AND SARAWAK UNTIL 1960

Prior to 1945 and even before 1900, data for the size of the indigenous populations of Brunei, Sabah and Sarawak were already available from a wide range of demographic estimates, but their reliability varied. The Sarawak Residency estimate for example, was 19,027 Dyaks¹ in 1876, but in the following year (1877), the figure rose to 35,000². In Sabah, then known as North Borneo, the population as estimated by the Provisional Association in 1878 was between 150,000 and 200,000³. However, the Superintendent of the 1891 Census recorded a population of 120,000. These figures, therefore, must be treated with reserve as there were possibilities of either over-counting in Sarawak in 1877, and in Sabah in 1878 or that the 1876 and 1891 censuses for Sarawak and Sabah respectively were merely incomplete.

In Brunei, population estimates were made of the town only, then situated on the water at the mouth of Brunei River. Anthony

Pigafetta, an Italian historian who was in Magellan's expedition which visited Brunei in 1521 wrote that Brunei was a city of 25,000 families and gave a population figure of 125,000-250,000⁴. Such figures must be either a total exaggeration or mere guesses. The total number dropped considerably to 30,000 at the end of the eighteenth century⁵, 15,000 in 1809⁶ and 12,000-15,000 in 1889⁷. The State's first official population estimate was in 1906 which gave a figure of 10,000 Muslims. Since the majority of the indigenous population were Muslims (and still are), it might mean that there were not much more than 10,000 people in Brunei during that period.

It is evidenced now that the population estimates of each of the three countries varied greatly and thus should not be taken as total accuracy. There are many reasons to believe that they suffered either undercount or overcount; registrations of births and deaths were probably non-existent, and migration between the three countries were not recorded before this century. But despite the vague accounts of the population of British Borneo, it was definite that the population of Sabah, Sarawak and particularly Brunei was scanty. In fact, this was true of much of the interior of the whole of Borneo which was thickly forested and uninhabited in the past⁸.

1.2.1 The Growth Of Indigenous And Non-Indigenous Populations

Population censuses in the early part of this century, notably before the war, were probably incomplete too. Nevertheless, they are useful for approximation and comparison with more recent figures. Table 1.1 illustrates the population growth of the indigenous and non-indigenous populations of Brunei, Sabah and Sarawak. It is discernible that the annual growth rate of these countries, particularly the indigenous population, was smaller than that of non-indigenous population between 1911 and 1960 and in general decreasing for Sabah and Brunei until 1947 and 1951 respectively. The annual growth rate of the indigenous population of Sarawak was equally small.

In Brunei between 1911 and 1921, the indigenous population grew by 1.4 percent annually but declined to 1.1 percent between 1921 and 1931 and further to 0.9 percent between 1931 and 1947. From then until 1960, however, the rate of increase of the indigenous population grew more markedly which was at the rate of 5.2 percent annually. In comparison, the growth rate of the Chinese population between 1931 and 1947 (data for earlier periods are not available) was 7.3 percent and between 1947 and 1960 and rose to 8.0 percent annually.

The small annual growth rate of indigenous population was also experienced by Sabah. Between 1911 and 1921, it was 1.6

percent, and like Brunei, declined annually thereafter to 0.3 percent and 0.7 percent during the period 1921 to 1931 and 1931

TABLE 1.1 THE GROWTH OF THE INDIGENOUS AND NON-INDIGENOUS POPULATIONS OF SABAH, BRUNEI AND SARAVAK, 1911-60

Years	Populations (numbers)			Annual Increase (percent)		
	Indigenous	Chinese	Others	Total	Indigenous	Chinese
SABAH						
1911	174,770					
1921	204,333	-	-	2.1	1.6	-
1931	210,057	50,056	22,202	0.5	0.3	-
1951	243,009	74,374	16,758	0.9	0.7	1.9
1960	306,498	104,542	43,381	3.5	2.6	3.9
BRUNEI						
1911	20,916	-	-			
1921	23,943	-	-	1.6	1.4	-
1931	26,746	2,683	706	1.7	1.1	-
1947	31,161	8,300	1,196	1.9	0.9	7.3
1960	59,203	21,795	2,879	6.0	5.2	8.0
SARAVAK						
1939	361,676	123,626	21,993			
1947	394,417	145,158	24,991	1.4	1.1	2.0
1960	507,252	229,154	54,381	2.5	2.0	3.7

Source: Jones, L.W., (1966), *The Population of Borneo*, pp. 33 & 63.

to 1951 respectively. But between 1951 and 1960 the indigenous population growth rate increased to 2.6 percent annually. With regard to the Chinese population, annual growth rates during the 1931-51 and 1951-60 intercensal periods were 1.9 percent and 3.9 percent respectively, higher than those of the indigenous population.

The annual growth rate of the indigenous population of Sarawak was equally smaller than the Chinese, only 1.1 percent and 2.0 percent during the intercensal years of 1939-47 and 1947-60 respectively while the corresponding rate of increase for the Chinese for the same periods were 2.0 percent and 3.7 percent annually.

One point of interest is that for Brunei, the annual rate of increase between 1911 and 1921 was higher than in subsequent years; this might indicate several points: the possibility of overcounting; that birth rates were much higher than death rates; and migration might have occurred.

For Sabah and Sarawak, Jones reckoned their population censuses of 1911 and 1939 respectively to be incomplete. This might also explain the extremely small indigenous population increase in Sabah between 1931 and 1951. In Sarawak, the Superintendent of the 1939 Census was of the opinion that,

"... It is almost impossible to determine in the case of the indigenous peoples whether their numbers are showing satisfactory increase, static or even declining. The weight of evidence of children percent of females given later in this report seems to indicate that some tribes are definitely declining in numbers..."³.

Eight years later, Noakes observed that,

"... as far as the native races are concerned, it is difficult to say whether the total population of the area now covered by Sarawak has increased or not during the last hundred years. It may well be that the increase in some races has been offset by the decline in others and there has been little overall change"¹⁰.

Thus, although the accuracy of the censuses described above is questionable, it remains clear that the total number and the rates of increase of the indigenous populations of these countries were extremely small.

1.2.2 The Growth Of The Total Population

The total population of British Borneo, notably that of Brunei before the Second World War, was relatively very small and the annual rate of increase was also extremely small. At the turn of the century the annual rates of increase of Brunei and Sabah did not vary greatly; between 1911 and 1921 for example, it was 2.1 percent for Sabah and 1.6 percent for Brunei (Table 1.1). But while the growth rate of Brunei between 1921 and 1947 was increasing steadily, that of Sabah was declining. It is not possible to include Sarawak in the comparison of growth rates for the early decades of the twentieth century because her first population census was only held in 1939 which was reckoned to be incomplete; but using the figure as it is, it appears that Sarawak's rate of increase between 1939 and 1947 was only slightly lower than that of Brunei.

By 1960, the annual growth rate of the three countries grew more significantly than in earlier years. For Sarawak, it was 2.5 percent annually between 1947 and 1960 and Sabah, 3.5 percent between 1951 and 1960. But the most remarkable growth was that of Brunei, increasing at the rate of 6.0 percent annually between 1947 and 1960. This tremendous upsurge of growth rate was largely associated with resumed activities in the oilfields soon after the War was over which attracted a large number of immigrants.

TABLE 1.2 TOTAL POPULATION OF SABAH, BRUNEI AND SARAVAK, ENUMERATED BY THE CENSUSES, 1960-81

Census Years	Population Numbers (000s)	Percentage Increase
SABAH		
1960 ^a	456,3	36,5
1970 ^b	653,6	43,4
1980 ^b	955,7	46,2
BRUNEI		
1960 ^a	83,9	106,1
1971 ^c	136,1	62,2
1981 ^d	192,8	41,9
SARAVAK		
1960 ^a	744,6	36,3
1970 ^b	976,2	31,1
1980 ^b	1,235,6	26,6

Sources: ^aJones, L.W., (1966), *The Population of Borneo*, p. 63;

^bLeete, R. & Kwok, K.K., (1986), 'Demographic Changes in East Malaysia and their Relationship with those in the Peninsula', *Population Studies*, 40, p. 84;

^cBrunei, *Report on the Census of Population, 1971*, p. 90;

^dBrunei *Population Census, Summary Tables*, p. 40.

The more recent figures are provided in Table 1.2. From 1960 the population increase of Brunei, Sabah and Sarawak was significant in terms of percentage increase. For instance, the percentage increase of 105 percent between 1947 and 1960 meant that the population of Brunei more than doubled. The population growth for Sabah and Sarawak was also significant though not as much as that of Brunei. During the subsequent years (between 1970 and 1980), census reports recorded continued population increase in Brunei and Sarawak but at a relatively lower percentage increase, while that of Sabah was higher than the percentage increase between 1947 and 1960.

Comparing the size of the populations of Brunei, Sabah and Sarawak with those of other countries in the region such as Peninsular Malaysia, Singapore and Philippines, the size of the population of Brunei, Sabah and Sarawak was very much at a micro-scale, particularly Brunei. Peninsular Malaysia in 1980 for example had a population of 11.4 millions;¹¹ Singapore in 1980 had a figure of 2.4 millions and for the same year Philippines had 49.3 millions¹².

The explanation for the exceptionally small population of British Borneo was rooted in history. Before the nineteenth century and during the early decades of this century, epidemics were known to have swept the population of this part of Borneo. An early visitor to Sulu, an island to the south of Philippines, recorded that smallpox and cholera had helped to cause considerable population decline; in 1888 and 1903, cholera was

known to have attacked Brunei and Kuching populations respectively. Then in later years, cholera returned to Brunei followed by smallpox. Records for the number of deaths by these epidemics are not available but it is known that in the Palace itself, the loss of lives was appalling. A Dutch medical observer, Nieuwenhuis¹³, found out after investigation that epidemics were more severe on the coast than further inland. This explained why Brunei was frequently attacked by cholera and smallpox. In the years leading to the 1940s and into the 1950s malaria, malnutrition, hookworm and tuberculosis were thriving in the country causing morbidity and mortality.

In Sabah, hindrances to a normal expansion of population were associated with health. Referring to Table 1.1 again, the 1931 census indicated an almost negligible natural increase among the indigenous population. A summary produced after investigation into the matter by the Chartered Company revealed a situation of,

"malnutritions due to an ill-balanced diet, lacking in the requisite amounts of vitamin and mineral salts; a lowered resistance due to malaria and hookworm, which combined with gonorrhoea and endemic goitre results in a high maternal mortality and sterility rate, and a low birth rate which in my opinion are the immediate causes of depopulation"¹⁴.

Sarawak also experienced similar attacks of infectious diseases. At the end of the previous century, an investigation revealed that one third or one half of the inhabitants were wiped out in a Dyak village due to cholera and smallpox.

Another reason for the slow growth and thus extremely small population size and growth in earlier periods was associated with the absence of law and order either due to bad government or lack of government. Before the existence of Brooks in Sarawak and the Chartered Company in Sabah, the only government in existence was that of Brunei, but that was said to be ineffective. Therefore, in these countries, forced labour, slavery, sickness, inter-tribal rivalries, piracy and headhunters among the Dyak tribe, had all combined to cause the depopulation of this part of Borneo. In addition, the practice of infanticide among the Dyaks also contributed to the depopulation. This practice was an old custom of the Dyak tribe whereby when maternal death occurred, the living child would be buried with her. The rationale was that there was no one to nurse the child and anyway, the child had already caused the mother's death. This cruel practice was, in fact, continued in the early decades of this century and only put to an end before World War II¹⁵.

1.2.3 Fertility and Mortality

Enquiry into fertility and mortality in Brunei, Sabah and Sarawak for the period before the war can be discouraging because registrations of births and deaths were not sufficiently complete although it was made compulsory. However, Brunei's civil registration during the last few decades has been classified as relatively complete in the United Nations *Demographic Yearbook*;

for Sabah and Sarawak, on the other hand, their vital statistics and population census are said to be partially complete or have other defects¹⁶.

For the period before the War, there were some indications for fertility estimates, for example the age distribution in the 1931 census table of Brunei, indicates that for every 1,000 people there were 377 persons below the age of 15; the corresponding figures for Sabah and Sarawak were 473 and 504 respectively.

Initially, such figures seem to indicate high natural increase, but it appears that mortality was high too, so the increase of population was not great after all. The 1934 Brunei Annual Report for example, revealed the infant mortality rate (IMR) in 1931 was 314 per thousand; and in 1938, it was 210 per thousand; the crude death rate (CDR) was 28.5 in 1932 and 22.0 per thousand population in 1938¹⁷. In Sabah, the CDR was 20.7 per thousand in 1927 and 22.9 in 1939. Figures for Sarawak are not available but according to Jones, using a rough guide of the natural increase of the Malays (0.5 percent per year), the CDR was said to be 35 per thousand for the Muslims and a similar figure for applied for the Pagans¹⁸. These figures are , of course not accurate because obviously not all births and deaths were reported and therefore it was possible that all rates were actually higher, which thus explained the small increase of populations of Brunei, Sabah and Sarawak before the War.

During the postwar years, the population growth rate of these countries changed positively. The indigenous populations of Brunei, Sabah and Sarawak began to grow faster than during the pre-war years although simultaneously, the non-indigenous populations were increasing more rapidly due to further immigration. In contrast to an almost negligible increase for many centuries in the past and only slow growth during the few decades before the War, the higher growth rate after the war was most probably an indication of sustained high birth rates and lower CDR especially the IMR, which as a whole might well be due to improved medical services, less frequent attack of infectious diseases and better nutrition and health.

1.2.4 Immigration In Brunei, Sabah And Sarawak

Immigration into British Borneo started long before the Second World War. In Brunei for example, observers recorded that there was an active junk trade with China in the eighteenth century. By 1810, Chinese pepper plantations were known to exist in Brunei and Sabah; in 1848 there were about one thousand Chinese known to reside in the first division of Sarawak, and elsewhere along the west coast of Sabah the Chinese were beginning to settle. But large scale Chinese immigration began only in 1850 when they came to provide labour in gold and antimony mines in the Bau district in Sarawak. Thirty years later another influx of Chinese sponsored by tobacco companies

and Chartered Companies came to work in plantations in Sabah, which by then was already heavily dependent on imported labour. The rest of the Chinese were mainly traders and shopkeepers¹⁹.

The hostile physical conditions such as thick forest and hot and humid climate, however, caused some Chinese to emigrate back to their homeland; several efforts to recruit more Chinese labourers into Sabah and Sarawak were not very successful. Some potential Chinese immigrants to Borneo were further discouraged by bad reports on health conditions in the receiving countries. Nevertheless, continuous efforts were made by authorities concerned to recruit more Chinese labourers to supplement the scanty population. Incentives to migrate were made favourable such as they were offered cash and land on favourable terms.

Other immigrant races included Indonesians, Filipinos, Indians, Ceylonese and Pakistanis. But altogether, they were small in numbers and made up only 2 percent of the total population of British Borneo²⁰.

Although immigration in Brunei, Sabah and Sarawak was not as large as those entering Peninsular Malaysia and Singapore, it had important demographic effects, one of which was changing the population composition of the receiving countries. The following section looks into the magnitude of the percentage increase of Chinese population as compared to that of indigenous population (Table 1.3).

TABLE 1.3 POPULATION OF SABAH, BRUNEI AND SARAWAK BY MAIN COMMUNITIES, 1921-60

Years	Population (numbers)				Percentage Increase/Decrease			
	Total	Indigenous	Chinese	Others	Total	Indigenous	Chinese	Others
SABAH								
1921 ^a	263,252	203,041	39,156	20,955				
1931 ^a	277,476	205,218	50,056	22,202	5.4	1.1	27.8	6.0
1951 ^a	334,141	234,009	74,374	16,758	20.4	18.4	48.6	-24.5
1960 ^b	454,421	306,499	104,542	43,381	36.0	26.1	40.6	159.9
BRUNEI								
1921 ^a	25,451	23,943	1,423	85				
1931 ^a	30,135	26,746	2,683	106	18.4	11.7	88.5	730.1
1947 ^a	40,657	31,161	8,300	1,196	34.9	16.5	209.4	69.4
1960 ^b	83,877	59,203	21,795	2,879	105.3	90.0	162.6	140.7
SARAWAK								
1939 ^a	490,585	361,676	123,626	5,283				
1947 ^a	546,385	395,417	145,158	5,810	11.4	9.3	17.4	10.0
1960 ^b	744,529	507,252	229,154	8,123	36.3	28.3	57.9	39.8

Sources: ^aLee, Y. L., (1961), 'The Population of British Borneo', *Population Studies*, 15, p. 230.

^bJones, L. W., (1966), *The Population of Borneo*, p. 63.

Taking the indigenous population, the Chinese and Others separately, the percentage increase of the Chinese was much higher than the other two groups. In Sabah, the percentage increase of the indigenous population was 1.1 percent in 1921-31, 18.4 percent in 1931-51 and 26.1 percent in 1951-60; the corresponding figures for Others were 6.0 percent, by 24.5 percent and 158.9 percent. The Chinese, on the other hand, rose by 27.8 percent and 48.6 percent respectively in the first two periods but dropped to 40.6 percent during the third period. This was caused by Sabah turning to other origins of ethnic immigrants such as Indonesia and Philippines, in the recruitment of workers from abroad.

Sarawak had a similar situation whereby the Chinese increased by 17.4 percent and 57.9 percent in the intercensal years of 1931-47 and 1947-1960; the percentage increase of the indigenous population was significant too but relatively lower, which was an increase by 9.3 percent and 28.3 percent within similar periods. Infact it appears that the percentage increase of the group of Others in both intercensal years was higher.

In Brunei, the spectacular increase of immigrants recorded was among the group of Others whose percentage increase during the 1921-1931 period was 730.1 percent but reduced dramatically to a percentage increase of 69.4 percent between 1931 and 1937; between 1947 and 1960, however, this group rose by 140.7 percent. The increase of the Chinese by 88.5 percent during the first intercensal period considered was less considerable though still

significant. Between 1931 and 1947 they surged up immensely by 209.4 percent but reduced again to an increase of 162.6 percent during the 1947-1960 period. The Indigenous group grew more modestly by 11.7 percent and 16.5 percent in 1921-31 and 1931-47 respectively; between 1947 and 1960, however, they increased considerably by 90.0 percent.

As mentioned above, immigration altered the population composition of Brunei, Sabah and Sarawak. Thus in terms of proportion to total population, the proportion of the indigenous population of each of the three countries was declining, while that of the immigrants, particularly the Chinese was increasing (Table 1.4) In Sabah, for example, the indigenous proportion declined from 77.1 percent in 1921 to 67.4 in 1960, while that of the Chinese increased from 14.9 percent to 23.0 percent within the same period. The proportion of the group of Others dropped only slightly, from 8.0 percent in 1921 to 5.0 in 1951, but increased to 9.6 percent by 1960.

In Sarawak, a similar situation was also experienced. The proportion of indigenous population declined from 73.7 percent to 68.1 percent; the Chinese proportion on the other hand, increased from 25.2 percent to 30.8 percent between 1939 and 1960. The proportion of the group of Others hardly changed at all.

The most remarkable change in the proportion of population composition was experienced by Brunei; thus between 1921 and

TABLE 1.4 THE PROPORTION OF INDIGENOUS AND NON-INDIGENOUS POPULATIONS OF SABAH, BRUNEI AND SARAWAK, TO TOTAL POPULATIONS, 1921-60

Years	Population				Percentage To Total Population			
	Total	Indigenous	Chinese	Others	Total	Indigenous	Chinese	Others
SABAH								
1921 ^a	263,252	203,041	39,156	20,955	100	77.1	14.9	8.0
1931 ^a	277,476	205,218	50,056	22,202	100	74.0	18.0	8.0
1951 ^a	334,141	234,009	74,374	16,758	100	72.7	22.3	5.0
1960 ^b	454,421	306,498	104,542	43,381	100	67.4	23.0	9.6
BRUNEI								
1921 ^a	25,451	23,943	1,423	85	100	94.1	5.6	0.3
1931 ^a	30,135	26,746	2,683	706	100	88.8	8.9	2.3
1947 ^a	40,650	31,161	8,300	1,196	100	76.7	20.4	2.9
1960 ^b	83,877	59,203	21,795	2,879	100	70.6	26.0	3.4
SARAWAK								
1939 ^a	490,585	361,676	123,626	5,283	100	73.7	25.2	1.1
1947 ^a	546,385	395,417	145,153	5,810	100	72.4	26.6	1.0
1960 ^b	744,529	507,252	229,154	8,123	100	68.1	30.8	1.1

Sources: ^aLee, Y. L., (1961), 'The Population of British Borneo', *Population Studies*, 15, p. 230.

^bJones, L. W., (1966), *The Population of Borneo*, p. 63.

1960, the proportion of the indigenous population declined from 94.1 percent to 70.6 percent, while that of the Chinese increased significantly from 5.6 percent to 26.0 percent; that of the group of Others also rose from 0.3 percent to 3.4 percent during the same period.

An attempt to elucidate the relative importance of immigration and natural increase (both among the citizens and immigrants) to total population growth is impossible due to deficiency of relevant data. Although in terms of proportion to total population, the indigenous group was declining and the Chinese were increasing rapidly (Table 1.4), it did not necessarily entail that the latter group grew solely through influx of immigration. Explanation for this needs further investigation into birth and death rates of all the immigrant and non-immigrant communities in each country. However, there are indications that survivorship at the age of twelve of Chinese children was remarkably higher than those of the indigenous; in Sarawak and Brunei, for example, it was 93.4 percent and 91.8 percent respectively for the Chinese, while the corresponding figures for the indigenous population were 77.1 percent and 68.2 percent respectively²¹. In Sabah, the Chinese were also found to have a higher survival rate than other communities, reaching almost 93 percent for those at the age of 29, as compared to only about 70 percent for the indigenous population; for the Murut (one of the many races of the indigenous population) it was even lower, only 50 percent²². These indicated that during the years that

followed, immigration was no longer a single factor in influencing population growth as it did soon after the War .

Nevertheless, as mentioned before, the effect they had on the population increase of Brunei, Sabah and Sarawak was still considerable, because even well after the War there was more immigration than emigration. Although the latter occurred, it was most probably only a small number because there were little incentives for earlier immigrants, notably the Chinese, to return to their homeland. A summary of records of post-war immigration and emigration is given in Table 1.5 which shows the increasing number of immigrants in each of the British Borneo countries. In Sarawak for instance, between 1948 and 1960, approximately 10.1 thousand immigrants came of which 7.8 thousand (77.1 percent) were Chinese. In Sabah, the total number of immigrants who arrived between 1951 and 1960 was 20.6 thousands, but only 496

TABLE 1.5 SUMMARY OF RECORDS OF POST-WAR IMMIGRATION/EMIGRATION INTO SARAVAK, SABAH AND BRUNEI

Races	Sarawak		Sabah		Brunei		All Three	
	1948-60 numbers	%	1951-60 numbers	%	1954-60 numbers	%	Countries numbers	%
Indigenous	+ 728	7.2	- 2,852	-13.8	+ 5,418	41.7	+ 3,294	7.5
Chinese	+ 7,779	77.1	+ 496	2.4	+ 5,322	40.0	+13,597	31.2
Others	+ 1,581	15.7	+22,923	111.4	+ 2,252	17.3	+26,756	61.3
All Races	+10,088		+20,567		+12,992		+43,647	

Source: Jones, L.W., (1966), *The population of Borneo*, p. 74.

(2.4 percent) of these were Chinese. Brunei received approximately a total of 13 thousand immigrants between 1954 and 1960; of that total, 5.3 thousand (41.0 percent) were Chinese. The ethnic origin of the remainder of the immigrants were indigenous people of Brunei, Sabah and Sarawak (as migration between these countries also occurred) and of the neighbouring countries such as Indonesia (mainly Javanese), Philippines and the Indian sub-continent. In contrast to Brunei and Sarawak, Sabah received the least number of Chinese and more immigrants of other nationalities since after the War. One point to note is that these figures seem to be incomplete because according to Jones, L.W.²³, examinations of the post-war census report and the Table suggest that some 18,000 persons (4,000 Sarawak, 6,000 Sabah and 8,000 Brunei) should be added to bring the net addition of immigrants to the total of 62,000 persons between 1945 and 1960.

In general, however, it is apparent that the number of the immigrants, notably the Chinese, was growing rapidly and this was felt by the authorities of Brunei, Sabah and Sarawak. In addition, it was realised that the immigrant races, especially the Chinese had acquired more favourable position than the indigenous community. They were doing better in trade, agriculture, civil service and were ahead in education. In addition, it was realised that the Chinese were not contented to remain as paid labourers indefinitely but moved on to establish their own enterprises, thus leaving the labour problem unsolved.

These realisations, combined with their failure to provide the necessary labour needed for industries made the authorities of the three countries become more cautious about further recruitment of Chinese workers from abroad. This explained the decreasing number of them in Sabah between 1951 and 1960. Stricter immigration control was then imposed by Sabah and Sarawak. In Brunei, the situation was rather different. Immigrant workers continued to be desperately needed to work in the oilfields. Here, although immigration became a public concern, it was not a prime factor in public policy. All the government had to do was to authorize the oil company to recruit them according to its own needs, and entry permits were only granted to immigrants who could provide the required services.

1.3 POPULATION GROWTH OF BRUNEI DARUSSALAM AND THE GULF COUNTRIES, 1965-84

The Gulf Countries selected for comparative study on the growth of population with Brunei are Kuwait, Bahrain, Qatar, Oman and the United Arab Emirates (UAE). The latter, known as Trucial States before their independence, consists of seven small states of emirates namely, Abu Dhabi, Dubai, Sharjah, Ras al-Kaimah, Fujaira, Ajman and Umm al-Qaiwain. These Gulf States are independent political units within the Middle East.

Besides having a common religion, Islam, these five Gulf

States and Brunei also have distinct similarities in other aspects, one of which is they all have relatively small population size and area. But more important is the fact that they also have similar natural resources from which they largely derive their wealth and upon which the economy of each of these countries has been heavily dependent. Indeed the expansion of the oil industry and increased exports of petroleum have become the prime cause of subsequent development in the social and economic sectors of these countries. The importance of the oil industry to each of these countries therefore merits brief description.

In Kuwait, oil was first discovered in 1946 and began commercialised production in 1948. By 1972, Kuwait achieved the peak level of output which was 1,201.6 million barrels of crude oil. In 1977 petroleum accounted for over 90 percent of Kuwait's exports. In 1980 it accounted for 70 percent of her GDP. At the end of 1984 her proven reserves was estimated to be 90,000 million barrels which represent 12.9 percent of world reserves. This then ranked her the third largest in the world (after Saudi Arabia and the USSR). The abundance of oil revenues gave high per capita income which in 1983 totalled US\$17,880, among the highest in the world²⁴.

Bahrain was one of the first Gulf States to discover petroleum (1932) and exports began in 1934. Since then the export of refined petroleum has become the mainstay of Bahrain's

economy. In 1982 and 1983 petroleum accounted for about 70 percent of government revenues, declined to 65 percent in 1984-85. Bahrain's reserves, estimated at 225 million barrels, proved to be much smaller than other Gulf States and at current level of production, they are expected to be exhausted by 1997. Nonetheless, she has substantial natural gas reserves. In general with relatively small revenues, Bahrain has not shared similar rapid social and economic developments as the other Gulf States; hers has been more of a gradual period of social and economic evolution²⁵.

For Qatar, the first oil exploration began in 1934 but due to the delay of further development by the War, export did not start until 1949. Qatar's oil production reached a peak level in 1973 when 208.2 million barrels were produced. Since then output has fluctuated due to the world glut of oil; by mid-1970, the oil sector contributed about 90 to 95 of the government's revenues but declined to 86 percent in 1984. Nevertheless, according to the World Bank, the per capita income of Qatar inhabitants in 1983 was still among the highest in the world. Qatar's oil resources are also small compared to other members of the OPEC but substantial relative to her population size²⁶.

In the United Arab Emirates, extensive deposits oil were discovery only in 1958 and since then her economy has been transformed radically, giving the country a high level of material prosperity. In 1976 the production of petroleum amounted to some 95 percent of her total exports and 70 percent

of her GDP. Production, however, reached peak level in 1977 when output was at 729.5 million barrels. The UAE total reserves in 1984 were estimated at 32,400 million barrels and this would not be exhausted for another 72 years, at current level of production²⁷.

In Oman the discovery of oil was even more recent, that is in 1967, but by 1968 she already joined the ranks of the oil producers and exporters of the Middle East. New oilfields were developed and in 1976 61.6 percent of Oman's GDP was derived from petroleum exports; by 1979 it accounted for 90 percent of government's revenues²⁸. In 1982 Oman produced oil at an unprecedented level, totalling 135 million barrels which was an average of 366,000 barrels per day. With an estimated reserves of 4,000 million barrels in 1985 and at current level of output, Oman will be able to continue producing oil until early in the 21st. century ²⁹.

In Brunei, oil was discovered and went into production in 1929. But further development was interrupted by the economic recession and the War; it was only after the War was over that production resumed. By then oil already superceded agriculture as the mainstay of the economy of the country. In 1972, natural gas was discovered, thus another valuable source of wealth to the country. By 1983, more than 98 percent of government's revenues of B\$6.1 billion (or approximately US\$13,250 per capita) were derived from oil and gas; overall, the oil industry was responsible for 80 percent of the GDP. Although by world's

standards Brunei is not a major producer of oil and gas, the development of these hydrocarbon industries have provided her relatively small population with a high level of material prosperity and according to World Bank, GNP per head in 1983 (measured at average 1981-83 prices) was US\$21146, the third highest in the world, Brunei remains one of the richest countries in the world³⁰.

Prior to the discovery of oil, the economies of the five Gulf States were in general traditionally dependent upon oasis agriculture (for example, the growing of date palms and for Oman, several types of fruits and grains), fishing and pearling activities, in addition to the building of dhows (in Kuwait) and trade with the neighbouring countries (in the U.A.E. The populations of these countries on the whole were then both poor and small. However, when oil began to flourish their economy was consequently transformed from heavily dependent upon traditional primary activities to that of prominent exporters of petroleum. Despite the world glut of oil which forced the Gulf Countries to cut production and thus reduced revenues, they have as a whole still among the highest per capita income in the world. As estimated by the World Bank, the GNPs per head in 1983 (measured at average 1981-83 prices) of US\$21,210 and US\$22,870 for Qatar and the UAE respectively placed them as the second and highest in the world. As a whole, the increased government revenues which brought about rapid social and economic developments, have inevitable effects on the demography of these

countries. Needless to say, Brunei's demographic changes were also greatly related to the expansion of the oil industry.

The growth of the population of the Gulf States and Brunei is shown graphically in Figure 1.1 and Table 1.6. It can be seen clearly that Brunei as well as the five Gulf States on the whole experienced rapid population growth within a period of thirty-five years. The most spectacular increase was the population of the U.A.E., which grew by more than twenty times (from 70,000 to 1,682,000); Kuwait's population also rose very significantly, by twelve times (from 145,000 to 1,870,000); Qatar's population increased by eleven times (from 25,000 to 285,000); Bahrain's population grew by three-to-four times (from 115,000 to 425,000); the least rapid in population growth in comparison with the other Gulf States was that of Oman whose population only doubled during the period being considered. The growth of the population of Brunei for a similar period was comparable to the Gulf States; it grew by five times between 1950 and 1985 (from 45,000 to 226,000).

The average annual growth rate for the same period shown in Table 1.7 gives a clearer picture of the rapidity of the population growth of these countries. Brunei's growth rate was most rapid during the 1950s; Kuwait experienced the rapid population increase almost throughout the thirty-five years period in question; Qatar between the 1950s and the 1970s; the U.A.E. between 1960s and 1985; Bahrain had a peak population

TABLE 1.6 MID-YEAR POPULATION ESTIMATES OF BRUNEI AND THE GULF COUNTRIES, 1950-85 (numbers in thousands)

Countries	1950	1955	1960	1965	1970	1975	1980	1985
Brunei	45	61	83	102	128	156	185	226
Bahrain	115	130	157	191	220	258	346	425
Kuwait	145	187	292	476	748	1,007	1,372	1,870
Oman	413	455	505	571	654	766	891	1,041
Qatar	25	35	45	70	113	171	237	285
U.A.E.	70	80	100	140	244	520	985	1,682

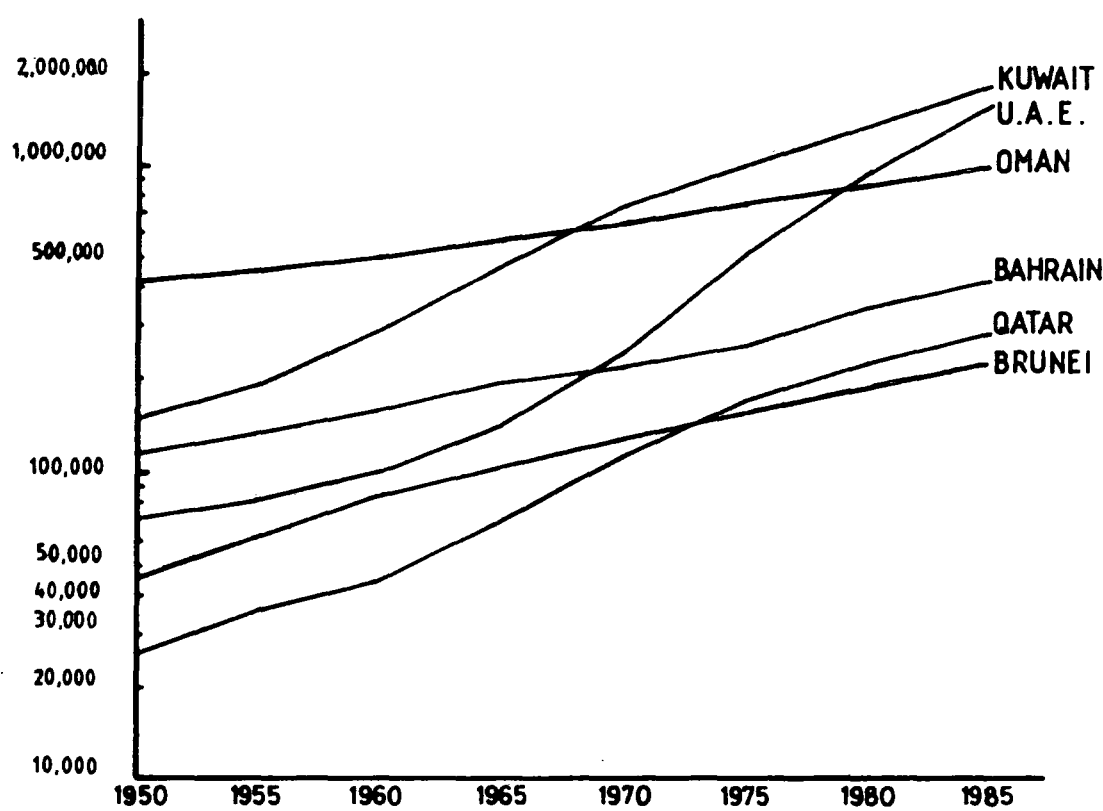
Source: United States Bureau of Census, *World Population*, 1983, pp. 199-290.

TABLE 1.7 AVERAGE ANNUAL GROWTH RATE, 1950-85

Period	Brunei	Bahrain	Kuwait	Oman	Qatar	United Arab Emirates
1950-55	6.1	2.5	5.1	1.9	5.7	2.9
1955-60	6.2	3.7	9.0	2.1	5.0	4.4
1960-65	4.2	4.0	9.8	2.5	8.8	6.7
1965-70	4.4	2.7	9.0	2.7	9.5	11.1
1970-75	4.1	3.3	6.0	3.2	8.3	15.1
1975-80	3.4	5.9	6.2	3.0	6.5	12.8
1980-85	4.0	4.1	6.2	3.1	3.7	10.7

Source: United States Bureau of Census, *World Population*, 1983, pp. 198-290.

FIGURE 1-1 THE TREND OF POPULATION GROWTH OF BRUNEI AND THE GULF STATES, 1950-1985.



Source : Table 1-6.

growth rate in 1960-65 and again in 1975-1985; Oman's growth rate was more gradual and in general lower than that of the others.

Factors responsible for the rapid growth of the Gulf States as a whole have been rapid natural increase as well as large influx of immigrants who had been attracted by availability of jobs in the rapidly expanding economy. Similarly, the rapid population growth in Brunei was caused by higher natural increase and increased inflow of labour immigrants.

1.3.1. Natural Increase

It is not possible to show the trend of natural increase of the Gulf States in the 1950s and early 1960s due to data deficiency. Therefore the figures used in this study are only since 1965. Figures for 1975 and 1980 are provided in Table 1.8).

The high natural increase in the Gulf Countries has been achieved through sustained high birth rates and decreasing mortality rates especially the IMR. In Kuwait for example, high natural increase has been the result of rapid expansion of not only the citizen population but also of the non-Kuwaitis; the latter was associated with the increasing proportion of females. This rapid expansion can be traced back in the changes of fertility and mortality. In 1965, the CBR of Kuwait was 45 per thousand²¹ but increased to 46.7 per thousand in 1975; in 1980,

however, it fell to 41.0 per thousand. The total fertility rate (TFR) of Kuwaiti women had been very high: 7.5 in 1965³² and 7.2 in 1980³³. But of paramount importance was the reduction in mortality rates particularly the IMR. In 1965, the CDR of Kuwait was 7.3 per thousand³⁴, by 1975, it dropped to 4.8 but increased slightly in 1980 to 5 per thousand. The IMR decreased from 40.2 per thousand live births in 1965³⁵ to 34 in 1977-79³⁶. These changes in the birth and death rates resulted in rapid natural increase. In 1965, it almost approached 4 percent; by 1980, it fell only slightly to 3.6 percent. The overall annual rate of growth was very high: 10.4 percent, 1961-1965 9.2, 1965-70 9.2 and 1970-75 6.0³⁷; by 1980, it had increased again to 10.0 percent.

Statistics for Bahrain are more scarce but according to Hill, its CBR between 1959 and 1965 was in the region of 47 per thousand and CDR was 17.5 per thousand for the Bahrainis³⁸. For the whole population, in 1975 the CBR was 45.0 per thousand and fell to 35.0 per thousand in 1980; the CDR also fell from 8 to 7 per thousand, bringing the natural increase down from 3.7 percent to 2.8 percent. With a TFR of 5.7 among Bahraini women, and 3.9 per woman the non Bahraini³⁹ an overall high growth rate was ensured.

For Qatar, the CBR in 1975 was 50.0 per thousand, dropped significantly to 29.0 in 1980; the CDR also fell markedly from 20.0 to 5.0 per thousand respectively; this effected a decrease of natural increase to 2.4 percent from its 1975 level which was

3.0 percent; her TFR in 1980 was 7.7 per Qatari woman^{***} and like other countries in the Gulf, the rate of growth was still very high.

TABLE 1.8 POPULATION GROWTH OF THE GULF STATES, 1975 AND 1980

Countries		Total Population (in thousands)	Crude Birth Rates (per thousand)	Crude Death Rates (per thousand)	Natural Increase (Percent)	Rates of Growth (Percent)
Bahrain	1975 ^a	256	45.0	8.0	3.7	3.6
	1980 ^b	344*	35.0	7.0	2.8	5.6
Kuwait	1975 ^a	995	46.7	4.8	4.2	6.0
	1980 ^b	1,374*	41.0	5.0	3.6	6.9
U.A.E.	1975 ^a	656	50.0	19.0	3.1	10.0
	1980 ^b	983*	26.0	5.0	2.1	13.9
Qatar	1975 ^a	180	50.0	20.0	3.0	8.5
	1980 ^b	243*	29.0	5.0	2.4	8.8
Oman	1975 ^a	766	50.0	19.0	3.1	3.1
	1980 ^b	984*	45.0	13.0	3.2	4.7

Sources: ^aSamha, M., (1982), 'Migration Trends and Patterns within the ECWA Region', in U.N., ECWA, *International Migration in the Arab World*, Vol. I, p. 97.

^bTabbarah, R., (1982), 'Population, Human Resources and Development in the Arab World, in U.N., ECWA, *Population and Development in the Middle East*, p. 28.

* Mid-year population estimated by the United Nations.

The U.A.E. seemed to be deficient in the availability of vital statistics for the period before 1975, but from the 1975 census, the United Nations estimated her TFR for the nationals to

be 7.6 per woman and 4.3 for the non-nationals in 1980⁴¹ countries in the region. As seen from Table 1.8, the CBR of U.A.E. was 50.0 per thousand in 1975 and dropped tremendously to 26.0 per thousand in 1980. Equally, her CDR decreased from 19.0 to 5.0 per thousand between 1975 and 1980; the natural increase dropped by 1.0 percent between the same years in question.

For Oman, the demographic changes that took place between 1975 and 1980 was less significant compared to the rest described above. For example, her CBR fell only slightly, from 50.0 to 45.0 per thousand; the CDR also dropped by a small amount only, from 19.0 to 13.0 per thousand. The natural increase was more comparable to the rest of the Gulf States but less so in her rate of growth. Life expectancy at birth for Oman was low, about 45 years.

Similar to the experience of the Gulf States, the natural increase for Brunei before the War was almost negligible. The annual growth rate for the Indigenous population was only 1.1 percent in 1937 and 1.0 percent in 1947; the corresponding figure for the total population as a whole was 1.7 in 1931 and 1.9 in 1947. After the War, however, the natural increase for the Indigenous and whole population increased considerably. In 1965, her CBR was 40.1 per thousand though it fell to 31.2 per thousand in 1980; her CDR for the same period fell from 6.3 to 4.0 per thousand (Chapter 2).

The more recent figures are given in Table 1.9. In comparison with the Gulf States, Brunei has the smallest population size which is estimated to rise only to 0.3 million by the year 2000; even Qatar and Bahrain are estimated to have a population of more than a million. In addition, its CBR of 29 per thousand in 1985, was only slightly higher than the U.A.E. but quite low compared to the other four Gulf States, and it had the lowest TFR of 4.4 per woman. While this was quite similar to Bahrain, those of the rest were much higher, notably Oman. Although the CDR of Brunei was not as low as that of Kuwait, it was still among the lowest in the world in that year. In addition, the IMR of Brunei was also much lower than the Gulf States, especially Oman. Thus a CBR of 29 per thousand and a CDR of 4 per thousand gave Brunei a natural increase of 2.6 percent in 1985. This was comparable to the Gulf States but high by Western standards.

It is apparent that the demographic experience of Brunei has been quite parallel and as was indicated earlier, the prime influencing factor was mainly the oil industry. The wealth from the export of oil has enabled Brunei to afford a comprehensive and free health and medical services to all citizens and only nominal fees imposed to non-citizens. The most important effect of this was reduced mortality rates and increased life expectancy (Chapter Two). The provision of modern medical care was also adopted by the Gulf countries which also resulted in significant reduction in mortality rates especially the IMR.

TABLE 1.9 ESTIMATED TOTAL POPULATION AND COMPONENTS OF POPULATION CHANGE IN BRUNEI DARUSSALAM AND THE GULF STATES, MID-1986

Countries	Population Estimate Mid-1986 (millions)	Crude Birth Rates (CBR)	Crude Death Rates (CDR)	Natural Increase (Annual %) (N,I)	Infant Mortality Rates (IMR) ^a	Total Fertility Rates (TFR) ^b	Life Expectancy (e ₀)	Doubling Times (Years)	Population Projected To 2000
Brunei	0,2	29	4	2,6	16,0	4,4	71	27	0,3
Bahrain	0,4	32	5	2,8	32,0	4,6	67	25	0,7
Kuwait	1,8	34	3	3,2	22,8	5,4	70	22	2,7
Oman	1,3	47	14	3,3	117,0	7,1	52	21	2,0
Qatar	0,3	33	5	2,9	38,0	6,0	68	24	0,5
U.A.E.	1,4	27	4	2,3	45,0	5,9	68	30	1,9

Source: Population Reference Bureau, 1986.

^aInfant deaths per 1,000 live births;

^bAverage number of children born to a woman during her lifetime.

Improvement in medical and health services was undoubtedly the prime instrument in lowering mortality rates but it was by no means the only one; a sustained long period of low mortality can be achieved by improvement in the literacy and the general level of education of the population as a whole. This apparently, has not been neglected by the governments of the Gulf States nor by Brunei. Brunei has achieved tremendous improvement in literacy rates and the general level of education of the population especially females (for detail, see Chapter 6). Variations of course exist between urban and rural populations even at the present time but there are indications that the gap is narrowing. Such tremendous improvement in literacy and level of education must have helped the general public in better personal hygiene, nutrition intake and in general better health and longer life. As evidenced from the Table, life expectancy of Brunei was relatively longer than that of the Gulf States as a whole,

For the Gulf States, literacy and the general level of education is still said to be relatively low. In Kuwait, for example, illiteracy among the Kuwaiti males and females aged ten years and above in 1975 were 30.0 and 59.1 percent respectively⁴². In Oman in 1977-79, illiteracy among the Omanis aged six years and over amounted to 47.7 among males and 81.8 females⁴³.

1.3.2. Immigration

The unprecedented economic boom since mid-century greatly affecting developments and population growth and change of the OPEC countries, including the Gulf States, has been well documented in many of the ECWA publications. The overwhelming dominance of oil in their economies, which accounts for between 90 percent and 100 percent of their total exports and between 50 and 90 percent of their GDP⁴⁴, has generated tremendous increase of national incomes of these countries. Indeed the great abundance of capital resources in relation to land and labour has transformed these countries within a short span of time from some of the poorest to the richest countries in the world, thus a situation which earned them the title of rich developing countries.

The Gulf States has been described as countries of undeveloped social and human resources. The sudden rapid economic growth which inevitably stimulate many aspects of development therefore posed great pressure on the human resources of these countries. A situation of labour shortages emerged both in terms of quantity and quality. A great number of unskilled labourers, technical and professional experts from abroad were urgently required to provide manpower services needed for the many ambitious development programmes of these countries; hence, the start of international immigration on a magnitude scale.

In Kuwait, for example, large scale immigration began in 1946 when oil was first exported. In the Kuwait's Oil Company, immigrant labourers grew sharply from 1,552 in 1946 to 8,753 in 1948. In addition, the expansion of ancilliary trade and services combined with ambitious government development programmes in the 1950s brought further influx of expatriate workers. By 1957, non-Kuwaitis constituted 45 percent of Kuwait's total population and according to the 1975 census figures, the foreign population amounted to 522,749 persons which was 52.5 percent of the total population⁴⁵. In addition, the non-nationals made up 69 percent of the total labour force of Kuwait⁴⁶.

Associated with the international immigration, the U.A.E. also experienced the most dynamic change in demographic characteristics. Before the oil boom, outmigration was more common than immigration but since the discovery and expansion of the oil industry, the labour immigration into the U.A.E. increased unprecedentedly. For instance, within a period of less than ten years between 1968 and 1975, the expatriate population grew from 65,818 or 36.5 percent of the total population to 388,000 or 70 percent of the total population. This yielded an annual growth rate of 22.9 percent as compared with 5.1 percent of national population growth rate for the same period. In addition, the non-nationals represented 85 percent of the total labour force of the U.A.E. in 1975⁴⁷.

The oil wealth and the subsequent economic growth which precipitated international migration in other parts of the Arab world affected Qatar likewise. In 1970, the expatriate population constituted 66,094 or 59.5 percent of the total population⁴⁸.

In comparison with the U.A.E., Qatar and Kuwait, international migration was relatively small in Bahrain. Perhaps its small size spatially and its limited oil production necessitated stricter control over immigration. In 1941, 15,930 or 17.7 percent of the total population were immigrants; in 1965, the number of aliens numerically increased to more than double (38,389 persons) but only slight increase in terms of percentage increase to the total population, 21.1 percent⁴⁹. In fact between January 1965 and December 1968, the number of foreign population in Bahrain dropped by 9,911 persons due to increase in net emigration; this was attributed to developments of oil industries in the U.A.E⁵⁰.

International immigration in Oman was less phenomenal but emigration was relatively significant. Before 1970, for example, a large number of Omanis were employed in the neighbouring oil-rich countries but there were many expatriates employed in Oman too. Statistically, there were 38,000 Omanis working abroad in 1975 and this figure is believed to be one quarter of the Omani labour force. In Oman on the other hand, out of 30,424 persons in the labour force in the government sector, approximately

12,000 were foreigners⁵¹, in addition to 102,160 labour cards issued to non-Omani employees in private sectors.

The proportion of foreign population to the total population was particularly large in the U.A.E. (76.1), Qatar (73.3) and Kuwait (58.6), and in 1980 (Table 1.10), their proportion to total labour force was strikingly larger, for instance, 90.6 percent in the U.A.E., 89.2 percent in Qatar, 75.5 percent in Kuwait and 54.6 percent in Bahrain; the foreign labour force in Oman was relatively smaller, 37.3 percent, but probably still sizeable in comparison with other developing countries in Asia.

TABLE 1.10 TOTAL AND FOREIGN POPULATIONS AND LABOUR FORCE IN LABOUR-IMPORTING ARAB COUNTRIES, 1980

Countries	Total Population (000s)	Foreign Population (000s) (%)	Total Labour Force (000s)	Foreign Labour Force (000s) (%)
Bahrain	344	107 31.1	119	65 54.6
Kuwait	1,356	794 58.6	453	342 75.5
Oman	984	179 18.2	303	113 37.3
Qatar	243	178 73.3	130	116 89.2
U.A.E.	1,043	794 76.1	554	502 90.6

Source: Tabbarah, R., (1982), 'Population, Human Resources and Development in the Arab World', in United Nations, ECWA, (1982) *Population and Development in the Middle East*, (Calculated on the basis of data in United Nations, ECWA 1982), p. 36.

The situation described above bears many parallels with the

situation in Brunei. Like the Gulf States, the discovery of oil in Brunei followed by expansion of the oil industry, increased production and exports created a problem of manpower shortage. This inevitably necessitated recruitment of foreign workers. Although the number of immigrants in Brunei was smaller than compared to those in the Gulf states, the effects on the demography of the country was nonetheless quite considerable. An example of this was the doubling of the total population of Brunei between 1947 and 1960; in addition, the age-sex structure of the population was also altered to a certain extent, for instance, regarding the sex ratio, there have been in general, an excess number of males over females especially in adult age groups (Chapter Five). In proportion to total population, immigrants made up 25.5 percent and 27.8 percent in 1971 and 1981 respectively. The labour force in Brunei also contained a large proportion of foreign workers; in 1984 for example 36 percent of the workforce of Brunei was made up of expatriates.

Furthermore, like the Gulf States, the increased revenues happened when Brunei was still rudimentary in social and economic infrastructure. The availability of capital therefore prompted the government to indulge ambitiously in socio-economic infrastructural developments which inevitably required further recruitment of foreign workers.

1.4 CONCLUSION

In general the demographic experience of Brunei prior to World War II and during the post-war years bears some resemblance to that of her nearest neighbours, the two East Malaysian States, Sabah and Sarawak. Their populations were smaller than those of other countries in South-east Asia. Fertility was high, as evidenced in the high CBR of these countries, but this did not result in high natural increase. The obvious explanation for this was naturally the high level of mortality rates, particularly among infants. In fact the natural increase of Brunei and Sabah, in particular was almost negligible. The main contributing factor to the considerable number of deaths was the severe attacks of infectious diseases, chiefly cholera and smallpox which were endemic among the indigenous population. Improved medical services, notably in Brunei since the post-war years has undoubtedly led to significant improvement in mortality rates including among infants and children. The effect of such improvement combined with prevalent high birth rates among the locals gave new demographic characteristics to the populations of Brunei, Sabah and Sarawak associated with more rapid population growth.

The rapid population growth of these countries notably between 1947 and 1960 was, however, also largely inflated by the growing number of immigrants. Recruitment of immigrant workers which had started many years before this century did not seem to

solve the problem of manpower shortage. Therefore an increasing number of them continued to be recruited to work in agricultural plantations and mines in Sabah and Sarawak and in the oilfields of Brunei. This inevitably affected the demography of the receiving countries. For example it altered the population composition of the whole country. Indeed in each of these three countries, the proportion of indigenous population was declining while that of immigrants, particularly the Chinese was increasing. It was gradually realised that the main reason for continued labour shortage despite the growing number of immigrants was associated with the fact that not all alien workers filled up the services that they were originally recruited for, notably in Sabah and Sarawak; instead, some of them engaged themselves in other services such as trading. Subsequently the immigrants, especially the Chinese in general were found to be doing much better socially and economically. Realization of the possible threat to the socio-economic and political situation was perhaps the key reason for the more cautious recruitment of workers from abroad and stricter control over immigration imposed by Sabah and Sarawak. In Brunei, a similar situation about immigration became a public concern but not on a similar scale as to that of her neighbours, probably because recruitment of workers was done mainly by the oil industry which only granted entry permits to immigrants who could provide the required services.

The demographic experience of Brunei since the post-war years also seems to be comparable with the Islamic Gulf countries. It is feasible to say that the post-war demographic changes were largely a consequence of the discovery and subsequently the expansion of the oil industry in the Gulf States and Brunei likewise. Increased wealth enabled these countries to indulge in ambitious socio-economic infrastructural developments. One of the most important changes was the great improvement in CDRs; this was largely the effect of improved health and medical services. This result in life expectancy of Brunei and Kuwait to become more comparable with that of the MDCs. In the 1980s, the CDR of Brunei is similar to that of Kuwait but lower than the rest of the Gulf States; of significant difference between Brunei and the Gulf States is, however, in the IMR in that the IMR of the Gulf States is still considerably higher. The CBR, on the other hand, is more comparable. Since TFR remains high among the national population of these countries, CBR remains high too especially among the Gulf States, but is lowered by immigration. In Brunei during the eighties, it has been lower, though in general, still high when compared to the MDCs.

But of phenomenal importance was international immigration into the Gulf States. Similar to the experience of Brunei, the Gulf countries were confronted with the problem of manpower shortage both in terms of quantity and quality. Great numbers of unskilled and skilled workers, technical and professional expertise were required to provide manpower in various

developmental projects. The main difference between Brunei and the Gulf countries in this experience was merely in terms of the magnitude of immigrants, in that the Gulf States received more expatriate workers of varied nationality. Nevertheless the effect of immigration was equally significant. As mentioned above it altered the population composition of the total population of Brunei. For the Gulf States, the United Arab Emirates, Qatar and Kuwait in particular, more than half of the populations were made up of non-nationals; the proportion of foreign workers in the labour-force of these countries was more overwhelming, approximately between 50 percent and 90 percent (except for Oman with less than 40 percent). In Brunei the proportion of immigrants made up less than 30 percent of the total population in both the seventies and eighties, and less than 40 percent in the labour force.

In general, both improved natural increase and increased immigration result in the high growth rates of total populations of the Gulf States and Brunei, which today, remains among the highest in developing countries.

REFERENCES

1. Jones, L.W., (1966), *The Population Of British Borneo. A Study of the Peoples of Sarawak, Sabah and Brunei*, London: The Athlone Press, p. 32.
2. Jones, L. W., *ibid.*, p. 32.
3. Jones, L. W., *ibid.*, p. 32.
4. Jones, L. W., *ibid.*, p. 32.
5. Jones, L. W., *ibid.*, p. 32.
6. Jones, L. W., *ibid.*, p. 32.
7. Jones, L. W., *ibid.*, p. 32.
8. Lee, Y. L., (1962), 'The Population of British Borneo', *Population Studies* 15, p. 226.
9. Jones, L. W., *op. cit.*, p.33.
10. Jones, L. W., *ibid.*, p. 34.
11. Leete, R. & Kwock, K.K. (1986), 'Demographic Changes in East Malaysia and their Relationship with those in Peninsular Malaysia, 1960-1980', *Population Studies* 40, p. 84.
12. U.S., *World Population*, (1983), Recent Demographic Estimates for the Countries and Regions of the World, pp. 270 and 277.
13. Jones, L. W., *op. cit.* p. 35.
14. Jones, L. W., *ibid.*, p. 35.
15. Jones, L. W., *ibid.*, p. 36.
16. Leete, R., & Kwock, K. K., *op. cit.* p. 91.
17. Jones, L. W., *op. cit.*, p. 48.
18. Jones, L. W., *ibid.* p. 48.
19. Lee, Y. L., *op. cit.*, p. 228.

20. Lee, Y. L., *ibid.*, p. 229.
21. Lee, Y. L., *ibid.*, pp. 231-232.
22. Lee, Y., L., *ibid.*, pp. 231-232.
23. Jones, L. W., *op. cit.*, p. 74.
24. United Nations, ECWA, (1980), *The Population Situation in the ECWA Region, Kuwait*, pp. 1-2.
25. *The Europa Yearbook*, (1986), A World Survey, Europa Publication Limited, Vol. 2, p. 429.
26. *The Europa Yearbook*, *op. cit.*, pp. 2189-90.
27. *The Europa Yearbook*, *ibid.*, p. 2704.
28. United Nations., ECWA, (1980), *op. cit.*, *Oman*, pp. 1-2.
29. *The Europa Yearbook*, A World Survey, Europa Publication Limited, p. 2020.
30. *The Europa Yearbook*, *op. cit.*, Vol. 1, pp. 565-566.
31. Hill A. G., (1972), 'The Gulf States, Petroleum and Population Growth', in Clarke, J. I. and Fisher, W. B., (eds.), *Populations of the Middle East and North Africa , A Geographical Approach*, New York: Africana Publishing Corporation (APC), p. 254.
32. United Nations, ECWA, (1980), *op. cit.*, *Kuwait* p. 12.
33. United Nations, ECWA, (1982), *Demographic and Related Socio-Economic Data Sheets*, p. 84.
34. Hill. A. G., *op. cit.*, p. 254.
35. Hill, A. G., *ibid.*, p. 254.
36. United States, *World population*, (1983), *op. cit.*, p. 246.
37. United Nations, ECWA, (1980), *op.cit.*, *Kuwait*, p. 18.
38. Hill, A. G., *op. cit.*, p. 259.
39. United Nations, ECWA, (1982), *op. cit.*, p. 4.
40. United Nations, ECWA, *ibid.*, p. 132.
41. United Nations, ECWA, *ibid.*, p. 180.

42. United Nations, ECWA, *Kuwait*, op. cit., p. 19.
43. United Nations, ECWA, *Oman*, op. cit., p. 15.
44. Tabbarah, R., (1982), 'Population, Human Resources and Development in the Arab World', in *United Nations, ECWA, Population and Development in the Middle East*, p. 21.
45. United Nations, ECWA, (1980), op. cit., *Kuwait*, p. 16.
46. Birks, J. S. and Sinclair, C.A., (1982), 'Contemporary International Migration and Human Resources Development in the Arab Region: Background and Policy Issues', in *United Nations, ECWA, Population and Development in the Middle East*, p. 260.
47. Birks, J. S. and Sinclair, C. A., op. cit., p. 260.
48. United Nations, ECWA, (1980), op. cit., *Qatar*, p. 12.
49. Hill, A. G., op. cit., p. 257.
50. Hill, A. G., *ibid.* p. 260.
51. United Nations, ECWA, (1980), op. cit., *Oman*, pp. 12-13.

CHAPTER TWO

MORTALITY, 1947-1984

2.1 INTRODUCTION

This chapter is mainly concerned with the demographic analysis of mortality trends in Brunei between 1947 and 1984. The measures used in interpreting the trends of mortality are CDR, ASMR and IMR. In some cases the trends are compared with those of selected countries in the Southeast Asian region so as to give a more meaningful interpretation of the statistical values of mortality decline of Brunei such as the CDR and IMR.

Lack of detailed death statistics pertaining to a certain group in the population does not permit a wider range of analysis of differential mortality such as neonatal deaths, urban and rural populations and socio-economic groups. However, important variables in mortality analysis such as age and sex are included.

Period-abridged Life Tables Functions are also tabulated to permit interpretation of mortality rates, probability of dying, survivorship and expectation of life for the various age groups.

The validity of figures in earlier periods such as those during the 1940s and the 1950s are opened to question and therefore should not be taken as totally accurate. This is

because although registration of births and deaths was made statutory in 1957 under Birth and Death Registration Enactment, only a small percentage of death occurrences was certified by Registered Medical Practitioners, the rest being reported by relatives, headmen of villages and the police. In effect information relating to the cause of death was very scanty and mostly inaccurate. Although Deputy Registrars were required to seek and record information about each death reported, the information was of little value beyond suggesting that pulmonary conditions and gastro-enteritis were the main causes of death. Owing to such handicap, only generalisation is possible.

2.2 TRENDS IN MORTALITY

It is well known that reliable demographic information including data on vital statistics is very difficult to obtain in less developed countries (LDCs) and even in some more developed countries (MDCs). In Brunei, Sabah and Sarawak, registration of births and deaths has been required by law, but in practice it has not been complete to give wholly reliable results, especially before the war. In Brunei specifically, birth and death registration was first made compulsory on 1st. January, 1923 and according to Jones, registration in Brunei was probably much more complete than in Sabah and Sarawak, but he also pointed out that,

"there were irregularities in the series of annual figures which led to the suspicion about their accuracy";

yet even later he added,

"There is every reason to think that registration of births and deaths is incomplete for the strong incentives to register births in Brunei are lacking in the case of deaths"².

In the United Nations Demographic Yearbook, data on mortality for Brunei since 1954 is classified as relatively complete. In general therefore, it can be assumed that recent demographic data are more complete than that before the 1950s.

It has been observed that in some developing countries, mortality started to decline after the First World War but that decline became more general and rapid after the Second World War³. Reliable data for death rates in Brunei for the period before World War 1 were lacking but published figures in the thirties (1932-38) showed that death rates were all above 20 per thousand and reached their highest figure, 37.5 per thousand in 1934. Since registration before the fifties was most probably incomplete, these figures may only be taken as an approximation.

Table 2.1 and Figure 2.1 demonstrate the crude death rate (CDR) in Brunei between 1947 and 1984. It can be seen that by 1947, the CDR was less than 20 per thousand. Until 1957 it was rather irregular but in general was declining. A dramatic decline was observed between 1957 and 1961 when the figure fell from 15.6 to 4.3 per thousand, after which, the decline was more gradual, to 6.0 by 1969, under 5 by 1973, 4 by 1980, reaching its lowest level of 3.5 per thousand in 1983.

In comparing the mortality pattern of Brunei with those of selected countries in the Southeast Asian region (Peninsular

TABLE 2.1 ANNUAL CRUDE DEATH RATES OF BRUNEI DARUSSALAM, 1947-84

Years	C.D.R.	Years	C.D.R.	Years	C.D.R.
1947	19.3	1960	10.9	1973	4.3
1948	21.7	1961	4.3	1974	4.3
1949	18.2	1962	6.9	1975	4.6
1950	18.1	1963	7.1	1976	4.1
1951	14.8	1964	6.4	1977	4.5
1952	17.4	1965	6.3	1978	4.2
1953	15.4	1966	6.3	1979	4.1
1954	13.3	1967	6.1	1980	4.0
1955	14.0	1968	6.4	1981	3.6
1956	12.2	1969	6.0	1982	3.9
1957	15.6	1970	5.5	1983	3.5
1958	11.8	1971	5.9	1984	3.5
1959	11.3				

Source: Calculated from:

United Nations *Demographic Yearbooks*, 1955, 1958, 1963, 1968, 1970, 1978, 1982 and 1984.

Note: CDR =
$$\frac{\text{Number of deaths occurring during a year}}{\text{Number of mid-year population}} \times (1,000)$$

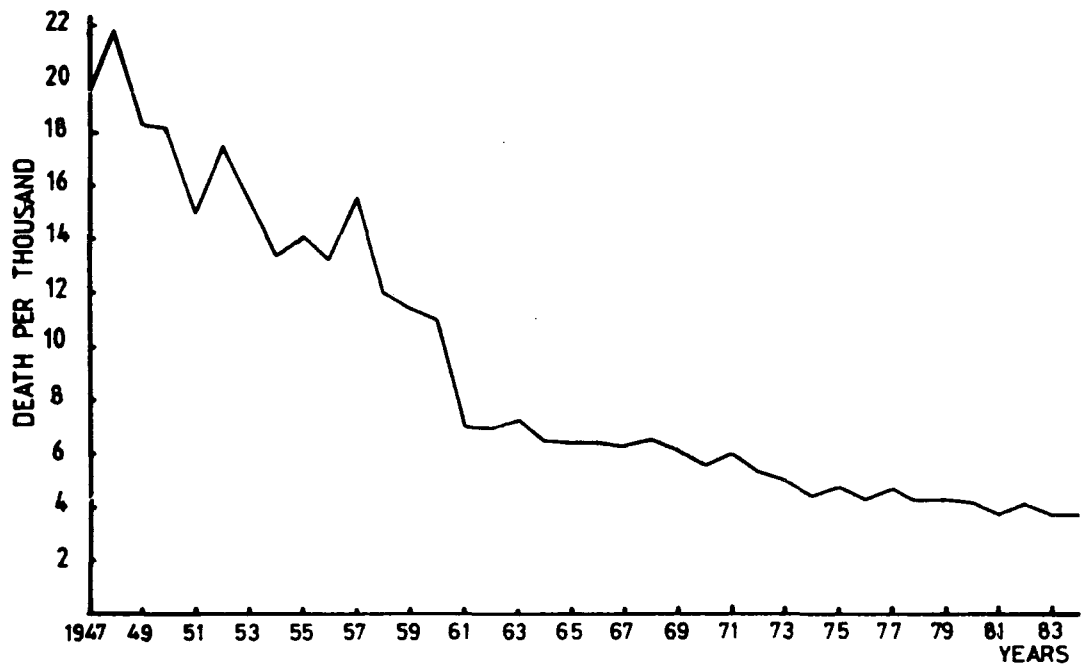
TABLE 2.2 QUINQUENNIAL CRUDE DEATH RATES OF SELECTED SOUTHEAST ASIAN COUNTRIES

Years	Brunei	Peninsular Malaysia	Singapore
1945-49	19.7	17.5	12.5
1950-54	15.8	14.0	10.4
1955-59	13.1	11.3	7.3
1960-64	7.6	9.0	6.0
1965-69	6.2	7.6	5.4
1970-74	5.1	6.9	5.4
1975-79	4.1	6.1	5.1
1980-84	3.5	5.8	5.2

Source: Calculated from:

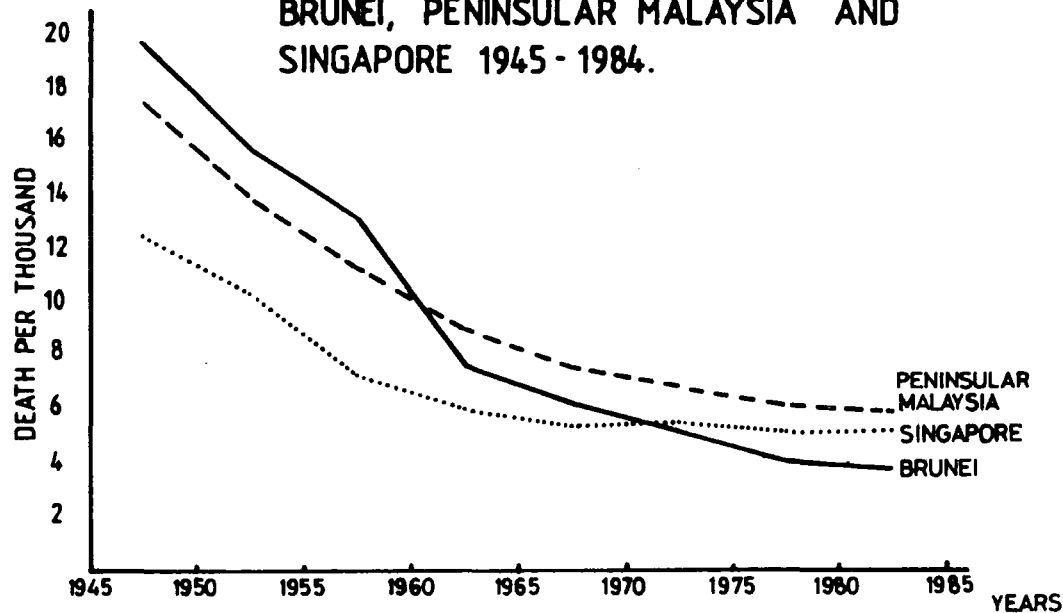
United Nations *Demographic Yearbooks*, 1955, 1958, 1963, 1968, 1970, 1978, 1982 and 1984.

FIGURE 2.1 CRUDE DEATH RATES OF BRUNEI 1947-1984.



Source : Table 2.1.

FIGURE 2.2 QUINQUENNIAL CRUDE DEATH RATES OF BRUNEI, PENINSULAR MALAYSIA AND SINGAPORE 1945-1984.



Source : Table 2.2

Malaysia and Singapore), Table 2.2. and Figure 2.2. reveal interesting findings. All these three countries were undergoing mortality decline between 1945 and 1984 but the rate of decline was more marked for Brunei than for Peninsular Malaysia and Singapore, notably during the late fifties and early sixties. This was largely the effect of improved health and medical services (description of detail later in the chapter). Thus in 1947-49, the CDR of Brunei was the highest (19.7 per thousand) but by 1980-84, it had the lowest CDR, reaching 3.5 per thousand as compared to the CDR of Peninsular Malaysia, 5.8 per thousand and Singapore, 5.2. The rate of decline in mortality in the latter two countries within the same period in question was more gradual than that of Brunei. In fact, according to the data published by the United Nations and the Population Reference Bureau for 1984, the CDR of Brunei was well below the average for MDCs, 9 per thousand, and was only surpassed by that of Kuwait (3 per thousand) as being the lowest in the world in that particular year.

2.3 AGE-SPECIFIC MORTALITY RATES

The decline in the CDR of Brunei between 1947 and 1984 was also reflected in the age-specific mortality rates at all ages within the same period of time. As exhibited by Table 2.3 and Figure 2.3, mortality was highest in infants in 1947 and 1971 but lowest in late childhood (with the exception in 1947), the teens and the twenties and gradually increased in the older ages.

TABLE 2.3 AGE-SPECIFIC MORTALITY RATES (nM_x), 1947-84

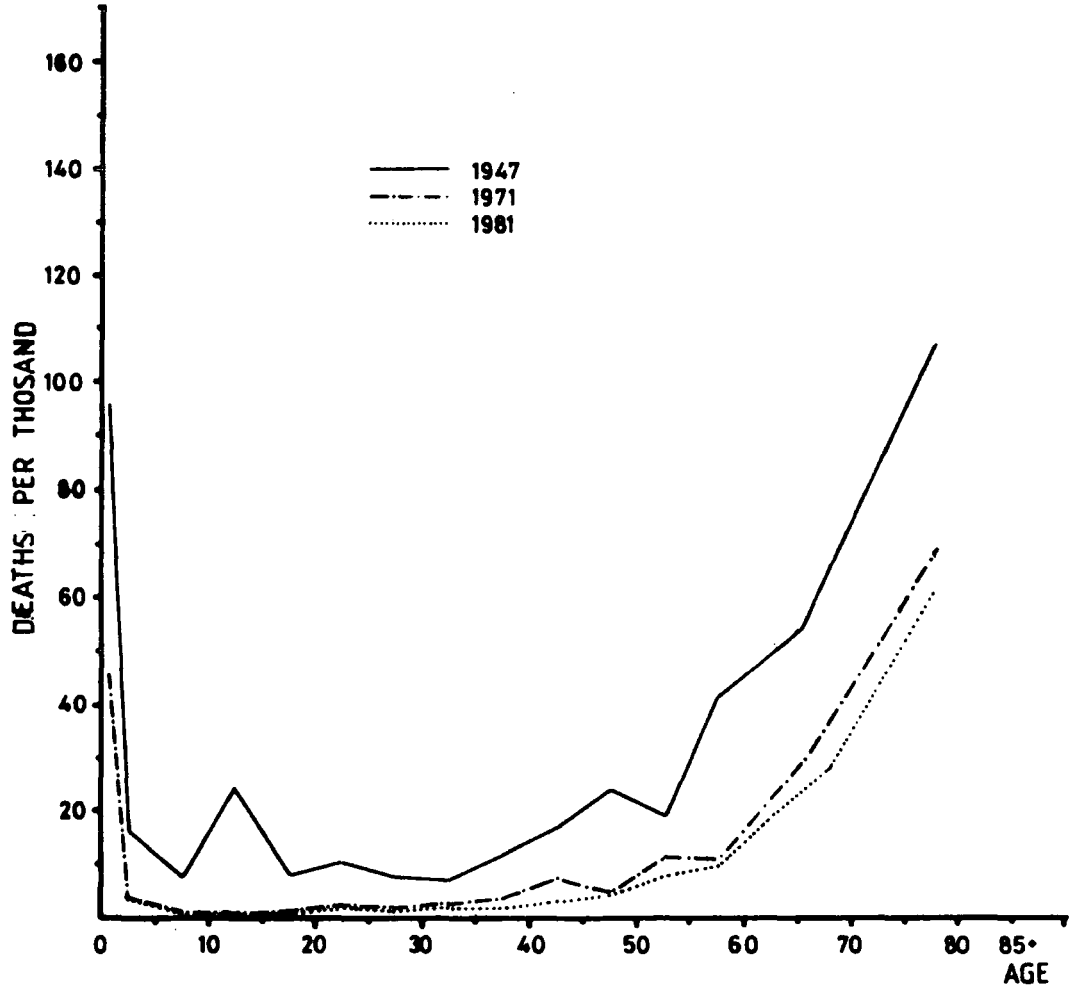
Age Groups	1947			1971			1984		
	Number of Populations	Number of Deaths	ASMR (nM_x)	Number of Population	Number of Deaths	ASMR (nM_x)	Number of Population	Number of Deaths	ASMR (nM_x)
Under 1	1,547	148	95.7	4,349	199	45.8	129,694	101	3.4
1-4	4,319	68	15.7	17,465	64	3.7			
5-9	5,952	43	7.2	19,417	11	0.6	27,042	12	0.4
10-14	4,291	103	24.0	17,905	11	0.6	23,527	12	0.5
15-19	3,613	31	8.6	15,861	17	1.1	21,690	18	0.8
20-24	3,259	33	10.1	12,999	22	1.7	22,885	35	1.5
25-29	3,571	25	7.0	9,313	14	1.5	22,473	23	1.0
30-34	3,218	22	6.8	8,265	21	2.5	18,285	28	1.5
35-39	2,989	34	11.4	7,307	28	3.8	13,007	23	1.8
40-44	2,181	36	16.5	5,810	41	7.1	9,556	23	2.4
45-49	1,547	37	23.9	4,673	23	4.9	7,572	30	4.0
50-54	1,432	27	18.9	3,781	42	11.1	5,974	45	7.5
55-59	765	32	41.8	2,564	28	10.9	4,482	43	9.6
60-69*	1,272	68	53.5	4,246	122	28.7	5,712	127	22.2
70+*	702	82	116.8	1,992	158	79.3	4,044	248	61.3
Unknown	-	-	-	390	-	-	-	-	-

Sources: United Nations *Demographic Yearbook*, 1955, 1963, 1968, 1970, 1978, 1982 & 1984;
Brunei Statistical Yearbook, 1975/76, p. 10 ; 1983/83, pp. 12 & 20.

*Data for five-year age groups are not available except for 1971. For comparative purpose, they are combined into ten-year seventy years and over age groups.

Note: $ASMR (nM_x) = \frac{nD_x}{nPx} (1,000)$ n = the width of an age group in completed years, e.g. 5;
 x = the lowest age in the age group;
 D & P = total number of deaths and population respectively.

**FIGURE 2.3 AGE-SPECIFIC MORTALITY RATES (nM_x)
OF BRUNEI, 1947, 1971 AND 1981.**



Source: Table 2.3.

In 1947, the age-specific mortality rates for all ages were much higher from those in 1971 and 1984. The infant mortality rate (IMR) was very high (95.7 per thousand) as was the child mortality between one and ten. This high IMR could be associated with endogenous factors and in those days health and medical services were rather inadequate as to be able to cope with such a problem. As for the high childhood mortality, it was probably the effects of exogenous factors caused by poor nutrition and sanitation which made children less immune to communicable diseases such as hookworm and malaria which were still prevalent in those days.

By 1971, the age-specific mortality rates for all ages had fallen dramatically, notably those for infants and older adults. For the aged group (over 70 years) the decline was significant too; for example in 1947, it was 116.8, in 1971, 79.3 and in 1984 61.3 per thousand. In general, the decline at almost all ages was more dramatic between 1947 and 1971 than between 1971 and 1984. Specific information is lacking to account for this decline but on the whole, such marked decline in mortality in the former period was most probably attributable to great improvement in health and medical services. This and other factors responsible for the overall decline in mortality in Brunei will be dealt with in more details later in the chapter.

2.4 INFANT AND CHILD MORTALITY

Little information is available on neonatal and infant mortality, although in Brunei, vital registration was made compulsory since 1923. However, as communication not only in urban but also in rural areas has greatly improved and people on the whole have become more exposed to education especially since the 1960s, they have become more aware of the necessity to register both births and deaths and therefore it can be said that the quality of birth and death registration after the 1950s is more complete. Of course, conducting a further survey on this matter would produce more detailed and reliable figures as well as relevant information which then can be compared with the existing records of births and deaths so as to be able to judge better the accuracy of vital registration especially those of the 1940s and the 1950s. However, due to time constraint this is not possible and therefore, like figures for mortality in general, those of IMR notably before the 1950s should also be taken as an approximation.

Further limitation to this study is that it has not been possible to investigate IMR differentials such as according to residence (urban and rural), ethnicity, maternal and paternal education, their levels of income, occupation and other socio-economic variables. Therefore, this section has to be limited to a mere study of trends in infant mortality since 1955 for the

country as a whole and comparison of these trends with those of selected countries in the Southeast Asian region.

Table 2.4 and Figure 2.4 exhibit the marked decline in infant mortality for both sexes between 1955 and 1984, especially between 1955 and 1964, falling from 102.5 to 40 per thousand. The IMR for both sexes increased slightly (by 2.1 per thousand) in 1968 but thereafter continued to decline, reaching its lowest level, 12.8 per thousand in 1984.

Comparing the IMR between males and females, it can be seen that within the same period, the rate of decline was far greater in males than in females; thus in males it was a fall from 115.3 to 39.5 per thousand, while in females, it was from 88.8 to 40.4 per thousand. The IMR in males increased slightly in 1968 but since then continued to fall rapidly; for females, the decline had been steady and continuous. It is interesting to note that during the period of almost three decades, infant male mortality was far greater than that of females especially during the late 1950s. It has been noted frequently (Woods, 1979; Chandna, 1980) that females are biologically more resistant than males in many countries; therefore, at each age there is an excess of male mortality over female and infant mortality is no exception to this⁴. This is said to be true of MDCs and less so of LDCs and Muslim countries for a variety of reasons such as relatively lower status of women and preference for sons rather than daughters. But in the case of Brunei, although it is very much a Muslim country and far from developed, the data (Table 2.4 and

TABLE 2.4 SELECTED ANNUAL INFANT MORTALITY (IMR) OF BRUNEI DARUSSALAM BY SEX, 1955-84

Years	Total Live Births			Number of Infant Deaths			Infant Mortality Rates		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1955	3,600	1,873	1,727	369	216	153	102.5	115.3	88.8
1959	4,201	2,097	2,104	391	220	171	93.1	104.9	81.3
1964	4,178	2,224	1,954	167	88	79	40.0	39.5	40.4
1968	4,912	2,510	2,402	207	114	93	42.1	45.4	38.7
1972	5,008	2,646	2,362	178	100	78	35.5	37.8	33.0
1976	5,300	2,722	2,578	122	64	58	23.2	23.5	22.5
1980	5,777	3,011	2,766	101	56	45	17.5	18.6	16.3
1982	5,952	3,006	2,946	76	40	36	12.8	13.3	12.2
1984	6,330	3,205	3,125	na	na	80	na	na	12.8

Sources: United Nations *Demographic Yearbook*, 1965, 1975, 1979, Special Issue (1979) & 1984;

Brunei Statistical Yearbook, 1975/76, p. 15; 1983/84, p. 16.

Note: IMR (q.) = $\frac{\text{D. the number of deaths of infants under 1 year}}{\text{B the number of live births in the same year}}$

TABLE 2.5 QUINQUENNIAL INFANT MORTALITY RATES FOR SELECTED SOUTHEAST ASIAN COUNTRIES, 1945-84

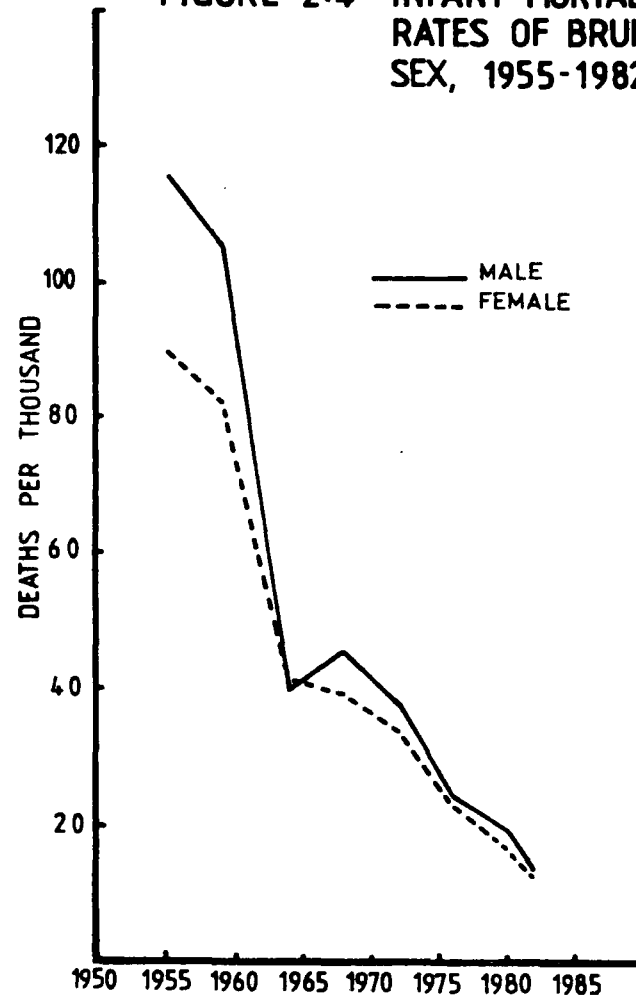
Years	Brunei	Peninsular Malaysia	Sabah	Sarawak	Singapore
1945-49	115.4	90.9	134.7	84.9	98.7
1950-54	112.2	90.7	101.5	97.4	69.4
1955-59	103.3	74.9	75.4	67.7	42.3
1960-64	52.4	58.5*	52.4	49.4	31.0
1965-69	41.0	45.7	33.2	38.8	24.4
1970-74	32.2	38.2	28.2	30.4	19.1
1975-79	23.3	29.9	28.6 ^a	24.6	12.7
1980-84	12.8	24.9 ^b	27.2 ^c	23.9 ^a	10.8

Sources: United Nations *Demographic Yearbook*, 1965, 1968, 1963, 1965, 1967, 1970 & 1980;

United Nations Population Reference Bureau, 1984.

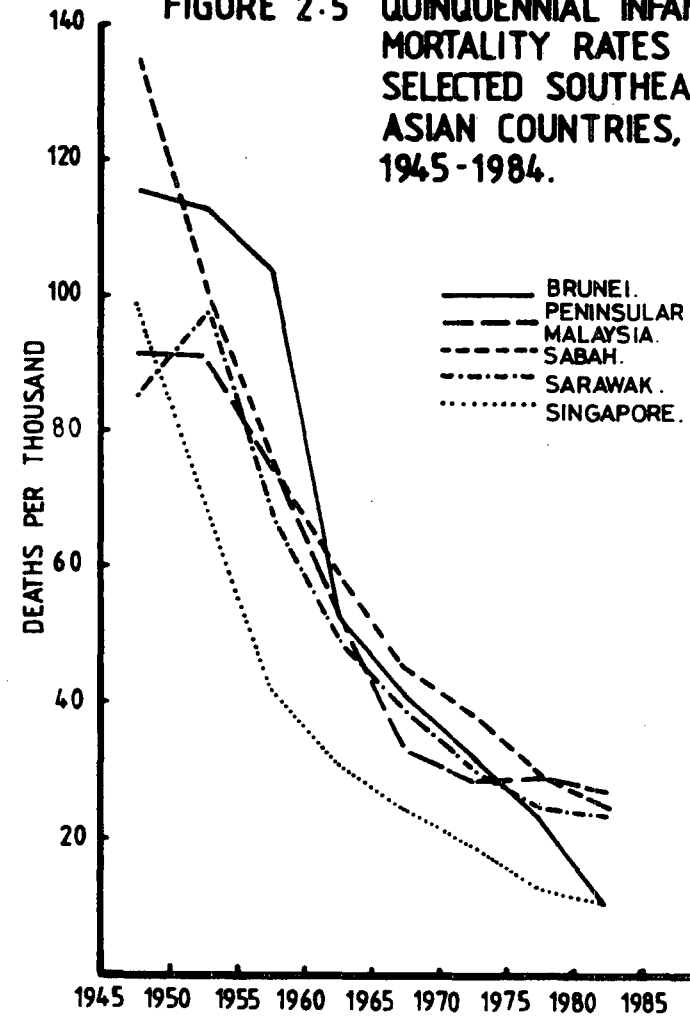
*Provisional; ^a1975-78 figures; ^b1980; ^c1981.

FIGURE 2.4 INFANT MORTALITY RATES OF BRUNEI BY SEX, 1955-1982.



Source: Table 2.4.

FIGURE 2.5 QUINQUENNIAL INFANT MORTALITY RATES OF SELECTED SOUTHEAST ASIAN COUNTRIES, 1945-1984.



Source: Table 2.5

Figure 2.4) do appear to contradict such notions, at least as far as IMR is concerned, the gap between infant male and female mortality narrowed to near equality within the period being studied, largely owing to the substantial improvement in health and medical care but also other factors which will be mentioned later.

In general, IMR decline is a characteristic of many LDCs within this century. The rate of decline, however, differ from one country to another. Taking selected countries within the Southeast Asian region (Table 2.5 and Figure 2.5), all these countries experienced a dramatic decline in IMR during the last forty years but the countries with the greatest declines were Sabah and Brunei, from 134.7 to 27.2 and 115.4 to 12.8 per thousand respectively. For Brunei, the sharp fall occurred between 1955-59 and 1960-64. Sarawak on the other hand, had an increase in the IMR from 84.9 to 97.4 per thousand between 1945-49 and 1950-54 but then started to decline markedly. Peninsular Malaysia experienced the IMR decline only after 1950-54 while for Singapore, the decline after 1955-59 was more gradual than in earlier years. By the early eighties, the IMR for Brunei and Singapore were almost similar.

It is not within the scope of this study to explore factors responsible for the infant mortality decline in these countries. For Brunei, it would be interesting to investigate the different socio-economic variables accounting for the significant decline in IMR. However, the limitations of the data do not permit

the author to indulge in this and therefore only some generalisations can be forwarded. It cannot be denied that Brunei, being a wealthy state has probably better health and medical services than many of those of other countries within Southeast Asian region. Among some of the services provided are health out-patient services which provide hospital-based primary health care for the entire population, and community-based outpatient services are provided in health clinics, health centres and by mobile dispensary services for those in the very remote rural areas. Acceptance of these services is said to be high; for example nearly all mothers are seen at least three times during their pregnancy, and domiciliary care is provided to all mothers for ten days after delivery. All these certainly must have contributed to recent decline in early neonatal and also maternal deaths. According to the Ministry of Health in 1985, perinatal and early neonatal death rates have been reduced; earlier reliable data are lacking but between 1978 and 1984 pre-natal death rates fell from 22.12 to 12.30 per thousand and early neonatal from 10.91 to 6.29 per thousand in the same period; neonatal death rates between 1978 and 1984 also fell from 14.15 to 8.3 per thousand respectively.

Child mortality has also fallen, though the decline was not as sharp as the IMR. Statistically between 1947 and 1971, the mortality rates of the 1-4 and 5-9 age groups mortality rates fell from 15.7 and 7.2 per thousand to 3.7 and 0.6 per thousand respectively; by 1984 the mortality rate of children in the 5-9

age groups was reduced to 0.4 per thousand (refer to Table 2.3). It is true that without prior survey, it is not possible to investigate the extent of the effect of health and medical care on the declining trend of IMR and child mortality. However, it was said in 1985 that,

"Prevention, being the first line of defence against diseases, we take pride in the fact that we have managed to keep all childhood diseases of epidemiological importance at abeyance; 95 percent of our children are protected with three doses of DPT and Polio, 87 percent against measles, 88 percent against tuberculosis; no cases of diphtheria, tetanus, poliomyelitis or whooping cough have been reported. Measles is low, tuberculosis is rare in infants. Selective immunisation with gamma globulin and hepatitis vaccine is given to children of hepatitis 'B'+ve mothers. An ambitious programme of measles eradication is to be launched in the State and the target for eradication is set for the year 1990"⁵.

The above must have undoubtedly contributed at least partially to the decline in infant and child mortality, the level of which by 1984 was among the lowest in the world. There have been many studies conducted to investigate the effects of socio-economic variables on infant and child mortality (Caldwell, 1979; Caldwell, McDonald and Rutstein 1981; Hobcraft, McDonald and Rutstein, 1984). The first two concerned their studies very much in investigating the influence of education, specifically maternal education on infant and child mortality; the latter was also a study of a similar theme but with a wider application, a cross-national comparison on infant and child mortality. Hobcraft, McDonald and Rutstein found that in all the 28 countries under investigation, there were substantial differences

which reflect the greater influence of socio-economic factors on infant and early childhood mortality;

"Cross-nationally, the relative importance of the two education variables is even greater than before. In nine countries, the highest rates occur among mothers with no education, and in a further six among husbands with no education. At the other extreme, in ten countries the rate is lowest in the group with mothers who had received at least seven years of education, in a further seven for the group where husbands have been educated for this length of time, and in five countries in the professional and clerical group and the metropolitan group... In general, it is clear from the foregoing that there is a substantial differentiation and that education of mother, followed by education of her husband and his occupation are generally the strongest explanatory variables"⁶.

In a Nigerian study, Caldwell also observed that,

"very low infant child mortality levels have been achieved in some societies where levels of female education are high, health inputs moderate and income per head low to moderate"⁷.

Further he found that,

"whilst child mortality falls continuously as maternal education lengthens, there is no similar continuous movement as occupation changes from more to less traditional"⁸.

For Brunei, with regard to parental education especially that of mothers, studies should be made to establish the degree of its influence upon child and infant mortality in relation to marked increase in literacy, education and employment participation especially females (see Chapter Six).

Thus from the foregoing, there is no reason not to accept the notion that in Brunei, besides the comprehensive health and medical services, socio-economic variables like maternal and even paternal education have also been responsible to some extent

for the decline in infant and child mortality. Caldwell further stated that,

"it may be argued that family well-being or at least the capacity to purchase health is better measured by family income than by the education and occupation of either parent or the area of residence. This is in fact, debatable in West Africa"³.

It is realised that without prior survey of the influence of maternal education and other socio-economic variables, it is not possible to specify the extent of their effects on infant and child mortality. Undoubtedly, however, it can be said in general that within the Brunei context, parental education more than other social factors such as family income, occupations and place of residence would probably have little effects on infant and child mortality. This is because in Brunei, health and medical care is provided free for all citizens and certain categories of expatriate government employees, while others are heavily subsidised. When certain cases cannot be treated locally, patients will be sent abroad for treatment on government's expenses.

2.5 MORTALITY DIFFERENTIAL BY SEX

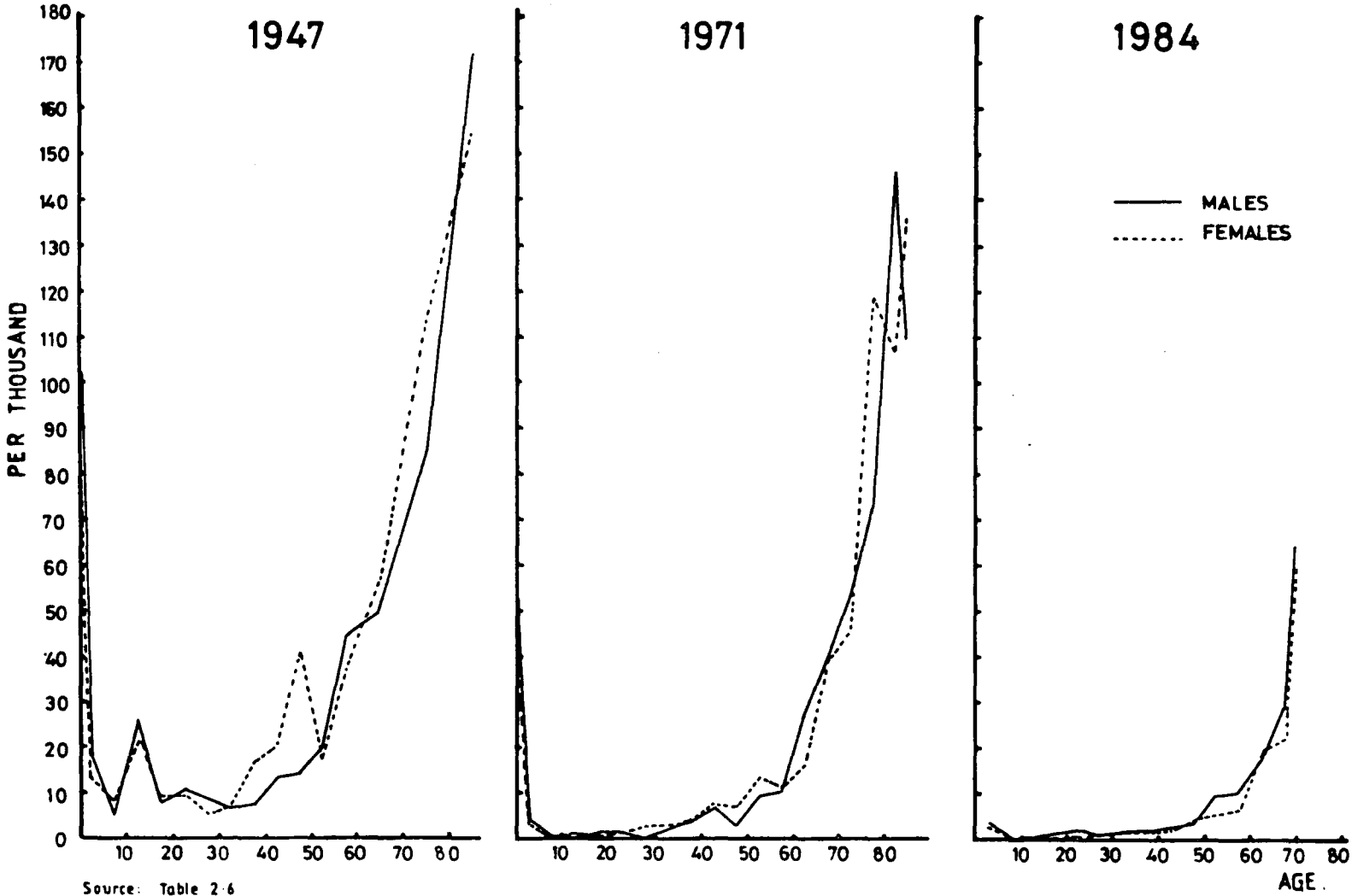
As mentioned earlier the main cause of mortality differential between the sexes seems to do with the biological variation in the resistance of power between male and female bodies. With reference to Brunei, Table 2.6 and Figure 2.6 reveal that in general the mortality differential between males and females has not been typical of LDCs.

TABLE 2.6 DEATH RATES OF BRUNEI BY AGE AND SEX, 1947-84

Age Groups	1947						1971						1984					
	Persons (sP _x)		Deaths (sD _x)		Mortality Rates (sM _x)		Persons (sP _x)		Deaths (sD _x)		Mortality Rates (sM _x)		Persons (sP _x)		Deaths (sD _x)		Mortality Rates (sM _x)	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Under 1	775	772	87	61	112.3	79.0	2,197	2,152	115	84	52.3	39.0	115,276	14,418	58	43	3.8	3.0
1-4	2,214	2,105	40	28	18.3	13.3	8,897	8,568	36	28	4.1	3.3	)					
5-9	3,010	2,492	19	24	6.3	8.2	10,031	9,386	8	3	0.8	0.3	13,927	13,115	6	6	0.4	0.5
10-14	2,175	2,116	57	46	26.2	21.7	8,984	8,921	1	10	0.1	1.1	12,046	11,481	8	4	0.7	0.4
15-19	1,718	1,895	13	18	7.6	9.5	8,315	7,546	10	7	1.2	0.1	11,300	10,390	12	6	1.2	0.6
20-24	1,615	1,643	17	16	10.5	9.7	7,160	5,839	12	10	1.8	1.7	12,385	10,500	26	9	2.1	0.9
25-29	1,789	1,782	15	10	8.4	5.6	5,340	3,973	4	10	0.2	2.5	12,375	10,098	13	10	1.1	1.0
30-34	1,713	1,505	11	11	6.4	7.3	4,501	3,964	9	12	2.0	3.2	10,121	8,164	13	15	1.3	1.8
35-39	1,798	1,200	14	20	7.8	16.7	3,834	3,473	14	14	3.7	4.0	7,375	5,632	13	10	1.8	1.8
40-44	1,296	885	18	18	13.9	20.3	3,363	2,447	22	19	6.5	7.8	5,442	4,114	14	9	2.8	2.2
45-49	985	562	14	23	14.2	40.9	2,709	1,964	9	14	3.3	7.1	4,141	3,431	15	15	3.6	4.4
50-54	847	585	17	10	20.1	17.1	2,222	1,559	21	21	9.5	13.5	3,297	2,677	31	14	9.4	5.2
55-59	495	270	22	10	44.1	37.0	1,548	1,016	16	12	10.3	11.8	2,546	1,936	30	13	11.8	6.7
60-64	1,719	553	36	32	50.1	57.9	1,391	1,202	38	20	27.3	16.6	1,902	1,370	34	27	17.9	19.7
65-69	)						942	711	37	27	39.3	38.0	1,373	1,067	42	24	30.6	22.5
70-74	1,269	237	23	27	85.5	113.9	562	480	30	22	53.9	45.8	1,2017	1,937	130	118	64.5	60.9
75-79	)						219	176	16	21	73.1	119.3	)					
80-84	1,99	97	17	15	171.6	154.6	130	150	19	16	146.2	106.7	)					
85+	)						128	147	14	20	109.4	136.1	)					
Unknown	-	-	-	-	-	-	129	10	-	-	-	-	-	-	-	-	-	-

Sources: United Nations, *Demographic Yearbook*, 1955, 1958, 1963, 1968, 1970 1978, 1982 & 1984;
Brunei Statistical Yearbook, 1983/84, pp. 12 & 20.

FIGURE 2.6 AGE-SPECIFIC MORTALITY RATES.



In 1947 and 1971, mortality rates of infants and children were higher among males than females. The large drop in male mortality in these younger age groups by 1984 had narrowed the gap, resulting in the level of male mortality of infants and children being only slightly higher than that of females. However, the gap was wider in middle age groups; in 1947 for example, females between the ages of 30-34 and 45-49 had higher mortality rates than males. Among other socio-economic factors, this was possibly associated with many cases of maternal deaths and deaths connected with the delayed effect of delivery for females aged 40-50. This was not surprising at all as in those days medical facilities were far from advanced. In 1971, mortality in females aged between 25-29 and 55-59 was still higher than that of males, indicating a characteristic of LDCs though the gap was becoming narrower. By 1984 the disparity in male and female mortality rate at almost all ages was getting even smaller, making it more comparable with those of MDCs. Moreover, mortality in females within childbearing age does not seem to be significantly high, and therefore it may be inferred that maternal deaths has not been the main cause of deaths for females within this age group after 1971.

It would also be interesting to investigate mortality differential between the sexes according to ethnicity and place of residence among other variables but the inadequate detail of available data impedes such analysis. In general therefore, it may be concluded that since recent decades, Brunei has not shared

the similar demographic experience regarding female excess mortality which still exists in many LDCs. Needless to say the small mortality differential between the sexes at almost every age has been most probably due to great emphasis on health and medical services for all as well as favourable changes in the socio-economic condition of the country as a whole.

2.6 LIFE EXPECTANCY

The four major life table functions, q_x , l_x , d_x , and e_x , of Brunei for 1947, 1971 and 1984 for both sexes are shown in Tables 2.7a & 2.7b and Figures 2.7a & 2.7b. These curves vary in detail between the sexes over the period in question.

The curves for the probability of dying (${}_nq_x$) for these selected years exhibit the typical shape of a tick for both sexes indicating in general a relatively high probability of dying for infants notably in 1947 and 1971 (figures for infant deaths in 1984 are not available at the time of writing); and in both 1971 and 1984 it was very low for children, adolescents and young adults. The q_x curves for 1947 for both males and females were rather exceptional in that mortality was high in infants, adolescents and thereafter rose rapidly from the age of mid-thirties for females and from late forties for males. The low level of probability of dying among females in 1947 between the ages of 65 and 75 was rather unusual but it may be due to inaccuracy of data.

TABLE 2.7a PERIOD ABRIDGED LIFE TABLE FOR THE FEMALE POPULATION OF BRUNEI DARUSSALAM, 1947

Age (1)	nM_x (2)	nq_x (3)	I_x (4)	nd_x (5)	nL_x (6)	T_x (7)	e_x (8)
0	0,07902*	0,07902	10,000	790	9,447 ^a	427,057	42,71
1	0,01330	0,05182	9,210	477	35,886	417,610	45,34
5	0,00816	0,03998	8,733	349	42,793	381,724	43,71
10	0,02174	0,10310	8,384	864	39,760	388,931	40,43
15	0,00950	0,04640	7,520	349	36,728	299,171	39,78
20	0,00974	0,04754	7,171	341	35,003	262,443	36,60
25	0,00561	0,02766	6,830	189	33,678	227,440	33,30
30	0,00731	0,03589	6,641	238	32,610	193,762	29,18
35	0,01667	0,08002	6,403	512	30,735	161,152	25,17
40	0,02034	0,09678	5,891	570	28,030	130,417	22,14
45	0,04093	0,18565	5,321	988	24,135	102,387	19,24
50	0,01709	0,08195	4,333	355	20,778	78,252	18,06
55	0,03704	0,16950	3,978	674	18,205	57,474	14,45
60)							
65)	0,05787	0,44883	3,304	1,483	25,625	39,269	11,89
70)							
75)	0,11392	0,72579	1,821	1,322	11,600	13,644	7,50
80)							
85+)	0,15464	1,00000 ^b	499	499	2,044 ^c	2,044	4,10

Source: Calculated from;

United Nations Demographic Yearbook, 1955 & 1958,

*Number of births for 1947 is not available to compute q_0 .

Over these years, the overall probability of dying had been declining markedly, notably in infants and children; a significant decline was also achieved among adolescents and younger adults but less so at the older ages. This decline was, however, more dramatic between 1947 and 1971 than between 1971 and 1984. This, of course, was partly due to the different time spans being compared (figures for the fifties and sixties are lacking); partly, however, as already mentioned elsewhere in this chapter, this overall large decline was largely the effects of

(continued)

TABLE 2.7a PERIOD ABRIDGED LIFE TABLE FOR THE FEMALE POPULATION OF BRUNEI DARUSSALAM, 1971

Age (1)	nM_x (2)	nq_x (3)	l_x (4)	nd_x (5)	nL_x (6)	T_x (7)	e_x (8)
0	0.03302*	0.03302	10,000	330	9,769 ^a	665,193	66.52
1	0.00327	0.01300	9,670	126	38,428	655,424	67.78
5	0.00032	0.00160	9,544	15	47,683	616,996	64.65
10	0.00112	0.00558	9,529	53	47,513	569,313	59.75
15	0.00093	0.00464	9,476	44	47,270	521,800	55.10
20	0.00171	0.00851	9,432	80	46,960	474,530	50.31
25	0.00252	0.01252	9,352	117	47,468	427,570	45.72
30	0.00319	0.01582	9,235	146	45,883	381,102	41.28
35	0.00403	0.01995	9,089	181	44,995	335,269	36.89
40	0.00777	0.03811	8,909	340	43,695	290,274	32.58
45	0.00713	0.03503	8,569	300	42,095	246,579	28.78
50	0.01347	0.06516	8,269	539	39,998	204,484	24.73
55	0.01181	0.05736	7,730	443	37,543	164,486	21.28
60	0.01664	0.07988	7,287	582	34,980	126,943	17.42
65	0.03798	0.17343	6,705	1,163	30,618	91,963	13.72
70	0.04583	0.20560	5,542	1,139	24,863	61,345	11.07
75	0.11932	0.45952	4,403	2,023	16,958	36,482	8.29
80	0.10667	0.42106	2,380	1,002	9,395	19,524	8.20
85+	0.13605	1.0000 ^b	1,378	1,378	10,129 ^c	10,129	7.35

Sources: Calculated from;

United Nations *Demographic Yearbook*, 1978,
Brunei Statistical Yearbook, 1975/76, p. 10.

* M_0 is 0.03903 but q_0 is substituted here.

great improvements in health and medical services, the result of which was only evident in the late sixties.

The l_x curves on the other hand, show the number of survivors for both males and females. On the whole, in each of these selected years there was no great discrepancy in the number of survivors in both sexes. During a period of almost three

(continued)

TABLE 2.7a PERIOD ABRIDGED LIFE TABLE FOR FEMALE POPULATION OF BRUNEI DARUSSALAM, 1984

Age (1)	nM_x (2)	nq_x (3)	I_x (4)	nd_x (5)	nL_x (6)	T_x (7)	e_x (8)
0)	0.00298*	0.01479	10,000	148	49,630 ^a	767,708	76.77
1)							
5	0.00046	0.00230	9,852	23	49,203	718,078	72.89
10	0.00035	0.00175	9,829	17	49,103	668,875	68.05
15	0.00058	0.00290	9,812	29	48,988	619,772	63.17
20	0.00086	0.00429	9,783	42	48,810	570,784	58.35
25	0.00099	0.00494	9,741	48	48,585	521,974	53.59
30	0.00184	0.00916	9,693	89	48,243	473,389	48.84
35	0.00178	0.00886	9,604	85	47,808	425,146	44.28
40	0.00219	0.01089	9,519	104	47,335	377,338	39.64
45	0.00437	0.02161	9,415	204	46,565	330,003	35.05
50	0.00523	0.02581	9,211	238	45,460	283,438	30.77
55	0.00672	0.03305	8,973	297	44,123	237,978	26.52
60	0.01971	0.09392	8,676	815	41,343	193,885	22.34
65	0.02249	0.10646	7,861	837	37,213	152,512	19.512
70+**	0.06092	1.00000b	7,024	7,024	115,299 ^c	115,299	16.42

Source: Calculated from:

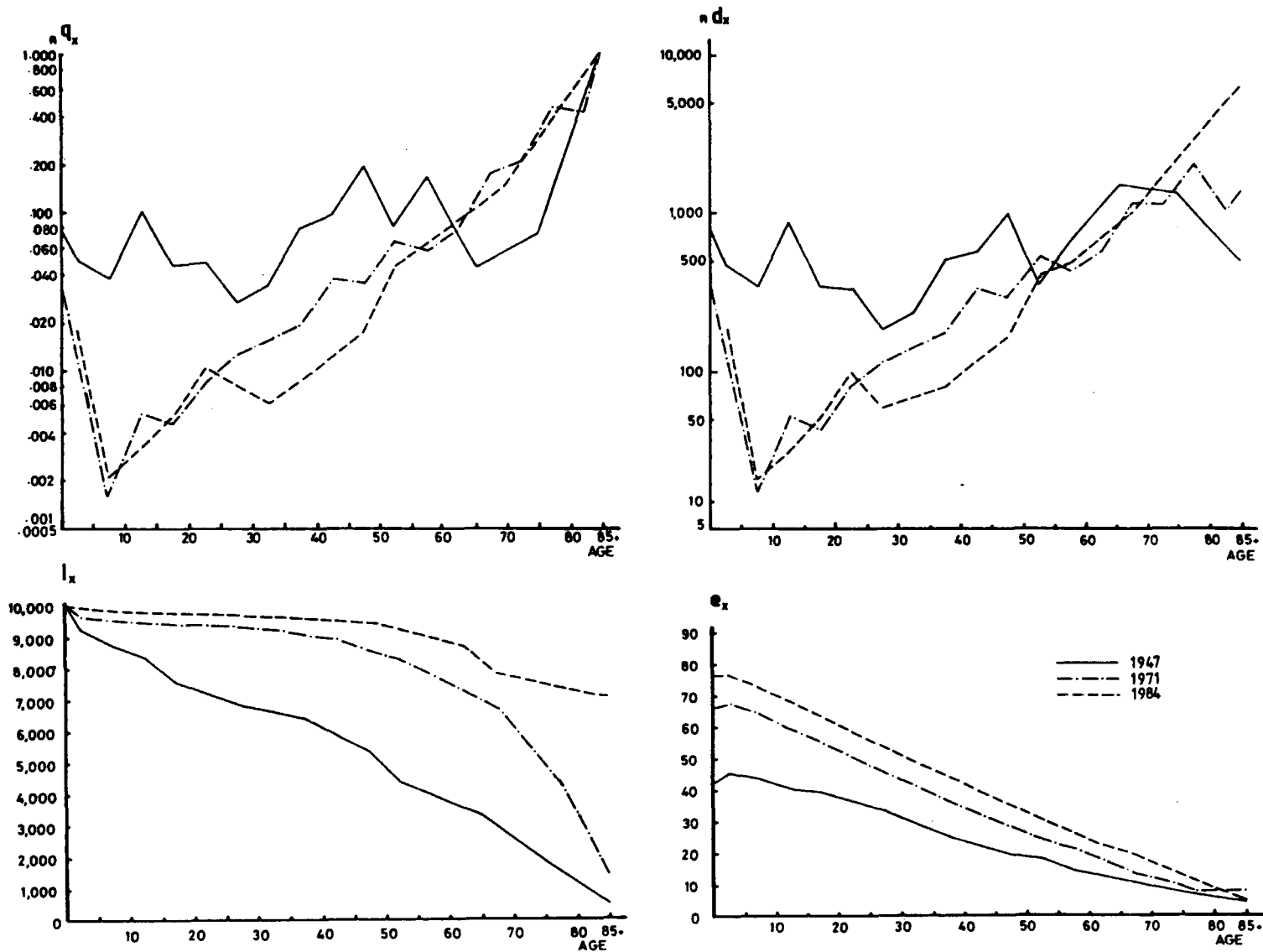
*Brunei Statistical Yearbook, 1983 / 84, pp. 12 & 20.** M_0 (the number of births and deaths under 1 year are not available to compute q_0).

**Five-year age groups above the age of 70 are not available.

decades both sexes experienced big increases in the number of survivors at almost all ages especially between 1947 and 1971; between 1971 and 1984, the increase was less significant except among those above the age of sixty-five years. Again apart from the different time spans, it was due to the fact that since late 1960s medical services have been improving very much and therefore more people are much healthier and survive well into their eighties.

The number of people actually dying is demonstrated by nd_x

FIGURE 2.7a CURVES OF LIFE TABLE FUNCTION, ${}_nq_x$, ${}_nd_x$, l_x AND e_x OF FEMALES.



Source: Table 2-7a.

TABLE 2.7b PERIOD ABRIDGED LIFE TABLE FOR THE MALE POPULATION OF BRUNEI DARUSSALAM, 1947

Age (1)	nM_x (2)	nq_x (3)	I_x (4)	nd_x (5)	nL_x (6)	T_x (7)	e_x (8)
0	0.11226*	0.11226	10,000	1,123	9,214 ^a	426,676	42.67
1	0.01807	0.06976	8,877	619	34,270	417,462	47.03
5	0.00631	0.03106	8,258	257	40,648	383,192	46.40
10	0.02621	0.12300	8,001	984	37,545	342,544	42.81
15	0.00757	0.03715	7,017	261	34,433	304,999	43.47
20	0.01053	0.05130	6,756	347	32,913	270,566	40.05
25	0.00839	0.04109	6,409	263	31,388	237,653	37.08
30	0.00642	0.03159	6,146	194	30,245	206,265	33.56
35	0.00783	0.03840	5,952	229	29,188	176,020	29.57
40	0.01389	0.06712	5,723	384	27,655	146,832	25.66
45	0.01421	0.06861	5,339	366	25,780	119,177	22.32
50	0.02007	0.09557	4,973	475	23,678	93,397	18.78
55	0.04444	0.20000	4,498	900	20,240	69,719	15.50
60)							
65)	0.05007	0.40045	3,598	1,441	28,775	49,479	13.75
70)							
75)	0.08550	0.59895	2,157	1,292	15,110	20,704	9.60
80)							
85+)	0.15464	1.00000 ^b	865	865	5,594 ^c	5,594	6.47

Source: United Nations *Demographic Yearbook*, 1955 & 1958,

* the number of births for 1947 is not available to compute q_0 .

curves which also show a tick shape as that of nq_x curves. These curves again reveal in general, high mortality in infants, low mortality in children and young adults but rising sharply in older ages, notably in 1984 for both sexes. A striking feature in the pattern of mortality for both males and females was the dramatic decline in mortality of children and those in their early teens between 1947 and 1971; another was that of a marked decline in mortality of males aged 30-45 between 1971 and 1984; for females the decline in the mortality of those within their reproductive ages from 1947 to 1984 was also significant, thus

(continued)

TABLE 2.7b PERIOD ABRIDGED LIFE TABLE FOR THE MALE POPULATION OF BRUNEI DARUSSALAM, 1971

Age (1)	nM_x (2)	nq_x (3)	I_x (4)	nd_x (5)	nL_x (6)	T_x (7)	e_x (8)
0	0,04361*	0,04361	10,000	436	9,695*	661,780	66,18
1	0,00405	0,01607	9,564	154	37,948	652,085	68,18
5	0,00079	0,00394	9,410	37	46,958	614,137	65,26
10	0,00011	0,00055	9,373	5	46,853	567,179	60,51
15	0,00120	0,00598	9,368	56	46,700	520,326	55,54
20	0,00168	0,00837	9,312	78	46,358	473,626	50,86
25	0,00075	0,00374	9,231	35	46,068	427,268	46,29
30	0,00199	0,00990	9,196	91	45,753	381,200	41,45
35	0,00365	0,01809	9,105	165	45,113	335,447	36,84
40	0,00654	0,03217	8,940	288	43,980	290,334	32,48
45	0,00332	0,01646	8,652	142	42,905	246,354	28,47
50	0,00945	0,03822	8,510	325	41,738	203,449	23,91
55	0,01034	0,05039	8,185	412	39,895	161,711	19,76
60	0,02732	0,12787	7,773	994	36,380	121,816	15,67
65	0,03928	0,17884	6,779	1,212	30,865	85,436	12,60
70	0,05338	0,23548	5,567	1,311	24,558	54,571	9,80
75	0,07306	0,30888	4,256	1,315	17,993	30,013	7,05
80	0,14615	0,53520	2,941	1,574	10,770	12,020	4,09
85+	0,10938	1,00000 ^b	1,367	1,367	1,250 ^c	1,250	0,9

Sources: United Nations *Demographic Yearbook*, 1978,*Brunei Statistical Yearbook*, 1975 / 76,* M_0 is 0,05234 but q_0 is substituted here.

again evidence of availability of modern medical facilities.

The summary of all the above curves is provided by the life expectancy graphs (e_x). Both male and female life expectancies at almost all ages during the period being studied have shown marked improvement, notably between 1947 and 1971 and to a lesser extent between 1971 and 1984. The increase was greater at the younger ages and then gradually lessened at the older ages. One interesting point to note is that with the exception of the life

(continued)

TABLE 2.7b PERIOD ABRIDGED LIFE TABLE FOR THE MALE POPULATION OF BRUNEI DARUSSALAM, 1984

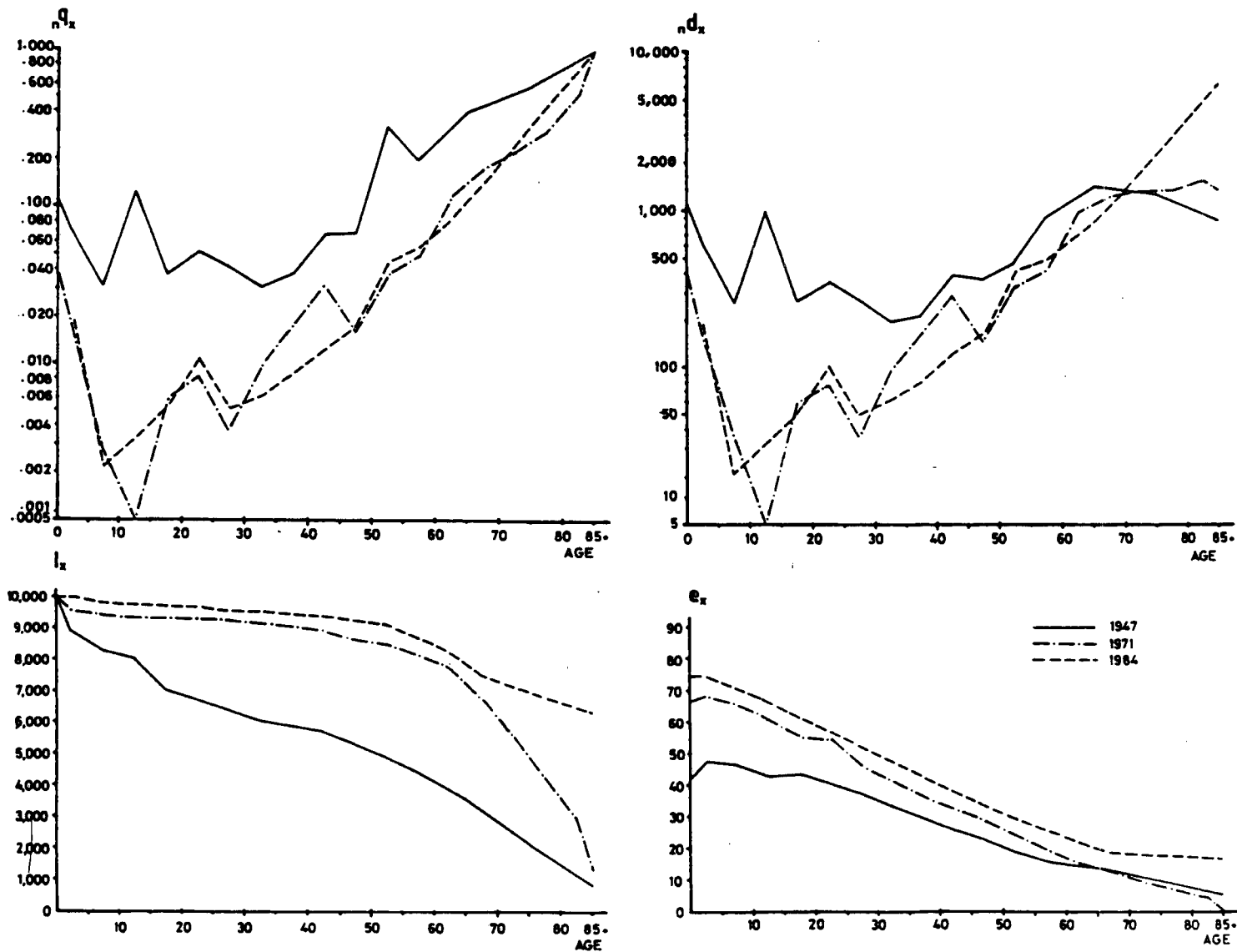
Age (1)	nM_x (2)	nq_x (3)	I_x (4)	nd_x (5)	nL_x (6)	T_x (7)	e_x (8)
0)	0,00380*	0,01882	10,000	188	49,530 ^a	745,336	74,53
1)							
5	0,00043	0,00215	9,812	21	49,008	695,806	70,91
10	0,00066	0,00330	9,791	32	48,875	646,798	66,06
15	0,00160	0,00529	9,759	52	48,665	597,923	61,27
20	0,00210	0,01045	9,707	101	48,283	549,258	56,58
25	0,00105	0,00524	9,606	50	47,905	500,975	52,12
30	0,00128	0,00638	9,556	61	47,628	453,070	47,41
35	0,00176	0,00876	9,495	83	47,268	405,442	42,70
40	0,00257	0,01277	6,412	120	46,760	358,174	38,06
45	0,00362	0,01794	9,292	167	46,043	311,414	33,51
50	0,00940	0,04593	9,125	419	44,578	265,371	29,08
55	0,01178	0,05722	8,706	498	42,285	220,793	25,36
60	0,01788	0,08558	8,208	702	39,285	178,508	21,75
65	0,03059	0,14208	7,506	1,067	34,863	139,223	18,55
70+**	0,06170	1,00000 ^b	6,439	6,349	104,360 ^c	104,360	16,21

Source: *Brunei Statistical Yearbook*, 1983/84, p. 20.* Mo (the number of births and deaths under one year are not available to compute q_0).

**Data for five-year age groups above the age of 70 are not available.

Note for TABLES 2.7a & 2.7b, 1947-84:^aDerived from equation $L_0 = 0,3I_0 + 0,7I_1$.^b q_{85} must always be 1,0^cderived from equation $L_{85} = d_{85} / M_{85}$. M_x is the age specific mortality rates. nq_x is the probability that a person aged x will die before reaching $x+n$; (q_0 is the probability of that a newly born child will die during the first year of life). I_x is the number of survivors to exact age x . nd_x is the number of dying between exact ages x and $x+n$. nL_x is the average number of persons aged x to $x+n$ alive out of the original number of births. T_x is the total life table population aged x and over. e_x is the expectation of life at age x .

FIGURE 2.7b CURVES OF LIFE TABLE FUNCTION, ${}_nq_x$, ${}_nd_x$, l_x AND e_x OF MALES.



Source: Table 2.7b.

expectancy at births in 1971, that between one year of age and 40 was higher in males than in females, on the other hand, the life expectancy for those aged over forty years was higher in females, but in both 1947 and 1984, life expectancy at all ages was higher in males than in females. The latter is a characteristic of many LDCs, while in MDCs the reverse is more common.

Life expectancy at birth of the population of Brunei in 1984 was 71.77 for females and 74.53 for males, among the highest not only in the Southeast Asian region (the other higher level being Singapore) but also in the whole of Asia. In fact life expectancy of the Brunei population compares very well with some of the more developed countries of Asia: Taiwan (1981), 70.0 for males and 75.0 for females¹⁰, Hong Kong (1982) 72.69 males and 78.28 females, and Japan (1983) 74.20 males and 79.78 females¹¹. Needless to say such significant achievement has been largely the result of an increasing emphasis on modern health and medical services and it therefore deserves a more detail explanation.

2.7 CAUSES OF DEATH

It has been admitted that analysis by cause of death is usually difficult mainly because of the high proportion of deaths from unknown or unspecified causes and also because of the existence of multiple causes. For Brunei, statistics of death by cause are also too scanty to permit detailed analysis of causes of death; in 1959 for example, out of the total deaths of 935,

only 24 percent were certified by Medical Practitioners, the rest being reported by relatives, headmen or the police¹². Although data for deaths by major causes for the years between 1965 and 1982 are available (Table 2.8), analysis is rather limited because of the lack of details, for example, the use of 'symptoms and ill-defined conditions' and 'other causes' categories, both of which appear to have caused significant number of deaths throughout the period in question. However, in general, the table reveals that between 1965 and 1970, pneumonia caused more deaths than other morbidity. Tuberculosis appears to be the next major cause of death, followed by gastritis, duodenitis, enteritis, colitis, malignant neoplasms, birth injury and cerebrovascular diseases. During the 1970s and early 1980s, malignant neoplasms caused more deaths than other ailments, though those mentioned above, as well as motor vehicle and all other accidents were in general still appeared to be fairly significant causes of deaths.

Today, while it is true that registrations of deaths are relatively complete, the causes of deaths may still be questionable. Therefore with such a constraint, only a few generalisation on the common causes of death can be made. According to the Ministry of Health (1985),

"mortality trends resemble that of developed countries with cardio vascular diseases taking the highest toll of lives among men over thirty-five years of age... Road traffic accidents constitute the main cause of death among adolescents while experimentation with drugs and smoking is causing considerable morbidity. Asthma, bronchitis and lung diseases are the next highest among causes of mortality. Social and cultural patterns and life styles have a profound effect on

TABLE 2.8 DEATH BY MAJOR CAUSES, 1965-82

Causes of Death	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
All causes	662	657	656	715	691	715	799	742	701	640	728	668	748	731	728	742	651	780
Tuberculosis of respiratory system	52	37	50	42	33	37	32	23	24	16	18	14	23	13	13	28	11	20
Other Tuberculosis	8	12	1	1	-	2	3	3	1	2	2	1	1	1	1	3	2	-
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	5	13	30	48	48	32	45	60	44	60	61	59	61	67	50	60	49	70
Benign neoplasms and neoplasms of unspecified nature	29	21	2	-	-	-	-	-	1	-	1	-	1	-	2	-	-	-
Hypertensive diseases	13	11	1	10	-	9	6	7	8	6	16	10	17	7	19	11	7	17
Ischaemic heart disease	7	13	25	19	-	-	14	23	25	23	25	26	30	23	23	30	36	16
Cerebrovascular disease	21	12	21	11	22	27	28	34	27	33	22	23	37	42	36	44	37	54
Influenza	1	-	-	-	-	2	-	1	-	-	1	-	-	-	-	1	1	-
Pneumonia	82	76	58	80	50	50	23	32	18	15	23	15	19	13	13	30	17	28
Bronchitis, emphysema and asthma	18	5	17	19	8	2	9	15	11	10	13	11	27	2	5	5	2	19
Birth injury, difficult labour and other anoxic and hypoxic conditions	19	11	26	-	78	10	3	41	47	22	38	27	23	50	21	23	22	21
Symptoms and ill-defined conditions	117	126	237	255	105	111	284	279	290	259	324	246	216	241	182	252	196	279
Motor vehicle accidents	1	6	5	5	4	7	15	32	14	13	128	8	20	29	22	20	26	40
All other accidents	21	29	41	31	17	41	16	13	29	17	1	26	89	32	42	45	43	38
Suicide and self-inflicted injuries	-	2	-	6	2	1	-	2	1	5	1	1	4	3	3	1	4	2
Gastritis, duodenitis, enteritis and colitis, except diarrhoea of the newborn	49	55	24	35	35	35	-	-	19	-	18	6	15	13	6	13	6	7
Other causes	217	288	118	153	289	349	-	-	142	159	137	195	165	195	290	176	192	171

Sources: *Brunei Statistical Yearbook*, 1977/76, pp. 114-115; 1982/83, pp. 113-114.

Note: Figures since 1983 are excluded because of the inconsistent categorization.

disease patterns. Nutritional status of all groups of the population is good but diabetes mellitus and hypertension are increasing and urbanisation seems to be a major contributing factor for the increasing incidence of these diseases. Upper respiratory infections are the commonest causes of mortality and morbidity among children. Endemic goitre has been recognized in the remote areas. Although the incidence of pulmonary tuberculosis is high, it is mostly among the adult population. Our BCG campaign was started about twenty years ago. Hepatitis B is being reported more and more and the incidence among pregnant mothers is relatively high, but a population survey has not been made yet. Gonococcal infections are higher among expatriate population"¹³.

2.8 FACTORS INFLUENCING MORTALITY

As mentioned earlier, mortality rates in Brunei during the post-war years was very high. Several factors are forwarded below to explain causes for the incidence.

Firstly, modern medical services in those days were still in their infancy. The war and its aftermath made the situation worse; both Bandar Seri Begawan (then known as Brunei Town) and the only hospital in the town were completely destroyed. A temporary one was set up but was not adequate to cope with the demand for services as it was only equipped with primitive facilities, and with shortages of almost all medical supplies, it was barely capable of providing basic medical services.

Secondly, the problem was associated with the environmental condition during those years. Sanitation and refuse disposal were primitive; for example night soil was collected in buckets

and conveniently dumped into the river. Housing and living standards were appalling; overcrowding was common in both urban and rural areas but it was particularly acute in Kampong Ayer (Water Village), although sanitation was said to be better as refuse was discharged into the river and effectively carried away by the tide¹⁴.

Thirdly was low socio-economic condition of the people in general meant that poor health caused by malnutrition was widespread. This condition was most probably related to ignorance of health education and poverty because presumably the wealth from the exploitation of oil had not reached the people yet. With a situation as such, the people became vulnerable to disease causing a great deal of morbidity and mortality. Malaria was widespread almost throughout the country. Other diseases were no less a threat to health and life of the people in general. Helminths (infestation with round worm) were exceedingly common among children. Tuberculosis was a tremendous problem not only in Brunei but also in the Far East as a whole; the relics of Japanese occupation with food shortages and starvation were strongly held responsible, together with the universal habit of indiscriminate spitting. There was no reduction in the incidence of the vicious combination of chronic malaria, malnutrition, hookworm and pulmonary tuberculosis. These diseases were said to be responsible for a great deal of illness occurring amongst people in urban areas and were probably the greatest health problem not only in Brunei

but also in most of Southeast Asia. According to the 1948 Brunei Annual Report,

"increased blood loss due to hookworm, increased blood destruction due to malaria and diminished blood formation due to an unbalanced diet produce the most severe degrees of anaemia as well as beri-beri and starvation oedema. Among such debilitated people tuberculosis thrives". And, "perhaps the greatest tragedy of this is that it is readily preventable and equally readily curable, although the latter needs time. A broken leg in a person from an urban area is often a blessing in disguise; it keeps him in hospital for 6 to 8 weeks during which time a balanced diet, a simple iron mixture, Vitamin B tablets and a few liver injections simply transform his general health and when he leaves hospital he has not merely recovered from his broken leg, but has put on weight, lost his oedema and his lassitude and has his blood haemoglobin doubled. Alas, within 6 months he is usually in as bad a condition as before"¹⁵.

It seems that the fundamental problem was largely socio-economic; the people were uneducated and living standards were poor, and this meant that effective health and medical measures could only be effectively materialised through improving the socio-economic condition of the people. However, it was also imperative to change the peoples' conservative attitudes regarding their reluctance to accept modern medical treatment. During the late forties, superstition and prejudice especially among the Malays hampered the work of clinics, particularly that relating to child-birth and infant feeding. For example maternal deaths occurred because relatives preferred traditional child-birth practices and refused to permit a woman in labour to deliver her child in hospital. This probably explained the high maternal death rate, which was 3.0 per hundred live births in 1962¹⁶. Improper feeding and child-caring in general might also

be associated with high neo-natal mortality rates and IMR which were 24.5 and 93.3 per thousand respectively in 1959¹⁷.

During the early fifties, both curative and preventative measures were taken in the effort to improve mortality, morbidity and the health of the people in general. However, the emphasis was more of prevention, because it was realized that effective measures and rewarding results in the long run can only be achieved by positive change in the socio-economic condition of the people at large. The government, which was facilitated by increased revenues from the newly expanding oil industry in the early 1950s, launched comprehensive health and medical service programmes. Among such programs were the anti-malaria project carried out between 1953 and 1962 which included house-spraying and anti-malaria drug distribution throughout the country. Then on the recommendation of WHO in 1962, the National Malaria Eradication Project (1963-68) was launched to continue malaria eradication more systematically¹⁸, and vaccination against cholera. A BCG campaign against tuberculosis was launched in 1958, also with the help of personnel from WHO; this campaign aimed to raise the resistance of the people against the disease¹⁹. Incidence of malaria was reduced significantly; the number of cases reported declined from 3,062 in 1953 to 16 in 1960²⁰. Tuberculosis cases also reduced markedly from 2,317²¹ in 1954 to 332²² in 1967. Moreover, Brunei was not as badly hit as Sarawak by the cholera outbreak in 1965, as 76 percent of the population were already immunised²³.

Through a persistent approach and better training of midwives as well as closer supervision by qualified medical personnel, progress was gradually made in reducing peoples' conservative attitudes towards modern child and maternity care such as pre-natal and post-natal either in clinics or through domiciliary midwifery services; mothers were also taught more hygienic ways of infant feeding and caring. These were specifically aimed to reduce maternal and infant deaths respectively. In addition, their diet was supplemented by distributing skim powdered milk, supplied by UNICEF, together with the provision of vitamins and iron to pregnant women and pre-school children. Consequently, maternal mortality rates declined from 4.0²⁴ to 0.4 per hundred in 1968²⁵; (see Tables 2.1 and 2.4). This in fact, was the first attempt ever made in Brunei to deal with the problem of malnutrition. Health education was also included as part of the service. Furthermore, plans were made to improve sanitation in urban areas and anew reservoir was constructed in the capital to provide clean water supply.

Throughout the seventies and early eighties, progress was maintained and lower mortality rates and better health in general have been achieved. Brunei today can be said to be a relatively healthy country; vector borne diseases like malaria are under control now; there have been no indigenous cases reported since 1969 and a few imported cases reported annually; constant vigilance and surveillance is maintained along the borders which

are highly endemic in malaria. Serious food-borne illness continues to be the major cause of mortality and although food-borne infections like cholera and typhoid are kept in abeyance control, such measures will not be effective unless adequate sanitary measures are taken to control the environment. Nevertheless efforts are made to develop the national capacity to control environmental pollution.

Brunei is faced with problems of physical and chemical pollution of the environment aggravated by urbanisation and the rapid emergence of illegal settlements associated with the speed of development; in addition, night soil and waste disposal into the river from water villages is another source of risk. Realisation of the threat of these risks to the environment and the people's health has resulted in the adoption of the concept of health being the social right of every citizen and as such the health services have persistently pursued a policy to provide the highest level of health care and quality of life to the whole population in a clean and safe environment. By tradition, health care in Brunei has been more cure oriented which gives priority to caring for patients and treatment of illness. However, Brunei has taken the year 2000 as the target date for health for all, and freedom from diseases, disability and death due to unavoidable causes; towards this achievement, Brunei's national health policy has been revised from cure-oriented services for the sick to health oriented preventive and promotive care for the whole community²¹⁵.

2.9 CONCLUSION

In reiteration, the high mortality in earlier periods was largely caused by unfavourable socio-economic and environmental conditions; specifically, poor nutrition, ignorance of health education and limited education in general, poor sanitary conditions and inadequate medical provision all had combined to make the population at large more susceptible to communicable diseases like malaria, cholera, typhoid and other kinds of morbidity.

The CDR of Brunei is now one of the lowest not only in the Southeast Asian region but in the world. In general, the decline in mortality in Brunei has been very rapid compared to that of other countries in the region. One point worthy of note is the fact that the acceleration in mortality decline has been achieved although Brunei only started large-scale programs of controlling infectious diseases such as malaria, smallpox, yellow fever, cholera, tuberculosis and measles in the 1960s while other countries started in late 1940s. Such a remarkable achievement has been largely due to direct government intervention through its health and medical care policy. In addition, since the early 1970s, literacy, education and living standards in general have improved significantly and undoubtedly must have played a role in contributing to further acceleration of mortality decline. However, it must be borne in mind too that the population of Brunei contains a large percentage of young people who are

therefore at lower risks of mortality and thus also cause the overall level of mortality to decrease.

At this juncture, it is not possible to say whether the previous rapid pace of mortality decline will continue to accelerate. According to Ruzicka, and Hansluwka,

"an eventful deceleration of the pace of mortality was to be expected, as gains realised by various disease control programs that were responsible for the dramatic morbidity and mortality declines in the decades following World War II were exhausted, and the more intractable degenerative diseases remained"²⁷.

However, if the present level of low mortality in Brunei is at least to be maintained, much effort must be geared towards further improvements in public health and sanitary facilities and better spatial distribution of health and medical care facilities. But equally important is the emphasis on,

" public health education to increase awareness of the association between health, diseases and personal and environmental sanitation; instruction on the need for a balanced diet, particularly for children and mothers; and protection from infections and parasite infestation. Such programs coupled with immunization against the most frequent infectious diseases can be effectively imparted by well trained and adequately supported paramedics and auxiliary health personnel"²⁸.

With these measures, the national strategy to achieve a goal of 'Health for all by the year 2000' may come into realisation.

REFERENCES

1. Jones, L. W., (1966), *The Population of Borneo. A Study of the People of Sarawak, Sabah and Brunei*, London: Athlone Press, pp. 26-27.
2. Jones, L. W., op. cit., p. 102.
3. Kuznets, S., (1976), 'Recent Population Trends in Less Developed Countries and Implications for Internal Income Inequality', in Easterlin, R. A., (ed.), *Population and Economic Change in Developing Countries*, Chicago: University Press, p. 477.
4. Chandna, R. C., and Sidhu, M. S., (1980), *Introduction to Population Geography*, New Delhi: Kalyani Publishers, p. 46.
5. Brunei, Ministry of Health, (1985), *A Country Paper on Health and Medical Services in Brunei Darussalam*, Brunei: Star Trading and Printing Sdn. Bhd. (PLC), pp. 6-7.
6. Hobcraft, J. N., McDonald, J. W. and Rutstein, S. O., (1984), Socio-economic Factors in Infant and Child Mortality: A Cross-National Comparison, *Population Studies*, 38, pp. 206-207.
7. Caldwell, J. C., (1979), Education as a Factor in Mortality Decline: An Examination of Nigerian Data, *Population Studies*, 33, p. 398.
8. Caldwell, J. C., ibid., p. 402.
9. Caldwell, J. C., ibid., p. 402.
10. United States, (1983), *World Population, Recent Demographic Estimates for the Countries and Regions of the World*, p. 211.
11. *Annual Reports on Brunei*, 1959, p. 1.
12. United Nations, (1984), *Demographic Yearbook*, pp. 464-466.
13. Brunei, Ministry of Health, op. cit. pp. 7-8.
14. *Annual Reports On Brunei*, (1947), pp. 22-23.
15. *Annual Report On Brunei*, 1948, p. 21.

16. *Annual Report On Brunei*, 1966, p. 120.
17. *Annual Report On Brunei*, 1959, p. 4.
18. *Annual Report On Brunei*, 1965, p. 125.
19. *Annual Report On Brunei*, 1949, p. 44.
20. *Annual Report On Brunei*, 1960, p. 81.
21. *Annual Report On Brunei*, 1959, p. 93.
22. *Annual Report On Brunei*, 1968, p. 189.
23. *Annual Report On Brunei*, 1964, p. 116.
24. *Annual Report On Brunei*, 1965, p. 12.
25. *Annual Report On Brunei*, 1968, p. 190.
26. Brunei, Ministry of Health, op. cit., p. 3.
27. Ruzicka, L. T. and Hansluwka, H., (1982), Mortality Transition in South and East Asia: Technology Confronts Poverty, *Population and Development Review*, Vol.8, No. 3, p. 567.
28. Ruzicka, L. T. and Hansluwka, H., *ibid.*, p. 576.

CHAPTER THREE

FERTILITY, 1965-1984

3.1 INTRODUCTION

One of the basic components of population growth is fertility which is defined as "the actual number of live births produced by a female". While in general many developed countries have been characterised by a long term decline in fertility during the nineteenth and early twentieth centuries, many less developed countries (LDCs) were until recently far from experiencing a decline in fertility. However, during the last few decades some Asian countries began to experience fertility decline. Initially Japan's crude birth rates (CBR) fell rapidly from 34 per thousand in 1947 to 13 in 1984. Many other countries in the same region are also undergoing fertility transition particularly China, Taiwan, Hong Kong, Singapore, Korea and Malaysia².

The fertility trend in Brunei has not been studied at all before, and it is the purpose of this section of the thesis to attempt to explore the fertility situation during the last few decades. However, it should be mentioned here that due to limitation of appropriate data such as detailed birth records at the time of writing, only the period approach rather than the

cohort approach is feasible. But even with the period approach, many of the determinants or causes of fertility decline for example cannot be investigated, for instance, age at first marriage, intervals from marriage to first birth, birth spacing, breast-feeding and family planning practices, to name just a few. In addition, differentials in fertility such as according to income, education, occupation and religion have been left out; only ethnic and urban-rural differentials were included using an indirect measure of fertility, the child-woman ratio (CWR).

In Brunei, the government does not officially intervene in matters relating to fertility, which explains the absence of government-sponsored family planning programmes. Therefore it is not possible to accommodate details of family planning practice beyond brief mention, as information about it is virtually non-existent.

3.2 THE TREND OF FERTILITY

Many Southeast Asian countries are currently undergoing fertility decline. In this study several indices were used and the finding conformed to similar change. Table 3.1 provide a first approximation of fertility in Brunei; it showed that the CBR from one year to another varied only slightly but over the twenty-year period as a whole, the crude birth rates dropped quite markedly, from 40.1 in 1965 to 29.3 per thousand population

TABLE 3.1 CRUDE BIRTH RATES (CBR) OF BRUNEI DARUSSALAM, 1965-84

Year	Mid-Year Population	Live Births	Crude Birth Rates (CBR)
1965	104,526	4,193	40.1
1966	109,230	4,089	37.4
1967	114,145	4,381	38.4
1968	119,282	4,912	41.2
1969	124,649	4,614	37.0
1970	130,260	4,816	36.9
1971	136,256	5,181	38.0
1972	141,500	5,008	35.4
1973	145,880	5,034	34.5
1974	150,940	5,013	33.2
1975	156,190	5,141	32.9
1976	161,600	5,300	32.8
1977	167,000	5,397	32.3
1978	173,000	5,598	32.4
1979	179,010	5,752	32.1
1980	185,220	5,777	31.2
1981	192,832	5,878	30.5
1982	200,390	5,952	29.7
1983	207,952	5,981	28.8
1984	215,943	6,330	29.3

Source: *Brunei Statistical Yearbook*; 1975/76, pp. 6 & 16; 1978/79, pp. 7 & 17; and 1983/84, p. 7 & 17.

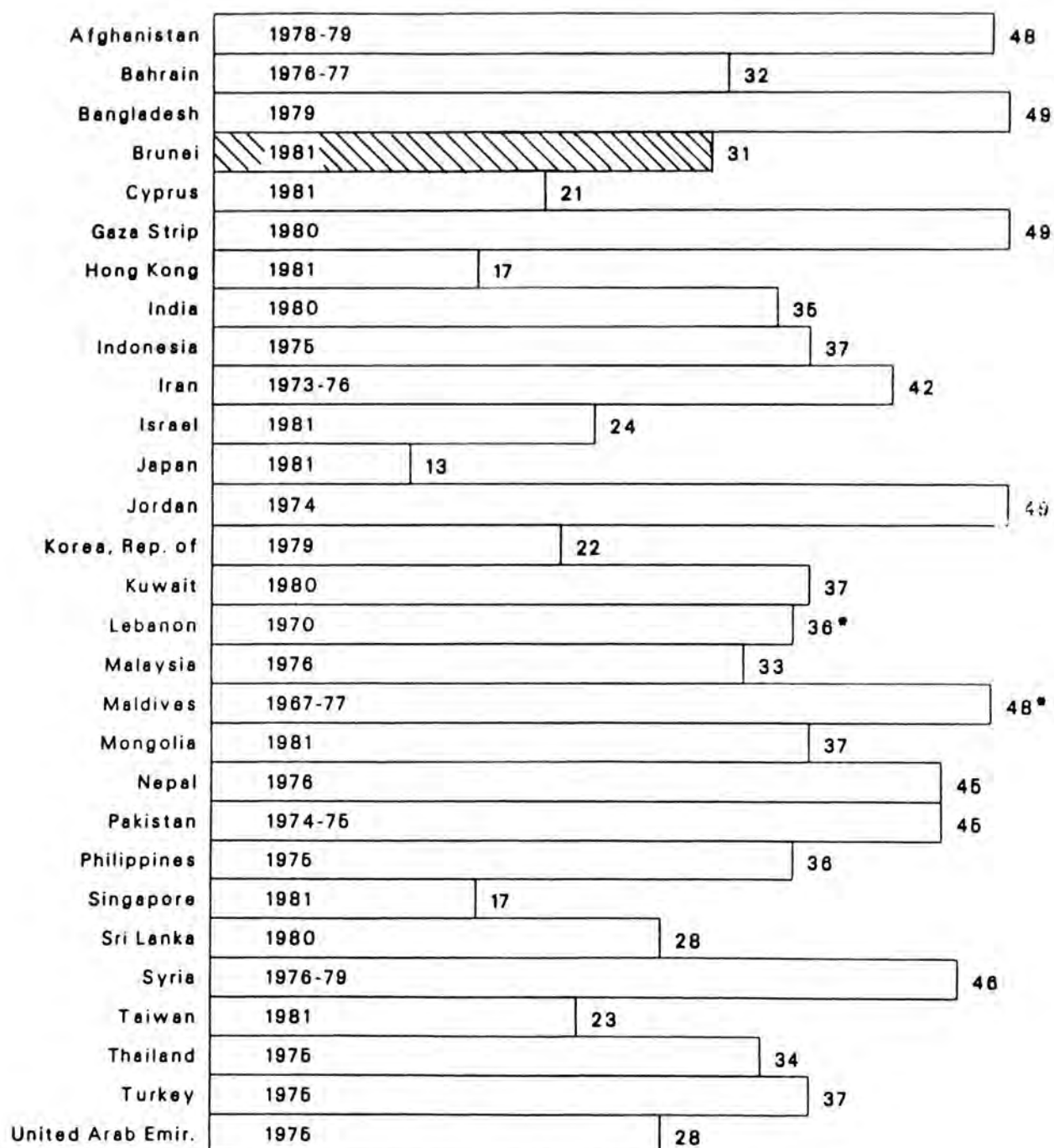
Note:

$$\text{CBR} = \frac{\text{Total live births}}{\text{Total population}} \times 1,000$$

in 1984. Indeed according to the estimates provided by the United Nations Bureau of the Census in 1983, although the CBR in Brunei was still high compared to other Asian Countries in general, it was very comparable in Southeast Asian region (Figure 3.1). In comparison between Brunei and other small but oil-rich Islamic countries like Bahrain, Kuwait, Oman, Qatar and the United Arab Emirates, only the latter had as a low CBR as Brunei.

FIGURE 3.1 CRUDE BIRTH RATES FOR SELECTED COUNTRIES OF ASIA

(Data given for countries having a benchmark estimate for 1970 or later).



* Based on average of range.

Source: U.S. Bureau of the census, World Population 1983, p. 190.

The large decline in the CBR in Brunei was also reflected in an equally large drop in the general fertility rate (GFR) from 158.7 in 1973 to 118.9 per thousand women in 1983 (Table 3.2). The total fertility rate (TFR) also revealed a decrease from 5.46 to 3.54 per women within the same period of time. It may be seen that with the exception of females in the age group of 15-25 for the year 1973 and 1978, the age-specific fertility rates (ASFR) had fallen dramatically for all ages (see also Figure 3.2). The fertility rates for women aged between 15 and 20 increased from 50.66 in 1973 to 58.89 in 1978 but fell to 44.16 in 1983. In addition, the 1973 curve illustrates that the fertility of women was highest in the late twenties and early thirties and thereafter fell gradually with increasing age. In 1978 and 1983, on the other hand, women's highest fertility occurred in the late twenties but thereafter dropped sharply, the greatest decline being among women in their early thirties. This finding conformed to the statement made by Woods stating that,

"The existence of a distinctive relationship between fertility and age of a mother is quite clear. Fertility is highest in the twenties and declines rapidly thereafter".

However, the increasing peakedness of the age-specific fertility curve is a sign of an important change in Bruneian fertility.

Table 3.3 and Figure 3.3 compare a series of ASFR for Brunei and her neighbouring countries, Singapore, Sarawak and Peninsular Malaysia. The extremes were the low rates of Singapore

TABLE 3.2 AGE-SPECIFIC FERTILITY RATES (ASFR), OF BRUNEI DARUSSALAM, 1973, 1978 AND 1983.

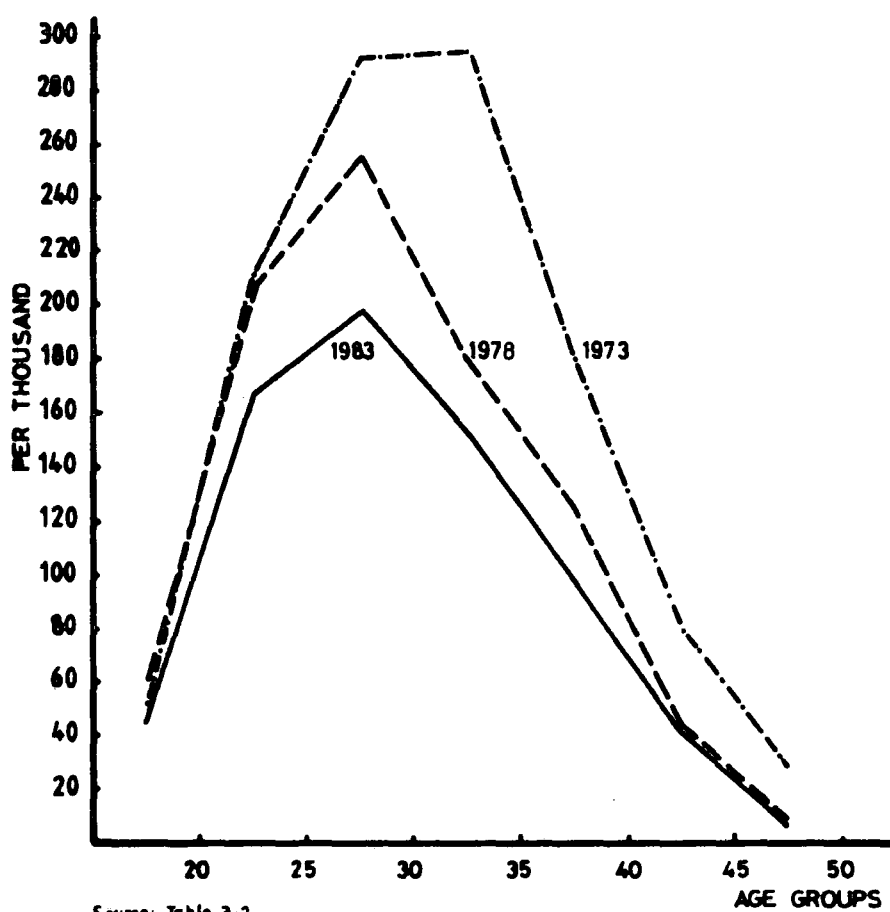
Age- Groups	Female Population	Live Births	ASFR (col.3/ col.2) (4)	ASFR (col.3/ col.2)(1,000) (5)
(1)	(2)	(3)	(4)	(5)
1973				
15-19	8,015	406	0,0507	50,66
20-24	6,415	1,354	0,2111	211,06
25-29	4,507	1,317	0,2922	292,21
30-34	4,056	1,006	0,2494	249,38
35-39	3,474	621	0,1788	178,76
40-44	2,978	241	0,0809	80,93
45-49	2,127	63	0,0296	29,62
Total	31,550	5,009	1,0927	109,69
General Fertility Rate (GFR) - 158,69				
Total Fertility Rate (TFR) - 5,46				
1978				
15-19	9,254	545	0,0589	58,89
20-24	8,386	1,730	0,2063	206,30
25-29	6,794	1,738	0,2558	255,81
30-34	4,870	871	0,1786	178,85
35-39	4,026	504	0,1252	125,13
40-44	3,682	166	0,0451	45,08
45-49	2,954	29	0,0098	9,82
Total	39,966	5,583	0,8797	109,69
GFR - 109,69 TFR - 4,39				
1983				
15-19	10,122	447	0,0442	44,16
20-24	10,395	1,736	0,1670	167,00
25-29	9,820	1,940	0,1976	197,55
30-34	7,628	1,167	0,1529	152,98
35-39	5,074	502	0,0989	98,94
40-44	3,847	157	0,0408	40,81
45-49	3,330	22	0,0066	6,61
Total	50,216	5,971	0,7080	118,91
GFR - 118,91 TFR - 3,54				

Source: United Nations *Demographic Yearbook*, 1975, 1980 & 1984.

Note: ASFR (nfx) = $\frac{nB_x}{nF_x} (1,000)$ or $\frac{\text{Live births to females aged } x \text{ to } x+n}{\text{Females aged } x \text{ to } x+n} (1,000)$



**FIGURE 3.2 AGE-SPECIFIC FERTILITY RATES
OF BRUNEI 1973, 1978 AND 1983.**



(1983) for all ages, and the high rates of Sarawak (1980) from the late teens to mid-twenties and of Peninsular Malaysia (1979) from the late twenties to mid forties. The fertility of Bruneian women was considerably higher than that of Singapore for all ages, but lower than that of Sarawak from the age group of 15-20 to mid-thirties and also lower than that of Peninsular Malaysia for almost all ages. The fertility of Bruneian women was only slightly higher than of Peninsular Malaysian women in the 45-49 age group. In addition, in all four populations the highest fertility occurred among women in their late twenties. In contrast, Brunei shared a similar pattern of low fertility of females in their late forties with that of Peninsular Malaysia and Sarawak but it was not as extremely low as that of Singapore females.

In general, while the fertility of Bruneian women differed very much from that of Singaporean women, it did not show much disparity with fertility in Peninsular Malaysia and Sarawak. It would be interesting to explore the various contributing factors accounting for the differences of fertility decline in these countries. However, since it is not within the scope of this study it may be just sufficient to say that one important reason for the small difference in the ASFR between Brunei, Peninsular Malaysia and Sarawak was that the majority of the population in these countries was (and still is) Malay Muslims who might only use family planning practices with certain reservation. Moreover, many presumably still prefer having slightly larger

TABLE 3.3 AGE-SPECIFIC FERTILITY RATES FOR SELECTED SOUTHEAST ASIAN COUNTRIES, 1979-83

Age Groups (1)	Female Population (2)	Live Births (3)	ASFR (col.3/col.2) (4)	ASFR (col.3/col.2) x 1,000 (5)
Brunei, 1983				
15-19	10,122	477	0,0442	44,16
20-24	10,395	1,736	0,1670	167,00
25-29	9,820	1,940	0,1976	197,55
30-34	7,628	1,167	0,1529	152,98
35-39	5,074	502	0,0989	98,94
40-44	3,847	157	0,0408	40,81
45-49	3,330	22	0,0066	6,61
Total	50,216	5,971	0,7080	118,91
General Fertility Rate (GFR) - 118,91				
Total Fertility Rate (TFR) - 3,54				
Peninsular Malaysia, 1979				
15-19	651,283	23,740	0,03645	36,45
20-24	567,121	99,324	0,17514	175,14
25-29	465,019	107,158	0,23044	230,44
30-34	349,912	63,780	0,18228	182,28
35-39	264,543	29,873	0,11292	112,92
40-44	255,982	11,352	0,04435	44,35
45-49	200,310	961	0,00480	4,80
Total	2,754,170	336,188	0,78638	122,07
General Fertility Rate (GFR) - 122,07				
Total Fertility Rate (TFR) - 3,93				
Sarawak, 1980				
15-19	70,137	4,589	0,06543	65,43
20-24	57,951	11,605	0,20026	200,26
25-29	48,270	10,488	0,21728	217,28
30-34	39,083	5,816	0,14881	148,81
35-39	31,361	2,709	0,08638	86,38
40-44	25,388	931	0,03668	36,68
45-49	23,664	225	0,00957	9,51
Total	295,854	36,363	0,76441	122,91
General fertility Rate (GFR) - 122,91				
Total Fertility Rate (TFR) - 3,82				

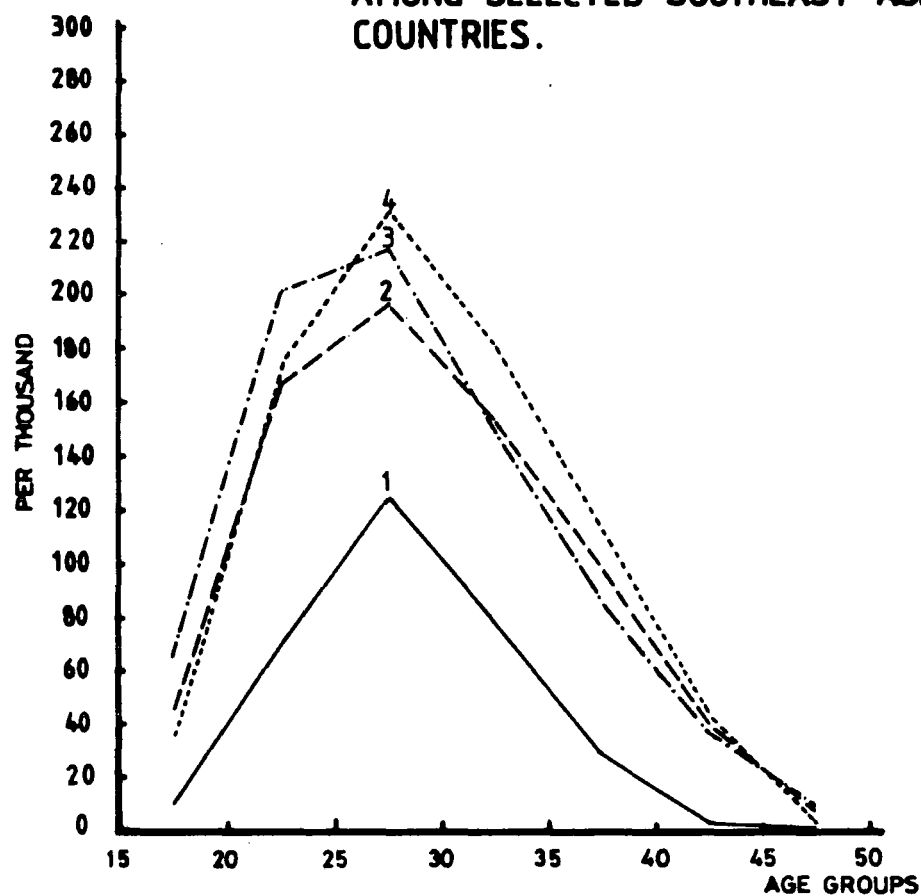
(Continued)

Age Groups (1)	Female Population (2)	Live Births (3)	ASFR (col.3/col.2) (4)	ASFR (col.3/col.2) x 1,000 (5)
Singapore, 1983				
15-19	126,100	1,300	0.01031	10.31
20-24	143,800	10,064	0.06998	69.98
25-29	137,600	17,170	0.12478	124.78
30-34	116,900	9,292	0.07948	79.48
35-39	83,700	2,441	0.02916	29.16
40-44	70,700	271	0.00383	3.83
45-49	56,600	10	0.00018	0.18
Total	1,005,300	80,446	0.31772	80.02
General Fertility Rate (GFR) - 80.20				
Total Fertility Rate (TFR) - 1.59				

Sources: United Nations *Demographic Yearbook*, 1975, 1981 & 1984.

families than the majority of Singaporean females, as evidenced in the total fertility rate. Singapore, on the other hand, had achieved very low fertility rates compared to Brunei and Malaysia as a whole, and in fact, her 1984 CDR of 16 per thousand population was slightly lower than that of the developed countries as a whole, which was 17 per thousand population. This was because in general, Singapore took to family planning very readily which in turn was induced by its urban nature, its socio-economic development, its ethnic composition, the effectiveness of communication and the strong policy of its government. But the success of the family planning programme in Singapore was in particular due to the rapid improvement in the status of women, such as their increasing access to education and to paid employment.

**FIGURE 3-3 COMPARISON OF CURVES SHOWING
AGE-SPECIFIC FERTILITY RATES
AMONG SELECTED SOUTHEAST ASIAN
COUNTRIES.**



- 1 Singapore, 1983.
- 2 Brunei Darussalam, 1983.
- 3 Sarawak, 1980.
- 4 Peninsular Malaysia, 1979.

Source: United Nations Demographic Year Book 1982, 1983 and 1984.

Another interesting comparison on fertility is that between Brunei and the small oil-rich countries of the Gulf. Using the total fertility index, Brunei in 1980 (as mentioned in Chapter One) had a much lower TFR (3.5) in 1983 than those of Bahrain (7.6), Kuwait (6.1), Oman (7.1), Qatar (6.8) and United Arab Emirates (6.8), in 1980. According to Clarke,

"Among the many socio-economic, bio-social and intermediate variables which influence fertility and mortality, one which is very extensive and demographically significant in the Muslim world is the inferior status of women. There is no simple method of quantifying female status in a universal way as this varies greatly from culture to culture. The various indices of marital status, literacy, educational enrolment, labour force participation and life expectancy... may give some quantitative expression of status... Certainly it should not be expected that any single one variable should be closely related with fertility, but collectively they are indicative of socio-economic environment where high fertility prevails"⁴.

Brunei has similar religion with these countries, and there was perhaps inferior status of women before 1950s but in any case female status varies from one part of the Muslim world to another in subtle ways. Recent rapid changes in the socio-economic environment in Brunei such as earlier marriage and increasing literacy rates, school enrolment, notably among females (see Chapter Six) and level of education as well as great improvement in female participation in the labour force have all combined to bring the fertility down, lower than the Gulf Countries, despite the fact that Brunei does not support contraceptive services officially.

3.3 FERTILITY DIFFERENTIALS

During the last few decades, Brunei has been experiencing socio-economic changes brought about by the wealth generated by the oil and gas industries; two of the important social changes were the increased awareness of the importance of education and improvement in the status of women. These inevitably had a profound effect on the demography of the country in particular fertility which recently has fallen to levels that are among the lowest in the developing countries within the tropics.

However, this fertility decline has not affected Brunei's plural society to the same extent. In other words, there exist variations in the rates of fertility decline among the different ethnic groups namely, the Malays, Other Indigenous group, the Chinese, the Indians and Others. Variations in fertility may also be found between urban and rural populations.

Since detailed data of birth records are not available at the time of writing, an indirect measure of fertility is used to estimate the fertility differentials between the different ethnic groups. Table 3.4 exhibits the CWR of these groups and it can be seen that in 1971, the Other Indigenous group had the highest CWR followed by the Malays, Others, the Chinese and the Indians. In 1981 on the other hand, it was the Malays who had the highest CWR with the Others ranked at the bottom. But, the group with the largest difference in CWR between 1971 and 1981 was the group of Others with a reduction of 267.9 children per thousand women;

this was followed by the Other Indigenous group with a decrease of 228.5, the Malays with a drop by 150.6 and the Chinese with a decrease of 109.4 children per thousand women. The increase in the CWR of the Indians was rather unexpected as the majority of them were immigrants. Unfortunately relevant data are not available to investigate whether the increase was attributable to immigrant Indians or non-immigrant Indians.

TABLE 3.4 DIFFERENTIALS IN CHILD-WOMEN RATIO BY ETHNIC GROUPS, 1971 and 1981

1971				1981		
Ethnic Groups	Children 0-4	Females 15-44	CWR	Children 0-4	Females 15-44	CWR
Malay	16,173	17,879	904.6	20,867	27,677	754.0
Other Indigenous	1,218	1,285	947.9	2,066	2,872	719.4
Chinese	3,738	6,804	549.4	4,379	9,952	440.0
Indians	153	308	496.8	627	963	651.1
Others	532	766	694.5	671	1,573	426.6

Sources: *Brunei, Report on the Census of Population, 1971*, p. 90;
Brunei Population Census, Summary Tables, 1981, p 40.

Note:

$$\text{CWR} = \frac{\text{Number of children under 5}}{\text{Number of women 15-44}} \times 100$$

As mentioned earlier, it is on the whole difficult to pinpoint the actual causes of fertility decline in Brunei due to the inadequacy of relevant data, let alone the causes of fertility decline among ethnic groups. But in general,

improvement in education of the population as a whole and increased status of women has generated further changes upon fertility such as a decrease in teenage marriages and a remarkable increase in female employment. These will be discussed in the next section. With regard to variations in fertility among the ethnic groups, other factors such as residential status and religion must have played an important role in influencing family size.

With the Indians and Others for example, the majority of them are non-Muslim immigrant workers often with high educational qualifications and professional skills; having such a background, they would not normally wish to have large families. With the Other Indigenous group, although they have similar background to that of the Indians and Others as far as residential status and religion were concerned, they are poorly educated and unskilled labourers who were mostly employed in the construction industry and because of the nature of their work, they were always on the move from one place of work to another. It is therefore not surprising that in 1981 their fertility was higher than that of the Chinese, Indians and Others, but lower than the Malays.

The Chinese on the other hand, are heavily represented in commerce rather than in government services, although the majority of them are permanent residents enjoying many of the social benefits provided by the government; this might help to explain their fertility being higher than that of the Indians and

Others, but the fact that they are not Muslims but had good education might be responsible for their lower fertility than the Malay and Other Indigenous groups.

With regard to the Malays, though the level of their education and status of women has improved, their decisions regarding family size were still very much influenced by Islam as well by as the tradition of the extended family system. It is indeed very well known that Islam encourages big families and discourages the practice of family planning for all reasons other than poor health. Surveys have not been made with regard to the practice of family planning among the Muslims in Brunei, but where Islamic laws such as on family planning are concerned, the choice of adopting it or otherwise is essentially up to the individual. Many young Malay couples who probably have increasing commitments outside home, in particular women, prefer to have small families, not as small as those of developed countries but definitely much smaller than those of their parents' generation. It would be interesting to investigate the new trend of family size among the Malays but since statistical data are not available, only generalisation may be made. During the 1950s and the 1960s, the usual family size in Brunei was a minimum of about five and a maximum of about ten; there were also exceptional cases where some families were as large as fifteen. But since the early 1970s the trend in family size has been that of a minimum of two or three and a maximum of five or six. In developed countries, it may not be practical for mothers with

young children to continue being employed on a full-time basis; but in Brunei and possibly the neighbouring countries, it is not really a hindrance for mothers with young children to continue working full-time. Domestic paid helpers are common in Brunei and when this is not affordable, there are always unpaid helpers like aunties, in-laws and grannies to help look after the children while mothers are at work.

Fertility differential also exists between urban and rural populations. Again due to inadequate data, analysis of this differential will be based on CWR, using the 1971 and 1981 census reports. Table 3.5 demonstrates that in 1971, the ratio for urban areas was 727.7 children per thousand women while the corresponding figure for rural areas was as high as 957.0. In 1981, both urban and rural areas had experienced a decline in the CWR, but it was much more significant in rural areas than in urban areas; thus by 1981, the ratio for the urban areas was 623.9, a reduction of 103.8 children per thousand females while that of rural areas was 731.2 a fall of 225.1 children per thousand females. Consequently, the rural CWR of 1981 was as low as that of urban areas in 1971. Such a time-lag differential was only to be expected as it is always the people in urban areas who are first to be affected by socio-economic changes and, in fact, it is common to many other countries of the world that, "fertility decreases with increasing urbanization"¹⁰ and this is irrespective of cultural and religious background.

TABLE 3.5 DIFFERENTIALS IN CHILD-WOMEN RATIO BETWEEN URBAN AND RURAL POPULATIONS, 1971 AND 1981

1971				1981		
Areas	Children 0-4	Females 15-44	CWR	Children 0-4	Females 15-44	CWR
Urban	12,901	17,729	727,7	16,686	26,744	623,9
Rural	8,913	9,313	957,0	11,924	16,292	731,9

Source: *Brunei, Reports on the Census of Population, 1971*, p. 96;
Brunei Population Census, Summary Tables, 1981, p. 46.

3.4 FACTORS INFLUENCING FERTILITY CHANGES

As will be observed in Chapter Five, the proportion of adult age groups in 1984 was 58.3 percent, of which 39.5 percent was in the 15-34 age groups. This entails that quite a sizeable proportion of the population was (and still is) in their reproductive ages, and therefore high fertility levels. However, the foregoing analysis in this chapter has indicates that Brunei is currently going through a process of fertility decline.

One factor that may be associated with such a trend is the recent decline in the proportion of married women in the younger a child-bearing ages (Table 3.6). It can be seen that in 1971 the proportion of married women in the 15-19 and 20-24 age groups were 5.3 percent and 15.5 percent respectively (or 14.4 and 55.0 percent to total females in respective age groups). Although by 1981 there was a rise in the absolute numbers in these two age

TABLE 3.6 CHANGES IN THE PROPORTION OF MARRIED WOMEN BY AGE GROUPS, 1971 AND 1981

1971 ¹					1981 ²			
Age Groups	Total Females	Married Females	Percent Married of Total Females	Percent of Married Females	Total Females	Married Females	Percent Married of Total Females	Percent of Married Females
15-19	7,546	1,085	14.4	5.3	9,650	1,227	12.7	3.9
20-24	5,839	3,209	55.0	15.5	10,332	4,860	47.0	15.3
25-29	3,973	3,201	80.6	15.5	9,094	6,764	74.4	21.2
30-34	3,764	3,290	87.4	15.9	6,419	5,378	83.8	16.9
35-39	3,473	3,102	89.3	15.0	3,994	3,453	86.5	10.8
40-44	2,447	2,124	86.8	10.2	3,547	3,068	86.5	9.6
45-49	1,964	1,622	82.6	7.8	3,158	2,616	82.8	8.2

Sources: *Brunei, Report on the Census of Population, 1971*, p. 106;
Brunei Population Census, Summary Tables, 1981, p. 65.

Note: ¹ Total married women aged 15 years and over was 20,686.

² Total married women aged 15 years and over was 31,854.

groups, their percentages had declined, as had the proportion of married women between the ages of 35 and 49. With regard to those in the 25-34 age groups, they also increased in terms of absolute numbers and percentage to total married females, but declined in terms of percentages to females in their respective age groups.

However, the essential change to emphasize here is the decline in the proportion of married females between the 15 and 29 age group which might have contributed to a certain extent to the recent fertility decline.

Another reason, possibly an important one, accounting for the decline was that of changes in the fertility of married women. It has not been possible to tabulate the age-specific marital fertility rates due to absence of records of legitimate and illegitimate births for the different age groups of mothers. However, since the number of illegitimate births in Brunei has been small (for example, in 1978, out of the total births of 5598 only 39 or 0.7 percent were illegitimate⁶). It does not affect the marital fertility rate (MFR) as a whole very much if it is ignored. In 1971, the MFR was 293.8 per thousand married women while that of 1981 was only 214.8 per thousand⁷.

An improvement in the status of women notably in the fields of education and in employment participation was another contributing factor to the decline of fertility. Particularly since the early, 1970s females have been given equal opportunity

TABLE 3.7 FEMALE EMPLOYMENT AGED 15 YEARS AND OVER BY AGE GROUPS, 1971 AND 1981

Age Groups	1971 Female Employment	1981 Female Employment	Absolute Increase / Decrease	Percentage Increase /- Decrease
15-19	676	1,107	431	63.8
20-24	1,621	4,250	2,629	162.2
25-29	931	3,761	2,830	304.0
30-34	750	2,300	1,550	206.7
35-39	658	1,292	634	96.4
40-44	467	1,001	534	114.4
45-49	388	715	327	84.3
50-54	327	439	112	34.4
55-59	222	226	4	1.8
60-64	221	118	-103	-46.6
65+	186	156	-30	-16.1

Sources: *Brunei, Report on the Census of Population, 1971*, p. 200;
Brunei Population Census, Summary Tables, 1981, p. 195.

to education from primary to tertiary levels. As a result of this, female literacy and levels of education have improved dramatically especially those in the younger adults group. Having qualifications of one form or another enabled them to participate in the labour force in both the public and private sectors. In 1981, the 20-24 age group participation increased by 162.2 percent from its 1971 level, the 25-29 age group by 304.0 percent, and the 30-34 age group by 206.7 percent (Table 3.7). The participation of the 15-19 age group increased only by 63.8 percent due to an increasing number of them continuing their education into the tertiary level. In 1981 women on the whole constituted 23.8 percent^a of the total labour force and 48.8 percent of the nation's students^a. Such proportions in labour force and education are surely unusually high for a Muslim State,

especially in contrast to the much lower female participation in the labour force of the Gulf Countries; in 1980 Bahrain had only 5.1 percent females in its total labour force, Kuwait had 8.2 percent, Oman 4.2 percent, Qatar 7.7 percent and the United Arab Emirates 8.1 percent¹⁰.

Before females in Brunei were given equal opportunities in education and employment, their foremost commitment was mainly to do with domestic matters and child-bearing. Those females who are becoming more educated and as a result participating in

TABLE 3.8 EMPLOYMENT OF MARRIED WOMEN BY AGE GROUPS, 1971 AND 1981

Age Groups	1971 Number Employed	1981 Number Employed	Absolute Increase / Decrease	Percentage Increase / Decrease
15-19	91	108	17	18.7
20-24	561	1,262	701	125.0
25-29	581	2,061	1,480	254.7
30-34	569	1,690	1,040	182.8
35-39	514	971	457	88.9
40-44	346	760	414	119.7
45-49	284	497	213	75.0
50-54	224	269	45	20.1
55-59	133	141	-8	-6.0
60+	208	134	-74	-35.6

Sources: *Brunei, Report on the Census of Population, 1971*, p. 200;
Brunei Population Census, Summary Tables, 1981, p. 195.

the labour force are also those in their most fertile ages. Indeed it has become more of a fashion that young mothers in Brunei (most probably attracted by the extra cash that they can add to the family income) resume working full-time soon after giving birth. This is evidenced in the increase of the employment of married women (Table 3.8). In the 15-19 age group the percentage was relatively small, 18.7 percent, and moderate for those in the 45-54 age groups. But for those in the 20-24, 25-29 30-34 and 40-44, the increase in their employment between 1971 and 1981 was spectacular, 125.0 percent, 254.7 percent, 182.8 percent and 119.7 percent respectively. It is therefore not unfounded to state that social changes in general have induced them to prefer smaller family size and this is partly responsible for the decline in the ASFR, notably among women in their late teens and twenties.

Another important determinant of fertility decline in Brunei is the role of family planning as a function of controlling birth. This factor is in fact rather difficult to discuss in great detail because evidence of its use is not easily obtainable. In fact, Brunei does not have a policy of direct intervention with respect to fertility and there is no government support with regard to access to contraception. As mentioned in Chapter Five, abortion is illegal except to save the life of a mother and there is no legal provision for sterilization.

One of the rationales behind the non-government intervention is that it considers the current moderately high

fertility level to be satisfactory. The other, perhaps more fundamental is that Brunei is an Islamic society which has strong pro-family values and as such would not adopt any measures that are contradictory to Islam. Therefore, unlike other countries in Southeast Asian region, formalised family planning is not practised in Brunei. However, advisory services are available to mothers to permit better spacing of births. In other words unofficial family planning practices do operate in Brunei; that may be the use of several contraceptive devices either upon individual choice or on the advice of doctors in relation to the different background of the recipients. For example, younger fertile women may seek advice on the use of contraception from medical personnel not perhaps to limit their family size but with reference to child spacing. Older women who are still in their reproductive ages may be advised by doctors to adopt family planning practice in order to limit the number of children with regard to their health or family income. However, the extent of contraceptive use in Brunei is not known yet but undoubtedly it must have contributed to the recent decline of fertility in Brunei.

3.5 CONCLUSION

Since the last few decades, many Asian countries have been experiencing a process of fertility decline and it appears that Brunei is no exception. Sophisticated analysis of fertility

trends in Brunei is not possible because of the lack of relevant data. However through elementary analyses such as CBR, GFR, ASFR and TFR, it is revealed Brunei is going through a distinct process of fertility decline. In addition, the CWR measures indicate that on the whole all the ethnic groups were experiencing fertility decline during the 1971-1981 intercensal period.

However, it should be mentioned that although fertility is declining, the TFR of Brunei is still considered to be high even in the Southeast Asian region, but is lower than that of the Islamic countries of Western Asia, in particular the Gulf States. Nevertheless, the recent trend of fertility decline in Brunei can be regarded as a remarkable achievement considering the absence of official family planning. Undoubtedly therefore, the socio-economic aspect must have played a major role in bringing about the decline. The essential factors are the improvement in literacy, the levels of education of the population, notably among women and also increased employment among them.

REFERENCES

1. Woods, R., (1982), *Population Analysis in Geography*, London and New York: Longman, p. 98.
2. Clarke, J. I., (1972), *Population Geography*, Oxford: Pergamon Press, p. 113.
3. Woods, R., op. cit., p. 110.
4. Clarke, J. I., (1985), 'Islamic Populations: Limited Demographic Transition', *Geography*, Vol. 70, No. 307, p. 124.
5. Peters, G. L., and Larkin, R. P., (1976), *Population Geography: Problems, Concepts and Prospects*, Iowa: Kendal / Hund Publishing Company, p. 138.
6. United Nations *Demographic Yearbook*, (1981), New York, p.
7. *Brunei Statistical Yearbook 1978/1979*, (1981), Government Printing Office, pp. 23-25.
8. *Brunei Population Census, Summary Tables*, p. 181.
9. *Brunei Statistical Yearbook*, 1981/1982, p. 91.
10. United Nations, ECWA, (1982), *Demographic and Related Socio-Economic Data Sheets*, pp. 11-187.

CHAPTER FOUR

MIGRATION

4.1 INTRODUCTION

Migration in Brunei, international or internal, temporary or permanent, determinants or causes or consequences will not be explored in great detail. One reason which has handicapped such investigation is that pertinent data are mostly lacking, another is that it is not the main theme of this thesis. Moreover a detailed study of migration would need a whole thesis. Therefore only an outline will be given concerning international immigration, which in the Brunei context is largely labour migration, followed by internal migration. Immigration is important demographically because it is one of the components affecting demographic changes such as size, growth, age and sex composition of the total population and other socio-economic changes in general; internal migration on the other hand, has direct effects on population distribution, growth, age and sex structure of places of outmigration and immigration of the different regions within the country, but not the total population of the country as a whole.

The study of immigration in any country is important not only the numbers involved but also because of the considerable

demographic, social and economic effects upon the total population of the receiving countries. In Brunei, the number of immigrants entering the country has not been as large as that of other countries in the region, but because the size of the total population itself is rather small even a small additional influx of migrants can have some demographic and socio-economic effects on the total population as a whole. These immigrants are yet another area needing detailed investigation, but in this section the main concern is largely providing a general picture of the size, age and sex structure of the immigrant population in Brunei for the year 1971 and 1981. Their significant effect on the country's working population will be dealt with in Chapter Six. Immigration in earlier periods until 1960 was already detailed in Chapter One.

As already mentioned above, data are limited and therefore some parts of this study can only be written in general form and thus should only be taken as an approximation. With regard to internal migration, it should be possible to assess its contribution to the gain or loss of the population of places of immigration and outmigration by subtracting natural increase from the total growth rate of particular regions or districts, but, again lack of relevant data at the time of writing makes such a task impossible and therefore once again generalisation seems to be the only temporary solution.

4.2 TRENDS IN MIGRATION

In Brunei, immigration on a significant level has been experienced since the 1930s and this has significantly altered the ethnic composition of the country. Thus according to the 1911 census, the non-indigenous population was only 4 percent of the total population; since then, however, their proportion increased steadily from 22.0 percent in 1947 to 24.7 percent in 1960, 25.5 percent in 1971 and 27.8 percent in 1981, and according to the mid-population estimate of 1984, their proportion decreased only slightly to 27.4 percent.

Similar to Sabah and Sarawak, the immigrant population or rather labour migrants in Brunei before World War II were predominantly of Chinese origin (see Chapter One), and only a small minority were from Indonesia, Philippines and the Indian sub-continent. In recent decades, however, the origin of the labour migrants seems to be more diverse, from West Malaysia, Singapore, Philippines, Taiwan, Hong Kong, Japan, Pakistan, Sri Lanka and India, as well as from European countries notably Britain'.

As postulated in a previous chapter, the growth of the population of Brunei prior to 1947 had been smaller than now between 1911 and 1921 the annual rate of increase was 1.6, between 1921 and 1931, 1.7 and between 1931 and 1947, 1.9. These increases were probably mainly the results of natural increase, the effects of immigration being almost negligible. But during

a period of twelve and a half years (1947-1960), the population of Brunei doubled (Chapter One); during that period the annual growth rate surged up to 5.7 though thereafter declined to 4.5 in 1971 and 4.2 percent in 1980/81. Jones, in his report on the Brunei population census of 1960, suggested that the natural increase rate was in the region 2.5 to 2.9 percent. Figures for net migration for the period before 1947 were not available and records of persons entering and leaving the country prior to 1954 were not compiled. However, according to the summary records of the Immigration Department for the period between mid-1954 to mid-June 1960, there was a balance of 12,992 arrivals over departures; as the period of maximum expansion of the oilfield was before 1954, the possibility was that the net balance was at least as much in the previous six preceding years. Therefore the doubling of the population between 1947 and 1960 was undoubtedly attributable to immigration.

The analysis of immigration trends into the country is based on their years of arrival. As shown in Table 4.1 the number of migrants into Brunei who stayed behind has increased somewhat irregularly since 1960. Significant variation exists between the number of immigrants enumerated in the census by year of arrival and the balance recorded by the Immigration Department. By 1971, the difference was as large as 105,541 persons. But after a post enumeration survey was conducted, it was admitted that the census could not have missed so many and since it has been a normal practice that incoming persons are

required by law to fill in forms meant that their records should be complete, the only possible conclusion for such a big discrepancy must be that the record on outgoing persons was incomplete. But one fact which remained obvious was that the number of immigrants had been increasing and this trend continued in the following decade; 1971-1981 (Table 4.2), during which the number of immigrants amounted to 53,665 as compared to 21,961 persons in the previous decade, thus an absolute increase of 31,704 or 144.4 percent. In terms of the proportion of immigrant population to total population, it amounted to 27.8 percent in 1981 as compared to 25.5 percent in 1971. However, the actual figure for 1981 could well be below 27.8 percent as this figure was only based on the number of people entering the country, thus still including those who already might have left the country.

TABLE 4.1 IMMIGRANT POPULATION BY YEAR OF ARRIVAL, 1961-71
(according to Immigration Department records)

Year of Arrival	Number of Persons who Entered and Left the Country		
	Entered	Left	Balance
1961	65,882	64,344	1,538
1962	50,886	52,370	-1,484
1963	52,627	49,282	3,345
1964	55,597	49,573	6,024
1965	62,368	55,803	6,565
1966	86,720	76,607	10,113
1967	118,818	92,503	26,315
1968	130,409	105,506	24,903
1969	123,578	111,412	12,166
1970	146,489	127,218	19,271
1971	103,517	84,771	18,746
Total	-	-	127,502

Source: *Brunei, Report on the Census of Population, 1971*, p 30.

TABLE 4.2 IMMIGRANT POPULATION BY YEAR OF ARRIVAL, 1960-81

1971 Census		1981 Census	
Year of Arrival	Number of Persons	Year of Arrival	Number of Persons
1960 & Before	11,167	1970 & Before	16,558
1961-62	750	1971	1,170*
1963-64	2,083	1972	962
1965	1,330	1973	899
1966	1,146	1974	1,154
1967	1,453	1975	2,030
1968	1,922	1976	2,370
1969	3,013	1977	2,379
1970	4,152	1978	3,465
1971*	6,112	1979	4,508
Not Stated	1,616	1980	7,247
		1981	10,247
Total	34,744	Total	53,665

Sources: *Brunei, Report on the Census of Population, 1971*, p. 178.
Brunei Population Census, Summary Tables, 1981, p. 59.

* As appear in the Census Report, 1971 and Summary Tables, 1981.

One important point worth mentioning about both tables is that the 1971 census report recorded the number of persons arriving in Brunei in that particular year as 6,112 (Table 4.1) but according to the 1981 census record, the number was reduced to 1,170 persons (Table 4.2), thus a difference of 4,942 persons. No explanation was given whether there was an error in the initial number recorded or that the 1981 census merely included the balance of immigrants who arrived in 1971. Taking the number recorded in the 1971 census into account (i.e. 6,112 persons arriving in 1971), the total number of immigrants by 1981 would be 50,007 which was 30.4 percent of the total population; if,

however, the 1981 record is used (i.e. 1,170 persons for the year 1971), then the total number of immigrants in the country by 1981 was only 53,665 or 27.8 percent of the total population (as mentioned above).

TABLE 4.3 PERCENTAGE OF IMMIGRANT POPULATION TO TOTAL POPULATION BY YEAR OF ARRIVAL, 1961-81

Years	Number of Immigrants	Mid-Year Population	%	Years	Number of Immigrants	Mid-Year Population	%
1961	750	-	-	1972	962	141,980	0.7
1962				1973	899	145,880	0.6
1963	2,083	-	-	1974	1,154	150,940	0.8
1964				1975	2,030	156,180	1.3
1965	1,330	104,526	1.3	1976	2,370	161,600	1.5
1966	1,146	109,230	1.1	1977	2,379	167,200	1.4
1967	1,453	114,145	1.3	1978	3,465	173,000	2.0
1968	1,922	119,282	1.6	1979	4,508	179,010	2.5
1969	3,013	124,649	2.4	1980	7,247	185,220	3.9
1970	4,152	130,260	3.2	1981	10,247	192,832	5.3
1971	6,112	136,256	4.5				

Sources: *Brunei, Report on the Census of Population, 1971*, p. 178,
Brunei Population Census, Summary Tables, 1981, p. 59.
Brunei Statistical Yearbook, 1975/76, p. 6; 1983/84, p. 7.

Table 4.3, showing the annual trend of immigration since 1961, reveals that the percentage of immigrant population increased steadily between 1961 and 1971, reaching the highest level of 4.5 percent by 1971. Immigration dropped substantially during the first half of the seventies but increased again towards the end of the decade and into the early eighties, reaching 5.3 percent in 1981. The majority of labour migrants

between 1961 and 1971 were not only to work in the various government infrastructural development projects such as the deep seaport at Muara, the Brunei International Airport, road constructions in Temburong District, water supply and sewerage disposal schemes, but also in the Liquifaction of Natural Gas (L.N.G.) plant in Lumut (Belait District)²². In addition, private employers also often recruit labour from abroad, notably the neighbouring countries of Sabah and Sarawak.

The increase of labour immigration in the late seventies and early eighties was for the implementation of the Third and the Fourth National Development Plans, 1975-1979 and 1980-1984 respectively. Indeed an increasing number of migrant workers, unskilled and skilled as well as professional were needed to work in government priority projects for further infrastructural development and improvement such as the building of more schools, clinics, hospital, mosques and housing as well as extension of the airport. In addition, labour was also needed for the development of telecommunications both internally and with the outside world, the supply of electricity to the populous rural areas including the water village residential areas, many of which were still without electricity at the beginning of the Fourth Plan²³.

4.3 DISTRIBUTION OF IMMIGRANT POPULATION

Data pertaining directly to the distribution of the immigrant population in Brunei is lacking. However, figures indicate places of birth, that is either Brunei or elsewhere outside the country can be employed to imply the distribution of foreign-born persons who were most probably largely immigrants. Unfortunately similar data were not tabulated in the 1971 report on the census of population, hence it is not possible to show the changes in the concentration of immigrant population between the two census.

From Table 4.4 it can be deduced easily that the highest concentration of all immigrants was in the Belait district which contained 38.5 percent of immigrants and most probably they were localised in the town area, Seria which is the oil town of Brunei.

The next highest immigrant concentration was in the capital, Bandar Seri Begawan which in 1981 had 28.3 percent of the immigrant population, while another 26.5 percent scattered in suburbs within the Brunei-Muara district. Unlike the Belait district where the chief attraction is oil and gas, in Bandar Seri Begawan and the Brunei-Muara district as a whole there are several pull factors particularly for the immigrants. Among some of them are the availability of jobs in the various government departments, building and constructions mainly associated

with government infrastructural projects; in addition, private companies and commercial activities in the capital also attracted the immigrants and indigenous people from other districts.

TABLE 4.4 THE DISTRIBUTION OF IMMIGRANT POPULATION, 1981

Census Districts	Population (in numbers)			Percent		
	Total	Male	Female	Total	Male	Female
Bandar Seri Begawan	15,160	8,951	6,209	28.3	16.7	11.6
Brunei-Muara	14,228	8,62	6,602	26.5	16.1	10.4
Belait	20,669	11,931	8,738	38.5	22.2	16.3
Tutong	2,572	1,721	851	4.8	3.2	1.6
Temburong	1,036	652	384	1.9	1.2	0.7
Total	53,665	31,881	21,784	100	59.4	40.6

Source: *Brunei Population Census, Summary Tables, 1981*, pp. 54-58.

The rest of the immigrants were distributed in the other two districts, Tutong and Temburong, which in 1981 had 4.8 percent and 1.9 percent respectively. Such a small proportion of immigrants in these parts of the country was hardly surprising because these regions remain rural and furthermore jobs associated with agriculture were scanty and therefore less likely to attract immigrants.

Between the sexes, it can be seen clearly that in all the four administrative districts of Brunei including Bandar Seri

Begawan, males outnumbered females, a reflection of the predominance of male immigrants in the country as a whole.

4.4 IMMIGRANT COMPOSITION BY ETHNIC GROUPS

As postulated earlier, one of the demographic effects of immigration is that it alters the population composition of the receiving countries. This appears to be the experience of Brunei since large scale labour immigration started in 1930s. Available data on changes in the population composition restricts analysis to the three previous censuses and it is based on figures of native and foreign population.

As can be seen clearly from Table 4.5 the proportion of the total population born in Brunei decreased from 75.3 percent in 1960 to 72.2 percent in 1981, while that of foreign born increased from 24.7 percent to 27.8 percent in 1981, indicating the effect of increased immigration.

Looking at the Table more closely reveals that not all the Malays were native born. However, their composition has not been altered significantly, as the majority (90.4 percent in 1960 and 90.0 percent in 1981) were born in Brunei. Most of the foreign-born Malays probably immigrated temporarily from Peninsular Malaysia because of job attractions in Brunei.

For the Other Indigenous group, the proportion of native-born persons had declined markedly, from 76.0 percent in 1960 to

TABLE 4.5 THE COMPOSITION OF IMMIGRANT AND NON-IMMIGRANT POPULATIONS, 1960-81

Ethnic Groups	Total Population (numbers)			Native-Born (numbers)			Foreign-Born (numbers)			Native-Born Percent Of Total			Foreign-Born Percent Of Total		
	1960	1971	1981	1960	1971	1981	1960	1971	1981	1960	1971	1981	1960	1971	1981
Malay	45,135	89,268	125,717	40,807	80,224	113,125	4,328	9,044	12,591	90.4	89.9	90.0	9.6	10.1	10.0
Other Indigenous	14,068	8,552	15,175	10,694	3,841	5,781	3,374	4,711	9,457	76.0	44.9	37.7	24.0	55.1	62.3
Chinese	21,795	31,925	39,461	10,942	16,754	19,077	10,853	15,171	20,384	50.2	52.5	48.3	49.8	47.5	51.7
Indians	12,879	2,162	5,919	12,879	394	715	12,158	1,768	5,204	125.0	18.2	12.1	175.0	81.8	87.9
Others	1	4,349	6,560	1	2,989	531	1	4,051	6,029	1	6.9	8.1	1	93.1	91.9
Total	83,877	136,256	192,832	63,164	101,511	139,167	20,713	34,745	53,665	75.3	74.5	72.2	24.7	25.5	27.8

Sources: *Brunei, Report on the Census of Population, 1971*, p. 53.
Brunei Population Census, Summary Tables, 1981, p. 51.

37.7 percent by 1981, while that of foreign-born increased considerably from 24.0 percent to 62.3 percent therefore indicating that a larger proportion of this community in 1981 comprised of immigrants than it was twenty years before.

For the Chinese on the other hand, there had not been significant changes between the native and foreign born proportion. In fact between these two categories the proportion recorded in each of the censuses being considered was almost balanced, thus approximately half of the Chinese population in Brunei have already acquired either citizenship or at least permanent resident status, leaving the other half as immigrants.

As with the Indians and the group of Others, those born in Brunei were extremely small in comparison with those born outside the country. In the three previous censuses, over three-quarters of them were foreign-born which means that a very considerable proportion of these two ethnic groups were made up of immigrants.

Figures for the population as a whole were already stated earlier but to reiterate, the proportion of native-born had been declining, from 75.3 percent in 1960 to 72.2 percent in 1981 which entails increased proportion of the population were born outside the country, but residing in the country as immigrants.

4.5 IMMIGRANT POPULATION BY RESIDENTIAL STATUS

Table 4.6 demonstrates the immigrant population by residential status, namely Brunei citizens (i.e. those who arrived in the country from abroad during the period 1971 and 1981), permanent residents, temporary residents and others. It can be seen clearly that in both 1971 and 1981, the proportion of temporary residents to the total immigrant population was higher (53.7 percent in 1971 and 65.5 percent in 1981) than other categories of immigrant residents. For the Brunei citizens, their proportion showed a slight decrease reflecting either that the volume of immigration in previous years was declining or that many were still staying abroad. The proportion of permanent residents on the other hand declined by half, falling from 24.0 percent in 1971 to 12.3 percent in 1981. Due to lack of information it is not even possible to envisage reasons for such a decline. Although emigration from Brunei has not been significant, in recent years, (notably since 1979) there has been a situation of unease among the ethnic Chinese community; with their status of permanent residence, they could continue to reside in the country after independence but due to the country's stringent laws on nationality and on property, numbers of them have been emigrating⁴.

Comparing the sexes, in both 1971 and 1981 there were many more male immigrants than females except for Brunei citizens (Table 4.7). For example, out of the total number of 8,350

TABLE 4.6 IMMIGRANT POPULATION BY RESIDENTIAL STATUS, 1971 AND 1981

Residential Status	1971		1981	
	Number	Percent	Number	Percent
Brunei Citizens	5,524	15.9	7,755	14.5
Permanent Residents	8,350	24.0	6,621	12.3
Temporary Residents	18,640	53.7	35,145	65.5
Others	2,219	6.4	4,121	7.6
Unknown	11	0.3	23	0.1
Total	34,744	100	53,665	100

Sources: *Brunei, Report on the Census of Population, 1971*, p. 178,
Brunei Population Census, Summary Tables, 1981, p. 61.

TABLE 4.7 IMMIGRANT POPULATION BY RESIDENTIAL STATUS AND SEX, 1971 AND 1981

Residential Status	1971				1981			
	Male		Female		Male		Female	
	Number	%	Number	%	Number	%	Number	%
Brunei Citizens	2,382	43.1	3,142	56.9	3,039	39.2	4,761	60.8
Permanent Residents	4,500	53.9	3,850	46.1	3,502	52.9	3,119	47.1
Temporary Residents	12,778	68.6	5,862	31.4	22,538	64.1	12,607	35.9
Others	1,540	69.4	679	30.6	2,787	67.6	1,334	32.4
Unknown	7	-	4	-	15	-	8	-

Sources: *Brunei, Report on the Census of Population, 1971*, p. 178,
Brunei Population Census, Summary Tables, 1981, p. 61.

immigrant permanent residents in 1971, 53.9 percent were males and 46.1 females, and in 1981, 52.9 and 47.1 percent respectively; the corresponding figures for temporary residents were 68.6 percent males and 31.4 females in 1971 and 64.1 percent males and 35.9 females in 1981; for the group of Others (Europeans, Japanese, Koreans, Filipinos) it was 69.4 percent males and 30.6 females in 1971, and 67.6 and 32.4 percent in 1981 respectively. For Brunei citizens, the reverse was true. Thus in 1971, there were more females than males arriving in the country, 56.9 and 43.1 percent respectively; in 1981 a similar situation applied except that the discrepancy between the sexes was even greater, 60.8 percent females and 39.2 percent males. No valid evidence is available to account for this occurrence. Probably besides the growing number of female students and female employees going abroad for further studies and job training respectively, it appears from observation that the increasing number of females going abroad were largely temporary social visitors to the neighbouring countries, particularly East and West Malaysia, Singapore, and recently also Indonesia, Thailand and Philippines.

4.6 IMMIGRANT POPULATION BY SEX AND AGE GROUP

The main concern in this section is merely the analysis of the age and sex composition of the immigrant population in Brunei for the year 1971 and 1981. As can be seen from Table 4.8

TABLE 4.8 IMMIGRATION POPULATION BY AGE-GROUPS IN BRUNEI DARUSSALAM, 1971 AND 1981

Age Groups	1971			1981		
	Total	Male	Female	Total	Male	Female
0-14	5,262	2,690	2,572	8,137	4,194	3,943
15-29	2,458	7,871	4,587	21,144	12,941	8,203
30-44	9,454	5,763	3,691	14,672	8,909	5,763
45-54	3,816	2,451	1,365	4,940	2,959	1,981
55-64	2,287	1,411	876	2,767	1,684	1,083
65 & Over	1,170	732	438	1,867	1,084	783
Unknown	297	289	8	138	110	28
Total	34,744	21,207	13,537	53,665	21,831	21,784

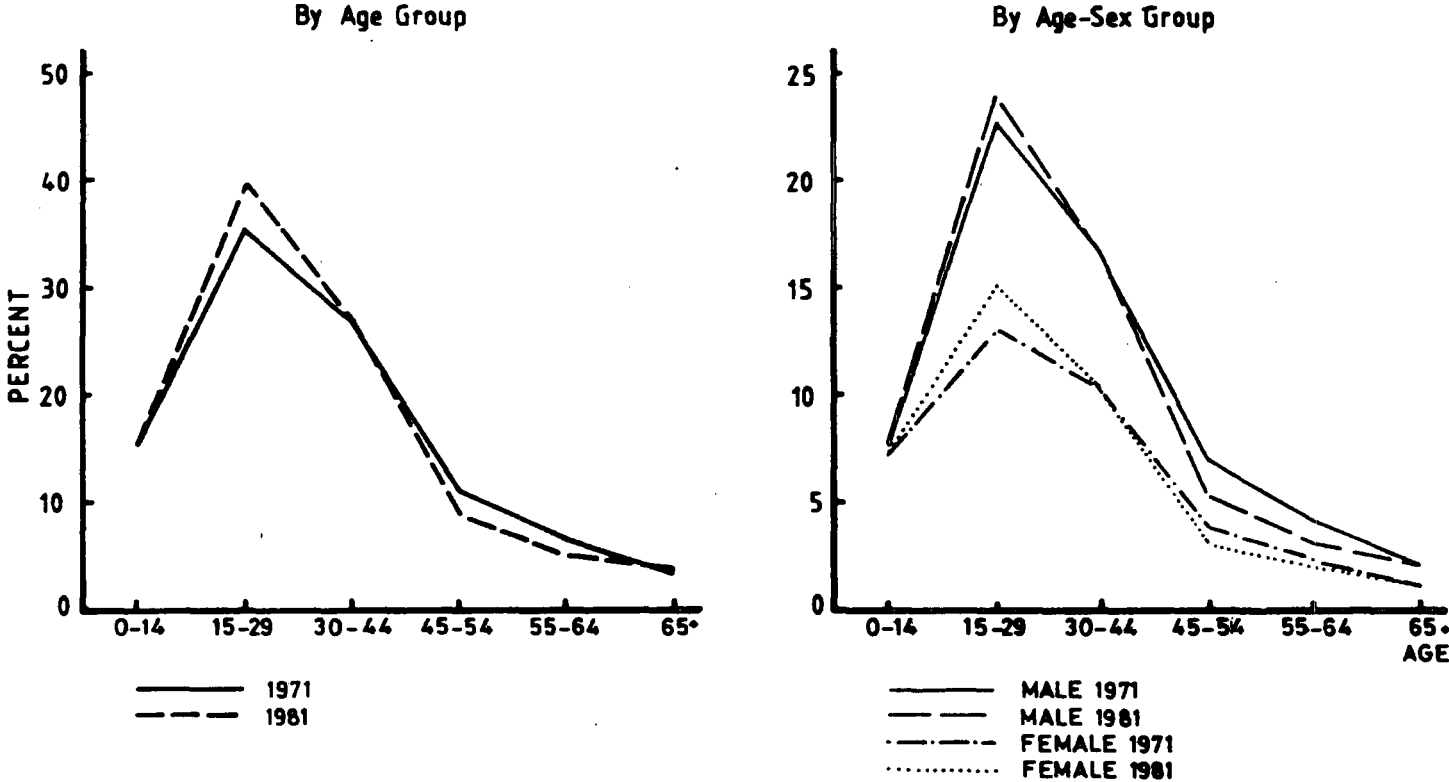
Age Groups	Absolute increase			Percentage increase		
	Total	Male	Female	Total	Male	Female
0-14	2,875	1,504	1,371	54.6	55.9	53.3
15-29	8,686	5,070	3,616	69.7	64.4	78.8
30-44	5,218	3,146	2,072	55.2	54.6	56.1
45-54	1,124	503	616	29.5	20.7	45.1
55-64	480	273	207	21.0	19.4	23.6
65 & Over	697	352	345	59.6	48.1	78.8
Unknown	-159	-179	-20	-	-	-
Total	18,921	10,674	8,247	54.5	50.3	60.9

Age Groups	Percent of Male and Female Immigrants 1971			1981		
	Total	Male	Female	Total	Male	Female
0-14	15.1	7.7	7.4	15.2	7.8	7.4
15-29	35.9	22.7	13.2	39.4	24.1	15.3
30-44	27.2	16.6	10.6	27.3	16.6	10.7
45-54	11.0	7.1	3.9	9.2	5.5	3.7
55-64	6.6	4.1	2.5	5.1	3.1	2.0
65 & Over	3.4	2.1	1.3	3.5	2.0	1.5
Unknown	0.8	0.8	0.0	0.3	0.2	0.1
Total	100	61.1	38.9	100	59.3	40.7

Sources: *Brunei. Report on the Census of Population, 1971*, p. 178

Brunei Population Census, Summary Tables, 1981, p. 61.

FIGURE 4-1 IMMIGRANT POPULATION BY YEAR OF ARRIVAL, 1971 AND 1981.



Source: Table 4-8.

in both census years there were in general more male immigrants than females. To date this is not uncommon as males are more prone to emigrate than females, and they often do when they are still single; those who are already married and have families often leave their families behind at least for the first one or two years.

In terms of absolute increase between 1971 and 1981, for both sexes it was larger in the younger adults, particularly in the 15-44 age group, than in older ages. Such predominance of young adult immigrants has also been common elsewhere, but in Brunei it perhaps reflected government policy of temporary labour immigration, whereby on completion of contract migrant workers cannot stay on but have to leave the country. In comparison between the sexes, however, the absolute increase was higher among males than females at all ages except in the 45-54 age group. Again this is not unusual as the tendency to migrate is more among men than women.

Interestingly, in terms of percentage increase during 1971-81 it appears that it was higher among females than males in all age groups above 14. This simply shows that there were more female immigrants in Brunei in 1981 than 1971 and in general perhaps signifies that an increasing number of females are now more attracted to immigrate than before.

Male immigrants are more numerous than females at all ages. For both sexes they are predominantly in the 15-29 age

group (35.9 percent in 1971 and 39.4 percent in 1981) as compared to those between 0-14 age group and aged 45 years and above although unfortunately the data are not available in regular age groups. The dominance of younger adults is in fact not exclusive to Brunei but is common in receiving countries. Indeed it is usual that those who decide to emigrate especially for economic motives tend to be when they are in their prime adult age.

Formerly labour migrants to Brunei tended to settle permanently and many were later granted citizenship or permanent resident status. The more recent and current labour migrants on the other hand, tend to be predominantly temporary in nature. They are controlled by means of employment permit issued by the Controller of Immigration in conjunction with the Commissioner of Labour. On completion of the project for which they were initially employed, they will be sent back to their country of origin. This might explain the decrease in the proportion of labour immigrants in the early 1970s when some of the government projects mentioned above were completed⁶.

4.7 DIFFERENCES IN THE AGE-SEX STRUCTURE OF THE IMMIGRANT AND NON-IMMIGRANT POPULATIONS

One of the demographic effects of immigration as already mentioned above, is the changes in the population composition and in Brunei specifically, the ethnic composition. In this section,

the analysis of the demographic effect of immigration on the age-sex structure of the population of the receiving country uses the data based on places of births, classified as native and foreign-born.

The presence of a sizeable number of immigrants in Brunei increases the median age of the total population (Table 4.9).

TABLE 4.9 THE BROAD AGE STRUCTURE AND MEDIAN AGE OF NATIVE-AND-FOREIGN-BORN POPULATIONS, 1981

Age-Group	Total Population		Born In Brunei		Born Outside Brunei				
	Total	Percent	Total	Percent	Total	Percent			
0-14	74,307	38,5	66,170	47,6	8,137	15,2			
15-34	77,312	40,1	49,468	35,6	27,844	51,9			
35-64	35,494	18,4	19,815	14,2	15,679	29,2			
65+	5,506	2,9	3,639	2,6	1,867	3,5			
Unknown	213	0,1	75	-	138	0,2			
Total	192,832	100	139,167	100	53,665	100			
Median Age	Total	Male	Female	Total	Male	Female	Total	Male	Female
	19,8	20,5	19,0	15,5	15,4	15,6	28,0	28,3	27,7

Source: *Brunei Population Census, Summary Tables, 1981*, p. 53.

Taking first the median age of the population born in Brunei, it can be seen that it was younger than those born outside the country; for example, it was 15.4 years for males, and 15.6 years for females respectively (15.5 years for both), as compared to foreign-born population, 28.3 years and 27.7 years

respectively 28.0 years for both). This in effect gave higher median ages of the total male and female populations which were 20.5 years and 19.0 respectively, and 19.8 years for the total population.

Regarding the broad age-groups of the two categories of population, significant differences exist (also Table 4.9); for instance in the under 15 age-group, the percentage was higher among the native-born, 47.6 percent as compared to 15.2 percent for the foreign-population. Above the age of 15 years, however, the proportion of the native-born was lower, for example in the prime adult age-group, it was 35.6 percent, the older adult group, 14.2 percent and the aged, 2.6 percent; the corresponding figures for the foreign-born population were 51.9 percent, 29.2 percent and 3.5 percent respectively.

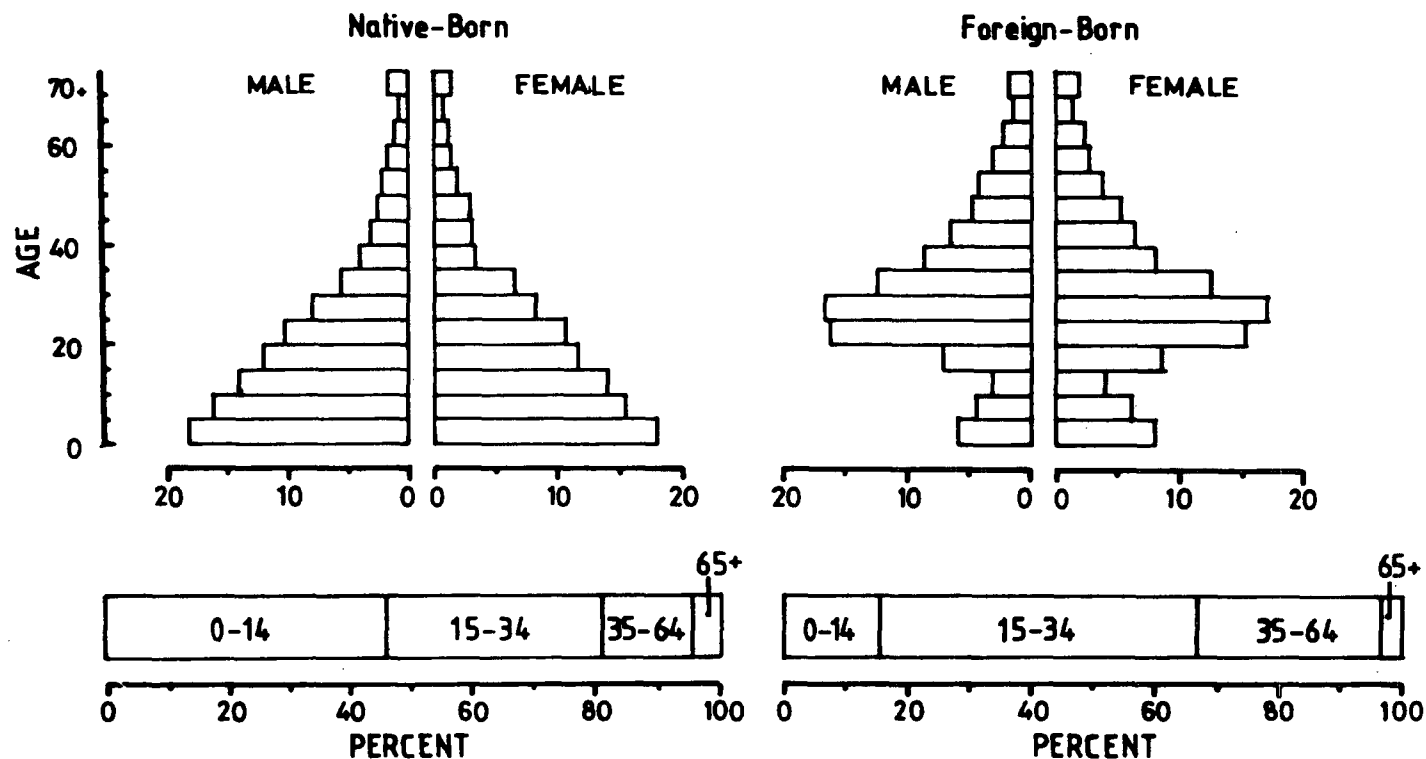
A vivid contrast is found in the age-sex structure as pictured by the pyramids (Table 4.10 and Figure 4.2). The native-born population pyramid displays a more conventional shape with broad base and narrow top, that of the foreign-born on the other hand clearly demonstrates the shape common to the age-sex structure of immigrant populations, that is indented at younger ages, bulging in the adult age-group, particularly the prime adult, and narrow towards the advanced ages. A combination of these two pyramids produces a less conventional pyramid and less indentation and bulge at the ages mentioned above (Chapter Five, Figure 5.2).

TABLE 4.10 NATIVE AND FOREIGN BORN POPULATIONS BY AGE AND SEX GROUPS, 1981

Age-Group	Born In Brunei			Born Outside Brunei			Percent		Percent	
	Total	Male	Female	Total	Male	Female	Male	Female	Male	Female
0-4	24,950	12,842	12,108	3,660	1,909	1,751	18.1	17.8	6.0	8.0
5-9	21,636	11,151	10,485	2,753	1,427	1,326	15.7	15.4	4.5	6.1
10-14	19,584	9,974	9,160	1,724	858	866	14.0	14.1	2.7	4.0
15-19	16,415	8,374	8,041	3,969	2,360	1,609	11.8	11.8	7.4	7.4
20-24	14,284	7,082	7,202	8,361	5,231	3,130	10.0	10.6	16.4	14.4
25-29	11,271	5,641	5,630	8,814	5,350	3,464	7.9	8.3	16.9	15.9
30-34	7,498	3,733	3,765	6,700	4,046	2,654	5.3	5.5	12.7	12.2
35-39	5,008	2,748	2,260	4,502	2,768	1,734	3.9	3.3	8.7	8.0
40-44	4,473	2,301	2,172	3,479	2,095	1,375	3.2	3.2	6.6	6.3
45-49	3,830	1,847	1,983	2,730	1,555	1,175	2.6	2.9	4.9	5.4
50-54	2,806	1,456	1,350	2,210	1,404	806	2.1	2.0	4.4	3.7
55-59	2,114	1,141	973	1,587	987	600	1.6	1.4	3.1	2.8
60-64	1,584	927	657	1,180	697	483	1.3	1.0	2.2	2.2
65-69	1,312	661	651	850	498	352	0.9	1.0	1.6	1.6
70+	2,327	1,141	1,186	1,017	586	431	1.6	1.7	1.8	2.0
Unknown	75	42	33	138	110	28	-	-	0.1	-
Total	139,167	71,061	68,106	53,665	31,881	21,784	100	100	100	100

Source: *Brunei Population Census, Summary Tables, 1981*, p. 53.

FIGURE 4.2 AGE-SEX STRUCTURE AND AGE GROUPS OF IMMIGRANT AND NON-IMMIGRANT POPULATIONS OF BRUNEI, 1981.



Source: Table 4.10.

Furthermore, the male proportion of both sections of the population also differed , relatively higher for the foreign-born and in effect inflating the excess of total male proportion. For example, both had male excess, 51.1 percent for the native-born and 59.4 percent for the foreign-born population, the total male excess being 53.4 percent; though moderated, it was still higher than it would have been without the immigrants.

4.8 INTERNAL MIGRATION

As said before, an attempt to assess internal migration in Brunei, rural-to-rural, rural-to-urban, urban-to-rural and inter-urban, is almost an impossible task because of the scarcity of records. Most probably the number involved has been very small especially during the recent decades because as the road network and communications in general have improved and the number of car owners among the population have increased simultaneously, all of which have facilitated daily movements, migration as from home to place of work has been replaced by daily journey to work.

Brunei is very small spatially (only 5,765 square kilometers) and therefore for many people it means that distance from home to workplace either within the same district or otherwise involves only short travelling time and thus does not necessitate them to migrate into the region or district of their workplace. In other words, many people who do not work

within the same district commute from home to workplace daily. Nevertheless, it cannot be ruled out that inter-district, inter-urban and rural-urban movements do take place though only on a small scale as compared to those of other countries.

In the past, inter-district migration did exist as evidenced from the gain or loss of population within the four districts of the country: Brunei-Muara, Belait, Tutong and Temburong. As can be seen from Table 4.11, between 1931 and 1947, the percentage increase of the population of Brunei-Muara district was only 1.4 percent (an annual growth of 0.08 percent); its share of the total population declined from 60.7 percent to 45.6 percent. Belait district, on the other hand, experienced a dramatic percentage increase of 222.5 percent (an annual growth rate of 7.32) and an increase from 12.9 to 30.9 percent in its share of the total population. The population gain in Belait continued until 1960 while Brunei-Muara continued to lose⁶.

Evidence is not available to account for how much of the increase was attributable to natural increase and how much to immigration. But the increase in the Belait district was well above that of the rest of the state which averaged at 34.9 percent; undoubtedly, such a significant increase could not have been caused by natural increase alone, especially when the increase coincided with accelerated activities in the oilfield at Seria (located within the district) after the Second World War ended. Similarly, the marked decline in the share of the proportion of total population in Brunei-Muara district could not

**TABLE 4.11 THE GROWTH OF POPULATION OF THE DISTRICTS OF
BRUNEI DARUSSALAM, 1931-82**

Census Districts	Total Population						Percentage Increase					Annual rate of growth			
	-----						-----					-----			
	(Percentage Distribution)						1931	1947	1960	1971	1981	1931	1947	1960	1971
	1931	1947	1960	1971	1981	1982*	-47	-60	-71	-81	-82*	-47	-60	-71	-81
Brunei/Muara	18,281 (60,7)	18,531 (45,6)	37,511 (44,7)	72,791 (53,4)	114,231 (59,2)	119,139 (59,5)	1,4	102,4	94,1	56,9	4,3	0,08	5,42	6,03	4,51
Belait	3,897 (12,9)	12,567 (30,9)	31,708 (37,8)	42,383 (31,1)	50,768 (26,3)	52,763 (26,3)	222,5	152,3	33,7	19,8	3,9	7,32	7,12	2,64	1,81
Tutong	5,651 (18,7)	6,847 (12,8)	10,710 (12,8)	15,858 (11,6)	21,615 (11,2)	22,045 (11,0)	21,2	56,4	48,1	36,3	2,0	1,19	3,44	3,57	3,10
Temburong	2,306 (7,7)	2,712 (6,7)	3,948 (4,7)	5,224 (3,8)	6,218 (3,2)	6,443 (3,2)	17,6	45,6	32,2	19,0	3,6	1,01	2,89	2,55	1,74
Brunei State	30,135 (100)	40,657 (100)	83,877 (100)	136,256 (100)	192,882 (100)	200,390 (100)	34,9	106,3	62,4	41,5	3,3	1,87	5,57	4,41	3,0

Source: Brunei, Economic Planning Unit (E.P.U.), (1984) *'Population and Education'* (Unpublished papers), Appendix 4.

Note: Figures in brackets are percentages.

* E.P.U. Estimate.

be due to the incidence of more deaths than births (as the district did experience a small annual rate of growth); the loss of population must have been caused by outmigration and most probably the destination was Belait district.

After 1960, however, the proportion of the total population living in Brunei-Muara district began to increase while that in Belait district declined. Again it is not possible to distinguish the contribution of natural increase and immigration to the growth of population in the district but it is feasible to assume that there was a drift of outmigration from other districts into Brunei-Muara due to the attraction of jobs created by increased development and commercial activities in the capital (located in Brunei-Muara). In 1981-82, 72.3 percent of the total increase was in Brunei-Muara. With regard to Belait district, although it suffered a significant decline in percentage growth from 1960 onwards (falling from 152.3 in 1947-60 to 33.7 in 1971 and 3.9 in 1981-82). But 16.2 percent of the increase of the total population in 1981-82 was in this district, thus still much higher than that of Tutong (9.7 percent) and Temburong (1.9). The increase in the Belait district, however, was mainly due to labour immigration from abroad and perhaps only a small minority from elsewhere within the country. This was evidenced from the fact that its population was largely dominated by permanent and temporary residents rather than citizens. This is not surprising, as it has been foreign workers who provided most

of the necessary skilled manpower and services to the oil and gas industry.

The other two districts of Brunei, Tutong and Temburong continued to suffer a decline in terms of the proportion of the total population that they shared. For Tutong, its population declined from 18.7 percent in 1931 to 11.0 percent of the total population in 1982; Temburong's share of the total population also decreased from 7.7 percent to 3.2 of the total population within the same period. Although these declines seem to be quite small, they nevertheless indicated a drift of outmigration and lack of immigration which was most probably associated with the push and pull factors respectively from these districts and pull factors from the capital (Bandar Seri Begawan) and the oil town of Seria. Indeed until today, Tutong and Temburong district, in general still remain rural, despite recent developments, as compared to Brunei-Muara and Belait. Therefore it is not uncommon anymore to find that many people who originated from Tutong and especially Temburong migrate temporarily to either the capital or the oil town for the purpose of employment; in addition it has been often the case that students after coming back from education abroad to find employment, live in the capital in particular and only visit their home villages whenever necessary.

4.9 THE GOVERNMENT POPULATION REDISTRIBUTION SCHEME.

While the internal migrations described so far were based on peoples' discretion, a more organised redistribution of population under government resettlement programmes has been in existence in Brunei since the turn of the century. It is unfortunate that data for the number of people involved cannot be given, but a brief description of government resettlement programmes for certain sections of the population is provided to give a general idea of the existence of such a programme of population redistribution.

Historically, the town centre of Brunei before the present century had been sited on the water at Brunei River estuary. But in 1906, the first British Resident, M.S.H. McArthur initiated a resettlement programme involving movement of the people off Kampong Ayer (water village) to the land area. The main objective was the relocation of the capital from the water site to the mainland. But for some reasons, the scheme was not successful; the majority of the inhabitants of Kampong Ayer continued to dwell there, except for a small minority including the Sultan and other members of the royal family. This in fact marked the beginning of a land settlement which later evolved into the capital, Brunei Town and today known as Bandar Seri Begawan.

The second redistribution of population, also under a government resettlement scheme was between 1952 and 1967. The scheme had a dual objective; one was to reduce the population and housing congestion in Kampong Ayer and the other was to encourage agriculture among the would-be settlers. Unfortunately, there was only low response from the inhabitants of Kampong Ayer; thus the scheme achieved only partial success. Several reasons were attributed to this; on the part of the government, the objectives were inconsistent with the background of the people selected to be resettled. Indeed, it was, "illogical to choose Kampong Ayer inhabitants for the programme solely for the purpose of farming while they had no experience in farming"⁷. On the part of the people, the scheme seemed to be unattractive in view of the cultural heritage of Kampong Ayer, the livelihood and the traditional way of life on the water that they had been familiar with for many years. Detailed figures are not available, but on the whole that programme only managed to resettle 359 families within a period of fifteen years (1952-1967). Therefore little was achieved in reducing high population concentration and housing congestion. In fact, the problem continued as there was no legal control and supervision to prohibit further extension or building of new houses on the sites left vacant by those who moved to the new resettlement area on land. All they needed to make further extensions or build new houses was permission from the village head. The result was that in some villages it came to a stage where people resorted to vertical extension to their houses when horizontal extension was not possible.

In the 1980s, the government made a further attempt to redistribute population under yet another resettlement and housing scheme which was not only meant for the people of Kampong Ayer but all citizens based on certain eligibility selection. This latest scheme had four main objectives : 1) redistribution of population, 2) resettlement of Kampong Ayer residents and the need for development projects like commerce and industry, 3) housing for government officers and the low income groups and 4) to overcome the problem of illegal squatters on government land. The first objective is associated with the recent trend of increasing rural-urban migration and substantially increased demand for housing in urban areas².

In general, the level of urbanisation in Brunei especially in Bandar Seri Begawan and to a lesser extent, the towns of other districts is expected to rise throughout the next few decades as developments in the physical infrastructure and in social and economic activities continue. It is not possible at this stage to ascertain the number of people involved in government redistribution and resettlement schemes as some are in the implementation process while others are still in the planning stage. On the whole, the programme involves the creation of several new towns and industrial estates with a variety of light economic and industrial activities in suburban areas which would give rise to new population centres in all the four administrative districts of the country. In Brunei-Muara, resettlement areas are Rimba Gadong, Lambak Kanan and Pengakalan

Sibabau (which are already in process of implementation); Belait district, they are Lurong Tengah, Seria and Sungai Liang; Tutong district, Bukit Basong; and in Temburong district, Rataie and an unnamed site near Amo.

But mention should be made here that despite the mass resettlement programmes, the population of the water village alongn side Bandar Seri Begawan will not be affected very much and therefore a drift of population off the water village to the land area is not expected at least in the near future. This is because they are already in close proximity to the commercial and employment centres. International immigration on the other hand is expected to slow down as the government may reduce its investment expenditure on oil and gas exploration².

4.10 CONCLUSION

In Brunei, migration on a significant level began following the discovery of oil in 1929 but did not gain momentum until the post-war years. Immigration during those days was related to the demand for skilled and unskilled labourers chiefly for the oil industry. During more recent decades, particularly the 1970s and 1980s, increased immigration was largely the effect of government infrastructural schemes which inevitably required the recruitment of both skilled and unskilled workers from abroad. It should also be mentioned that immigration into Brunei in earlier periods was more of a permanent nature while that of the

more recent decades was mainly on temporary basis as required by the government policy on immigration.

In both 1971 and 1981 the nationality and origin of immigrants were predominantly Chinese who came mainly from China and Taiwan, followed by the Malays who were largely from Peninsular Malaysia and only a small number were from Singapore and Indonesia, the Ibans from Sabah and Sarawak. Others comprised the Europeans mainly from the United Kingdom and some from the Netherlands; also included in this group were the Koreans, Chinese from Hong Kong and the Filipinos; the Indians, Pakistanis, Bangladesh, Sri Lankans as well as the Gurkhas from Nepal were only minority groups.

The inevitable demographic effects of immigration were mainly changes in the ethnic composition and the age-sex structure of the total population.

Regarding internal migration, some indications were available to account for such movements; for example the considerable population increase in the Belait district before 1960 which was associated with increased activities in the oilfields, and in Bandar Seri Begawan since 1960 which was a consequence of increased commercial activities and government infrastructural projects. The other two administrative districts experienced population declines simultaneously, thus indicating a drift of outmigration to the capital or the Seria, the oil town in the Belait district.

While the above involved the movement of people at own choice, the government has been initiating population redistribution since the turn of this century. The objectives vary from relocation of the capital, reduction of overcrowding in the water village, encouragement of agricultural activities among the new land settlers to re-housing government officers and overcoming the problem of illegal squatters on government land in urban areas.

Since internal migration in Brunei has been less significant than immigration, particularly labour immigration, it is only to be expected that the demographic and the socio-economic effects of the former are less likely to cause major concern at least in the near future. However, this is not to say that matters associated with internal movements of people are neglected; the government measures in dealing with them are in the process of implementation, hence the housing and resettlement schemes which result in a more organised population redistribution. As with immigration, efforts to minimize the undesirable effects, whether demographically or socio-economically, have been attempted by adopting a policy of temporary rather than permanent labour immigration.

REFERENCES

1. United Nations, (1985), *Population Policy Compendium: Brunei Darussalam*. A joint publication of the Population Division of the United Nations Department of International Economic Affairs and the United Nations Fund for Population Activities, p. 3
2. Brunei, *Report on the Census of Population, 1971*, p. 31.
3. Brunei, *National Development Plan, 1980-84*, Government Printing Office, p. 54.
4. United Nations, (1985), *op. cit.*, p. 3
5. United Nations, *ibid.*, p. 3
6. Brunei, Ministry of Finance, Economic Planning Unit, (1984), *Population and Education*, (Unpublished papers), p. 3.
7. Mohamed, J. M., (1981), *Housing Problems in Developing Countries with Special Reference to Brunei*, (Master's thesis, University College, London), p. 178
8. Mohamed, J. M., *ibid.*, pp. 194-199.
9. Brunei, Ministry of Finance, *op. cit.* p. 9.

CHAPTER FIVE

POPULATION STRUCTURE AND COMPOSITION

5.1 INTRODUCTION

This chapter attempts to explore the changes in the age-sex structure and the composition of population during the last three inter-censal periods of 1947-1960, 1960-1971 and 1971-1981; more recent changes since 1981 are also included depending on the availability of data; figures used in the latter are based on estimates by the Ministry of Finance, Economic Planning Unit.

Several approaches are used in the study of age-sex structure of the total population in order to derive similar results. The trend in the changes of ethnic composition of the population is also investigated with the aim to find out the influence of immigration in the population composition of the total population.

Owing to the lack of pertinent data, the study period of some sections of this chapter has to be restricted to the inter-censal period of 1971-1981, as for example the marital composition which includes the trend of median age of marriage of the population aged 10 years and over (except for the year 1983).

However, data do exist to permit investigation in the changes of median age of marriage among the Muslims since 1965.

Finally the religious composition of the total population is also dealt with. The main concern is confined to the significance of Islam statistically in the population composition of the country.

5.2 AGE-STRUCTURE

In the analysis of population structure of Brunei, Several methods are employed namely, broad age-groups, age-dependency ratios, and age-pyramids. The period being explored is that between 1947 and 1984.

Firstly, four age-groups are used, 0-14, 15-34, 35-39 and 60 years and over (Table 5.1 and Figure 5.1). The obvious feature throughout the period being considered is the high proportion of juvenile population which was 39.6 percent in 1947; it reached a peak level of 46.6 percent in 1960 but thereafter gradually declined to 37.2 in 1984. Such a proportion has been typical of many LDCs where fertility is high. Since childhood and infant mortality rates of Brunei have been improving simultaneously (Chapter Two), the declining trend in the proportion of this group of population since 1960 is therefore a reflection of fertility decline.

The 15-34 age group comprise the next largest proportion of the total population. Similar to the juvenile group, this group declined in proportion, from 33.6 percent in 1947 to 29.4 percent in 1960 but increased quite markedly to 40.1 percent in 1981 and fell only slightly to 39.5 percent in 1984.

TABLE 5.1 PERCENT DISTRIBUTION OF POPULATION BY AGE GROUPS, 1947-1984

Age Groups	1947	1960	1971	1981	1984*
All Ages	100	100	100	100	100
Under 15	39,6	46,6	43,4	38,5	37,2
15-34	33,6	29,4	34,1	40,1	39,5
35-64	¹ 21,9	18,4	17,7	17,0	18,8
65+	² 4,9	5,6	4,6	4,3	4,5
	³ 5,9				
Median Age	20,9	16,8	17,3	20,4	21,3
Aged-Child)	² 12,3	6,0	6,2	7,4	8,1
Ratio)	³ 4,4				

Sources: Calculated from:

United Nations *Demographic Yearbook*, 1955 & 1956, pp. 246 & 166-67,
Brunei, Report on the Census of Population, 1971, p. 90 & 1981, p. 40.

Brunei Statistical Yearbook, 1983/84, p. 12.

¹35-59 Age group; ²60 and over; ³Aged 0 and over.

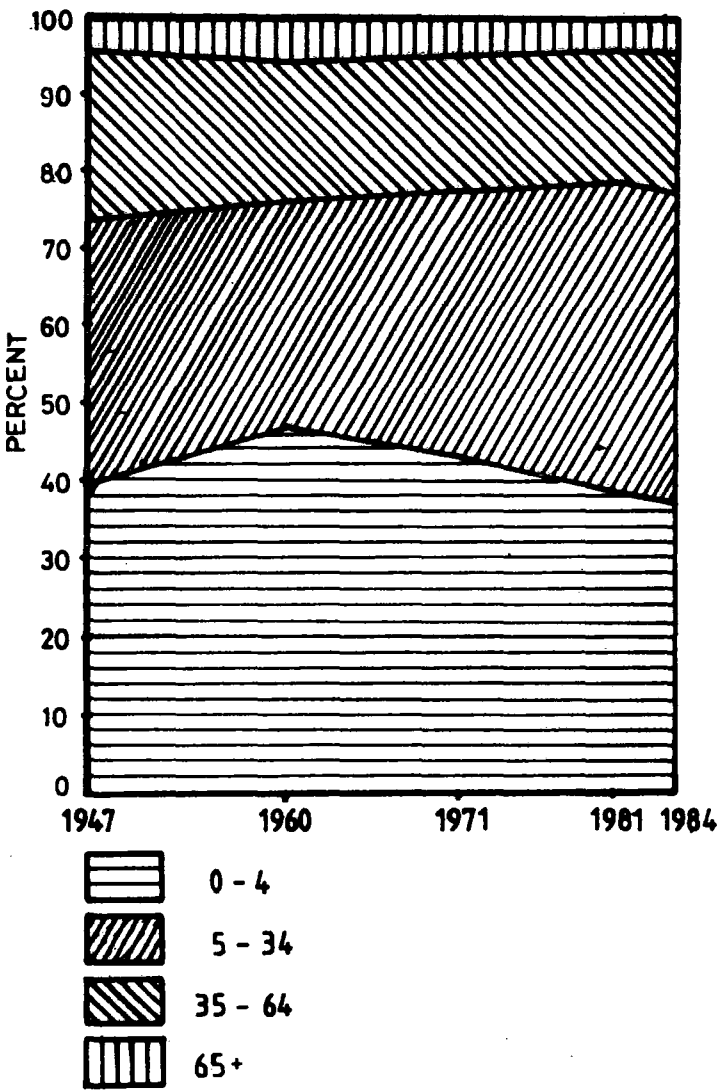
* Mid-year population estimate.

Note:

$$l_{m.d} = \left(\frac{\frac{N}{2} - \sum f_x}{f_{m.d}} \right) i$$

$l_{m.d}$ = the lower limit of the class containing the middle or $N/2^{th}$ item;
 N = the sum of all frequencies;
 $\sum f_x$ = the sum of all the frequencies in all the classes preceding the class containing the $N/2^{th}$ item;
 $f_{m.d}$ = frequency of the class containing the $N/2^{th}$ item;
 i = size of the class interval containing the $N/2^{th}$ item.

FIGURE 5.1 THE CHANGING PROPORTION OF FOUR AGE-GROUPS OF BRUNEI 1947-1984.



Source : Table 5.1.

The proportion of the older adult group was much less than that of the younger adult group throughout the thirty-seven years, the largest being only 21.9 in 1947 and decreasing since then, except in 1984 when it increased slightly to 18.8 percent.

In contrast to the juvenile group, the aged constituted the smallest proportion to total population during the period being considered. With the exception in 1960, they made up less than 5 percent of the total population. This is also typical of many LDCs whose recent demographic situation in general, has been high birth rates and declining mortality rates notably the IMR, causing increased proportions of young population.

Using Shryock's definition¹ of young population as those countries with the median age of below 20 years, intermediate, between 20 and 29 years, and aged, 30 years and over, Brunei's population in 1947 (when the median age was 20.9 years) could be termed as just entering the intermediate stage but receded into young population in 1960 and 1971 when the median age fell to 16.8 years and 17.3 years respectively. However, the median age has risen to 21.3 in 1984, though only slowly this signifies that Brunei's population is entering the intermediate stage.

Using the ratio measure of population structure also revealed that with the exception in 1947, the aged-child ratio of Brunei for the years between 1960 and 1984 was less than 10, hence the population is young (Shryock's categorization²). The aged-child ratio of 12.3 in 1947 seemed to be relatively high

because it included those in the ages of 60 years (due to ten year age grouping in the 1947 census). However, if the grouping of 70 years and over is used, the aged-child ratio would be 4.4 and this definitely indicate that the population of Brunei was very young. Nevertheless it is important to note that since 1981, the ratio of the number of the elderly persons to the number of children shows an increasing trend.

TABLE 5.2 AGE-DEPENDENCY RATIOS, 1947-84

Year	Dependency Ratios		
	Total	Youth	Aged
1947	80.2	71.4	8.8
1960	97.8	92.2	5.6
1971	85.8	80.8	5.0
1984*	67.1	62.1	5.0

Sources: Calculated from;

U.N. *Demographic Yearbook*, 1955 & 1962;

Brunei, Report on the Census of Population, 1971, p. 90.

Brunei Population Census, Summary Tables, 1981, p. 40.

Brunei Statistical Yearbook, 1983/84, p. 12

* The 1984 figures are calculated from mid-year population estimate.

Note: Aged dependency ratios = $\frac{\text{Aged}}{\text{Adults}} \times 100$

Youth dependency ratios = $\frac{\text{Children under 15}}{\text{Population aged 15-64}} \times 100$

Total dependency ratios = $\frac{\text{Youth} + \text{Aged}}{\text{Adults}} \times 100$

Youth = Population aged 0-14 years; Adults = Population aged 15-64 years
and Aged = Population aged 65 years and over.

The age dependency ratios reveal variations in the proportions of children and the aged persons, the combinations of which gives the total dependency ratios upon the intermediate age group (Table 5.2). The trend of age dependency ratios did not vary greatly between 1947 and 1984 as did the youth dependency ratios. In general, both were declining and this resulted in the corresponding decline in the total dependency ratios, especially since 1960. As suggested by the Table, this decline reflects largely the differences and changes in the proportions of the population under 15 years of age rather than in the proportion of the population of 65 years and over.

Using the age-pyramid approach, Table 5.3 and Figure 5.2 demonstrate graphically the changes in the age-sex structure of the total population of Brunei from 1947 until 1984. The 1947 age pyramid displays the shape of a bell and as such was not typical of LDCs. However, Brunei in the forties was still experiencing high fertility as well as mortality rates notably among infants; this explained the small base of the pyramid. In addition, 1947 was the year when immigration was on an increasing trend due to the beginning of expansion of the oil industry. The increase of migrant workers, the majority of whom were males in their prime adult ages was reflected in the slight bulge of the 25-39 male age group. Increased mortality in the older age groups of both sexes caused the narrowing of the pyramid towards the top. Comparing the sexes together, the proportion of young females was greater than that of young males from the infant to

TABLE 5.3 PERCENT OF TOTAL MALE AND FEMALE POPULATIONS IN FIVE YEAR AGE GROUPS, 1947-84

Age Groups	1947		1960		1971		1981		1984	
	Male	female	Male	Female	Male	Female	Male	Female	Male	Female
0-4	13.9	15.0	18.3	20.1	15.3	16.9	14.3	15.4	13.2	14.3
5-9	14.0	15.4	16.3	17.3	13.8	14.8	12.2	13.1	12.0	13.1
10-14	10.1	11.0	10.4	10.9	12.4	14.0	10.5	11.7	10.4	11.4
15-19	8.0	9.9	7.3	8.2	11.4	11.9	10.4	10.7	9.8	10.4
20-24	7.5	8.6	7.7	8.0	9.8	9.2	12.0	11.5	10.7	10.5
25-29	8.3	9.3	7.2	7.6	7.3	6.2	10.7	10.1	10.7	10.1
30-34	8.0	7.9	6.7	6.0	6.2	5.9	7.6	7.1	8.8	8.1
35-39	8.3	6.3	5.7	5.2	5.3	5.5	5.3	4.4	5.4	5.6
40-44	6.0	4.6	5.1	4.1	4.6	3.9	4.3	4.0	4.7	4.1
45-49	4.6	2.9	4.2	3.1	3.7	3.1	3.3	3.5	3.6	3.4
50-54	3.9	3.1	3.3	2.0	3.1	2.5	2.8	2.4	2.9	2.7
55-59	2.3	1.4	2.5	1.5	2.1	1.6	2.1	1.8	2.2	1.9
60-64	1		2.6	3.1	1.9	1.9	1.6	1.3	1.6	1.4
	13.4	2.9								
65-69	1		1.2	1.3	1.3	1.1	1.1	1.1	1.2	1.1
70+	1.7	1.7	1.5	1.6	1.4	1.5	1.7	1.8	1.8	1.9
Not Stated	-	-	-	-	0.4	-	0.1	0.1	-	-
	100	100	100	100	100	100	100	100	100	100

Sources: Calculated from:

United Nations *Demographic Yearbook*, 1955 & 1962, pp. 246 & 166-67.

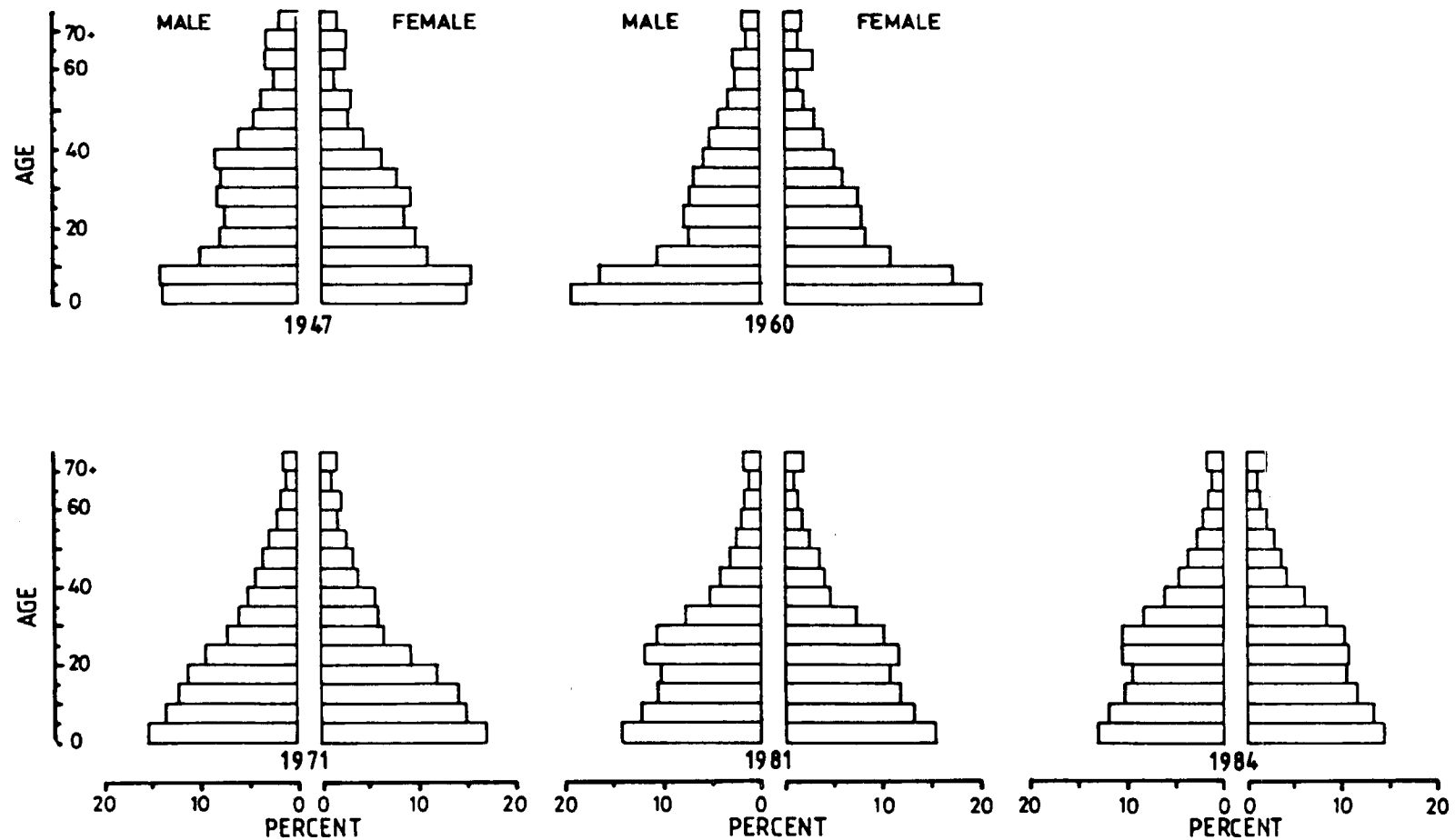
Brunei, Report on the Census of Population, 1971, p.90.

Brunei Population Census, Summary Tables, 1981, p.40.

Brunei Statistical Yearbook, 1981/84, p.12.

Note: The 1984 figures are calculated from mid-year population estimate.

FIGURE 5-2 POPULATION PYRAMIDS OF TOTAL MALES AND FEMALES IN FIVE-YEAR AGE-GROUPS.



Source: Table 5-3.

the age of 29 years, but the percentage of adult females was less than that of males from the ages of 30 years to 69 years. At the age of 70 years and over, both sexes have similar proportions.

In 1960, an almost similar shape was still maintained. The most noticeable difference, however, was the much broader base, indicating high fertility and survival rates of infants and children as compared to 1947. Those from the ages of 14 and above advance smoothly towards the top with no sudden indentation except for males in the 15-19 age group and a slight bulge in females in the 60-64 age group. The gradual progression in the middle age groups indicates less effect of immigration and the relative smoothing towards the top means improved mortality among the aged. In comparison between the sexes, the proportion of females was higher in the infant, juvenile, younger adult groups (those in their twenties) and from 65 years of age, but the proportion of males was higher between the ages of 30 years and 64 years.

The 1971 age-sex pyramid displays more of a progressive distribution of population although the progressiveness of both slopes might be less pronounced than those of many Third World countries during that period. The baby boom and the relatively large proportion of children under 10 years of age in the previous decade were reflected in the gradual progression of the 10-20 age group the 1971 pyramid, in addition to the children under 10 years of age in the previous decade (as shown in the 1960 age pyramid). The broad base indicates, on the one hand,

still high birth and survival rates; the narrowing progression towards older ages, on the other hand, is an expression of increased mortality. Comparing both sexes together, the proportions of males were greater than those of females at almost all ages above the age of 19 years.

By 1981 and 1984, the age-sex pyramids of Brunei had lost their progressive shape as shown in the 1971 pyramid. For both pyramids, the bases are slightly smaller indicating declining birth rates; the 10-19 age group is slightly indented, especially of males in 1981, but the 20-29 age group is slightly bulged, notably of females in 1981. This is a reflection of the influence of immigration among the females. At the age of 40 years and over, both pyramids reveal smooth and gradual progression towards advanced ages. The greater proportion of population at the top of the pyramid is due to the grouping together of all those aged 70 years and over. Comparing between the sexes, there were higher proportion of females in the 0-19 age group in both years, and higher proportion of males at almost all ages above that age in 1981 and 1984. The influence of immigration is still visible in the adult males, but the higher proportion of males in the older age groups reflects the effect of differential mortality between the sexes.

Birth rates in Brunei are still high but they are declining and if this trend continues, and the immigration of labourers continues to increase, the age-sex pyramid of Brunei in the next few decades will have a smaller base and look more inverted.

5.3 THE GROWTH OF DIFFERENT ETHNIC GROUPS

The population of Brunei Darussalam consists of many races who were classified in the last two censuses as: a) Malay, who comprise all Malay, Kedayan, Bisayah, Dusun and Murut; b) Other Indigenous, consisting of all indigenous groups not included in (a), for example, Iban, Melanau and Punan; c) Chinese, consist all population of Chinese origin including those fromm Taiwan; d) Indians, consisting of all Indians whether from India, Malaysia or Singapore, and all Pakistanis and Sri Lankans; e) Others, consisting of the rest of the population not included above, for example, Europeans, Japanese, Filipinos.

According to the 1971 census, one reason for classifying the indigenous population as above was the difficulty of differentiating the Malays from the Kedayans, the Muslim Dusuns and and Muslim Muruts. These latter groups usually prefer to categorize themselves as Malays, and enumerators were trained to record indigenous respondents as Malays if they wished (than is other than those categorized as Other Indigenous). Another reason was to standardize the term 'Malay' used in the census with the term 'Malay Race' applied in the Brunei Nationality Enactment, 1961.

The Ibans, Melanaus and Punans are classified as Other Indigenous probably not because they are non-Muslims except for a small number through conversion, but, perhaps a more important reason is they are more similar to the indigenous races of Sabah

and Sarawak; and in most cases they were originally immigrants into Brunei, from these two East Malaysian states.

Fundamentally, the Malays are quite distinguishable in many respects from the rest of the indigenous races and the Other Indigenous group; for example they are Muslims by birth, speak separate dialect, the majority live in town or near town areas and in general they are relatively better educated and have higher economic attainments. With regard to the Kedayans, except for their dialect, they are very similar to the Malays in many respects, such as religion and socio-economic background. They used to be identified as rural races of Brunei-Muara district because they were mostly engaged in farming activities and thus mostly resided in rural areas. With recent improvement in education and communication in rural areas many of the socio-economic differences seem to be insignificant.

The Dusuns were mostly found in Tutong district, and Muruts in Temburong district and Upper Belait district. Basically, these races resemble the Other Indigenous group more than they resemble the Malays; for instance, most of them are Pagans, some are Christians and unlike the Muslim Malays who are born to Islam, the non-Muslim Malays acquired their religion through conversion, and the number is increasing; in addition, they are also more primitive and in general poorer than the Malays.

Table 5.4 and Figure 5.3 illustrate the trend of population growth of the various ethnic groups since 1921. In term of

average annual rate of growth, the rate of increase of the Malays and the Other Indigenous group until 1947 was less than 2 percent, thus almost a slow growth for almost three decades. But subsequently, their growth rates were considerable notably between 1960 and 1971 when they were 5.1 percent and 4.7 percent respectively. By 1981, their combined rate declined to 3.7 percent which was higher than that of the Chinese but significantly lower than the Indians and Others.

With regard to the Chinese, their average annual rate of increase had been much higher than the Malays and Other Indigenous group for almost the period in question, but especially between 1947 and 1960. The key factor responsible for their spectacular increase was immigration, especially before 1954, the year of highest employment in the oilfield. Since 1947, however, the increase rate has been less significant as Brunei becomes more cautious over immigration, particularly perhaps for political reasons. Nevertheless, in 1981, the Chinese were the second largest ethnic group.

Of the Indians and Others group, their rates of increase between 1921 and 1981 were equally remarkable notably in 1921-31 when it reached 23.6 percent. This has declined considerably since then, but it is still higher than those of Malays, Other Indigenous group and the Chinese.

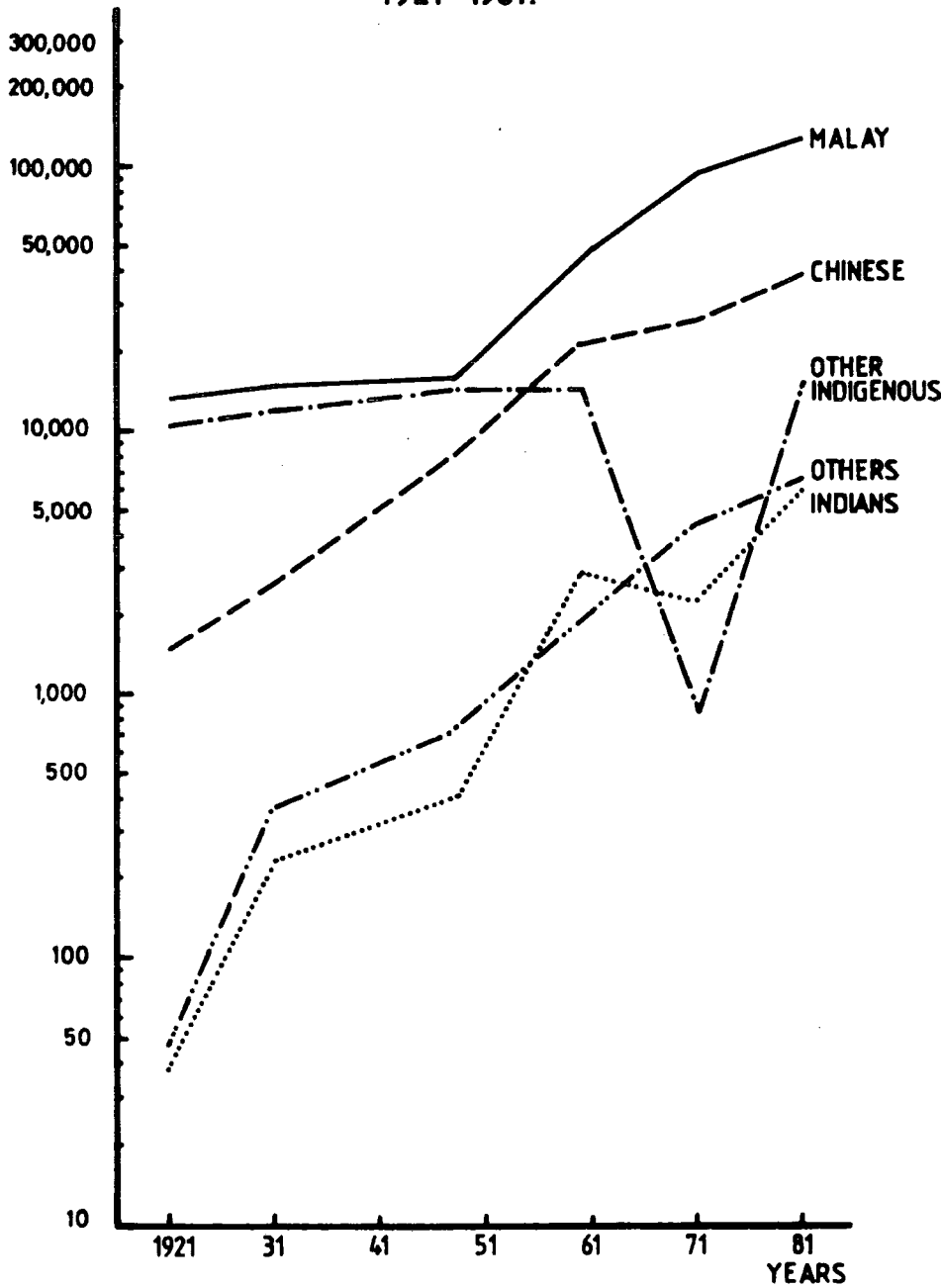
The changes in the growth rates of the ethnic groups are also reflected in their changing proportions to the total population

TABLE 5.4 THE GROWTH OF THE TOTAL POPULATION BY RACIAL GROUPS, 1921-81

Census Years	Racial Groups (in numbers)								
	All Groups (1)	Malays (2)	Other Indigenous (3)	Chinese (4)	Indians & Others (5)				
1921	5,451	16,641	10,302	1,423	85				
1931	30,135	14,835	11,911	2,633	706				
1947	40,657	16,742	14,419	8,300	1,196				
1960	83,377	45,105	14,068	21,795	2,879				
1971	136,256	89,268	8,552	31,925	6,511				
1981	192,832	125,717	19,175	39,461	12,469				
	Proportion to Total Population					Average Annual Rate of Increase			
	(1)	(2)	(3)	(4)	(5)	(1)	(2) & (3)	(4)	(5)
1921	100	53.6	40.5	5.6	0.3	1.6	1.4	6.3	2.6
1931	100	49.2	39.5	8.9	2.4	1.7	1.1	6.5	23.6
1947	100	41.2	35.5	20.4	2.9	1.9	1.0	7.3	3.4
1960	100	53.8	16.8	26.0	3.4	5.7	5.1	7.7	7.0
1971	100	65.5	6.3	23.4	4.8	4.5	4.7	3.6	7.7
1981	100	65.2	7.9	20.5	6.4	3.5	3.7	2.1	6.7

Sources: *Brunei Statistical Yearbook*, 1982/83, p. 3.U.S. Census Bureau, *World Population*, 1983, p. 206.

FIGURE 5.3 THE GROWTH OF THE POPULATION OF BRUNEI BY ETHNIC GROUPS, 1921-1981.

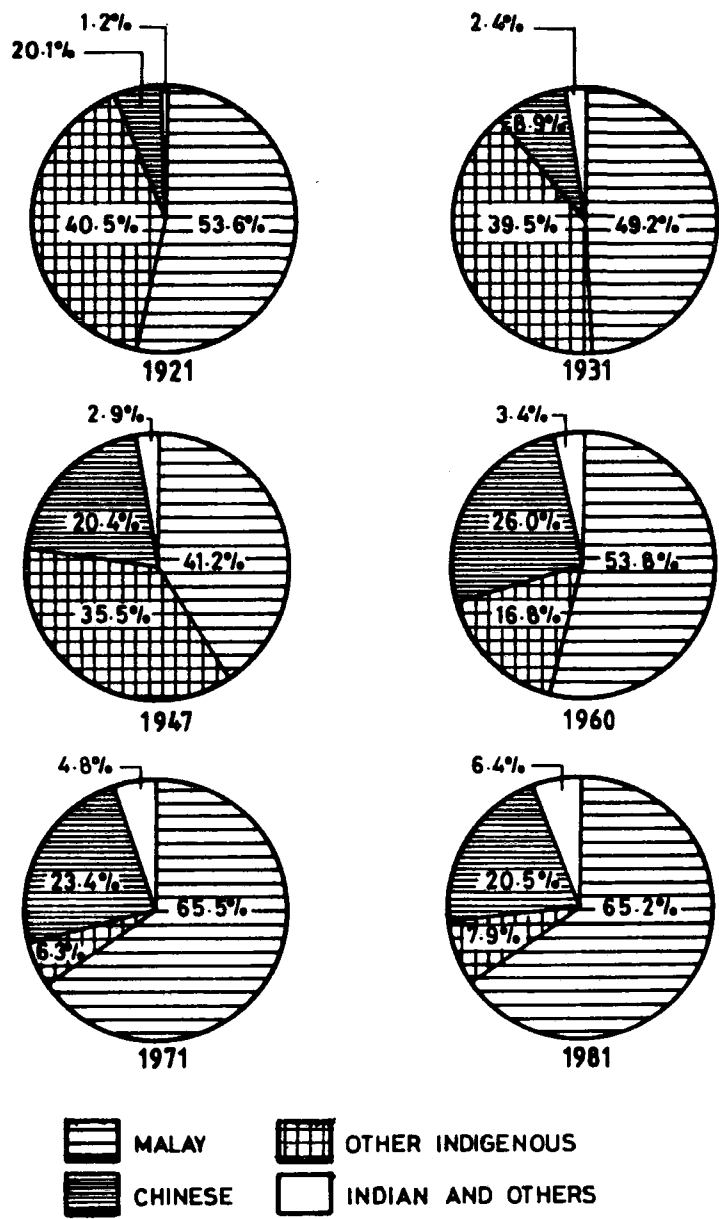


Source: Table 5.4.

(Figure 5.4). It appears that throughout the period 1921-1981, the Malays were the main group, although as a proportion they declined from 53.6 percent in 1921 to 49.2 percent and 41.2 percent in 1931 and 1947 respectively. Since then, however, their proportion has increased and by 1981 they comprised 65.2 percent of the total population. It should be stressed that the fluctuation in the population composition of the Malays was not only caused by changes in natural increase but also influenced by changes in the inflow of Malay immigrants, particularly from Malaysia. In 1971 and 1981 foreign-born Malays made up 10.1 percent and 10.0 percent respectively of the total Malay population in Brunei (Chapter Four).

Until 1947 the Other Indigenous group made up the next largest group ; thereafter they declined markedly then, comprising only 7.9 percent of the total population in 1981. As for the Chinese, they decreased greatly in proportion in 1931 but thereafter rose and surpassed the Other Indigenous group and became the second largest community in the country, in 1981 constituting 20.5 percent of the total population. Finally, the Indians and Others (mainly European, Japanese Korean and Filipinos), together have always been the smallest community with less than 10.0 percent throughout the period being considered. (a more detail study of this is confined to Chapter Four).

FIGURE 5.4 POPULATION COMPOSITION OF BRUNEI
BY ETHNIC GROUPS, 1921-1981.



Source : Table 5.4.

5.3.1 The Age-Sex Structure Of Ethnic Groups

Table 5.5 and Figure 5.5 exhibit vividly variations in the age-sex structure of the main ethnic groups in Brunei for the last two censuses. The obvious feature is the contrast in the general shape of the age-sex pyramids between the Malays and the rest of the ethnic groups.

The age-sex pyramid of the Malays illustrates the conventional shape which is typical of many LDCs. The broad base indicates high birth rates and the gradual narrowing of the slopes of both sexes reflecting increased mortality as age advances. The Malay community on the whole was young in both 1971 and 1981, as evidenced in the high proportion of the 0-14 age group, although this group declined in proportion in 1981 as compared to that in 1971.

The age-sex pyramids for the rest of the ethnic groups picture quite different characteristics, notably of age, from that of the Malays. One obvious feature common to all of them is the significant bulges in adult age groups of both sexes. This feature is more prominent among the Other Indigenous group and the group of Others, but less so among the Chinese.

Indentation of the pyramids of these ethnic groups in the 10-20 age group seems to be another common feature. In addition, the bases are broad, especially of females of Other Indigenous group and Others in 1981. The Malays, the tops of pyramids of

TABLE 5.5 PERCENTAGE OF TOTAL MALE AND FEMALE POPULATIONS BY ETHNIC GROUPS IN FIVE YEAR AGE GROUPS, 1971 AND 1981

Age Groups	Malay				Other Indigenous				Chinese				Indians				Others			
	1971		1981		1971		1981		1971		1981		1971		1981		1971		1981	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0-4	18.3	17.9	17.0	16.2	10.7	20.8	11.2	17.6	10.7	12.9	10.3	12.0	5.1	12.2	7.6	17.6	9.3	18.1	8.2	13.1
5-9	16.3	15.6	14.7	14.2	8.4	15.1	8.1	13.7	11.1	12.5	8.8	9.9	5.1	13.2	6.2	12.2	6.3	12.4	7.4	10.6
10-14	14.1	14.6	13.0	12.9	6.5	12.3	6.1	10.0	11.6	13.3	7.4	8.7	4.0	13.8	3.8	9.6	4.6	7.9	5.2	7.6
15-19	11.3	11.9	11.5	11.3	15.3	10.7	10.4	11.5	12.2	13.0	9.2	9.9	5.7	9.3	6.2	5.8	5.3	5.2	3.6	4.8
20-24	7.7	8.6	10.1	10.9	18.8	8.6	18.2	14.4	11.8	11.0	14.9	13.4	12.3	7.8	16.5	11.1	12.4	12.0	6.4	7.5
25-29	5.7	5.6	8.2	8.8	10.5	7.0	16.3	10.2	8.5	7.6	14.2	13.7	12.7	8.8	14.5	14.5	17.1	11.2	13.9	14.0
30-34	5.2	5.3	5.5	6.2	6.4	6.6	8.6	6.5	7.0	7.1	10.0	9.2	13.0	10.2	15.0	10.2	13.0	10.6	17.6	15.6
35-39	4.5	5.4	4.1	3.8	6.2	5.9	5.7	4.5	5.6	5.4	5.9	5.3	12.3	8.8	12.7	8.7	8.8	8.2	14.3	9.8
40-44	4.0	3.7	3.6	3.7	6.0	4.2	4.3	3.2	5.2	3.9	4.8	4.7	9.0	6.3	7.8	4.1	5.5	6.1	9.1	6.3
45-49	3.4	3.0	3.4	3.5	4.2	2.2	3.5	3.0	3.9	3.3	3.5	3.7	9.0	4.8	3.7	2.3	4.6	3.8	5.4	4.6
50-54	2.8	2.3	2.6	2.4	3.0	2.5	3.1	2.0	3.6	2.8	3.2	2.6	5.0	1.7	2.6	1.8	2.9	2.6	3.7	2.6
55-59	1.9	1.3	2.0	1.8	1.2	1.0	2.1	1.1	3.0	2.7	2.2	2.0	2.8	1.3	1.4	1.2	1.3	0.8	2.5	1.9
60-64	1.8	2.0	1.6	1.2	1.1	1.4	1.2	0.9	2.6	2.0	1.9	1.7	1.5	1.0	0.8	0.2	0.9	0.6	1.3	0.7
65-69	1.4	1.2	1.2	1.1	0.7	0.8	0.5	0.6	1.5	1.0	1.5	1.4	0.7	0.3	0.7	0.2	0.1	0.2	0.3	0.7
70+	1.7	1.6	1.9	2.0	0.8	0.9	0.5	0.8	1.5	1.4	2.0	1.8	0.3	0.4	0.3	0.3	0.1	0.2	0.4	0.2

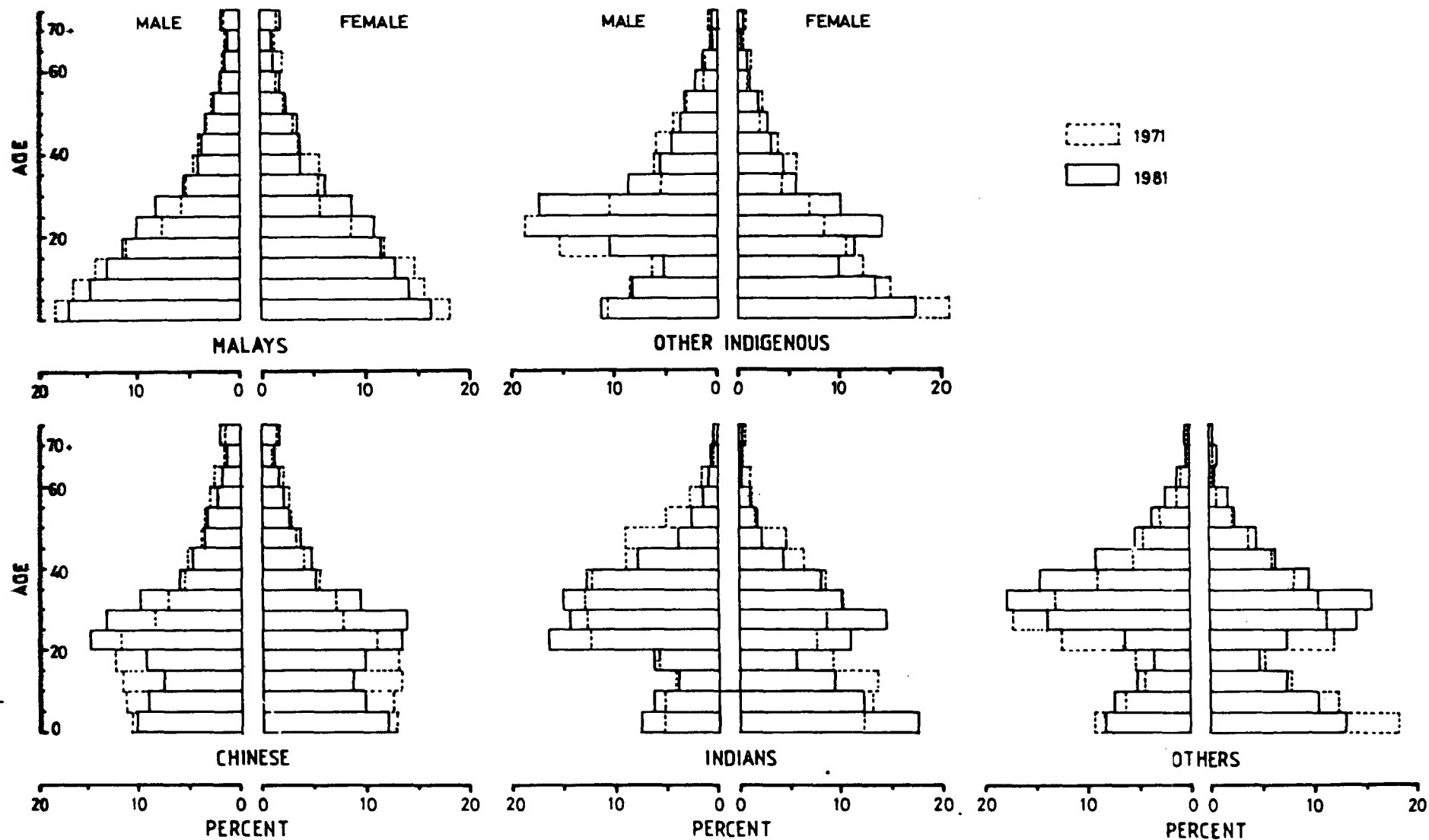
Sources: Calculated from:

Brunei, Report on the Census of Population, 1971, p. 90;

Brunei Census of Population, Summary Tables, 1981, p. 40.

Note: Total may not add up to 100 because of the exclusion of 'Not Stated' category.

FIGURE 5.5 AGE-SEX PYRAMIDS OF MALE AND FEMALE POPULATIONS BY COMMUNITY IN FIVE-YEAR AGE GROUPS, 1971 AND 1981.



Source: Table 5.5

these groups also become narrow, and in fact much narrower than that of the Malays. This does not necessarily entail only increased mortality among the older people of these communities; perhaps it was more associated with the fact that the majority of them had returned to their homelands long after completion of their work contracts. Comparing the age-sex structure of these ethnic groups between 1971 and 1981, the changes are most noticeable in children as well as in the younger adult group. In the latter group, notably between the ages of 20 years and 34 years, their proportion was less in 1971 than in 1981. But among infants and children, their proportion in 1971 for both sexes in general was higher more than that in 1981, notably of females of the group of Others and also Other Indigenous group. This indicates relatively high birth rates among them. Although the majority of them were immigrants, the high birth rates were not surprising because the proportion of adult males and females were almost the same and they were in their prime reproductive age groups.

5.4 SEX COMPOSITION

In general, there had been no major changes in the sex composition of the population of Brunei during the years since 1947, there being a preponderance of males although the magnitude of it was not really prominent.

The device used for investigation of sex composition of the population of Brunei is the sex ratio which is employed here to mean the number of males for every 100 females. Many different population characteristics directly affect the sex ratio, of which the immigration factor is one that has largely caused the predominance of males. Evidenced of this can be clearly seen later in the section when comparison of sex ratios are made by races and districts.

Table 5.6 and Figure 5.6 illustrate that with the exception of 1960, the sex ratios of the age groups under 15 years ranged from 101.1 to 106.9 although almost throughout the years from 1955 to 1984 (figures before 1955 are not available), the IMR was higher among males than in females (Chapter Three).

In the 15-59 age group, with minor exception in 1947 and 1960 male preponderance was even more marked, quinquennial sex ratios generally being 100-140, but being as high as 187.9 in the 55-59 age group in 1960. The high ratios were not surprising because they were largely influenced by the preponderance of male immigrants almost throughout the period being considered.

Generally, the sex ratio for the aged was also above 100, indicating that the number of males exceeded that of females. The gap, however, was not as great as in the 15-59 age group, sex ratios ranging from 92.7 (60-69 age group in 1960) to 134.4 (60-69 age group in 1984). With the exception of the 60-69 age group in 1960, the effect of sex differential on mortality in the sex

TABLE 5.6 SEX RATIOS FOR THE AGE GROUPS OF THE TOTAL POPULATION, 1947-84

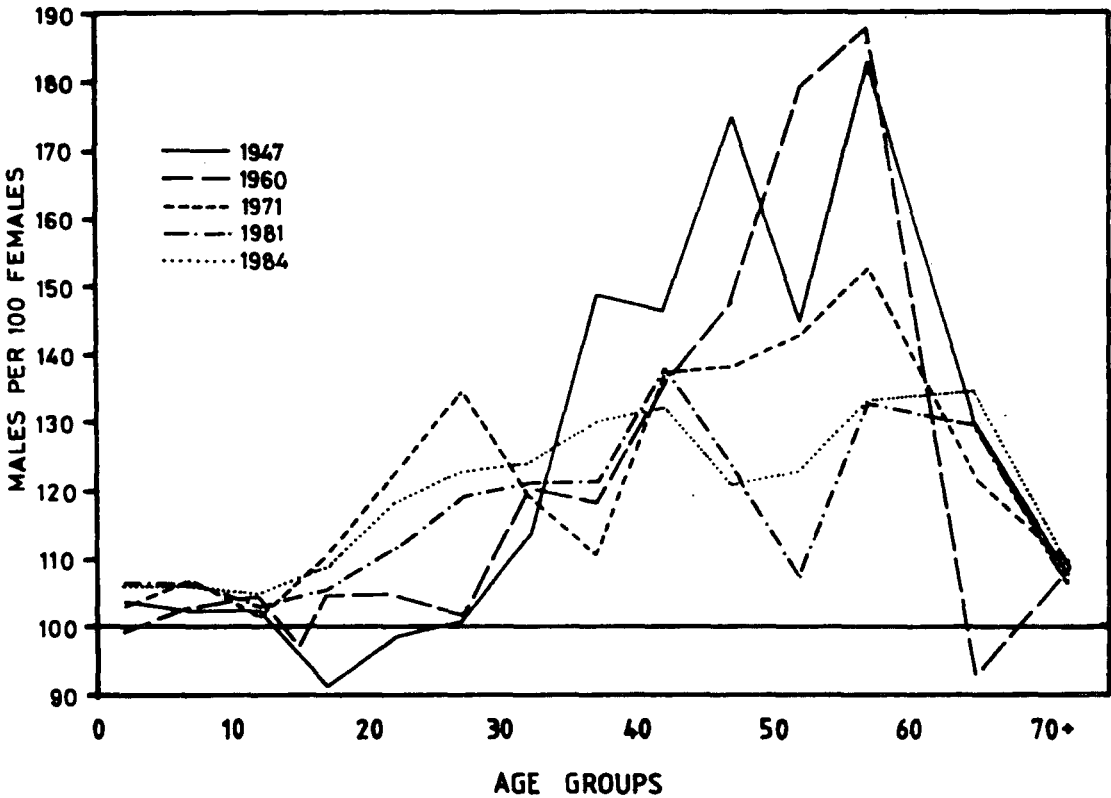
Age Groups	1947	1960	1971	1981	1984
0-4	103,9	99,1	103,5	106,4	106,0
5-9	102,3	102,4	106,9	106,5	106,2
10-14	102,8	104,1	101,0	103,4	104,9
15-19	90,7	96,5	110,2	105,6	108,8
20-24	98,3	104,6	122,6	111,2	118,0
25-29	100,4	101,9	134,4	119,2	122,6
30-34	113,8	120,2	119,6	120,9	124,0
35-39	149,1	118,2	110,4	121,2	131,0
40-44	146,4	135,3	137,4	138,1	132,3
45-49	175,3	147,8	138,0	123,9	120,7
50-54	144,8	179,0	142,5	107,7	123,2
55-59	183,3	187,9	152,4	132,7	131,5
60-64)					
65-69)	130,0	92,7	122,0	129,9	134,4
70+	107,8	108,5	109,0	106,8	108,8
All ages	112,3	106,6	114,6	115,5	115,2

Sources: *United Nations Demographic Yearbook*, 1955 & 1962, pp. 246 & 166-67;
Brunei, Report on the census of Population, 1971, p. 90.
Brunei Population Census, Summary Tables, 1981, p. 40.
Brunei Statistical Yearbook, 1983/84, p. 12.

Note: The 1984 figures are calculated from mid-year population estimate.

composition of the aged is clearly seen, that is mortality in females was higher than males at old age. This is rather contrary to the known biological fact that longevity of life in females is more than in males. On the whole, it is apparent that in Brunei, the sex ratio increased with age but declined sharply in the 60 plus age group. In addition, the table and the figure also demonstrate that the sex ratios for 1947 and 1960 especially in the adult age group which was considerably greater than since 1971, an indication of declining male dominance in immigration in the adult age group and improved mortality among females in the

FIGURE 5-6 SEX RATIOS FOR AGE GROUPS OF THE TOTAL POPULATION, 1947-1984.



Source: Table 5-6.

old age group, causing a greater number survive into the old age.

Regarding the sex ratio to the total population as a whole, male excess over females was still maintained. The great deviation from 100 in the sex ratios of all ages between 1947 and 1984 can be clearly accounted for by the effects of immigration more than those of birth and death differentials.

5.4.1 Sex Ratios By Ethnic Groups And Districts

A study of sex ratio according to ethnic groups and regions can reveal in general the different degree of concentration of immigrant workers. In Brunei, this is the key factor which influences sex ratios in the four administrative districts. Data for sex ratios by districts and ethnic groups provided in Table 5.7 reveal that sex ratios vary greatly both between ethnic groups and districts.

For the Malays, their sex ratios in 1960, 1971 and 1984 in all districts were, in general, lower than Other Indigenous, Chinese and Others, who all comprised a certain proportion of immigrants of whom males were preponderant.

Excluding the Malays, Chinese sex ratios, though high, were lower than those of the Other Indigenous group and also the group of Others, probably due to the fact that immigration of Chinese

TABLE 5.7 SEX RATIOS OF TOTAL POPULATION BY ETHNIC GROUPS AND DISTRICTS, 1960-84

Administrative Districts	Years	All Races	Malay	Other Indigenous	Chinese	Others	
Brunei-Muara	1960	102,0	97,3	96,8	124,6	132,6	
	1971	109,2	99,9	417,5	126,2	209,1	
	1984	113,4	101,9	233,9	127,1	193,9	
Belait	1960	119,5	109,4	137,7	120,1	134,2	
	1971	127,7	108,5	186,7	122,7	205,5	
	1984	110,5	107,1	150,4	118,1	142,4	
Tutong	1960	100,7	92,7	102,4	144,0	211,1	
	1971	107,6	98,0	164,7	140,0	1,036,1	
	1984	111,8	102,8	153,8	128,8	407,3	
Temburong	1960	113,9	113,1	108,9	153,0	466,7	
	1971	114,4	107,4	107,5	174,1	569,2	
	1984	112,6	104,4	111,1	194,0	698,9	
Total	1960	108,7	102,3	127,6	123,3	134,3	
	1971	114,6	101,5	186,2	125,4	219,2	
	1984	115,2	102,9	167,1	123,6	173,1	
Note: Numbers		1960		1971		1984	
Bunei-Muara:		Male	Female	Male	Female	Male	Female
-Malay		18,940	19,571	37,995	34,796	47,217	46,349
-Other Indigenous		1,172	1,211	1,286	382	3,995	1,708
-Chinese		3,592	2,884	7,512	5,952	12,470	9,813
-Others		362	273	1,435	686	5,144	2,653
Belait:	Malay	5,647	5,164	8,970	8,268	11,577	10,815
	O.Indigenous	2,635	1,914	2,972	1,592	5,258	3,495
	Chinese	7,719	6,430	9,118	7,434	10,269	8,697
	Others	1,260	939	2,710	1,319	4,059	2,851
Tutong:	Malay	2,400	2,590	6,475	6,607	9,297	9,045
	O.Indigenous	2,434	2,377	621	377	1,060	689
	Chinese	520	361	885	632	1,087	864
	Others	19	9	239	22	562	138
Temburong:	Malay	1,317	699	1,766	699	2,290	2,193
	O.Indigenous	2,325	1,212	685	637	931	838
	Chinese	289	177	249	143	335	173
	Others	17	14	87	13	62	9
Total;		43,676	40,201	72,772	63,484	115,613	100,330

Sources: *Brunei, Census on the Report of Population, 1971*, pp. 81 & 85,
Brunei Statistical Yearbook, 1983/84, p. 15.

into Brunei started before this century and continued in the early decades of the present century. Today the majority of them are local born, thus explaining the lower male predominance than found in the other two ethnic groups. Both Other Indigenous and the group of Others were largely made up of immigrant workers and therefore constituted a considerable number of males, especially in the group of Others.

In general, almost all ethnic groups had more males than females in all districts. This was very significant in Brunei-Muara, notably among the Other Indigenous and Others and to a lesser extent, the Chinese. A combination of government's infrastructural projects (such as water and sewerage, Muara deep-sea port) and increased commercial activities in the capital must have been the main attraction to male workers to get employment in this district.

For the Belait district, the greater number of males than females in all ethnic groups is only to be expected as the oil fields and natural gas plants are located here, and both have been employing a large number of immigrant workers, but the sex ratio for all races in the district had decreased markedly since 1971, especially of the Other Indigenous group and Others.

For Tutong and Temburong districts, it is rather difficult to forward an explanation for the high sex ratios. A considerable number of male births could not be possible to effect such tremendous discrepancy. Other than the possibility

of under enumeration of females, it must be caused by the random effect of small numbers in each group or the presence of a large number of male immigrants, though observation tells that there had been nothing much to attract immigrants into these districts. Indeed, these two districts lag behind in developments either those sponsored by government or private sectors. In addition, commercial activities are also scarce as compared to the Brunei-Muara and Belait districts. In short, Tutong and Temburong districts still remain very rural even to the present day. One possible explanation for the marked excess of males in these districts might be that they were largely engaged in agricultural activities.

5.5 MARITAL COMPOSITION

It is not possible to provide an up to date picture of the recent trend in the marital composition of the total population of Brunei aged 15 years and over. The most recent data available for this study is that from national census of 1981. Marital status of the total population for the years 1971 and 1981 are presented in Table 5.8 and graphically in Figure 5.7. The single population aged 15 years and over accounted for 41.4 percent of the total male population in 1971 while the equivalent percentage for females was 31.4 percent. In 1981, the proportion of single males hardly changed (42.1 percent) while that of females increased slightly to 33.8 percent, probably due to an increasing

5.8 TOTAL POPULATION AGED 15 YEARS AND OVER BY SEX AND MARITAL STATUS, 1971 AND 1981

Sexes	1971 (numbers)					Percent**		
	Total Population Aged 15+	Single	Married	Widowed, Divorced & Separated	N.S.*	S	M	WDS
Male	42,595	17,634	23,615	1,166	180	41.4	55.4	2.7
Female	34,459	10,818	20,686	2,950	5	31.4	60.0	8.6
Total	77,054	28,452	44,301	4,116	185	37.0	57.5	5.3

1981								
Male	64,781	27,268	35,998	1,461	54	42.1	55.6	2.3
Female	53,744	18,149	31,832	3,760	3	33.8	59.2	7.0
Total	118,525	45,417	67,830	5,221	57	38.3	57.2	4.4

Sources: *Brunei, Reports on the Census of Population, 1971*, p. 200,
Brunei Population Census, Summary Tables, 1981, p.187.

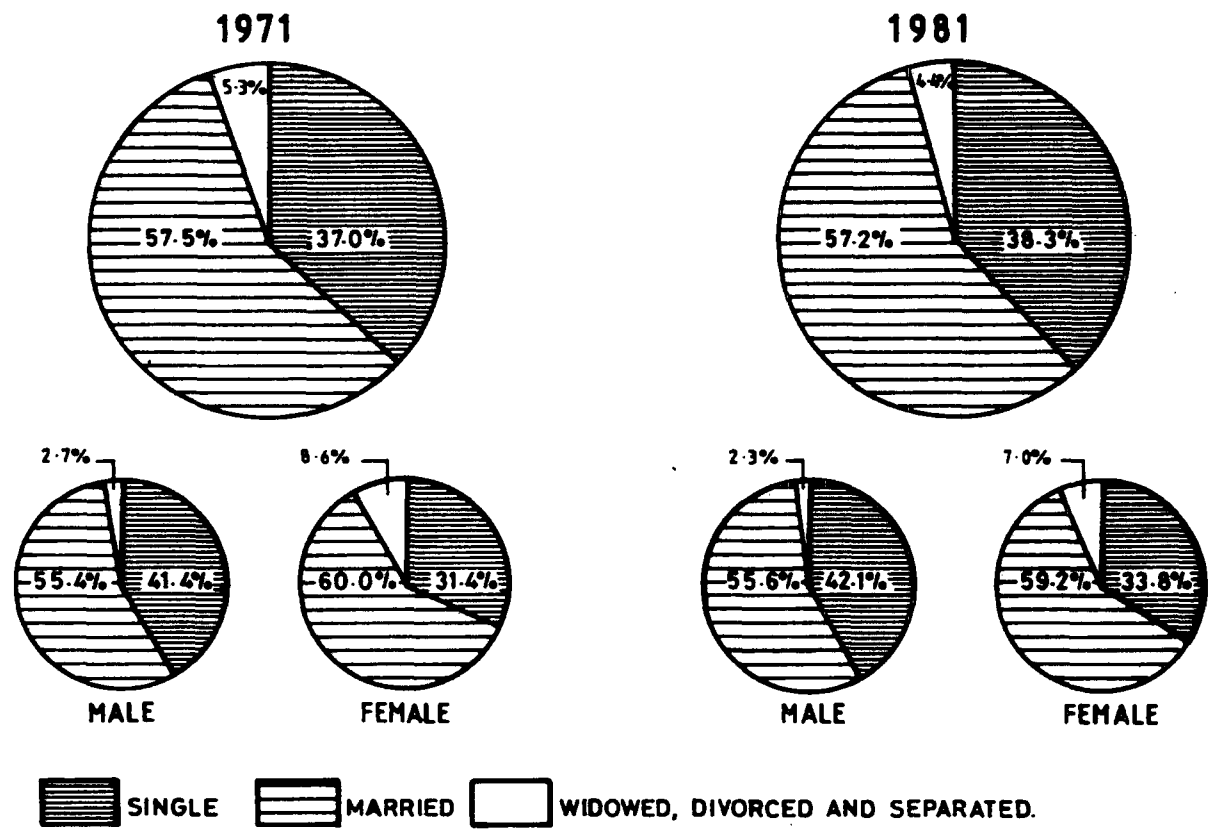
* Not Stated

** Total may not add to 100 because of the N.S. category.

number of young men and women stay longer in education, thus delaying marriage. This, in turn, is associated with the realisation of the importance of getting a higher level of education for the benefit of acquiring better careers and better-paid jobs.

For the married population, there was only a very insignificant increase in the percentage of married males and a slight drop in married females, so that the total percentage

FIGURE 5.7 MARITAL PROPORTION OF POPULATION AGED 15 YEARS AND OVER.



Source: Table 5.8 (Figures for 'not stated' category are excluded).

married declined slightly to 57.2 percent in 1981, 55.6 percent of males and 59.2 of females .

For the widowed, separated and divorced, also only a small decline was recorded, 0.4 percent in males and 1.6 percent in females. Separate data for each of these categories is not available but probably the proportion of widowed was higher than the proportion of separated and divorced. Among the Muslims, 'modified crude divorced rates'⁴ in 1971 was only 0.1 percent and 0.3 percent in 1981; non-Muslim divorce rates could be higher, unfortunately, figures are not available but according to the Demographic Yearbook, the divorce rate for the whole of Brunei was only 0.6 percent in 1981⁵.

It will be seen that the proportion of married persons was higher than the proportion of single persons. This might be typical of LDCs like Brunei because despite the increasing importance of education and more young people proceeding into tertiary education, it was only restricted to a small fraction of the young population. The rest mostly get married after completion of secondary education, especially females.

5.5.1 Marital Status By Age And Sex

A study of the marital status by age and sex reveals a more detailed picture of the extent to which people of given ages are married, have failed to marry or have become widowed or divorced (see Table 5.9).

In the 15-29 age group, the proportion of single females in 1971 was lower than that of males by 19.3 percent and in 1981 by 17.0 percent. As mentioned earlier, this is common in LDCs because, while the majority of young females do not stay single for many years after completion of secondary education, the reverse is true for young males who normally stay single for longer periods after completion of schooling to find employment before entering married life. Evidence of this can be seen clearly when comparing the proportion of single persons of both sexes of this age group to the proportion of married population of the same age group, the proportion of single population were much higher especially among males. Not surprisingly the proportion of single population for both sexes above the age of 30 years in 1971 and 1981 decreased sharply.

For the married population, the highest proportion of married males in 1971 and 1981 was in the 45-54 age group, and for females in the 30-34 age group. For the 65 years and over age group, the proportion of married males was twice as high as that of married females in both 1971 and 1981, as large numbers of older women are widowed, separated and divorced, especially widowed rather than separated or divorced because the percentage increases at older ages. Moreover, the percentage was higher among females than males because at the time of marriage, men are usually older than women and mortality increases with age among males more than among females.

TABLE 5.9 MARITAL STATUS OF POPULATION AGED 15 YEARS AND OVER BY AGE AND SEX, 1971-81

Age Groups	Male (numbers)				(percent)			Female (numbers)				(percent)		
	Total	Single	Married	Widowed, Divorced & Separated	S	M	WDS	Total	Single	Married	Widowed, Divorced & Separated	S	M	WDS
1971														
15-29	20,713	15,602	5,026	85	75.3	24.3	0.4	17,358	9,720	7,495	143	56.0	43.2	0.5
30-44	11,636	1,346	10,089	201	11.6	86.7	1.7	9,682	723	8,516	443	7.4	88.0	4.6
45-54	4,818	261	4,455	202	5.3	90.6	4.1	3,523	161	2,777	585	4.6	78.8	16.6
55-64	2,931	132	2,510	289	4.5	85.6	9.9	2,218	128	1,311	779	5.8	59.1	35.1
65+	1,981	113	1,481	387	5.7	74.8	19.5	1,664	81	584	999	4.9	35.1	60.0
Unknown	236	180	54	2	76.3	22.9	0.8	9	5	3	1	55.6	33.3	11.1
1981														
15-29	34,035	24,530	9,417	88	72.1	27.7	0.2	29,076	16,022	12,851	203	55.1	44.2	0.7
30-44	17,688	2,082	15,402	204	11.8	87.1	1.1	13,959	1,545	11,099	515	11.1	85.2	3.7
45-54	6,262	320	5,709	233	5.1	91.2	3.7	5,314	280	4,270	764	5.3	80.3	14.4
55-64	3,752	180	3,290	282	4.8	87.7	7.5	2,713	117	1,801	795	4.3	66.4	29.3
65+	2,885	118	2,114	653	4.1	73.3	22.6	2,619	160	984	1,475	6.1	37.6	56.3
Unknown	105	38	66	1	36.2	62.8	1.0	60	25	27	8	41.7	45.0	13.3

Sources: *Brunei, Report on the Population Census, 1971*, p. 106;
Brunei Population Census, Summary Tables, 1981, p. 65.

Note: This table excludes number of persons of 'unstated' marital status (1971: male 248, female 3; 1981: male 54, female 3).

5.5.2 Marital Status By Communities, Sex And Age

In the national census of 1971, data of the marital status of the total population based on residential status-Brunei citizen, permanent residents and temporary residents was made available, and as such the influence of immigration can be discerned. But similar tabulation of marital status was not made in the 1981 census and therefore comparison is not possible. There are, however, other indications in the 1981 census which demonstrate generally the affect of immigration on the marital status of the population of Brunei.

From Table 5.10, incorporating percentages of single, married and widowed, separated and divorced population according to communities for both censuses, the following points are derived. Firstly, with the exception of the Malays, the difference in the percentages of single males and females was quite significant. The key factor which explained this variation was the influence of immigration. Secondly, a similar explanation applied to higher percentages of married males than married females for all ethnic groups other than the Malays because it is common to find married immigrants leave their wives and families behind during the first few years of their emigration. The higher percentage of married Malay males than Malay females might be explained by inter-racial marriages which are more common among Malay males than among Malay females. Thirdly, the difference between the sexes in the third category,

**TABLE 5.10 PERCENTAGE OF POPULATION AGED 10 YEARS AND OVER
BY SEX, MARITAL STATUS AND ETHNIC GROUPS, 1971-81**

Ethnic Groups	Years	Total			Single			Married			Widowed, Divorced & Separated		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Malay	1971	100	49.9	50.1	49.5	26.0	23.5	45.5	22.6	22.8	5.1	1.3	3.8
	1981	100	50.2	49.8	50.7	26.7	24.0	45.2	25.5	22.7	4.1	1.0	3.1
Other Indigenous	1971	100	70.2	29.8	48.7	39.6	9.1	45.9	27.2	18.7	4.0	2.0	2.0
	1981	100	66.1	33.9	41.3	32.3	9.0	55.2	32.2	23.0	3.5	1.5	2.0
Chinese	1971	100	56.8	43.2	50.6	30.7	19.9	45.9	25.0	20.9	3.3	0.9	2.4
	1981	100	56.0	44.0	47.2	28.8	18.4	49.1	26.1	23.0	3.6	1.1	2.5
Indians	1971	100	75.8	24.2	35.7	25.9	9.8	50.5	46.9	13.6	1.4	0.6	0.8
	1981	100	74.2	25.8	34.5	27.4	7.1	64.5	46.3	18.2	1.0	0.5	0.5
Others	1971	100	71.1	28.9	30.9	23.5	7.4	57.6	46.4	21.1	0.7	0.3	0.4
	1981	100	61.1	38.9	28.3	16.6	11.7	69.8	43.4	26.4	1.6	0.8	0.8

Sources: Calculated from:

Brunei, Report on the Census of Population, 1971, pp. 108-117;
Brunei Population Census, Summary Tables, 1981, pp. 67-75.

widowed, separated and divorced, was in general, rather insignificant, notably among the other Indigenous, the Indians and the group of Others. As postulated earlier data are not available to compute separated and divorced rates for all communities except for Muslims which in general has been very small (see above). Therefore, the difference in the percentages of this category between the sexes for the Malays in particular, was most probably largely attributed to widowhood rather than to separation or divorce.

More detailed data for the marital status of population aged 10 years and above by age groups are provided in Table 5.11 , tabulated from the 1981 census for all ethnic groups in the country.

In the 10-14 age group, all communities were comparable in that almost all population of both sexes were single and only a very minute proportion entered into marriage. In younger adults, the proportion of single Malay males in the 20-29 age group was higher than single Malay females, because they marry late, but the proportion is reversed from the age of 30 years and above; this, however, might be associated with Malay males marrying females of other races. Evidence of polygamous marriage does not seem to appear statistically. In contrast, the rest of the ethnic groups had higher proportions of single males than single females for almost all ages; the exception being only the Indians in the 40-44 and 55-59 age groups, and the group of Others between the ages of 30 and 54, 60-64 as well as those above

TABLE 5.11 PERCENT OF POPULATION AGED 10 YEARS AND OVER BY MARITAL STATUS, ETHNIC GROUPS AND AGE-SEX GROUPS, 1981

Age Groups	Marital Status	Malay		Other Indigenous		Chinese		Indian		Others	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
10-14	Single	100	99,9	99,8	98,4	99,9	99,9	100,0	99,4	99,0	100,0
	Married	-	0,1	0,2	1,6	0,1	0,1	-	0,6	1,0	-
	W.D.S.*	-	-	-	-	-	-	-	-	-	-
	Total	100	100	100	100	100	100	100	100	100	100
15-19	Single	98,6	89,9	94,7	44,5	98,9	93,0	95,3	69,9	97,8	88,5
	Married	1,4	10,1	5,2	54,1	1,1	7,0	4,3	30,1	2,2	11,5
	W.D.S.	-	0,1	0,1	1,4	-	-	0,4	-	-	-
	Total	100	100	100	100	100	100	100	100	100	100
20-24	Single	76,4	53,3	72,2	14,1	87,6	62,4	79,4	24,4	73,2	45,0
	Married	23,4	44,9	27,5	84,0	12,3	37,3	20,6	75,1	26,0	54,5
	W.D.S.	0,2	0,8	0,3	1,9	0,1	0,3	-	0,5	0,8	0,5
	Total	100	100	100	100	100	100	100	100	100	100
25-29	Single	31,6	25,0	37,0	6,7	53,9	29,5	35,5	10,5	36,0	22,5
	Married	68,0	73,7	61,8	91,0	45,7	69,9	66,0	89,1	62,9	77,0
	W.D.S.	0,4	1,3	1,2	2,3	0,4	0,6	6,3	0,4	1,1	0,5
	Total	100	100	100	100	100	100	99,8+	100	100	100
30-34	Single	12,1	15,1	24,2	2,7	24,8	14,8	16,8	6,1	12,1	14,4
	Married	87,4	82,4	74,2	93,3	74,4	83,7	82,7	93,3	87,3	84,4
	W.D.S.	0,5	2,5	1,5	4,0	0,7	1,5	0,5	0,6	0,6	1,2
	Total	100	100	99,9+	100	99,9+	100	100	100	100	100

(continued)

Age Groups	Marital Status	Malay		Other Indigenous		Chinese		Indian		Others	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
35-39	Single	6.6	11.3	13.8	1.9	10.6	8.7	8.2	3.9	6.9	8.0
	Married	92.1	84.5	82.8	85.5	88.7	88.2	91.6	94.8	92.6	89.8
	W.D.S.	1.3	4.2	3.4	8.6	0.7	3.1	0.2	1.3	0.5	1.9
	Total	100	100	100	100	100	100	100	100	100	99.7+
40-44	Single	5.4	8.8	8.8	1.6	8.3	5.1	2.8	-	4.6	4.8
	Married	92.7	84.3	87.5	86.0	90.2	91.3	95.7	95.9	93.4	88.9
	W.D.S.	1.9	6.9	3.7	12.4	1.5	3.6	1.5	4.1	2.0	2.3
	Total	100	100	100	100	100	100	100	100	100	100
45-49	Single	3.7	6.5	9.3	1.2	7.4	3.0	3.9	7.5	6.3	6.5
	Married	93.4	81.3	84.7	86.4	90.2	85.6	94.8	85.0	90.3	89.4
	W.D.S.	2.9	12.2	6.0	12.4	2.4	11.4	1.3	7.5	3.4	4.1
	Total	100	100	100	100	100	100	100	100	100	100
50-54	Single	3.5	5.3	10.1	4.3	6.1	2.1	5.5	9.7	5.0	15.5
	Married	92.1	75.4	78.9	75.9	91.2	80.5	94.5	77.4	90.8	80.3
	W.D.S.	4.4	19.3	11.0	19.8	2.6	17.4	-	12.9	4.2	4.2
	Total	100	100	100	100	100	100	100	100	100	100

(continued)

Age Groups	Marital Status	Malay		Other Indigenous		Chinese		Indian		Others	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
54-59	Single	3,9	6,5	10,5	3,2	5,6	0,9	1,8	4,6	7,3	2,0
	Married	88,1	67,9	81,5	70,8	90,0	77,0	91,2	90,9	89,6	88,0
	W.D.S.	8,0	25,6	8,0	26,0	4,4	22,1	7,0	4,5	3,1	10,0
	Total	100	100	100	100	100	100	100	100	100	100
60-64	Single	3,4	4,5	11,7	-	4,7	0,3	2,9	-	10,0	20,0
	Married	88,0	59,2	75,7	65,4	88,1	61,0	94,3	-	84,0	75,0
	W.D.S.	8,6	36,3	12,6	34,6	7,2	38,7	2,8	100	6,0	5,0
	Total	100	100	100	100	100	100	100	100	100	100
65-69	Single	3,7	7,1	10,2	2,8	4,1	1,7	92,9	-	7,7	-
	Married	81,6	48,9	75,5	36,1	78,7	45,4	7,1	-	84,6	50,0
	W.D.S.	14,7	44,0	14,3	61,1	17,2	52,9	-	100	7,7	50,0
	Total	100	100	100	100	100	100	100	100	100	100
70+	Single	3,1	7,7	6,3	2,3	5,4	2,5	9,1	-	35,3	60,0
	Married	70,0	32,1	60,4	25,0	63,2	28,8	90,9	50,0	64,7	20,0
	W.D.S.	26,8	60,1	33,3	72,7	31,4	68,7	-	50,0	-	-
	Total	99,9+	99,9+	100	100	100	100	100	100	100	80+

Source: Calculated from;

Brunei Population Census, Summary Tables, 1981, pp. 67-75.

* Widowed, Divorced and Separated.

+ Total do not add up to 100 because of the exclusion of 'Not Stated' category.

70 years of age. The higher proportion of single males was obviously largely attributable to the presence of large numbers of male immigrants. One point worthy of note here is that for the group of Others, the proportion of single males was higher only in the younger adults probably because most were employed on a short-term contract basis, while immigrants of other ethnic groups especially the Other Indigenous (who mainly came from the neighbouring countries such as Sabah and Sarawak), the Indians and the Chinese, normally work in the country for a much longer period; in fact some immigrants in certain professions like school teaching were employed in the country until retirement age.

The difference in the proportions of single and married persons became wider at older ages in all communities, especially among males. This is largely noticeable among those below the ages of 20 years and above 30 years in general. Evidence of this can be found from the data, particularly until the age of 49 years for both sexes of the Malays and Other Indigenous, until the age of 54 years and 59 years for the group of Others and the Chinese respectively. For the Indians, the proportion of married persons increased till the age of 44 years and then declined slightly in the 45-49 age group, increased again for married males in the 60-64 age group, and thereafter the pattern became irregular.

In comparison between the sexes, the proportion of married Malay females was higher in the younger adults, for example 44.9

percent and 73.3 percent for the 20-24 and 25-29 age groups respectively as compared to 23.4 percent and 68.0 percent in the equivalent age groups of males; above the age of 35 years, the proportion of married males was higher. An almost similar pattern applied to the rest of the ethnic groups. The lower percentage of married females in the older adults among the Malays and to a lesser extent among the Chinese (who had less immigrants than other non-indigenous groups) was probably associated with higher mortality within this age groups, but for the rest of the communities, it might be related to the nature of immigrant population which is usually males preponderant.

As for the other category of marital status, the widowed, separated and divorced, their percentage on the whole increased with age and it was also higher among females than among males for all ethnic groups; the few exceptions were the Indians in the 55-59 age group and the group of Others in the 20-29 and 60-64 age groups as well as those above 70 years of age. For the Muslims, divorce rates have been very low and cases of separated couples are not at all common among them. Therefore as mentioned before, most probably it was the widowed that largely contributed to the percentage of this category. The high percentage among Malay females was most probably due to high mortality among Malay males at older ages, thus leaving a relatively higher percentage of widowed females.

5.6 MUSLIM MARRIAGES

Due to lack of pertinent data on marriages, except for 1983⁶, it is not possible to calculate the trend in the median age of marriage for all brides and grooms. Data is, however, more available for Muslim marriages⁷. Computation of this data quinquennially reveals changes in the trend of median age of Muslim brides and grooms between 1965 and 1980, as well as the latest available figure for 1984.

For Muslim brides, the median age was 18.9 years in 1965; this shifted to 22.6 years by 1984; the equivalent ages for Muslim grooms was 23.8 years and 24.1 years respectively. The shift into later age of marriage was obviously greater among Muslim females than among Muslim males (Table 5.12).

The median ages of marriage for all brides and grooms (that is including non-Muslims marriages) in 1983 were 22.7 and 25.5 years, only slightly older than that of Muslims, 22.3 years and 24.7 years respectively. This was in fact comparable with that of Kuwait, whose median age of marriage for females in 1982 was 20.8 years and males, 25.6 years (calculated from *Demographic Yearbook*⁸).

The key factors in the shift to later marriage for the Muslims, were increased literacy and level of education; but for females specifically, it was more attributable to their changing social status. Many indications (Chapter Six) suggest that a

TABLE 5.12 MEDIAN AGE OF MUSLIM BRIDES AND GROOMS, 1965-84

Age Groups	1965		1970		1975		1980		1984	
	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms
All Ages	409	409	546	546	815	815	945	945	1,266	1,266
Under 15	6	-	7	-	7	-	13	-	9	13
15-19	192	23	251	45	273	59	225	159	252	146
20-24	92	173	214	242	347	382	454	412	605	513
25-29	24	77	37	155	108	232	194	243	277	411
30-34	14	24	12	54	40	74	35	78	76	101
35-39	10	15	11	14	20	21	10	26	30	36
40-44	6	8	6	11	11	18	8	7	5	12
45-49	2	6	2	10	6	7	3	9	8	7
50-54	3	4	2	5	2	10	-	4	5	11
55-59	-	3	-	3	1	6	-	2	-	5
60-64	-	8	2	2	-	6	-	1	-	7
65-69	-	1	2	2	-	-	3	-	-	2
70+	-	-	-	3	-	-	-	3	-	2
Unknown	60	67	-	1	-	-	-	1	-	-
Median Age	18.9	23.8	19.9	24.2	21.3	24.1	22.1	23.3	22.6	24.1

Sources: *Brunei Statistical Yearbook, 1975/76, pp. 22-24;*
Brunei Statistical Yearbook, 1983/84, pp. 23-24.

growing number of them particularly young adults have become less contented with the prospect of becoming mere housewives, and seek employment after leaving school, thereby delaying marriage. The other reason was of course, to get extra cash. But one point worthy of note is that the trend of later marriage among the Muslims has been accentuated by the disappearance of arranged marriage.

5.7 RELIGIOUS COMPOSITION

Islam had spread to the islands of South-east Asia in the thirteenth century, and by the fifteenth century Brunei was already a powerful Islamic kingdom. As a Muslim state, Brunei then played a major role in the propagation of Islam in the region*. Today, Islam predominates throughout the country and it is not only the religion of the majority group of the population but also provides very much the ethics of living of the Malays and the country as a whole.

Demographically, the influence of Islam in Brunei, notably among the Muslim Malays can be said to be considerable, particularly in matters relating to family planning. This is evidenced in the high fertility among the Muslims. Like many Islamic countries, Brunei does not have a population policy. This might be partly because Islam does not encourage population control and partly because the present problem of manpower shortage. Therefore the question regarding family size is left

to peoples' discretion. Abortion is not legal in Brunei because it is prohibited in Islam, except perhaps when mother's life is at risk. In addition, Brunei does not have official family planning and unlike other countries in the region where private or voluntary bodies exist and function in family planning matters, such organizations do not exist in Brunei.

A survey has not been conducted yet in Brunei to investigate matters like the attitude of Muslims towards family planning, but it is most probable that for many, the religion does influence their decision regarding family size. This is evidenced (Chapter Three) in the higher birth rates among the Malays than other non-Muslim races in the country, though other indications seem to suggest that younger and working couples are in preference for smaller family size, thus the adoption of child-spacing or birth control means; this perhaps explains the recent fertility decline in Brunei.

5.7.1 Populations Of Different Religions

Religious composition of the population of Brunei is presented in numbers and percentages in Table 5.13 and Figure 5.8 for the years between 1947 and 1981 (more recent figures are not available).

Since the official religion of Brunei is Islam, naturally it is only to be expected as shown by the Table and the figure that

it has the most numerous followers. However, the proportion of Muslims has declined from 67.1 percent in 1947 to 63.4 percent in 1981. This reflects the increased proportion of followers of other religions, namely of Christianity, whose proportion to the total population increased from 4.3 percent in 1947 to 9.7 percent in 1981. The proportion of the third religious group, conveniently grouped together, increased only until 1960, from 28.6 to 31.7 percent but since then dropped to 26.9 percent in 1981. This was most probably caused by conversion of some of them into Islam or Christianity.

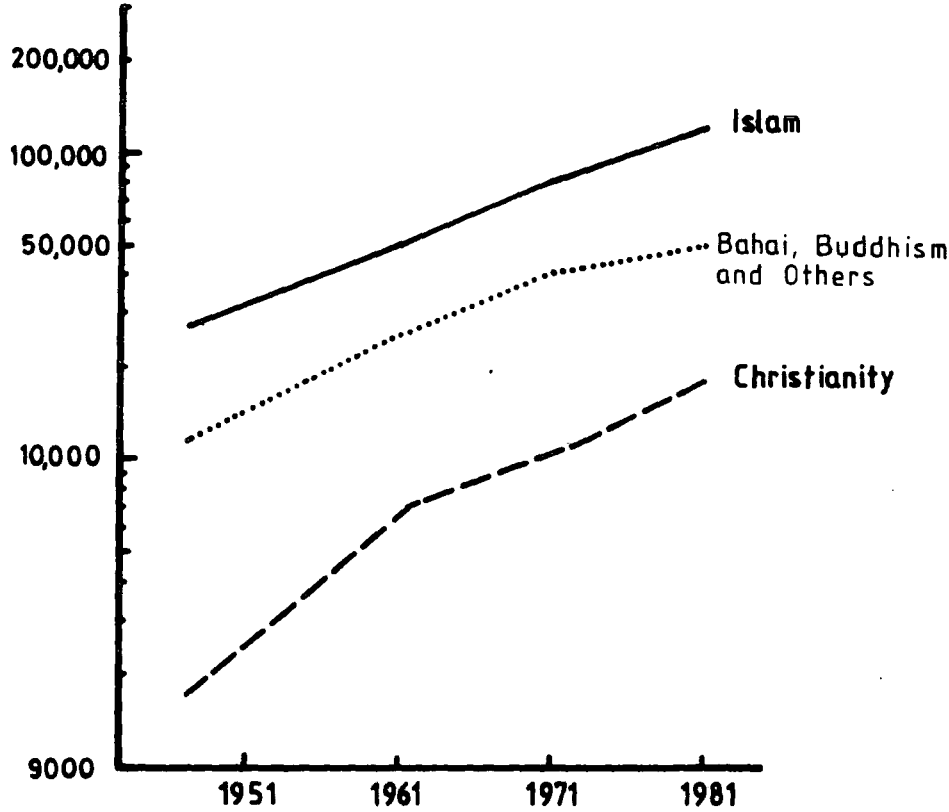
TABLE 5.13 RELIGIOUS COMPOSITION OF THE POPULATION OF BRUNEI DARUSSALAM, 1947-81

Religion	Number				Percentage		
	1947	1960	1971	1981	1947-64	1960-71	1971-81
Islam	27,266 (67.1)	50,516 (60.2)	84,700 (62.2)	122,269 (63.4)	85.3	67.7	44.4
Christianity	1,757 (4.3)	6,796 (8.1)	10,425 (7.6)	18,767 (9.7)	286.8	53.4	80.0
Bahai, Buddhism and Others	111,634 (28.6)	26,565 (31.7)	41,131 (30.2)	51,796 (26.9)	128.3	54.8	25.9
Total	40,657	83,877	136,256	192,832	106.3	62.5	41.5

Sources: *Brunei, Report on the Census of Population, 1971*, p. 52.
Brunei Population Census, Summary Tables, 1981, p. 79.
 Note: Figures in brackets are percentages to total population.

In terms of percentage increase of each of these religious groups, the most spectacular was that of Christianity

**FIGURE 5·8 RELIGIOUS COMPOSITION OF
TOTAL POPULATION, 1947-1981,**



Source : Table 5·13.

between 1947 and 1960, coinciding with the period of highest immigration, thus indicating that the majority of the immigrants were Christians. Simultaneously the percentage increase of Bahais, Buddhists and Others was also quite remarkable; this was also attributable to increased immigration, perhaps specifically from the southern Province of China (for Buddhism) and from Sabah and Sarawak for the rest of the religions.

5.7.2 Residential Differentiation Of Religious Composition

Islam, being the State religion is dominant in all the administrative districts in the country, followed by Buddhism, Christianity and Bahais (Table 5.14 and Figure 5.9). The group of Other Faiths consists of, for example, free thinkers, worshippers of ancestors, and pagan animists.

Belait district has the most followers of religions other than Islam, mainly the effect of the presence of a large number of non-Muslim expatriate workers in the oil industry. In addition, of the total Chinese population in the whole country of 39,461, 17,474 or 44.3 percent of them are found in Belait; most are Buddhists and Christians and a small number of them are worshippers of Other Faiths, including Islam, usually through conversion, either voluntarily or because of inter-marriage.

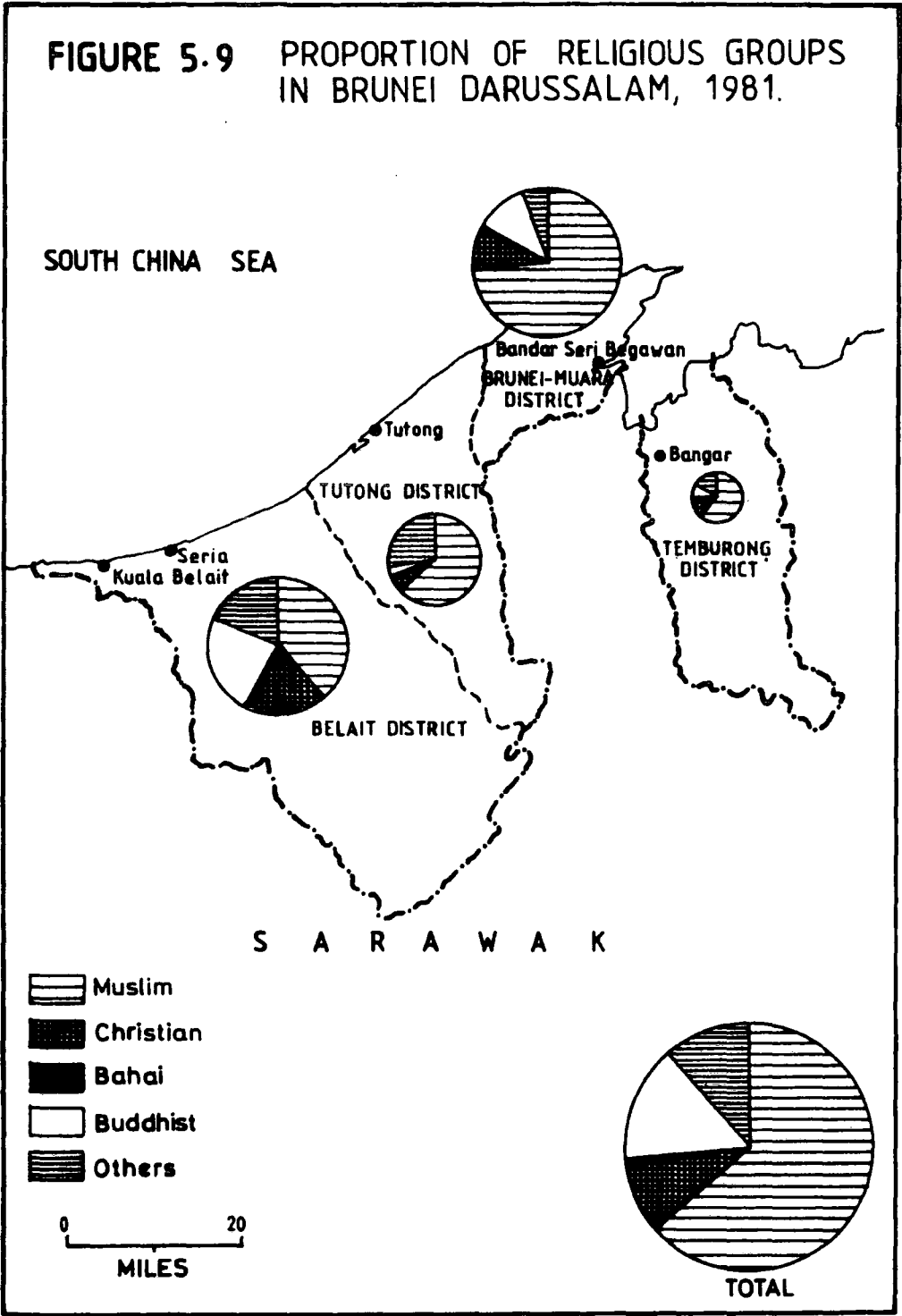
TABLE 5.14 TOTAL POPULATION BY RELIGIONS AND CENSUS DISTRICTS

	1971 (Numbers)						
Districts	Total	Islam	Christ- ianity	Bahai	Buddhism	Others	
Bandar Seri Begawan*	36,987	25,517	2,543	51	6,409	2,467	
Brunei-Muara*	35,804	30,318	1,492	13	2,220	1,761	
Belait	42,383	16,481	5,662	406	9,275	10,559	
Tutong	15,858	9,369	162	33	317	5,977	
Temburong	5,224	3,015	566	7	152	1,484	
Total	136,256	84,700	10,425	510	18,373	22,248	
	1981 (Numbers)						
B.S.B	49,902	34,398	4,072	313	7,747	3,372	
Brunei-Muara	64,329	50,433	4,737	94	6,028	3,037	
Belait	50,763	20,099	8,477	526	11,921	9,745	
Tutong	21,615	13,585	637	11	1,077	6,305	
Temburong	6,218	3,754	844	4	290	1,326	
Total	192,832	122,269	18,767	948	27,063	23,785	
	Percent						
B.S.B	1971	100	69.0	6.9	0.1	17.3	6.7
	1981	100	68.9	8.2	0.6	15.5	6.8
Brunei-Muara	1971	100	84.7	4.2	-	6.2	4.9
	1981	100	78.4	7.4	0.1	9.4	4.7
Belait	1971	100	38.9	13.3	1.0	21.9	24.9
	1981	100	39.9	16.7	1.0	23.5	19.2
Tutong	1971	100	59.1	1.0	0.2	2.0	37.7
	1981	100	62.8	2.9	0.1	5.0	29.2
Tembu- rong	1971	100	57.7	10.8	0.2	2.9	28.4
	1981	100	60.4	13.6	-	4.7	21.3
Total	1971	100	62.2	7.7	0.3	13.5	16.3
	1981	100	63.4	9.7	0.5	14.0	12.4

Sources: Calculated from:

Brunei, Report on the Census of Population, 1971, pp. 98-99
Brunei Census of Population, Summary Tables, 1981, pp. 80-84.

* Make up Brunei-Muara district.



Source: Table 5-14.

In Tutong district, the number of followers of Other Faiths was fairly significant in both 1971 and 1981. This can be explained by the fact that Tutong has quite a sizeable number of Other Indigenous groups, notably Dusuns, the majority of whom are non-Muslims and again, only a small number converted into Islam.

Likewise in Temburong district, followers of Other Faiths are second to Islam, owing to the presence of Other Indigenous groups, notably the Muruts, some of whom are Muslims or Christians but the majority are pagan animists.

In Brunei Darussalam today, Islamic values are being emphasized more than ever before. It is embodied in the national education policy and to be taught in the various level of schools including university. The prime aim is to cultivate the values of Islam particularly to the young members of the Muslim population³.

5.8 CONCLUSION

From the several methods employed in studying the age structure of the total population between 1960 and 1984, it is found that the population was young but is now approaching the intermediate stage. This is signified by the decreasing proportion of population under the age of 15 years, which apparently was the result of declining fertility.

The study of ethnic composition shows that, in general, the Malays are the majority group followed by the Chinese, Other Indigenous, Others and Indians. In terms of age-sex structure, the Malays differ from the rest of the ethnic groups. While the Malays have larger proportion of young people, the other communities have a higher proportion of adults reflecting the influence of immigration. However, there was no significant difference in the proportion males and females.

The sex ratio study reveals that almost throughout the period being studied, the number of males greatly exceeded the number of females. This was also the effect of the presence of a relatively large number of male immigrants, particularly in the capital, Bandar Seri Begawan, where most of the infrastructural developments have been localised and also the attraction of commercial activities; a significant excess of males over females was also the feature of the sex composition of the oil district, Belait; this is only to be expected because the oil industry has been employing a large number of expatriate workers. But the exceptionally high sex ratio in the two rural districts of Brunei, namely Tutong and Temburong is less explicable, except perhaps by the availability of lands on which they engaged in agricultural activities.

With regard to marital composition, there is a growing proportion of single young adults, especially among females. This is most probably related to a growing number of them staying longer in education and getting employment, thus delaying

marriage; this in fact, is reflected in the increasing median age of marriage, particularly among the Malays. As for the married population, there seems to be hardly any change at all. The proportion was higher among males than females. This again might be explained by the influence of immigrants who usually leave their wives and families during the few years of their emigration. The proportion of the third category, widowed divorced and separated, was smaller in both 1971 and 1981 as compared to the single and married population. Divorce has been extremely rare, not only among the Muslims but the total population as a whole. Separate data for each of the third category are not available for the year 1971, to establish which of these three classes of marital status contribute most to the proportion of this category as a whole, but the 1981 figures do indicate that the proportion of this category was largely attributable to widowhood.

Finally, the brief study of the religious composition of the total population between 1947 and 1981 reveals the significance of Islam statistically in that throughout the period considered more than 60 percent of the population were Muslims; though the proportion had been declining slightly between 1947 and 1981 due to the effect of immigrants of various religious beliefs, largely Christians as well as Buddhists, Pagan Animists and free thinkers. Nevertheless today, Islam remains as the religion of the majority population.

REFERENCES

1. Shryock, H. S., et al, (1973), *Methods and Materials of Demography*, U. S. Bureau of the Census, Vol. 1, pp. 233-234.
2. Shryock, H. S., et al, *ibid*, p. 234.
3. State of Brunei, *Report on the Census of Population 1971*, the Star Press, p. 34.
4. Shryock, H. S., et al, *op. cit.*, p. 554.
5. United Nations *Demographic Yearbook*, (1984), p. 158
6. *Brunei Statistical Yearbook*, 1975/76, p. 20-21; 1983/84, p. 22-23
7. United Nations, *ibid*. p. 491
8. Koch, P., (1984), *Brunei Darussalam*, Brunei:Tien Wah Press Limited, p.4.
9. Jamil, Hj., P.O.K.A.D., (1976), *Scheme for the Implementation of a New Education Policy*, Language and Literature Bureau, p. 118.

CHAPTER SIX

RECENT SOCIAL CHANGES IN THE POPULATION OF BRUNEI DARUSSALAM

6.1 INTRODUCTION

This chapter deals specifically with the educational and economic characteristics of the population of Brunei. Although these aspects of population composition are not exactly demographic in nature, nevertheless they have some indirect influences on demographic attributes particularly those relating to nuptiality, fertility and mortality.

The analyses focus on changes in literacy rates, educational levels, and distribution of the working population by industrial and occupational groups during the intercensal years, 1960-71 and 1971-81.

One very important characteristic of Brunei labour force is that it comprises a large proportion of immigrant workers. Unfortunately, investigation into this has to be restricted to 1971 as similar data were not tabulated in the 1981 census. However, data on the working population by residential status (Brunei citizens, permanent residents, temporary residents and others) are utilized by reclassifying them into citizen and non-

citizen workers. This at least may give the approximate amount of the non-national manpower employed in the country.

Fairly detailed introductions to the educational and economic standings are thought necessary to be incorporated. The literature on education is imperative because it serves to provide general insights into the development of education in Brunei. Description of the Brunei economy, particularly the role of the hydrocarbon industry, is also quite indispensable due to its impact on the socio-economic changes. It is the revenues from oil and gas that have enabled the government to embark on socio-economic infrastructural developments, and in effect have influenced the demographic components, mortality and fertility.

Changes in mortality and fertility as a consequence of improvement in educational and economic characteristics are only dealt with briefly in this chapter. A detailed study of them is confined to Chapters Two and Three respectively.

6.2 EDUCATIONAL CHARACTERISTICS

Brunei, like other developing countries, has long acknowledged education as the key factor in the development of human resources on which the country's economic and social progress depends. The realisation of the importance of education on the part of the government led to the introduction of an enactment before the Second World War which made school

attendance compulsory for children above six years of age; a nominal fee of five dollars was levied to those parents who failed to comply with this enactment'.

However, unlike England and Wales for example, where compulsory education means that all school-aged children (between the ages of five and sixteen years) are required by law to receive education², the enactment of compulsory education in Brunei did not specify the number of years children should be attending school or any other forms of receiving education. Nonetheless, the response of parents to date has been so great that compulsory education in Brunei has never been pursued with the full force of censure, and its objective in educating the basics to children remains.

Although the enactment of compulsory education before the War was almost defunct, the 1972 Education Commission Report as maintained by the fourth and sixth policy statements entailed elements of compulsory education whereby school children are technically required to attend primary and secondary schools for a total period of nine years³.

In attempting to survey the educational status of Brunei, the following measures are used: 1) literacy, 2) school enrollment, and 3) level of education of the population.

With regard to literacy, while the United Nations Population Commission proposed a definition of literacy to be,

"all those persons who can both read and write a simple message with understanding in any language are classified as literate"⁴,

in Brunei in the 1971 census, literacy was defined as,

"the ability of a person to read and write a simple letter or to read and understand a paragraph in a newspaper column in one or more languages"⁵.

In addition , it was assumed that to acquire the minimum literacy level, a person should at least have attended three years of full-time education which in other words means at least an attainment of primary four level of education in any language. An age limit of nine years was imposed so as to establish a certain uniformity. This particular age limit was chosen because in the context of the Brunei education system, a person in general would not complete three years of full-time schooling before the age of nine.

It should be mentioned here that in Brunei, education from the primary level to university level has been provided free to all citizens of the country. Non-citizens pay only very small fees and in general they enjoy much of the privileges of free education given to the citizens of Brunei.

6.2.1 Literacy Rates of the Total Population Aged 9 Years and Over

The take-off period for literacy in Brunei began during the post-war years and since then increased dramatically, particularly in the 1950s and 1960s. This reflected the fact

that the importance of education gained acceptance in the minds of the society as a whole. Thus as can be seen from Table 6.1 and Figure 6.1 the percentage of literacy increased 18.1 percent during 1931-1947, by another 21.8 percent in 1960 and by 21.6 percent by 1971. In the last census, 1981, it was found that 80.3 percent of the total population aged 9 years and over was literate.

TABLE 6.1 PERCENTAGE OF LITERACY OF THE TOTAL POPULATION AGED 9 YEARS AND OVER

Census Years	Percentage of Literacy
1931	2.0
1947	26.1
1960	47.9
1971	69.5
1981	80.3

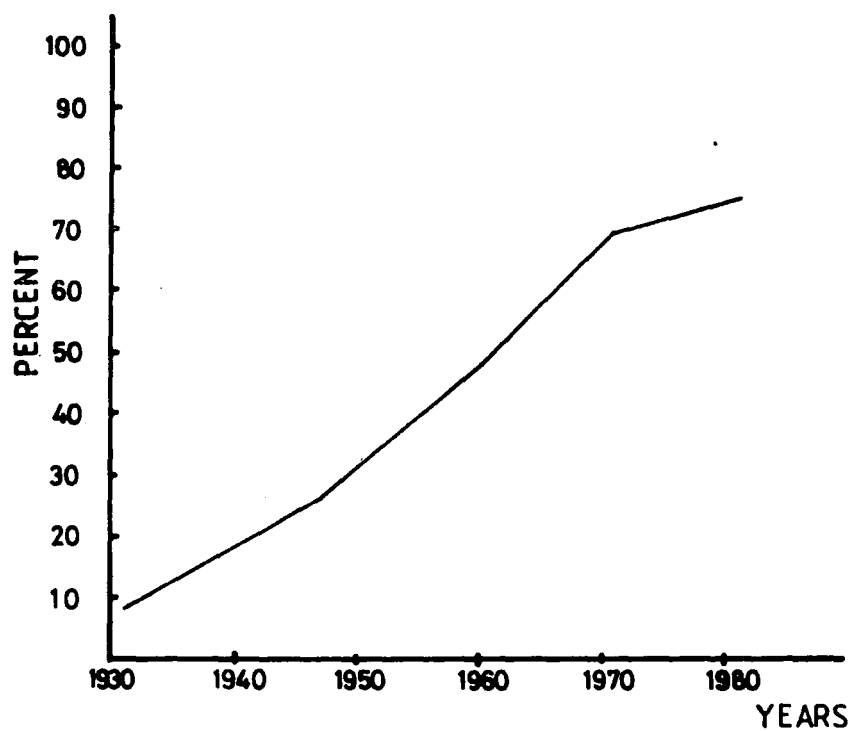
Sources: Calculated from;

Brunei, Report on the Census of Population, 1971, p. 48;

Brunei Population Census, Summary Tables, 1981, p. 118.

This remarkable increase in literacy could not be achieved solely from the realisation by the government that the development of human resources plays a crucial role in the economic and social progress of a country and that making the population literate and providing them with education are the necessary steps towards achieving such development. Instrumental to the success was the wealth derived from oil which has

**FIGURE 6.1 THE GROWTH OF LITERACY
OF TOTAL POPULATION AGED
9 YEARS AND OVER, 1931-81.**



Source: Table 6-1.

undoubtedly helped the government tremendously in its endeavour in increasing literacy and raising the standard of education of the population.

Since the post-war years, the number of students in various levels of education increased from 28,310 in 1965 (earlier figures are not available) to 46,219 in 1975 and to 61,932 in 1984⁶. In order to cater for this rapid increase of school population, the government has taken the responsibility of recruiting a great number of teachers from abroad as well as training the locals for the teaching profession at the different school levels. The number of government school buildings has also multiplied tremendously (from 97 in 1961 to 289 in 1984)⁷ to cater for the increasing number of students. All these mean that government's expenditure on education inevitably has been increasing in a progressive manner. In 1973, government's expenditure on education amounted to 28 million dollars; by 1982, the expenditure had gone up to 134.6 million dollars⁸.

Literacy among the older age groups has also been raised since the government introduced the Adult Education Programme in 1968. In that year, an overall enrollment was 6,347 students, but by 1978 the number of students had steadily increased to 14,163; since then, however, it has reduced to 9,094 in 1984. The aim of Adult Education Programme was not only to raise literacy among this group of people but also to increase the level of knowledge and the academic standards as well as to

prepare students for professional and semi-professional examinations.

TABLE 6.2 LITERACY RATES PER THOUSAND POPULATION AGED 10 YEARS AND OVER BY AGE GROUPS

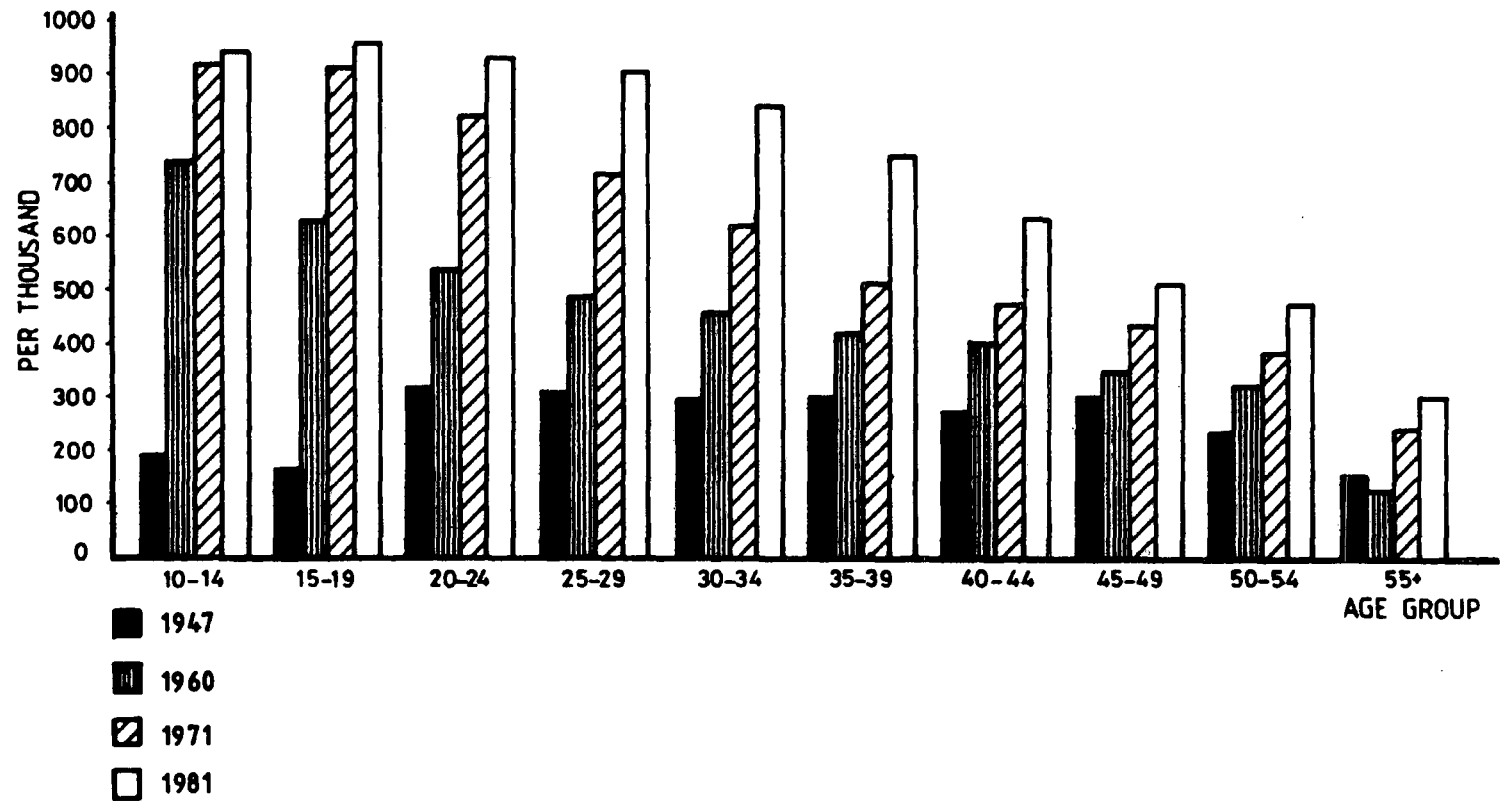
Age-Groups	1947	1960	1971	1981
10-14	191	743	924	943
15-19	265	620	912	955
20-24	332	537	817	921
25-29	302	482	717	905
30-34	289	459	623	843
35-39	298	422	513	744
40-44	272	397	476	637
45-49	292	344	434	511
50-54	225	318	381	477
55+	153	131	241	303

Sources: Calculated from:

Brunei, Report on the Census of Population, 1971, p.48;
Brunei Population Census, Summary Tables, 1981, p.118.

Table 6.2 and Figure 6.2 demonstrate a more detailed picture of improvements in literacy of the population aged 10 years and over for the period 1947 until 1981. It shows clearly that the literacy rates were much higher in the lower age groups than in the higher age groups. This was due to universal school attendance which began in the late fifties and early sixties. In 1947, the 10-14 age-group showed a lower literacy rate than it should be because formal education ceased during the War and children began schooling at a much later age after the War. For the age-group of 45 and over, improvement in literacy rates was rather slow even until the present time. This was caused by the

FIGURE 6.2 LITERACY RATES PER THOUSAND POPULATION BY AGE GROUP 1947-81.



Source: Table 6-2.

fact that when school attendance and thus education in general became universal in the fifties and sixties, they were no longer at school age and therefore they only benefited from the Adult Education Programme.

In order to eliminate the effect of immigration on the high literacy rates of the population of Brunei, it is worthwhile to differentiate between the literacy rates of Brunei citizens, permanent residents, temporary residents and Others (Table 6.3). It can still be maintained that the literacy rates of Brunei citizens and permanent residents are remarkably high among the 10-29 age-group as compared to non-citizens. The lower literacy rates among the temporary residents and Others might be due to a large number of migrants, the majority of whom were illiterate,

TABLE 6.3 LITERACY RATES PER THOUSAND POPULATION, AGED 10 YEARS AND OVER, BY RESIDENTIAL STATUS, 1981

Age- Groups	Brunei Citizens	Permanent Residents	Temporary Residents	Others
10-14	961	894	865	865
15-19	979	954	857	815
20-24	969	939	831	823
25-29	940	920	849	800
30-34	839	862	852	772
35-39	694	807	810	694
40-44	552	697	803	621
45-49	420	599	732	624
50-54	339	542	682	530
55-59	352	542	622	545
60-64	326	437	571	340
65+	158	319	405	333

Source: Calculated from;

Brunei Population Census, Summary Tables, 1981, pp. 114-117.

and non-skilled manual workers (commonly below 30 years of age) from neighbouring countries who came to Brunei to seek employment, mostly in the construction works. However, from the 30-34 age-group upwards the literacy rates of non-nationals were higher than the nationals, which is not surprising as the majority of these non-nationals have been recruited for employment in Brunei because they are in possession of various qualifications and skills.

TABLE 6.4 NUMBERS AND PERCENT LITERATES OF BRUNEI AND THE GULF STATES, AGED 15 YEARS AND OVER, BY SEX, 1980

Countries	Population		Literates		Percent Literates	
	Males	Females	Males	Females	Males	Females
Brunei*	64,781	53,744	55,179	37,074	85.8	68.9
Bahrain	128,373	79,641	69,037	34,875	53.8	43.8
Kuwait	483,734	314,880	351,251	192,414	72.6	61.1
Oman	321,721	251,382	175,338	43,992	54.5	17.5
Qatar	130,363	43,351	83,289	19,508	63.9	45.0
United Arab Emirates)	540,605	166,775	370,296	98,867	68.5	59.3

Sources: *Brunei Population Census, Summary Tables, 1981*, pp. 40, 119-120;
 U.N., *Demographic and Related Socio-Economic Data Sheets*, ECWA, pp.12,
 92, 124, 140 & 188 (1982),

*1981.

As data on literate population for the Gulf States are available for those aged 15 years and over, similar age groups are calculated for Brunei (rather than aged 10 years and over as

used in other sections above) so as to enable comparison. It can be said that the literacy rates of the population of Brunei aged 15 years and over are higher than most other Third World countries. As revealed by Table 6.4 the percentages literate of males and females were higher than those of the Gulf States³. For males, the difference was less wide between Brunei and Kuwait as compared between Brunei, and Bahrain and Oman. For females, Kuwait also had the least difference in the percentage of literacy, but the greatest disparity in female literacy was between Brunei (68.9 percent) and Oman (17.5 percent). On the whole it is probable that literacy rates in Brunei are among the highest in LDCs. It is not within the scope of this thesis to explore the detailed reasons for such situation; however, among the important explanations are probably the favourable socio-economic conditions of Brunei as compared to many LDCs. As for the Gulf Countries, their lower literacy, especially of females, is most likely related to cultural and religious factors; the latter is more extreme than in Brunei, particularly in matters relating to female status.

6.2.2 Differentials in the Literacy Rates between Urban and Rural Populations

In many countries of the world, especially the Third World, there is in general a wide gap in literacy between the urban and rural populations. Brunei is no exception to this though the gap

may not be as wide as other developing countries of the Third World.

In 1971 the number of literate persons in urban areas was more than double that in rural areas, but the number of illiterates was also higher than that in rural areas (Table 6.5). This is rather unusual. However, one possible explanation is that the number of persons aged 45 years and over in urban areas was much higher (10,705) than the corresponding age-group in rural areas (6,860)¹⁰; these sections of the population did not benefit from school attendance when it was first emphasized during the fifties because they were then already passed school-age. However, over the years some of them may improve in literacy through the Adult Education Programme.

TABLE 6.5 LITERACY OF POPULATION AGED 9 YEARS AND OVER, URBAN AND RURAL AREAS

Years	Urban			Rural		
	Literates (numbers)	Illiterates (numbers)	Literate (percent)	Literates (numbers)	Illiterates (numbers)	Literate (percent)
1971	47,843	16,586	74.3	20,729	13,632	60.3
1981	71,562	15,235	82.1	44,380	13,218	77.1

Sources: *Brunei, Report on the Census of Population, 1971*, p. 118;
Brunei Population Census, Summary Tables, 1981, p. 109.

In 1981, the number of literate persons in urban areas was still much higher than in rural areas. This again is not

surprising as it is always the case that there are more schools in urban areas and therefore children have more easy access to school than those in rural areas. Another reason might be that parents in urban areas are more conscious than those in rural areas of getting their children educated for better job attainment and social life in the future.

In 1971, the difference in the percentage of literacy between urban and rural populations was 14.0 percent, while in 1981 it was only 5.0 percent. In addition, during that 10-year period, the percentage of literate persons in urban areas increased only by 7.8 percent, while that of rural areas was 16.8 percent. All these are indications of a narrowing gap in the disparity of literacy between urban and rural areas.

As mentioned earlier (section 6.1), the government's efforts in attempting to increase literacy and eventually achieve total literacy has begun to show an encouraging success as school attendance and education in general has already gained wide acceptance not only by the people in urban areas but also those in rural areas.

Chandna and Sidhu¹¹ claim that urbanisation and literacy are positively correlated and that while in urban areas, literacy and education are pre-requisites of employment opportunities, in rural areas, agricultural pursuits can be carried out with little skill and education. They also observe that in rural areas, children and other members of the family are needed to help in

agricultural work and therefore they cannot be spared for education. While such observations might still hold some truth for many rural areas in the Third world, they do not apply to rural areas in Brunei. In fact even in rural areas where agriculture still remains the main form of economic pursuit, in general parents have already acknowledged that the acquisition of literacy and a higher level of education is an occupational necessity, and therefore they prefer to send their children to school to get educated rather than keep them off-school to help in agricultural or other forms of self-employed economic activities.

As evidenced from Table 6.5, the gap in the discrepancy of literacy between urban and rural areas is becoming less significant. On the one hand, this has been the result of the government's continuous policy of providing free education to the citizens of the country, and on the other hand, it is due to the great response from the majority of the people who themselves have recognized the importance of being literate and educated. Although their realization has been mainly influenced by better job attainment in the future, it still serves the purpose of the government to develop human resources on which the country's economic and social progress depend.

6.2.3 Differential in Literacy Rates between Male and Female Populations Aged 9 Years and Over

Discrepancies in literacy are not only to be found between urban and rural areas; they also occur between the sexes. In Brunei, though the differences in literacy are no longer significant among younger children and adults, they are still quite common among the older age groups. The cause of this can be traced back about forty to fifty years ago when school attendance and education in general was not yet a necessity especially among the female population. In fact it was only in the late forties and early fifties that school attendance and education became accepted by parents and the government took the responsibility for providing education to the population at large and irrespective of sexes.

Table 6.6 and Figure 6.3 show literacy of population aged 9 years and over according to sex and age groups. From this table, it may be deduced that in all age groups, with the exception of the 10-14 age group the percentages of literacy were higher among males than females. The exception could be due to error committed by respondents, or perhaps because parents categorized their children as literates when in fact they were illiterates.

Secondly, the differences vary greatly with age groups. Between the age groups of 9 and 24, the gap was very trivial, the maximum being only 1.2 percent; between the 25 and 39 age groups, the difference was moderate, with a maximum of only 31.8 percent;

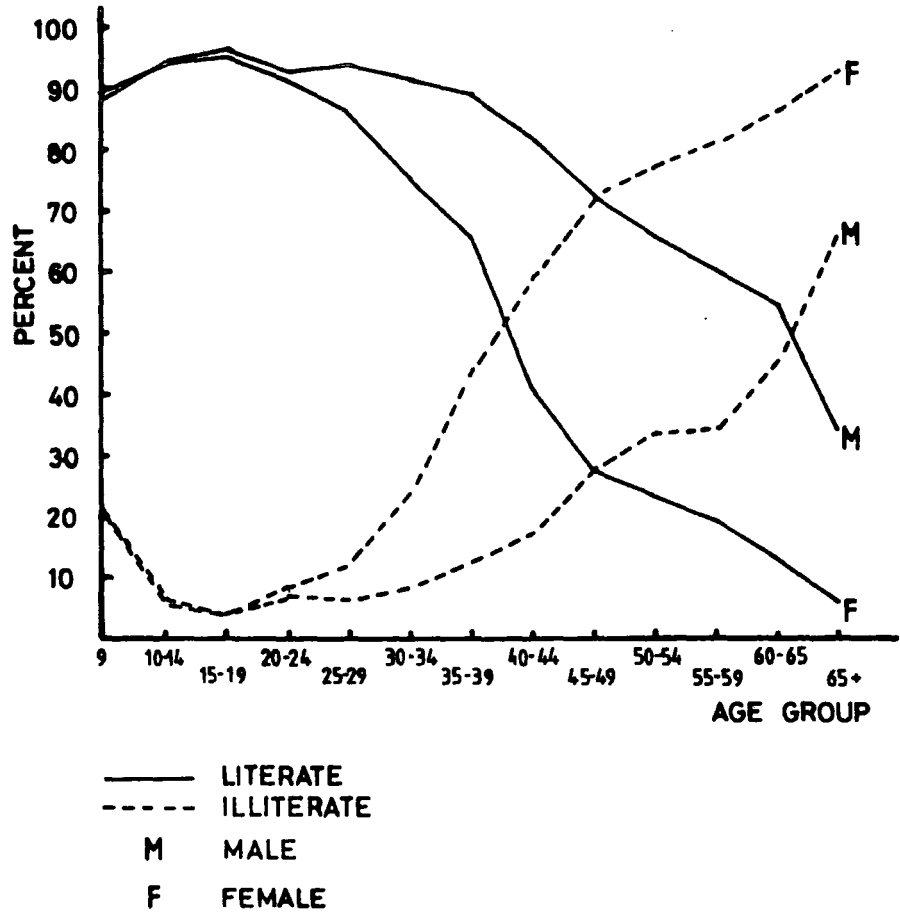
but from the age of 40 years and above, the difference was very significant with a maximum disparity of 45.2 percent. The explanation especially for the older age group is the fact mentioned above that before the War and during the post-war years, it was not common for girls to go to school and therefore school attendance during that period was very much male-dominated. The table and the figure also reveal that the numbers of illiterates were expectedly higher among females than males in all age groups and the difference was significant from the 30 to 34 age groups.

TABLE 6.6 NUMBER AND PERCENTAGES OF LITERATES AND ILLITERATES IN THE TOTAL POPULATION AGED 9 YEARS AND OVER, BY SEX AND AGE-GROUPS, 1981

Age-Group	Male					Female				
	Total (no.)	Literate (no.)	%	Illiterate (no.)	%	Total (no.)	Literate (no.)	%	Illiterate (no.)	%
9	2,346	1,342	78.5	504	21.5	2,216	1,763	79.6	453	20.4
10-14	10,832	10,220	94.4	612	5.6	10,476	9,864	94.2	612	5.8
15-19	10,734	10,271	95.7	463	4.3	9,650	9,180	95.1	470	4.9
20-24	12,313	11,408	92.7	905	7.3	10,332	9,451	91.5	881	8.5
25-29	10,991	10,266	93.4	725	6.6	9,094	7,902	86.9	1,192	13.1
30-34	7,776	7,139	91.8	640	8.2	6,419	4,836	75.3	1,583	24.7
35-39	5,516	4,842	87.8	674	12.2	3,994	2,234	55.9	1,760	44.1
40-44	4,396	3,618	82.3	778	17.7	3,547	1,441	40.6	2,106	59.4
45-49	3,402	2,476	72.8	926	27.2	3,158	873	27.6	2,285	72.4
50-54	2,860	1,892	66.2	968	33.8	2,156	499	23.1	1,657	76.9
55-59	2,128	1,284	60.3	844	39.7	1,573	299	19.0	1,274	81.0
60-64	1,624	887	54.6	737	45.4	1,140	150	13.2	990	86.8
65+	2,886	972	33.7	1,914	66.3	2,620	168	6.4	2,452	93.6
Unknown	152	124	-	28	-	61	41	-	20	-
Total	77,959	67,241	86.3	10,718	13.7	66,436	48,701	73.3	17,735	26.7

Source: *Brunei Population Census, Summary Tables, 1981*, pp.119- 120.

**FIGURE 6.3 PERCENTAGE LITERATE AND
ILLITERATE OF TOTAL POPULATION
AGED 9 YEARS AND OVER, BY
SEX AND AGED-GROUP, 1981.**



Source: Table 6.6.

The difference in the total percentage of male literates and female literates, however, was only 13.0 percent in 1981, because the literacy rates for both sexes have been increasing remarkably since 1960 (Table 6.7 and Figure 6.4). Between 1960 and 1981, the rate of increase was even greater among females than males in particular the 10-19 and 20-29 age groups. This significant increase has been attributable to equal opportunities of school attendance given to both young girls and boys. Prior to the War, it was considered by many to be unusual and also unnecessary for girls to go to school because in those days it was still conceived that girls' appropriate place was at home and their eventual roles were merely as wives and mothers. Perhaps the

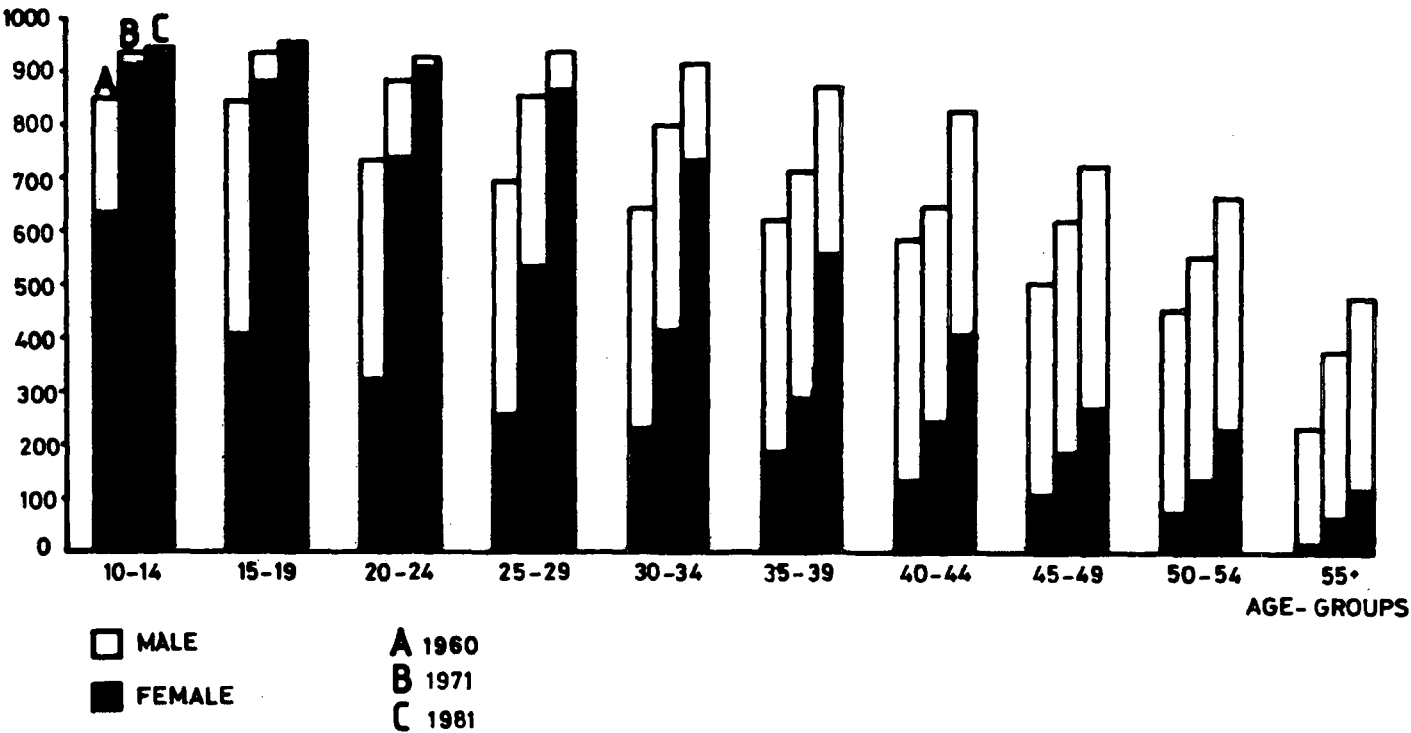
TABLE 6.7 LITERACY RATES PER THOUSAND POPULATION AGED 10 YEARS AND OVER, 1960-81.

Age-Group	1960		1971		1981	
	Male	Female	Male	Female	Male	Female
10-14	850	632	935	912	944	942
15-19	842	407	934	887	957	951
20-24	732	328	883	737	927	915
25-29	693	260	856	536	934	869
30-34	648	232	800	412	918	733
35-39	621	187	716	289	878	560
40-44	589	137	646	243	823	406
45-49	503	108	610	190	728	276
50-54	455	74	554	135	662	231
55+	231	17	378	68	474	116

Sources: Calculated from;

Brunei, Report on the Census of Population, 1971, p. 49;
Brunei Population Census, Summary Tables, 1981, p. 118.

FIGURE 6.4 LITERACY RATES OF POPULATION AGED 10 YEARS AND OVER BY SEX AND AGE-GROUPS, 1960, 1971 AND 1981.



Source: Table 6-7.

most important element of learning for young girls and adult females in general seen as suitable and thus widely acceptable to parents was learning to read the Quran and to write in 'Jawi' (Arabic script). These were taught in mosques by religious teachers or in private houses by literate neighbours who had such ability and knowledge¹².

The literacy rates of older females had not improved very much especially those 45 years of age and above. However, while the difference in the literacy rates was still significant in 1981 in the higher age groups, the gap is narrowing in the lower age groups particularly in the 10-24 age groups. In general, the trend in literacy rates between the two sexes is that of decreasing differences.

6.2.4 Differentials in Literacy between Ethnic Groups Aged 9 Years and Over, 1971 and 1981

The total population of Brunei, as mentioned in Chapter Five is made up of several ethnic groups such as the Malays, Other Indigenous, Chinese, Indians and Others. In such a situation, it is not uncommon to find differentials in literacy rates. Table 6.8 reveals that in both censuses the group of others constituted the most literate group while the Other Indigenous group ranked the lowest. The literacy of the Chinese improved by 7.9 percent in 1981, making them the second most literate ethnic group. The literacy of the Indians on the other hand reduced by 3.9

TABLE 6.8 LITERACY OF POPULATION AGED 9 YEARS AND OVER, BY ETHNIC GROUPS, 1971 AND 1981

Ethnic Group	Total	Literate	Illiterate	Percent Literate
1971				
Malay	61,595	40,862	20,713	66.3
Other Indigenous	6,607	2,409	4,193	36.5
Chinese	25,190	20,341	4,849	80.8
Indians	1,881	1,673	208	88.9
Others	3,571	3,287	230	92.1
1981				
Malay	90,113	71,853	18,260	79.7
Other Indigenous	11,825	6,159	5,666	52.1
Chinese	32,114	28,473	3,641	88.7
Indians	4,911	4,173	738	85.0
Others	5,432	5,284	148	97.3

Sources: *Brunei, Report on the Census of Population, 1971*, pp. 119-122;
Brunei Population Census, Summary Tables, 1981, pp. 110-113.

percent between 1971 and 1981, ranking them third in the percentage of literacy by ethnic groups. As for the Malays, though their literacy rates were lower than the ethnic groups mentioned above in both censuses, the improvement was tremendous, which was an increase 13.4 percent higher in 1981 than in the previous census. Similarly, the literacy of the Other Indigenous group also improved remarkably, being 15.6 percent more in 1981 than in 1971.

It is not surprising at all to find the group of Others ranked top in the literacy rates compared to the rest of the ethnic groups. The majority of these people are foreign workers with various qualifications and professional skills, who have

been recruited for employment in Brunei to help reduce the labour shortages, a problem which the country has not yet been able to overcome.

The relatively high literacy rates of the Chinese and the Indians in comparison with the Malays was presumably because the majority of the Chinese and the Indians live in urban areas and therefore have easy access to schools. As for the Malays, despite the provision of free education they still rank low in the literacy rates. One reason might be that the number of Malays living in rural areas was larger than other ethnic groups. Therefore in such areas where transportation and communication was probably still difficult, parents might delay in sending their children to school. Indeed it is not uncommon to find that children in certain parts of rural areas start schooling at a later age than those in urban areas. Another reason might be that people in the higher age groups were less interested for one reason or another to become literate if not educated through the government's Adult Education Programme introduced in 1968. These people therefore remain illiterate.

The Other Indigenous ranked as the least literate group and this might be explained by the fact that the majority of this group were uneducated and live in rural areas, and therefore the above reason given for the Malays might apply to them. In addition, since the majority of them were uneducated rural people, they were less awakened as to the necessity of sending

their children to school and the importance of education in general.

In other Third World countries where ethnic diversity exists, discrepancy in literacy among the various social groups might be caused by the disparity in their social and economic status. In Brunei with the exception of the group of Others, it is rather difficult to pin-point with certainty the actual cause for the differences in the literacy rates between the Malays, Chinese and the Indians because education has been provided free to all citizens and only a small fee imposed on non-citizens.

On the whole, however, the differences in literacy between these communities are narrowing. This is evidenced when comparing the literacy rates between 1971 and 1981 which showed that literacy among the Malays and Other Indigenous increased faster than the group of Others, Chinese and Indians.

6.2.5 Level of Education of Population Aged 9 Years and Over

According to the latest census, 1981, more than three-quarters of the population aged 9 years and over were recorded as literate. This was an increase of 72.3 percent from the 1931 level (see Table 6.1). It is in fact the aim of the government not only to eliminate illiteracy but also to raise the level of education which will lead to better educational attainments of the population which it views as crucial to the social and

economic development of the country. Indeed, one of the aims of the government manifested in the 1962-68 National Development Plan was,

"To develop an adequate and comprehensive national system of education comprising all level of education from primary to adult which will ultimately eliminate illiteracy and provide training of an adequate supply of teachers at all levels and training in trades, arts, crafts, technical skills and commercial subjects"¹³.

In addition, in the 1980-84 National Development Plan one of the aims was,

"To develop and improve the national system of education from kindergarten to university level with special emphasis on the technical and vocational levels which are inter-related to the development of agriculture and industries"¹⁴.

Furthermore, in the latest National Development Plan, 1986-1990 two of the government's long-term objectives are,

"To improve the quality of life of the people and also to foster a dynamic, disciplined and responsible society with its citizens as agents for progress and development"¹⁵.

Today, the success of these aims has already been witnessed to some extent. Unfortunately, it is not possible to incorporate in the study the educational attainment of the population due to insufficient data relevant to such investigation. It is however, possible to comprehend the recent trend of the population attending and ever attended any educational institution at different levels of education. This may serve to give an approximate picture of the number of years of some proportions of the population spent in schooling.

TABLE 6.9 NUMBERS AND PERCENT DISTRIBUTION OF SCHOOL ATTENDANCE OF POPULATION, AGED 5 YEARS AND OVER, BY SEX AND LEVELS OF EDUCATION, 1971 & 1981

	1971						1981					
		Ever-Attended		Attending			Ever-Attended		Attending			
	Total	Male	Female	Male	Female	Total	Male	Female	Male	Female		
Primary	49,326	14,059	6,694	14,946	13,627	63,949	18,270	10,801	18,147	16,731		
Secondary	25,801	9,840	5,213	5,671	5,077	49,185	19,320	13,343	8,079	8,443		
Higher Education	3,663	2,225	758	459	221	19,324	9,620	5,784	2,238	1,682		
Not Stated		236	3	-	-	959	684	249	8	18		
No schooling	35,652					30,805						
Children 0-5	21,814					28,610						
Total	136,256	26,360	12,668	21,076	18,925	192,832	47,894	30,177	28,472	26,874		
	Percent of Population	Percent of Ever-Attended		Percent of Attending		Percent of Population	Percent of Ever-Attended		Percent of Attending			
Primary	36.2	53.3	52.8	70.9	72.0	33.1	38.2	35.8	63.7	62.3		
Secondary	18.9	37.3	41.2	26.9	26.8	25.5	40.3	44.2	28.4	31.4		
Higher Education	2.7	8.4	6.0	2.2	1.2	10.0	20.1	19.2	7.9	6.3		
Not Stated		1.0	-	-	-	0.5	1.4	0.8	-	-		
No Schooling	26.2					16.0						
Aged 0-4	16.0					14.8						
Total	100	100	100	100	100	100	100	100	100	100		

Sources: *Brunei, Report on the Census of Population, 1971*, pp. 165 & 168;
Brunei Population Census, Summary Tables, 1981, pp. 159 & 164.

From Table 6.9 , several important points may be deduced. Firstly, in both 1971 and 1981, the proportion of the population ever attended any educational institutions was greater at primary level of education, hence heavily represented by younger age groups. In Brunei the relevant ages are between 5-6 years and 11-12 years. This is not unusual for Brunei nor other countries where universal education is practised. The proportions of those in the secondary and higher education were lower.

Secondly, the percentage of primary school attendance in 1981 decreased to 33.1 from 36.2 in 1971. One possible explanation was the declining proportion of children reaching primary school-age. In secondary education there was a marked improvement in the percentage of attendance, an increase from 18.9 in 1971 to 25.5 percent in 1981. But surge in the percentage in higher education was greater than in other levels. Similarly, the proportion of those with no schooling declined significantly, from 26.2 to 16.0 percent during the same period.

Thirdly, regarding the section of population ever-attended schools during both censuses, the pattern of distribution appears to be similar in that the proportion was greater at primary levels, amounting to more than half for both sexes in 1971, though by 1981, the proportion was significantly lower. Expectedly, the proportion of those having secondary education was improving by more than double in terms of numbers but only a modest increase in percentage terms. The more dramatic change was the expansion in the student population in higher education

of which the increase was four-fold for males and almost eight times greater for females. In consequence the percentage for males increased from 8.4 to 20.1 percent, and the corresponding figures for females were 6.0 to 19.2 percent.

Fourthly, the distribution of student population attending schools, colleges and universities at the time of the censuses show a similar pattern to those ever-attended educational institutions. Thus in both years, the proportions of males and females in the primary level were highest with nearly one third of student populations in all levels of education. As anticipated, the proportion of those attending higher education was considerably lower, but the numbers and thus the proportion signify a rapid increase. For males, the increase was from 2.2 to 7.9 percent, and for females it was from 1.2 to 6.3 percent. The increase in the percentage of those in secondary schools for both sexes was less significant.

Finally, one feature worthy of emphasis from the table is that in general, the proportion of females lagged behind that of males, but the gap was probably relatively small as compared to other oil-rich Muslim countries.

In comparison between Brunei and other selected countries in the region as well as some of the Gulf States, it can be seen that the gross enrollment ratios of Brunei at primary level compared favourably with those of other countries, considering that social development of these countries in general started

earlier than Brunei (Table 6.10). For secondary education, the ratios for Brunei was also higher than some of these selected countries, such as Malaysia, Indonesia, Philippines, Thailand and Oman. The same can be said for higher education in which the ratio for Brunei was better than Malaysia, Singapore, Indonesia and the United Arab Emirates but lower than the Philippines and Thailand.

TABLE 6.10 GROSS ENROLLMENT RATIOS BY LEVEL OF EDUCATION (expressed as a percentage of age group) IN ASEAN COUNTRIES AND THE GULF STATES, 1981

Age groups	Total	Primary		Secondary	Higher Education
	-----	-----		-----	-----
		6-11		12-17	20-24
		Male	Female	Both	Both

Brunei*	66	115	110	66	10
Malaysia	192	94	91	53	5
Singapore	104	106	103	65	8
Indonesia	100	106	94	30	3
Philippines	110	111	108	63	26
Thailand	96	95	93	29	20
Kuwait	94	96	93	76	14
Oman	74	90	57	22	-
United Arab Emirates	127	127	127	61	4

Sources: World Development Report (1984), *Population Change and Economic Development*, pp. 184-85;

* *Brunei Statistical Yearbook*, 1980/81, pp. 94-103.

Note: Although primary-school age is generally considered to be 6-11 years, secondary, 12-17, and higher education, 20-24, the differences in country practices are reflected in the ratios given. The gross enrollment ratios for countries with universal primary education may exceed 100 due to some pupils are below or above the official primary school-age (World Development Report, 1984, p. 191).

Until 1984, Brunei had no educational institution higher than sixth form, technical and teacher training colleges and therefore the government has been sending Brunei citizens to educational institutions overseas, particularly to the United Kingdom for further studies and the acquisition of higher academic and professional qualifications. According to the British Council Statistics, in 1974-75 there were over 390 Brunei citizens studying in various universities, polytechnics and public sectors in the United Kingdom. In 1980-84, the number had risen to 1,157¹⁶.

In general Brunei has been progressing well as far as literacy rates are concerned. As for the level of education, the proportion of those in the secondary education is still relatively low and desperately lower in higher education. But an increasing trend can be expected, particularly among the citizens, as Brunei continues with the policy of free education at all levels, including further studies abroad.

6.3 ECONOMIC CHARACTERISTICS

Since Brunei's economic growth and its viability depends almost entirely on its petroleum, it is appropriate to consider the significance of the hydrocarbon industry. The search for oil by many foreign companies dates as far back as the turn of the century, but successful discovery hence production began only in

1929 when Shell Petroleum Company discovered oilfields onshore of Seria. This soon superseded agriculture as the mainstay of the economy. The Seria oilfields were producing 17,000 barrels per day in 1940 and by 1950 production rose to 254,000 b/d¹⁷. By 1979 the average crude oil production reached a peak which amounted at 261,000 b/d. But owing to the need to rationalise production in order to prolong reserves, and because of the prevalent situation of overabundance of oil supply in the worlds market, Brunei reduced production to an average of 172,000 b/d in 1984¹⁸.

In addition to oil, Brunei has also produced natural gas since 1972 and since 1983 the average output of natural gas has remained roughly constant, at about 900 million cubic feet per day. Today natural gas accounts for 40 percent of total output earnings of Brunei and by world standards, she ranks as the fourth largest exporter of natural gas.

In terms of earnings, revenue from crude petroleum and gas rose from B\$900.3 million in 1974 to B\$4,659 million in 1984 but fell to B\$4,017 million (estimated figure) in 1985 due to reduction in output. In 1984, oil and gas together accounted for 94 percent of the total revenue received by the State; Thus these two natural resources have been responsible for Brunei's continuous balance of trade¹⁹.

Brunei's gross domestic product (GDP) measured at current prices reached a peak of US\$4,848 million (\$25,000 per head) in 1980. However, falls in petroleum production and prices caused GDP to decrease in subsequent years. Nevertheless, in terms of average income, Brunei remains one of the world's richest countries. As estimated by the World Bank, in 1983, Brunei's gross national product (GNP) measured at average 1981-83 prices was US\$21,140 per head, the third highest level in the world²⁰. Thus although by world standards Brunei is not a major producer of oil and gas, its relatively small population and the development in the hydrocarbon sector have enabled its inhabitants to enjoy a very high level of material prosperity.

During the 1973-82 decade, government revenue increased by almost twenty-fold while expenditure increased by only about six-fold over. A very substantial surplus of revenue over expenditure therefore began to accumulate from mid-1970 onwards. In 1981, the surplus had grown to more than B\$6 billion which was equivalent to 80 percent of government's revenue that year²¹. These surpluses have enabled the government to acquire substantial investment overseas, which by 1982 amounted to B\$25 billion. It has been estimated that by 1992, the real value of government's net assets should be more than double. In terms of economic strategy, one alternative to Brunei is to become a rentier economy, as Brunei's overseas investments should be capable of providing a comfortable income for its relatively small population²². However, a country based on such an

economic strategy would render itself to high risks, for instance becoming

"extremely vulnerable to disruptions of food supplies, and to the seizure by foreigners of overseas assets. Equally the domestic culture and value system would be unlikely to withstand easily the change in life-styles that transition to a predominantly 'workless' society would involve" .

The government therefore believes that a strategy of economic diversification is necessary to provide the country with economic security against unfavourable external events and also as an alternative strategy when oil and gas finally run out.

6.3.1 Working Population

As evidenced in recent years, there have been difficulties in maintaining the oil production quota by some OPEC member countries. Consequently there has been a move by industrialised countries towards energy conservation programs and also making available alternative sources of energy. It is therefore expected that oil prices will remain uncertain in the world market and since Brunei's economy has always been dependent on its hydrocarbon industry, such a situation clearly signals immediate action for implementing the policy of diversification which has been adopted but without much success in the previous few National Development Plans of the country (1962-68; 1975-79; 1980-84) and in the most recent one, 1986-90. One of the key problems has been manpower shortages.

According to the study made by the British Council in the preparation of Brunei Manpower Masterplan,

"the Brunei labour force market is overheated , with excess demand for all categories of labour ... indicated by vacancy rates in the public sector ; by number of vacancies notified to the Employment Exchange and advertised in the press; and by the number of foreign workers employed in the State which amounted to 36 percent of the total labour force according to the 1981 census"²⁴.

As mentioned earlier, Brunei has a small population size, approximately 136.3 thousands in 1971, and 193.8 thousands in 1981 and according to the mid-1984 estimate, 215 thousands. It also has a large percentage of young people: 43.4 percent of the total population in 1971; 38.5 percent in 1981 and 37.2 percent in 1984. Similarly, the dependency ratio is large though it is declining: 85.5 percent in 1971, 70.6 percent in 1981 and 67 percent in 1984. In addition, the participation of females in the economically-active population is still low (see Figure 6.5). All these leave the country with a small size labour force.

Nevertheless as revealed by Table 6.11, the economically-active population of Brunei is expanding. Within a period of two decades, 1960-1981, the total economically active population surged remarkably by three-fold. In consequence the percentage rose from 55.5 to 59.6 percent. But the most distinctive feature of this change was in the sex differential. Although the absolute increase of active males was more than females (33,200 and 12,660 persons respectively), the percentage increase of 305.2 percent of economically active females was more phenomenal

than that of males which was 160.7 percent (not shown in the table). This resulted in the expansion of economically active females from 20.1 to 31.3 percent, while the percentage of males declined slightly from 86.1 percent to 83.1 percent. The decrease, however, might be only temporary as in 1971 it already began to show a slight increase.

TABLE 6.11 ACTIVITY STATUS OF PERSONS, AGED 15 YEARS AND OVER, 1971 AND 1981

	Persons Aged 15 and Over	Economically Active		Economically Inactive	
	numbers	numbers	%	numbers	%
1960					
Males	23,987	20,659	86.1	3,328	13.9
Females	20,781	4,171	20.1	16,610	79.9
Total	44,768	24,830	55.5	19,938	44.5
1971					
Males	42,663	34,211	80.2	8,452	19.8
Females	34,457	6,888	20.0	27,569	80.0
Total	77,120	41,099	53.3	36,021	46.7
1981					
Males	64,781	53,859	83.1	10,922	16.9
Females	53,744	16,831	31.3	36,913	68.7
Total	118,525	70,690	59.6	47,835	40.4

Sources: *Brunei, Report on the Census of Population, 1971*, p. 58;
Brunei Population Census, Summary Tables, 1981, pp.40 & 187.

The dramatic surge for the females was attributable partly to the social changes, particularly in education and partly to increasing employment opportunities in both public and private sectors. In addition, the growing awareness of the economic

needs have also contributed to the growing number of married women with young families to continue working. Indeed fundamental changes have taken place in the attitude of the society with. Since the last few decades women on the whole have been given equal opportunities in education and the labour force. In general however, the pattern of women's work in Brunei is still fairly conventional such as the service sector (teachers, nurses social workers) and as agricultural labourers for those in the higher age groups. By 1981 females accounted for almost a quarter of the total labour force.

More detailed evidence of the changes in the economically active population is provided in Table 6.12 and Figure 6.5. The highest percentage increase for the total economically active persons was in the 25-29 age group, which was 137.9 percent. The same age group also accounted for the greatest percentage increase in males (106.2 percent) and females (307.4 percent) though with the latter there was significant increase was generally between the ages of 15 and 49 years.

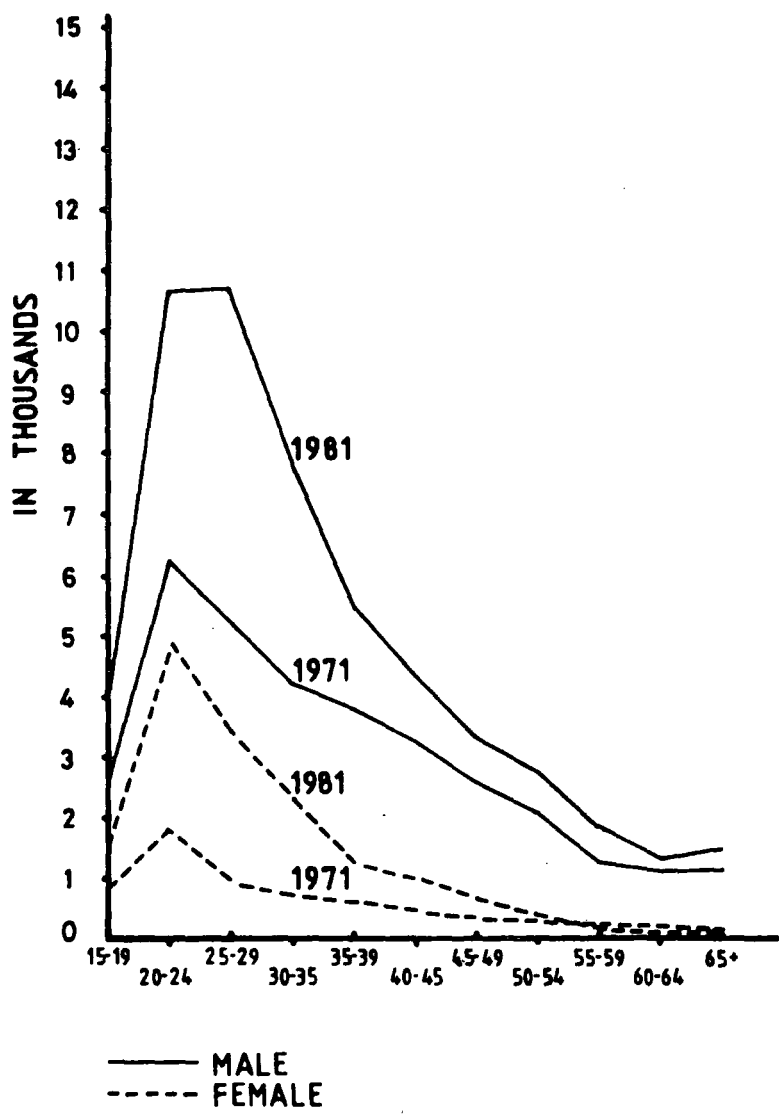
The increasing concentration of participation in the younger age groups was also reflected in the sex distribution of economically active population. For males, the 20-39 age groups provided the bulk of the labour force, totalling 57.1 percent in 1971 and 64.1 percent in 1981. For the female workforce, a total of 50.8 percent was concentrated in the 20-34 age-group and in 1981, it amounted to 66.3 percent. In contrast, the proportion of the 15-19 age groups for both sexes declined,

**TABLE 6.12 AGE-SEX DISTRIBUTION OF ECONOMICALLY ACTIVE
POPULATION, 1971 AND 1981**

Age Groups	1971			1981			Percentage Increase Total Male Female			1971			1981		
	Numbers Total	Male	Female	Numbers Total	Male	Female				Percent Total	Male	Female	Percent Total	Male	Female
15-19	3,585	2,736	849	5,740	4,098	1,642	60.1	49.8	93.4	8.7	8.0	12.3	8.1	7.6	9.8
20-24	7,692	6,197	1,765	15,508	10,639	4,869	94.8	71.7	175.9	19.4	18.1	25.6	21.9	19.8	28.9
25-29	6,153	5,185	968	14,638	10,694	3,944	137.9	106.2	307.4	15.0	15.1	14.1	20.7	19.9	23.4
30-34	5,163	4,398	765	10,037	7,679	2,358	94.4	74.6	208.2	12.6	12.9	11.1	14.2	14.3	14.0
35-39	4,432	3,758	674	6,771	5,456	1,315	52.8	45.2	95.1	10.8	11.0	9.8	9.6	10.1	7.8
40-44	3,750	3,269	481	5,335	4,322	1,013	42.3	32.2	110.6	9.1	9.5	6.9	7.6	8.0	6.0
45-49	3,029	2,631	398	4,061	3,343	718	34.1	27.1	80.4	7.4	7.7	5.8	5.8	6.2	4.3
50-54	2,444	2,108	336	3,200	2,757	443	30.9	30.8	31.9	5.9	6.2	4.9	4.5	5.1	2.6
55-59	1,596	1,364	232	2,119	1,891	228	32.8	38.6	-1.7	3.9	4.0	3.4	3.0	3.5	1.4
60-64	1,351	1,125	226	1,462	1,343	119	8.2	19.4	-47.3	3.3	3.3	3.3	2.1	2.5	0.7
65+	1,352	1,161	191	1,635	1,439	196	22.4	42.5	-18.3	3.3	3.4	2.8	2.3	2.8	0.9
Not Stated	282	279	3	164	138	26	-	-	-	0.6	0.8	-	0.2	0.2	0.2
Total	41,099	34,211	6,888	70,690	53,859	16,831	72.0	57.4	144.4	100	100	100	100	100	100

Sources: *Brunei, Report on the Census of Population, 1971*, pp. 181-82.
Brunei Census of Population, Summary Tables, 1981, p. 181.

**FIGURE 6.5 ECONOMICALLY ACTIVE
POPULATION BY SEX AND
AGE-GROUP, 1971 AND 1981.**



Source: Table 6-12.

particularly females. Most probably this was due to an increasing number of youths staying longer in schools, thus delaying their entrance to the labour force. For those above the age of 35, their percentages were also declining and it seemed that it was more sharply for females above 45 years of age than for males. The main reason may be that at such an age their children should be able to give them financial support, hence staying in employment for economic reason was no longer desperately necessary.

6.3.2 Age-Specific Participation Rates

The age-specific activity rates for the two sexes reflect the fundamental differences in their participation patterns (Table 6.13 and Figure 6.6). With regard to males, their participation shows a high degree of consistency during the two decades, 1960-1981, with high levels of participation between 20 and 55, but at which age the participation started to decline as this is the retirement age. The participation rates of males between 15 and 19 decreased from 43.0 in 1960 to 32.9 in 1971 and increased slightly to 37.9 in 1981, most probably due to an increasing number of youths pursuing further education.

In contrast to males, the overall participation rates of females has been undergoing more significant changes. Not only have their participation rates expanded but there was also a shift in the age groups which participated most in the labour

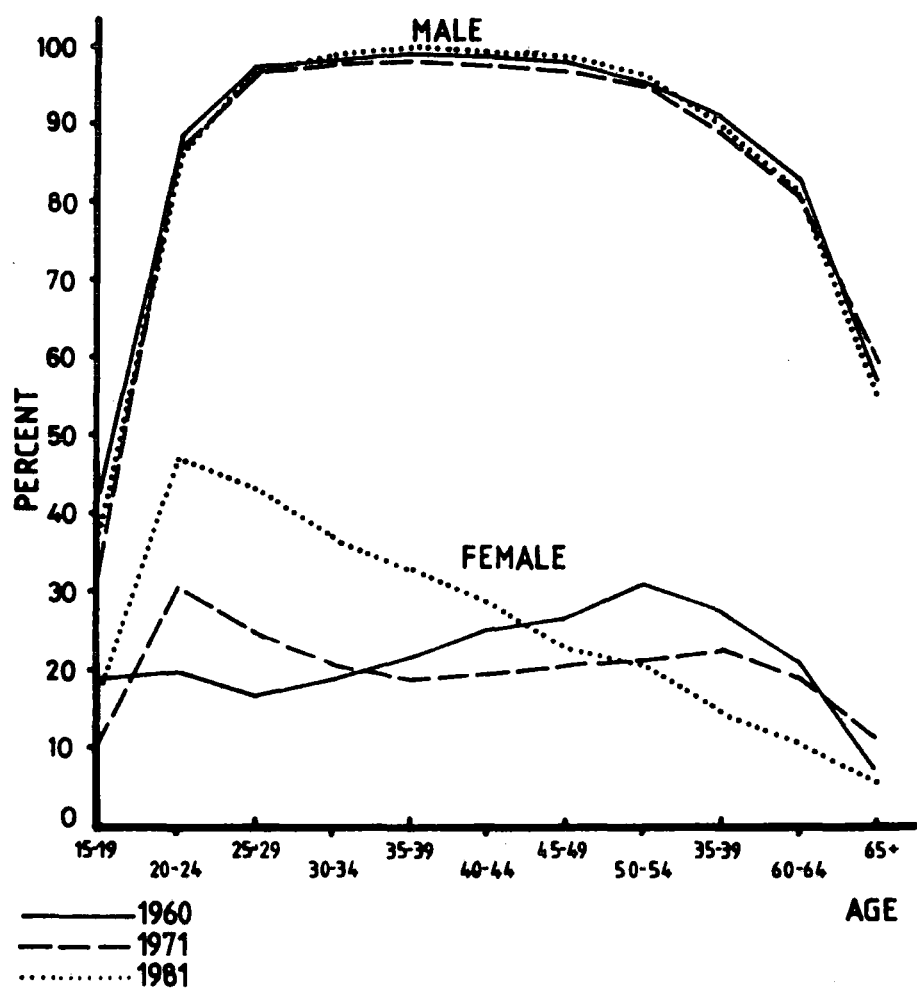
TABLE 6.13 AGE-SPECIFIC PARTICIPATION RATES, 1960, 1971 AND 1981

Age Groups	1960			1971			1981		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
15+	55.5	86.1	20.1	53.3	80.2	20.0	59.6	83.1	31.3
15-19	30.7	43.0	18.8	22.6	32.9	11.3	28.2	37.9	17.0
20-24	54.9	88.5	19.8	61.3	86.6	30.2	68.5	86.4	47.1
25-29	57.5	97.5	16.7	66.1	97.1	24.4	72.9	97.3	43.4
30-34	61.8	97.9	18.5	62.5	97.7	20.3	70.7	98.7	36.7
35-39	63.5	98.7	21.9	60.7	98.0	19.4	71.2	98.9	32.9
40-44	67.1	98.2	25.0	64.5	97.2	19.7	67.2	98.3	28.6
45-49	69.1	98.0	26.4	64.8	97.1	20.3	61.9	98.3	22.7
50-54	72.5	95.9	30.6	64.6	94.9	21.6	63.8	96.4	20.5
55-59	69.0	90.9	27.8	62.2	88.1	22.8	57.3	88.9	14.5
60-64	50.3	82.4	20.7	52.1	80.9	18.8	52.9	81.3	10.4
65+	32.4	56.7	7.7	37.1	58.6	11.5	30.1	55.2	6.0

Source: Brunei Ministry of Finance, (1984), Population and Education, p. 67.

force. Thus 1981 showed a notable increase in participation of younger adult women aged 20-39 as opposed particularly to the situation in 1960 when the participation of women aged 40-64 predominated. One reason that may explain the shift was that during the sixties the agricultural sector employed 57.4 percent of the female workforce most of whom were mainly older adults²⁵. The shift away from the primary to tertiary industries as leading employer, particularly the service sector during the 1971-81 decade, was therefore responsible for the change in the age group of women's participation because employment in this sector demands a certain level of academic qualifications which older adult women could not meet; hence the decline in the participation of older adult women. In the 15-19 age group, the

FIGURE 6.6 AGE-SEX SPECIFIC PARTICIPATION RATES 1960, 1971 AND 1981.



Source: Table 6.13.

rates declined from 18.8 to 11.3 in 1971, but by 1981, they had risen again to 17.0.

On the whole, the character of the Brunei labour force is still male-dominated, although a further contributing factor to this is the presence of a large proportion of predominantly male foreign workers (see section 6.3.7). Females on the other hand, are still under represented at all ages compared to males.

6.3.3 Employment By Major Industrial Sectors

In examining the distribution of manpower, the term 'employed' in the 1971 and 1981 censuses was defined as those persons who worked for more than 15 hours during the week prior to the censuses in any industry including agriculture, or who were employed but absent during the reference week because of illness or injury, industrial dispute, vacation or other absences.

As exhibited by Table 6.14 employment in the private sector exceeded that in the government sector in both 1971 and 1981, but there was a striking increase in the number and percent employed in the government sector; during the 1971-81 decade the number doubled and in consequence accounted for the rising percentage of the total workforce, from 38.9 percent to 46.6. By the mid-1980s they probably accounted for half of the total workforce.

Despite the overwhelming role of the oil and gas industries in the GNP and total exports, their deployment of the manpower

TABLE 6.14 NUMBERS AND PERCENT DISTRIBUTION OF EMPLOYMENT BY SECTORS, 1971 & 1981

Sectors	1971		1981	
	Persons	Distribution	Persons	Distribution
Government Sector	15,578	38.9	31,726	46.6
Private Sector	24,434	61.1	36,402	53.4
- Oil & Gas	2,827	7.1	3,832	5.6
- Non-Oil	21,607	54.0	32,570	47.8
Total	40,012	100.0	68,128	100.0

Source: *Brunei National Development Plan, 1986-90*, p. 10.

has been surprisingly low. For example in 1981, although there was an absolute increase by approximately one thousand workers, their proportion of the labour force declined from 7.1 percent in 1971 to 5.6 percent in 1981. This was, of course, due to the nature of these capital-intensive industries which offered relatively few employment opportunities to local workers. Data are not available to show the ratio of local to foreign workers in these industries but undoubtedly the foreign workers component must be large as the nature of the work involved is highly technical, and as revealed elsewhere in this chapter, the proportion of citizen workers involved in such occupations is small.

In examining the distribution of the total working population by industrial sectors during the intercensal years of 1960-71 and 1971-81, significant changes can be clearly identified from Table 6.15.

The most salient feature of the changes was the immense decline of the numbers and percentages of the working population in the primary sector, in which the number employed was halved during 1960-81, so that it shifted from being the leading industrial sector in 1960 employing 48.6 percent to the least by 1981 with only 10.7 percent of the total working population.

TABLE 6.15 PERCENT DISTRIBUTION OF TOTAL WORKING POPULATION BY INDUSTRIAL SECTORS, 1960, 1971 AND 1981

Industries	1960		1971		1981	
	Numbers	%	Numbers	%	Numbers	%
Primary	12,069	48.6	7,691	19.2	7,298	10.7
Secondary	5,074	20.4	10,927	27.3	17,388	25.5
Tertiary	7,687	31.0	21,324	53.3	43,184	63.4
Unknown	-	-	70	0.2	258	0.4
Total	24,830	100	40,012	100	68,128	100

Sources: *Brunei, Report on the Census of Population, 1971*, p. 71;
Brunei Population Census, Summary Tables, 1981, p. 212.

By contrast, the number employed in the tertiary sector increased nearly six fold, from 7,687 to 43,184 workers. In consequence the percentage employed more than doubled within the two decades, 1960-81. As will be explained in more detail later the considerable surge of the labour force in this sector was caused mainly by the expansion of the service industries especially the community services and commercial activities.

As for the secondary sector, although the number employed increased three fold the trend of increase was more modest and was particularly in the 1960-71 intercensal period; by 1981, the percentage employed had fallen slightly to 25.5 from 27.3 1971.

In general, the changes that had taken place during the 1971-81 decade merely consolidated the shift that had begun during the sixties with expansion in service industries, hence increasing employment opportunities with the traditional sector heading for a decline. Other sectors remained relatively stable.

6.3.4 Distribution Of Male and Female Working Populations By Industrial Groups

In the examination of percent distribution by industrial groups of the total working population in 1971 and 1981, in general the pattern appears to be almost similar in both years (Table 6.16). Services, including teaching, nursing, clerical and social work, dominated the employment of the working population with 37.5 and 38.5 percent in 1971 and 1981 respectively. Falling in second place was the construction industry, while in third place was agriculture, forestry and fishing in 1971 and commerce in 1981. Each of the remaining industries employed 10 percent or less in both years.

Although in both years a larger proportion of males and females were employed in the service industry in relation to other industries, women are more and increasingly represented

TABLE 6.16 PERCENT DISTRIBUTION OF WORKING POPULATION BY INDUSTRIAL GROUPS AND SEX

	1971			1981		
	Total	Male	Female	Total	Male	Female
Agriculture, Forestry & Fishing	11.9	9.8	23.0	5.0	4.7	6.2
Mining & Quarrying	7.3	8.1	3.0	5.7	6.6	2.5
Manufacturing	4.4	4.4	4.4	4.1	4.2	3.6
Electricity, Gas & Water	2.7	3.2	0.4	2.9	3.4	1.2
Construction	20.2	23.6	2.5	18.6	22.9	3.6
Commerce	10.5	9.9	13.6	13.7	12.0	19.8
Transport, Storage & Communication	5.3	6.1	1.4	6.6	7.3	4.4
Services	37.5	34.8	51.7	43.0	38.5	58.2
Not Classified Elsewhere	0.2	0.1	0.3	0.4	0.4	0.5
Total	100	100	100	100	100	100

Sources: Calculated from:

Brunei, Report on the Census of Population, 1971, p. 226;
Brunei Census of Population, Summary Tables, 1981, p. 212.

than men in this industry. More than half of all female workers were engaged in this type of employment. Men on the other hand are more concentrated in the construction industry, which accounted for approximately 23 percent of the male labour force, but less than 4 percent of women. In the manufacturing industry, percentage participation of males and females was similar, but expectedly in mining and quarrying, there were more males than females. Agriculture and fishing was the second largest employer of female workers in 1971, but this was greatly reduced by 1981, though they still accounted for a higher proportion of female

employment than of males. The proportion of male workers in commerce was lower than females in both 1971 and 1981; thus while the percentages for males were 9.9 and 12.0 percent, the corresponding figures for females were 13.3 and 19.8 percent. On the other hand, in the two remaining industries, electricity, gas and water, and transport, storage and Communication, the proportion of males were higher than of females but in each industry both represented less than 10 percent of the total working population.

6.3.5 Immigrant Workers .

As mentioned frequently before, Brunei has a small population and therefore the labour force is correspondingly small. As a result of rapid socio-economic infrastructural developments, particularly those initiated by the government, Brunei has been experiencing manpower shortage. This situation has inevitably forced Brunei to rely increasingly upon foreign workers.

Unfortunately it is not possible to bring forth the most recent figures of the magnitude of immigrant workers working in Brunei. In the *Report of the Census of Population, 1971*, data for immigrant workers by major industrial and occupational groups as well as their regional distribution were tabulated. However, such tabulation was not made in the 1981 Census. Therefore because of the inconsistent data tabulation, the

analyses will be undertaken separately, firstly dealing exclusively with immigrant workers using the 1971 data, and secondly the 1981 figures, which are only an approximation of the proportion of non-citizen workers, who are not exactly immigrants altogether as they include a sizeable proportion of permanent residents. For convenience of analysis and to distinguish national from non-national workers, the data on the working population by residential status (Brunei citizens, permanent residents, temporary residents and others) are reclassified into citizen and non-citizen workers.

The 1971 census revealed that during the 1961-71 decade, 75.0 percent of the immigrant population aged 15 years and over were economically active as compared to the 52.0 percent participation rate for the total population. Thus, out of the total 1971 working population of 40,012, 13,138 or 32.8 percent were immigrants. The high participation rate of the immigrants was expected as the majority of them came as workers for overseas companies engaged in the various development projects undertaken by the State²⁶.

The industrial and occupational groups of immigrants are examined separately because while the former (Table 6.17) may only disclose the distribution of immigrant workers into the various industrial activities, the latter (Table 6.18) can elicit the provision of different skill and expertise in the various occupations to the country's need. In turn this will reflect both the quantity and quality of the local manpower.

TABLE 6.17 WORKING IMMIGRANTS BY MAJOR INDUSTRIAL GROUPS AND DISTRICTS, AND PROPORTIONS TO TOTAL WORKING POPULATION, 1971

Industrial Groups	Census Districts (Percent)					Proportion to Total Working Population (numbers & Percent)		
	BSB*	Brunei- Muara	Belait	Tutong	Temburong	Working Population	Working Immigrants	Percentage
Services	36.1	16.0	40.0	7.3	0.6	15,008	3,808	25
Building & Construction	13.9	24.3	54.2	3.5	4.1	8,090	5,253	65
Agriculture, Forestry & Fishery	16.2	30.2	36.0	12.4	5.2	4,776	630	13
Wholesale & Retail Trade	61.7	12.2	24.0	1.5	0.6	4,189	1,057	25
Mining & quarrying	1.1	6.0	92.4	-	0.5	2,915	803	28
Transport, Storage & Communication	57.7	18.3	1.3	2.1	0.6	2,127	470	22
Manufacturing	29.4	23.3	28.5	15.2	3.6	1,751	892	51
Electricity, Gas & Water	34.7	19.6	30.2	15.5	-	1,086	225	21
Unknown						70	-	-
All Industries	26.5	19.7	45.8	5.6	2.4	40,012	13,138	33

Source: *Brunei, Report on the Census of Population, 1971*, p. 66.

* Bandar Seri Begawan, (BSB and Brunei-Muara make-up Brunei Muara district), p. 66.

TABLE 6.18 IMMIGRANT POPULATION BY MAJOR OCCUPATIONAL GROUPS AND DISTRICTS, AND PROPORTION TO TOTAL WORKING POPULATION, 1971

Occupational Groups	Census Districts (Percent)					Proportion to Total Working Population (Numbers & Percent)		
	BSS	Brunei- Muara	Belait	Tutong	Temburong	Working Population	Working Immigrants	Percentage
Production & Related Workers, Equipment Operators & Labourers	17.6	24.2	50.9	4.9	2.4	12,285	6,081	50
Service Workers	30.2	12.8	46.5	9.7	0.8	7,925	2,371	30
Professional, Technical & Related Workers	34.7	12.8	48.3	2.7	1.5	4,892	1,397	29
Agriculture, Forestry Workers & Fishermen	12.4	26.9	35.3	19.3	6.1	4,697	643	14
Clerical & Related Workers	39.9	21.1	33.4	2.2	3.5	3,705	734	20
Sales Workers	58.7	13.5	25.5	1.6	0.7	3,110	921	30
Transport & Communication Workers	26.5	17.3	46.8	1.6	7.8	2,728	747	27
Administrative, Executive & Managerial Workers	38.9	22.5	35.3	2.1	1.2	606	244	40
Workers Not Classified By Occupation	-	-	-	-	-	64	-	-
All Occupations	26.5	19.7	45.8	5.6	2.4	40,012	13,138	33

Source: *Brunei, Report on the Census of Population, 1971*, p. 67.

A large proportion of immigrant workers were employed in two main industrial groups, 40.0 percent in building and construction and 29.0 percent in the service industry. This was anticipated as during the time of the census, construction works which were initiated several years before were well underway. For the rest of the industries, each of them employed less than 10 percent of immigrant workers. Among these industries, it is worth noting that the mining and quarrying industries only employed 6.1 percent of the immigrant workers, but of these, 92.4 percent were employed by the oil and gas company in the Belait district. The rest were distributed in other district, probably in Temburong quarry mines as other than Belait district, there are no oil and gas elsewhere in Brunei. Regarding regional distribution of workers according to industries, Brunei-Muara (BSE and Brunei-Muara) and Belait districts appeared to employ the majority of the immigrants in the service industry: 52.1 percent and 40.0 percent respectively. Among the types of works associated with this industry were public administration and defence, transport and communication professional and community services and those related to financial and business undertakings. The other two districts, Tutong and Temburong employed less than 10 percent of immigrant workers in this industry.

In building and construction, Belait district absorbed more than half of the immigrant workers, followed by Brunei-Muara and BSE. The concentration of these workers in Belait (54.2 percent) was mainly attracted by the construction of the gas plant

at Lumut. In Brunei-Muara district as a whole they amounted to 38.2 percent, who were mainly involved with works in the many of government infrastructural development projects such as Muara port, the Brunei International airport, construction of road networks and sewerage systems.

In wholesale and retail trade, transport, storage and communication, manufacturing, and electricity, gas and water supply, most immigrant workers were employed in Brunei-Muara districts, especially in the capital, Bandar Seri Begawan, particularly workers in the wholesale and retail trade, and transport and communication.

The other two districts of Brunei, Tutong and Temburong do not appear to attract many of the immigrant workers. This is not surprising as until the present time they still remain rural; not even agriculture flourishes in these regions. As evidenced from the table, out of the total 13,138 immigrant workers in the country, only 5.6 percent were working in Tutong and 2.4 percent in Temburong in contrast to considerable proportions employed in Brunei-Muara and Belait districts.

In terms of proportion of the total working population, the table also exhibits that it was in the building and construction industry, and in manufacturing that the immigrant workers provided more than half of the total manpower. For the rest of the industries, they provided approximately one-quarter of the labour force in each of these industries, except

agriculture , forestry and fishery in which they made up only 13 percent of the total workforce.

With regard to the distribution of immigrant workers by occupations and districts, Table 6.18 shows 46.3 percent of the total immigrant workers were employed as production and related workers, equipment operators and labourers; between 10 and 20 percent as service workers and professional, technical and related workers. The rest of the immigrant workers were distributed in the remaining occupational groups each employing only a small percentage, ranging between 1.9 to 7.0 percent.

Analysis of the data by districts showed that 59.9 percent of the those employed as production and related workers, equipment operators and labourers were in Belait district, most probably in the oil and gas plants; 41.8 percent in Brunei-Muara district (BSE and Brunei-Muara), and only 4.9 percent in Tutong while in Temburong it was only 2.4 percent. Of those employed as service workers, about half were in Belait and slightly less than half in Brunei-Muara. In the latter, concentration was mainly in the capital.

Those employed as professional, technical and related workers were also mainly distributed between Brunei-Muara and Belait. Similar distribution were also seen in the remaining occupations.

In terms of proportion of the total working population, the immigrant workers provided half of the manpower in the first

category, and 40 percent of administrative and managerial works. Falling in the third place were their employment as service workers, followed by professional, technical and related workers, and transport and communication workers. In clerical and related works, immigrants provided only 20 percent of the labour, and only 14 percent in agriculture, forestry works and as fishermen.

On the whole it can be surmised that Brunei required immigrant manpower for all occupations, but particularly labourers for construction works service. In contrast, only a small proportion of immigrant manpower was needed in high ranking job such as administrators and managers.

6.3.6 Citizen and Non-Citizen Workers

To enable comparative analysis between national and non-national workforce, the whole working population of Brunei is classified into citizen and non-citizen workers so as to provide a more recent picture of the extent of Brunei dependence on foreign labour. The study is also based on the distribution of citizen and non-citizen workers by major industrial and occupational groups.

The pattern of industrial distribution of citizen workers between 1971 and 1981 was similar in that the service industry dominated their employment (Table 6.19) and the percentages

TABLE 6.19 WORKING POPULATION BY MAJOR GROUP INDUSTRIES,
OCCUPATIONS, DISTRICTS AND RESIDENTIAL STATUS, 1971 AND 1981.

Industrial Groups	1971			1981		
	Total ¹	Brunei Citizens ²	Non- Citizens ³	Total ⁴	Brunei Citizens ⁵	Non- Citizens ⁶
Agriculture, Forestry & Fishing	11.9	15.3	8.5	5.0	6.1	3.9
Mining & Quarrying	7.3	4.4	10.2	5.7	3.3	8.3
Manufacturing	4.4	2.4	6.4	4.1	1.9	6.5
Electricity, Gas & Water	2.7	3.7	1.7	2.9	4.7	0.9
Construction	20.2	9.6	31.1	18.6	8.8	29.4
Wholesale, Retail, Restaurant & Hotel	10.5	7.0	14.0	10.9	7.1	14.9
Transport & Communication	5.3	7.0	3.6	6.6	7.5	5.7
Services	37.5	50.5	24.3	45.9	60.4	29.9
Unknown	0.2	0.1	0.2	0.3	0.2	0.5
Total	100	100	100	100	100	100
Occupational Groups						
Professional, Technical & Related Workers	12.2	14.2	10.3	14.4	16.9	11.7
Administrative & Managerial Workers	1.5	1.0	2.1	3.0	3.3	2.7
Clerical & Related Workers	9.3	11.0	7.4	11.3	15.5	6.7
Sales Workers	7.8	6.1	9.5	6.0	4.8	7.3
Service Workers	19.8	23.7	15.9	21.7	25.6	17.2
Agriculture, Forestry Workers & Fishermen	11.7	14.8	8.6	8.6	10.9	5.9
Production & Related Workers	37.5	29.1	46.0	34.7	22.8	47.9
Transport Equipment Operators & Labourers						
Workers Not Unclassified	0.2	0.1	0.2	0.3	0.3	0.5
Total	100	100	100	100	100	100

Sources : *Brunei, Report on the Census of Population, 1971*, pp. 209 & 224; *1981*, pp. 194 & 210.

¹ Percent of total working population, 40,012.

² Percent of total working citizens, 20,155.

³ Percent of total non-citizen workers, 19,857.

⁴ Percent of total working population, 68,128.

⁵ Percent of total working citizens, 35,835.

⁶ Percent of total non-citizen workers, 32,293.

employed by this industry had increased from 50.5 percent of the citizens in 1971 to 60.6 percent in 1981. On the other hand, there was a marked decline in agriculture, forestry and fishing industries. The percentage employed in commerce hardly changed. In mining and quarrying, manufacturing and construction, the percentages of citizen workers were reduced, while in electricity, gas and water, and transportation and communication, the increase was only slight.

With regard to non-citizens in both census years, they were mainly concentrated in construction, in addition to the service industry. Two other industrial groups had concentrations between 10 and 20 percent during the same period: wholesale, retail, restaurants and hotels employed 14.0 percent of non-citizen workers in 1971 and almost 15 percent in 1981; mining and quarrying slightly above 10 percent in 1971 but only 8.3 percent in 1981. The employment of workers in agriculture, forestry and fishing in 1981 was significantly reduced as compared to their proportions in 1971. The rest of the industries absorbed less than 7.0 percent of non-citizen workers.

In examining the distribution of citizen and non-citizen workers by occupational groups, the table displays significant contrast in the proportion employed as production and related workers, transport equipment operators and labourers: for Brunei citizens, the percentage was 29.1 percent in 1971 and only 22.8 percent in 1981, for non-citizens the corresponding figures 34.7 and 47.9 percent respectively. The proportion of Brunei citizens

employed as service workers was higher than non-citizens. The same was applicable for clerical and related works, professional, technical and related works, as well as agricultural, forestry and fishery works. In contrast, the proportion of citizen workers employed as sale workers (6.1 percent and 4.8 percent in 1971 and 1981 respectively) was less than that of non-citizens (9.5 percent and 7.3 percent) though both were declining. In the top rank job, administrative and managerial, the proportions of both classes of workers appeared to be fairly comparable and both increased in 1981 though the surge for the citizens was more significant than non-citizens.

With regard to the proportion of citizen and non-citizen workers to total working population (Table 6.20), it can be seen that in the primary sector the proportion of citizens to total working population employed dominated non-citizens in agriculture, forestry and fishing in both 1971 and 1981 (64.5 percent and 63.5 percent respectively), while in the mining and quarrying industry, non-citizens accounted for 69.4 percent and 69.5 percent respectively.

In the secondary sector, 69.0 percent in 1971 and 85.7 percent in 1981 of citizen workers provided the labour force in electricity, gas and water supply. The non-citizens on the other hand supplied three-quarter of the labour force in the manufacturing and construction industries.

In the tertiary sector, the citizen workers dominated

TABLE 6.20 THE PROPORTION OF WORKING CITIZENS AND NON-CITIZENS TO TOTAL WORKING POPULATION BY MAJOR INDUSTRIAL GROUPS, 1971 AND 1981

Industrial Groups	1971					1981				
	Total	Citizens		Non-Citizens		Total	Citizens		Non-Citizens	
	Numbers	Numbers	%	Numbers	%	Numbers	Numbers	%	Numbers	%
Agriculture, Forestry & Fishing	4,776	3,080	64.5	1,696	35.5	3,435	2,182	63.5	1,253	36.5
Mining & Quarrying	2,915	891	30.6	2,024	69.4	3,863	1,177	30.5	2,686	69.5
Manufacturing	1,751	480	27.4	1,271	72.6	2,783	670	24.1	2,113	75.9
Electricity, Gas & Water	1,086	749	69.0	337	31.0	1,961	1,681	85.7	280	14.3
Construction	8,090	1,923	23.8	6,167	76.2	12,644	3,162	25.0	9,482	75.0
Wholesale & Retail, Restaurant & Hotel	4,190	1,416	33.8	2,774	66.2	7,363	2,541	34.5	4,822	65.5
Transport, Storage & Communication	2,127	1,407	66.1	720	33.9	4,529	2,692	59.4	1,837	40.6
Financing, Insurance, Real* Estate & Business Services	15,008	10,183	67.9	4,825	32.1	2,010	771	38.4	1,239	61.6
Community, Social & Personal* Services	-	-	-	-	-	29,282	20,863	71.2	8,149	28.8
Unknown	70	26	-	44	-	258	96	-	162	-
All Industries	40,012	20,155	50.4	19,859	49.6	68,128	35,935	52.6	32,293	47.4

Sources: *Brunei, Report on the Census of Population, 1971*, p. 224;
Brunei Population Census, Summary Tables, 1981, p. 210.

* In the 1971 Census, these were combined as 'Services'.

services in both years while transport and communication were prominently represented by non-citizen workers.

Proportional distribution by occupational groups to total working population (Table 6.21) shows that the general pattern was that in almost all occupations, the proportions of citizen workers increased while that of non-citizens decreased. For the citizens, the increase was most significant in administration and management, 31.5 percent to 57.5 percent, and clerical and related workers from 60.0 percent to 71.7 percent. The rise in other occupations was less remarkable. For non-citizen workers, their proportions declined in almost all occupations except for a small increase from 60.9 percent to 65.4 percent in the production and related works, transport equipment operators and labourers.

6.3.7 Non-Citizen Male and Female Working Population By Industrial Groups

As commonly experienced by countries which rely upon foreign manpower, the imbalance of sexes in the imported labour force of Brunei is not unusual. Scrutiny of Table 6.22 will reveal that in all the industries non-citizen female employees were considerably lower in proportion than males, is hardly surprising because the nature of work involved is not compatible with females. Significant differences can also be identified in commerce and services. On the whole although the proportions

TABLE 6.21 THE PROPORTION OF WORKING CITIZENS AND NON-CITIZENS TO TOTAL WORKING POPULATION BY OCCUPATIONAL GROUPS, 1971 AND 1981.

Occupational Groups	1971					1981				
	Total	Citizens		Non-Citizens		Total	Citizens		Non-Citizens	
	Number	Number	%	Number	%	Number	Number	%	Number	%
Professional, Technical & Related Workers	4,892	2,854	58.3	2,038	41.7	9,838	6,051	61.5	3,787	38.5
Administrative & Managerial Workers	606	191	31.5	415	68.5	2,061	1,185	57.5	876	42.5
Clerical & Related Workers	3,705	2,224	60.0	1,481	40.0	7,689	5,516	71.7	2,173	28.3
Sales Workers	3,110	1,231	39.6	1,879	60.4	4,072	1,707	41.9	2,365	58.1
Service Workers	7,925	4,774	60.2	3,151	39.8	14,757	9,191	62.3	5,566	37.7
Agricultural, Animal Husbandry & Forestry Workers, Fishermen	4,637	2,990	63.7	1,707	36.3	5,838	3,922	67.2	1,916	32.8
Production & Related Workers, Transport Equipment Operators & Labourers	15,013	5,875	39.1	9,138	60.9	23,639	8,173	34.6	15,466	65.4
Workers Not Classified By Occupations	64	24	-	40	-	234	90	-	144	-
Total	40,012	20,163	50.4	19,849	49.6	68,128	35,835	52.6	32,293	47.4

Sources: *Brunei, Report on the Census of Population, 1971*, p. 224;
Brunei Population Census, Summary Tables, 1981, p. 210.

of female employees were remarkably lower than males, in 1981 their percentage expanded slightly to 17.6 percent. But the most noticeable discrepancy is in the construction industry, employing 30.4 of male workers in 1971 falling only slightly to 28.2 percent in 1981 as opposed to 0.7 and 1.1 percent of females workers respectively.

TABLE 6.22 PERCENT DISTRIBUTION OF MALE AND FEMALE NON-CITIZEN WORKERS BY INDUSTRIAL GROUPS, 1971 AND 1981

	1971		1981	
	Males	Females	Males	Females
Agriculture, Forest & Fishing	5.9	2.6	3.3	0.6
Mining & Quarrying	9.3	0.9	7.5	0.8
Manufacturing	5.7	0.7	5.6	0.9
Electricity, Gas & Water	1.6	0.1	0.8	-
Construction	30.4	0.7	28.2	1.1
Commerce	11.3	2.7	13.7	5.1
Transport, Storage & Communication	3.4	0.2	5.2	0.5
Services	16.7	7.6	17.7	8.4
Not Classified Elsewhere	0.2	-	0.4	0.2
Total	84.5	15.5	82.4	17.6

Sources: Calculated from:

Brunei, Report on the Census of Population, 1971, p. 224;

Brunei Census of Population, Summary Tables, 1981, p. 210.

6.3.8 Occupational Status

Two categories of employment status, employers and employees, increased during the decade 1971-81, though employers are of course only a small minority (Table 6.23). Their increase perhaps resulted from government's policy in promoting development in the private sector and at the same time increasing the number of indigenous entrepreneurs and businesses by provision of a loan scheme introduced in 1977. The favoured areas for private sector investments encouraged by the government have been those of agriculture, forestry and the fishery as well as industries related to local materials and commerce.

The majority of the labour force was in the category of employees which during 1971-81 increased from 79.5 to 88.4 percent of the total workforce, partly because of the marked decline in the percentage of own-account or self-employed workers and to a lesser extent of family workers. Indeed over the last few years, there has been a trend for preference for white collar jobs as wages derived from them are far more attractive and reliable than incomes received from being self-employed.

With regard to sex differentials in occupational status, the percentage of male employers increased in 1981 while that of females remained constant. The percentage of female employees, on the other hand, increased strikingly, by 20.8 compared to that of males who experienced only a modest increase of 7 percent.

There was a great decline in the proportion of the self-employed category for males and females, because, as mentioned earlier, of the preference for white collar occupations especially in the public sector. A similar reason can be forwarded for the decline in the number of family workers of both sexes.

Earlier in this chapter, mention was made about the fact that Brunei has been experiencing acute labour shortages in all categories of work. However, as seen in Table 6.23, there was 3.6 percent unemployment in 1981, an increase from 2.6 percent in 1971. As a whole, this unemployment rate was still relatively low, but among the females, it was strikingly high, 8.6 percent as compared to 2.1 for males.

TABLE 6.23 PERCENT DISTRIBUTION OF TOTAL POPULATION AGED 15 YEARS AND OVER BY TYPE OF ACTIVITY STATUS AND SEX, 1971 AND 1981

Status	1971			1981		
	Total	Males	Females	Total	Males	Females
Employers	0.9	1.0	0.4	1.4	1.6	0.4
Employees	79.5	82.7	63.6	88.4	89.7	84.4
Self-employed	15.2	13.8	22.1	6.0	6.2	5.3
Family Worker	1.8	0.6	7.6	0.6	0.4	1.3
Unemployed	2.6	1.9	6.3	3.6	2.1	8.6
Total	100	100	100	100	100	100

Sources: Calculated from;

Brunei, Report on the Census of Population, 1971, pp. 181-182;

Brunei Population Census, Summary Tables, 1981, p. 181.

In comparisons between citizens and non-citizens by sex, unemployment among female citizens seems to be more than twice that of females of permanent, temporary and other status (Table 6.24). In fact it was unexpectedly high for a country with labour shortages. Unemployment among male citizens was also higher (2.8 percent) than for non-citizens (2.5 for permanent residents, and 1.0 percent for temporary residents and others); however, the difference was not as wide as that among females. The existence of unemployment in Brunei was not that in the normal sense of the word. It was rather a situation of mismatch between job-seekers' aspirations and the requirements of the economy. This is evidenced from Employment Exchange statistics which indicate an overwhelming majority of females mostly registered for clerical and service work, whereas private employers for example were particularly looking for labourers. Recent detailed figures for registration of job-seekers are not available, but in 1983 females registered as unemployed outnumbered males by 952. After vacancies were filled, there were still 1,180 unemployed females while the corresponding figure for males was only 182.

In general, the rate of unemployment among the locals in 1981 already represented an alarming sign, particularly among females. Expectedly the unemployment was concentrated in younger adult ages of which 80 percent were among the 15-24 age group. As already mentioned above, one reason for the unemployment problem was incompatibility between job seekers and the type of

jobs available. The other was the unemployed could not meet job requirement qualifications; some had not attended beyond lower secondary schooling, some had failed junior-certificate examination, while others had not completed primary level of education, or had no formal education at all.

TABLE 6.24 UNEMPLOYMENT BY RESIDENTIAL STATUS, 1981

Residential Status	Economically Active Population (numbers)			Unemployed (numbers)			Percent Unemployed		
	Total	Males	Females	Total	Males	Females	T	M	F
Citizens	37,782	26,875	10,907	1,947	759	1,188	5.1	2.8	10.9
Permanent Residents	8,114	5,791	2,323	254	143	111	3.1	2.5	4.8
Temporary Residents & Others	24,794	21,193	3,601	361	220	141	1.5	1.0	3.9
Total	70,690	53,859	16,831	2,562	1,122	1,440	3.6	2.1	8.6

Source: *Brunei Population Census, Summary Tables, 1981*, p. 189.

Remedies therefore should be sought to rectify the situation in the near future. It is important that special attention is required to minimize the problem as further increase in the level of unemployment might bring about some political instability in the country. However, since the unemployment in the country is largely the result of mismatch in the labour demand and supply, the problem may therefore be minimized by a change of attitude among the unemployed people in particular and the economically-active persons at large to be less particular white-collar

occupations in the government sector and to be more willing to look for employment in the private sector. In the long run, however, the best remedy in relation to the country's labour needs may be to provide appropriate training for skilled and semi-professional occupations, especially to Brunei citizens to reduce dependence upon foreign workers.

6.4 THE INFLUENCE OF LITERACY, EDUCATION AND EMPLOYMENT ON MORTALITY AND FERTILITY

In Chapters Two and Three analyses revealed that mortality and fertility in Brunei has been undergoing substantial decline, particularly of mortality. Factors responsible for the decline are undoubtedly the application of modern medical and public health services on the one hand and the socio-economic progress on the other. However without relevant data it is not possible to isolate the contribution of these two key factors to the decline of mortality and fertility.

There have been difficulties in estimating the contribution of a specific factor to mortality decline such as eradication of specific diseases in the presence of other competing influences, bearing in mind that in Sri Lanka and Ghana mortality started to decline before large scale spraying of insecticides, thus raising the question of whether the contribution of a specific eradication program consists in accelerating a decline already underway or whether eradication of a single disease can also

produce a decline under conditions of high mortality exhibiting no sign of change". But Hansluwka claimed that,

"whatever the specific reasons, it is an established fact that the decline in mortality is at the root of the presence of the extraordinary rate of population growth in the less developed countries. This decline has been to a substantial extent the result of the efficient application of advances in medical services and technology, even if the independent influence has been occasionally overestimated"³⁰.

It is not unreasonable to assert that the above also contributed to mortality decline in Brunei, at least in its early phases because the decline started prior to the onset of universal literacy and education improvements in the country. Indeed the application of modern medical and health services with programs like eradication of fatal diseases like malaria, vaccination against other diseases like cholera and treatment of other ailments among infants and children, maternal and child care, must have contributed immensely to the decline of mortality in Brunei.

However, the contributions of socio-economic factors, particularly of education cannot be ruled out altogether. Perhaps it is true to say that education has had a role to play in helping to maintain the low mortality rates to date, since there has been no study conducted to explore the effects of socio-economic factors in mortality decline, let alone studies of socio-economic differentials. Therefore only a general assertion on the contribution of these factors, notably education, can be made.

In child mortality, many studies (Hobcraft et al²¹, Preston²²) confirmed the relative importance of mother's education as an influencing factor, although father's education, as suggested by Hobcraft is usually important in Asia. Although the mechanisms through which education operates was not defined²³, exposure to education in general can change the life style, attitudes, knowledge of better nutrition, personal hygiene, and as Caldwell asserted,

"education moves individuals varying distances into new cultures with different emphases on the value of carefulness as distinct from resignation or endurance and with different priorities by age and sex for risk-taking, treatment within the family, and expenditure of effort or money in avoiding illness or its consequences"²⁴.

In Brunei, although the modern medical and health services have played a major role in combating fatal diseases, providing medical treatment and maintaining public health, simultaneously an increasing proportion of the population has also been exposed to education, hence have acquired such attributes of education described above. Therefore it feasible to assert that to some extent, education must have played a role in mortality decline experienced since the last few decades.

With regard to fertility, although Brunei still has high birth rates, analyses has shown that they are declining, hence indicating fertility decline. In many developing countries, fertility decline has been associated with active government intervention with measures like family planning programs, easy access to contraception which contribute greatly to maintain low

fertility. For Brunei, as mentioned in Chapter Three, there is no policy of direct government intervention with respect to fertility. However, this is not to say that contraceptive devices are unknown to couples. Perhaps it is not improper to claim that the exposure of Bruneians to education has facilitated the acquisition of information on modern contraceptive devices and their use. There are family planning information programs, but there is no official support for access to contraception. Therefore the evidently declining fertility must have been to some extent associated with the rising educational levels and increasing female employment, both of which in fact have been claimed to be indirect government measures to control fertility.

Indeed it has been found that schooling exhibits a stronger and more consistent relationship to fertility decline than any other single variable²⁸. But in most Asian countries, it was discovered that only secondary education is associated with substantially lower fertility²⁹. It is not possible to say whether in Brunei a similar assertion can be applied. But student population in secondary education has been expanding and therefore the possibility cannot be ruled out that those who have been exposed to such a level of education probably preferred smaller family size, and thus have contributed to a certain extent to the decline in fertility. The educational effects attributable to the decline must be both direct and indirect: it has been claimed that,

"education has been found to affect a broad spectrum of psychological attributes, including freedom from tradition, heightened aspirations, views concerning

ideal family size, contraception and other modern values that motivate couples to restrict the size of their families...³² formal schooling delays age at marriage and thereby reduces the total number of child-bearing years of the wife; education increases aspirations for upward mobility and the accumulation of wealth, which reduce the desirability of large families; education increases exposure to mass media and printed materials concerning family planning, education provides directly or facilitates the acquisition of information on modern contraceptive devices and use"³³.

In addition education also enhances females prospect for employment, and regarding this the role of a worker and a mother tend to be incompatible³⁴. Dixon a sociologist described that in many developing countries women remain economically and socially powerless and isolated from life outside immediate family circle. In Muslim, societies, females are secluded to ensure chastity before marriage and faithfulness thereafter. Among other things, this limits their economic activities outside home, thus making daughters a greater economic burden on their parents. This, in effect limit them to acquire education and inevitably lead them to early marriage and child-bearing³⁵.

Although Brunei is a country with a strong Islamic values, the social situation for females is much less extreme. In fact, equal opportunities are given to them in education, and these have enhanced their progress. As evidenced from the analyses in this chapter, an increasing proportion of females are staying longer in schools and joining the labour force. This probably will influence them to prefer smaller family size.

Regarding the female employment and fertility, the relationship has been found to be ambiguous. The location of work seems to be an important conditioning factor; the relationship tend to be stronger in urban areas and among the non-agricultural occupations. In Malaysia it was found that urban Chinese and Indians had a strong inverse work-fertility relationship⁴¹. Studies of this nature would be desirable for Brunei. Nevertheless it is already evident that employment of females has increased substantially and simultaneously fertility has shown a trend of decline. But whether female employment contributed to the fertility decline in Brunei is not evident. Although the ASFR analysis (Chapter Three) reveals that fertility has fallen for all ages, it appears that the decline was more pronounced among older women, and this might be associated with other variables like family size having already reached the desired number, health and higher age. In fact according to 'grandmother hypothesis' which is,

"a desire to avoid child-bearing for reasons of shame embarrassment among older women who themselves have fertile, married or nubile offspring"⁴²,

have found it to have pronounced effects in Nepal, Bangladesh and Pakistan but only minor influence in other countries⁴³. Such factor may have influenced older adult child-bearing women in Brunei to stop further pregnancies merely because they have acquired or approaching to the grandparent status.

6.5 CONCLUSION

In general it is evidenced that since the 1960s the socio-economic characteristics of the population of Brunei have undergone rapid changes. The most marked transition was improvement in the literacy rates particularly among females. Despite the fact that emphasis on school attendance and thus the provision of education to the population at large came much later in Brunei than in other countries in the region, the literacy rates in Brunei by the 1970s (males 78, females 59) were already comparable with some of the neighbouring countries: Malaysia (males 69, females 47), Indonesia (males 81, females 64) and Philippines (Males 77, females 76). By the 1980s literacy in Brunei (Males 86, females 69) compared well with that of Singapore (males 90, females 82) though literacy among females atill lagged behind⁴⁴. In comparison with the Gulf States, the percentage of literate persons in Brunei was on the whole higher for both sexes.

Such achievements undoubtedly owed to the tremendous effort of the government in placing education as one of its priorities in the development programs, providing free education to the citizens with the aim of achieving total literacy and raising the level of education of the population. The effort to improve literacy and levels of education was not only geared to the younger section of the population but also to the older adults through the Adult Education Programs. The people on their part

were also quick to become aware not only of becoming literate but of the importance of improving their levels of education. Although the proportion of attendance at higher levels of education is extremely small, the numbers are increasing.

Improved educational levels of the population have resulted in the increasing proportion of citizens in the labour force. The most salient change has been the increase in the participation of females, though the types of occupation they are employed in are still fairly conventional. In general, despite improvement in education, Brunei is still very short of educated citizen workers, and particularly under-represented in technical and professional occupations. Therefore similar to the many oil-producing countries, a large proportion of the Brunei labour force is still made up of foreign workers who are needed not only in occupations requiring professional and technical expertise, but also in less skilled jobs such as construction works. The growth projection of the Brunei labour force by the British Council implied an increase of dependence on immigrant workers, unless the participation rates of women in the labour force could be markedly increased".

Unexpectedly, despite the manpower shortage, unemployment does exist and the proportion is greater among females. This appeared to be caused not by a shortage of jobs but by incompatibility between qualifications and skills of applicants and those required by employers.

Although the unemployment problem could be alleviated by retraining the unemployed in jobs most likely demanded by employers, the problem of local manpower shortage in Brunei on the whole will remain a major concern of the government at least for the next few decades. Remedies to reduce it undoubtedly lie in further substantial increase in educated and well trained citizen workers. Towards this achievement, appropriate planning in choices of courses pursued by citizens at higher or professional levels, as well as a strategy of training schemes for the nationals are desirable⁴⁶. This apparently has already manifested in the recent National Plan, which will involve,

"...the government and employers working together to train the available manpower to work in the fields of commerce and industry at skilled levels covering the spectrum from artisan, junior technician and advanced craftsman, to sub-professional... In the public sector, far greater effectiveness and productivity, in addition to sending officers on overseas courses, specialised training courses could also be introduced locally. The scheme could further be enlarged to include secondment of public officials in the private sector so as to foster better understanding between the two sectors. Government officers would continue to be sent for overseas training to acquire technological know-how while, at the same time, systematic on-the-job training programmes for officers would also be carried out domestically"⁴⁷.

With respect to the demographic effects of the improvement in literacy, school attendance at various levels of education and changes in the economic characteristics, particularly of female employment, the outstanding change has been a trend of lower fertility. On the other hand, mortality which declined sharply since the last decade has probably been effected more by the comprehensive medical and health services at the beginning

of the decline; the role of educational improvement as a whole is probably that of maintaining low death rates.

REFERENCES

1. World Confederation of Organisation of the Teaching Profession, (1978), *Compulsory Education: Social Expectations, National Reports on the Theme for 1977 in their Original Languages*, 26th. Assembly of Delegates, Switzerland: Morges, pp. 46-52.
2. World Confederation of Organisation of the Teaching Profession, *ibid.*, pp. 70-89.
3. World Confederation of Organisation of the Teaching Profession, *ibid.*, pp. 46-52.
4. Chandna, R.C. & Sidhu, M.S., (1980), *Introduction to Population Geography*, New Delhi: Kalyani Publisher, p. 96.
5. *Brunei, Report on the Census of Population, 1971*, Brunei: Star Press, p. 48.
6. *Brunei Statistical Yearbook, 1975/76, & 1983/84*, Brunei: Government Printing Office, pp. 88 & 89.
7. *Brunei Statistical Yearbook, ibid.*, pp. 85 & 87.
8. Brunei, Ministry of Education and Health, (1983), *Educational Statistics*, p. 63.
9. United Nations ECWA, (1982), *Demographic and Related Socio-Economic Data Sheets*, pp. 12-188.
10. *Brunei, Report on the Census of Population*, *op. cit.*, p. 96.
11. Chandna, R.C. & Sidhu, M.S., *op. cit.*, p. 101.
12. *Brunei, Report on the Census of Population*, *op. cit.*, p. 57.
13. Brunei, Ministry of Finance, *National Development Plan, 1975-79*, Brunei: Star Press, p. 34.
14. Brunei, Ministry of Finance, *National Development Plan, 1980-84*, Brunei: Star Press, p. 57.
15. Brunei, Ministry of Finance, *Fifth National Development Plan, 1986-90*, Brunei: Government Printing Office, p. 19.
16. Brunei, Ministry of Finance, *Fifth National Development Plan, ibid.*, p. 46.

17. Neville, W., (1985), 'Economy and Employment in Brunei', *Geographical Review*, American Geographical Society, Vol. 75, No. 4, p. 452.
18. Brunei, Ministry of Finance, *Fifth National Development Plan*, op. cit., p. 1.
19. Brunei, Ministry of Finance, *Fifth National Development Plan*, ibid., p. 30.
20. *The Europa Yearbook*, World Survey, (1986), Vol. 1, p. 565.
21. Neville, W. op. cit., p. 453.
22. Colclough, C. & Godfrey, M., (chief consultants) (1982), *Brunei Manpower Masterplan: a Study conducted by British Council for the Ministry of Finance*, (unpublished), pp. 13-14.
23. Colclough, C. & Godfrey, M., ibid., p. 14.
24. Colclough, C. & Godfrey, M., ibid., p. 5.
25. *Brunei, Report on the Census of Population*, op. cit., p. 59.
26. *Brunei, Report on the Census of Population*, ibid., p. 65.
27. *Brunei Statistical Yearbook, 1983/84*, op. cit., p. 37.
28. Neville, W., op. cit., p. 460.
29. Hansluwka, H., (1974), 'Health, Population and Socio-Economic Development', in Tabah, L. (ed.), *Population Growth and Economic Development in the Third World*, International Union for Scientific Study of Population, Vol. 1, p. 197.
30. Hansluwka, H., ibid., pp. 198-200.
31. Hobcraft, J.N., McDonald, J.W. & Rutstein, S.O., (1984), 'Socio-Economic Factors in Infant and Child Mortality: A Cross National Comparison', *Population Studies*, 38, p. 199.
32. Preston, S.H., (1985), 'Mortality in Childhood: Lessons from WFS', in Cleland, J. et al. (eds.), *Reproductive Change in Developing Countries, Insights from the WFS*, O.U.P., p. 262.
33. Preston, S.H., ibid., p. 262.
34. Caldwell, J.C., (1979), 'Education as a Factor in Mortality Decline: An Examination of Nigerian Data', *Population Studies*, 33, p. 413.

35. Holsinger, D.B. & Kasarda, J.D., (1976), 'Education and Human Fertility: Sociological Perspectives', in Ridker, R.G. (ed.), *Population and Development, The Search for Selective Interventions*, Baltimore & London: The John Hopkins University Press, pp. 156-57.
36. Singh, S. & Casterline, J., (1985), 'The Socio-Economic Determinants of Fertility', in Cleland, J. et al. (eds.), *Reproductive Change in Developing Countries*, O.U.P., p. 206.
37. Holsinger, D.B. & Kasarda, J.D., op. cit., p. 165.
38. Holsinger, D.B., & kasarda, J.D., ibid., pp. 159-160.
49. Holsinger, D.B. & Kasarda, J.D., ibid., p. 161.
40. Dixon, R. B. (1971), 'Explaining Cross-Cultural Variations in Age at Marriage and Proportions Never Marrying', *Population Studies*, 25, pp. 215-233.
41. Singh, S. & Casterline, J. op. cit., p. 216.
42. Cleland, J., (1985), 'Marital Fertility Decline in Developing Countries: Theories and the Evidence', in Cleland J. (eds), *Reproductive Change in Developing Countries*, op. cit. p. 231.
43. Cleland, J., ibid., p. 231
44. United States, *World Population*, (1983), Recent Demographic Estimates for the Countries and Regions of the World, pp. 205-276.
45. Colclough, C. & Godfrey, M., op. cit., p. 5.
46. Colclough, C. & Godfrrey, M., ibid, p.6.
47. Brunei, Ministry of Finance, *Fifth National Development Plan*, op. cit., p. 25.

CHAPTER SEVEN

PAST, PRESENT AND FUTURE

The focus of study throughout this thesis has been concerned with analyses of the components of population change: deaths, births and immigration. Explanation for changes in these components have been attempted by linking them with the socio-economic developments that have taken place simultaneously. However, due to lack of pertinent data in some areas of investigations, the task of dealing with the demographic-socio-economic interactions become formidable. Attempts to deduce and thus comprehend the variables contributing to the demographic changes particularly fertility appear to be formidable. In addition, the scarcity of local information also inevitably leads to general statements in many sections of the preceeding six chapters. Nevertheless, in general the main changes that have taken place in the demography of Brunei can be detected.

High mortality appeared to be the most salient feature of the demographic conditions of Brunei (as well as in Sabah and Sarawak) prior to World War II. The CDR was in the region of 20-30 per thousand, and the IMR was between 200 and 300. Life expectancy then was also very short, about 43 for males and females. Figures for birth rates before World War II are not available but according to some indirect indications, it was

revealed that for every 1,000 people, more than one third were below the age of 15. Even with the increasing immigration in the 1930s, the annual growth rate was still moderate, growing at 1.6 percent between the 1911-21 decade, 1.7 during 1921-31, and 1.9 in the 1931-47 period. By many LDC standards, such growth rates were considered to be relatively low.

Such demographic conditions (high mortality and fertility rates) were explicable by the unfavourable socio-economic and environmental conditions, for example poor nutrition, poor education, hence ignorance of health matters, inadequate medical provision and improper sanitary systems, all of which cause the people in general to become vulnerable to many kinds of morbidity, communicable diseases some of which caused deaths.

The resumption of oil activities during the post-war years brought in tremendous wealth which became instrumental in financing the government infrastructural development programs. The most outstanding one was the medical and health services which included vital programs like malaria eradication, vaccination against other fatal diseases such as cholera and small-pox. In addition, there were programs to provide child and maternal care, educate the general public on matters relating to better nutrition and health in general. Furthermore, the environmental problems were also initiated by improving the domestic waste disposal and sanitary systems, though the latter has not been very successful, particularly in the residential area of the Kampong Ayer (water village), as well as in rural

areas. Nevertheless the gross effect manifested by all these schemes was a dramatic reduction in mortality (from 19.3 per thousand in 1947 to 10.9 by 1960).

With fertility remaining high and immigration continuing to increase, the annual growth rate reached 6.0 percent by 1960. Since then, particularly during the 1970s, remarkable improvements in literacy and levels of education were accomplished, and must have contributed to fertility decline and further mortality reductions, and longevity of life. Indeed within a period of two-and-a-half decades since 1947, life expectancy for males lengthened by 19.2 years, reaching 61.9 years by 1971, while for females it increased by 19.4 years to reach life expectancy of 62.1 years.

Further improvements in the social services, notably medical, health and education during the 1970s resulted in the further increase of life expectancy which by 1981 was 70.1 years for males and 72.7 for females; mortality declined further to reach 4 per thousand, and perhaps rather unanticipated, fertility has shown a trend of decline too.

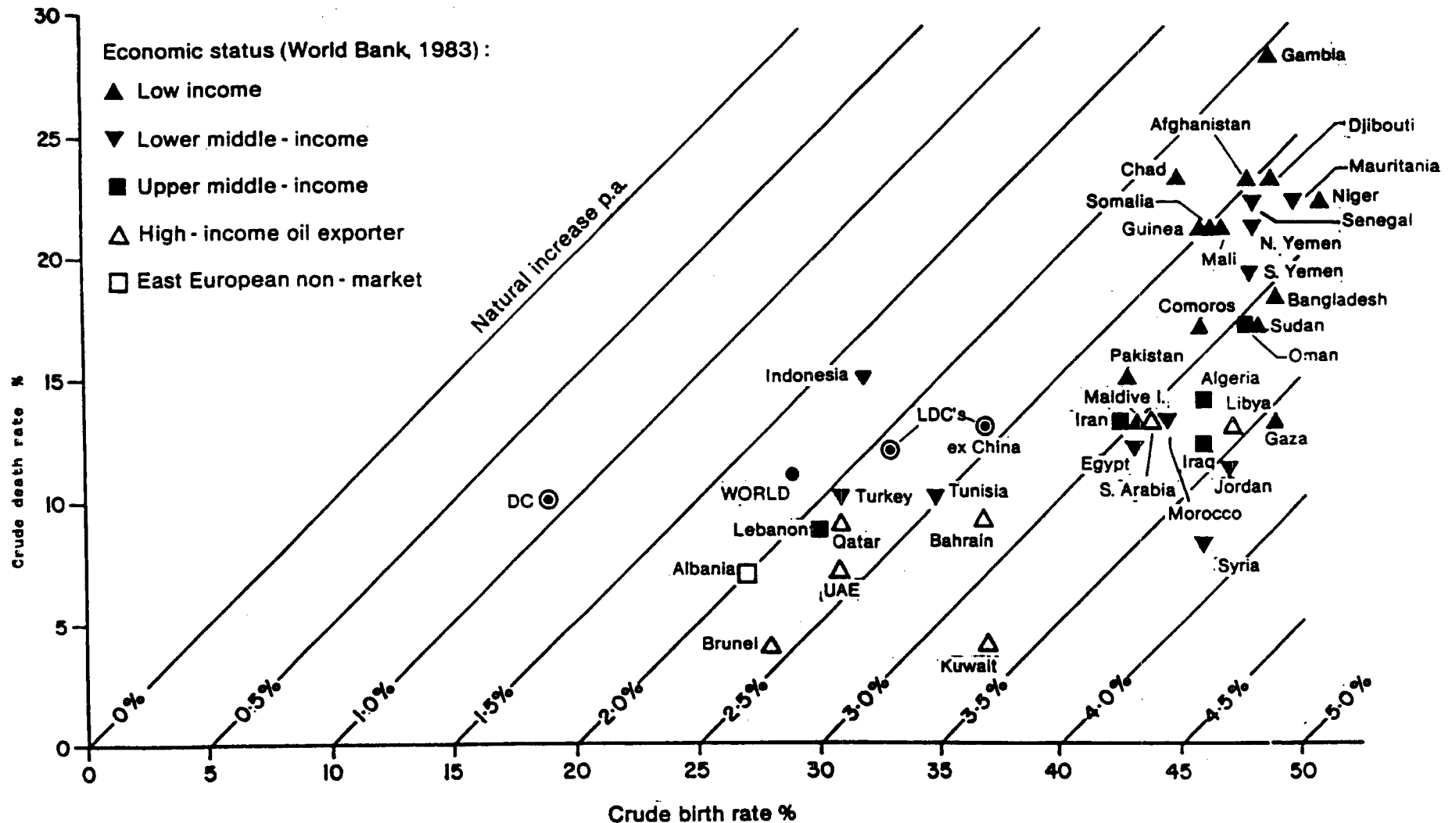
Brunei mortality rate is one of the lowest in the world. But with a still moderately high fertility (TFR 4.4 per woman in 1985), Brunei has one of the highest rates of natural increase (at 2.6 percent in 1985) in the Southeast Asian region, though with the exception of Kuwait, it is still relatively low

compared to the other Islamic oil-rich exporting countries of the Gulf (Figure 7.1).

Using the formal pattern of demographic transition models as a yardstick of population growth (excluding migration), the demographic conditions in Brunei before the Second World War may be identified with the 'Pre-transitional stage: high fertility and mortality, and low rate of population growth'. An 'Early transitional stage: high fertility, declining mortality from moderate levels and accelerating' perhaps characterized the demographic condition of Brunei during the post-war years; 'On-going transition: high fertility, declining mortality from moderate to low and rapid population growth' occurred during the seventies; and now Brunei can probably be described as approaching the 'Advanced transition: beginning of fertility decline, low mortality and rapid population growth with decelerating tendency'.

With regard to the effect of immigration on the annual population growth of Brunei, between 1947 and 1960, Brunei reached a peak period of growth rate, amounting to 5.7 percent. But since 1960, immigration slowed down and in effect its contribution to population growth has fallen sharply in recent years. The adoption of temporary labour immigration in recent years (rather than permanent which was adopted previously), decelerated the average annual growth rate further to 3.5 percent between 1971 and 1981; of this percentage 3.0 percent was said to

FIGURE 7.1 DEMOGRAPHIC TRANSITION IN THIRTY EIGHT COUNTRIES WITH MORE THAN 50% MUSLIMS (excluding Western Sahara for which no data are available)



Source: Clarke, J.L., 'Islamic Populations: Limited Demographic Transition', *Geography* Vol.70 No. 307, 1985

be attributable to natural increase and the remainder to net immigration².

According to the United Nations, Brunei's annual growth rate of 4.0 percent and a natural increase of 2.6 percent during the 1980-85 period, was high. Based on these figures and the 1980 total population estimate of 185 thousand, it was estimated that the population of Brunei will amount to 386 thousands by the year 2000³. More generally, the Population Reference Bureau estimate that the population of Brunei in the year 2000 will be 0.3 million and the doubling time will take a period of 27 years⁴.

The Brunei government on the other hand considers the rate of natural increase and population growth to be satisfactory. Hence, the current moderately high CBR (29.8 per thousand) and TFR (4.4 per woman) are also regarded as satisfactory, and the mortality level (4 per thousand) is equally acceptable. In addition, the level of immigration is considered to be significant and satisfactory⁵. The government's rationales behind these demographic perceptions is explained by,

"a variety of economic, political and social factors, including Brunei's endemic labour shortages, the government's lack of capital constraints in developing social welfare services and national security concerns relating to Brunei's small population size compared to other countries in the ASEAN region. On the other hand, the government has formulated policies to provide health care for all by the year 2000 and to regulate temporary labour migration. These and other policies in regard to health, education, housing and so forth are included within its broad concept of population policy"⁶.

Although the government does not have an explicit policy designed to modify fertility or population growth, its aims and strategy may well serve to reduce fertility, and consequently population growth. Indeed it has been recognized that,

"considering the complex interrelationships between demographic and socio-economic change, it is well justified to regard population policy as an integral part of overall development planning, i.e. as an instrument that makes socio-economic policy more effective and which --in order to be successful-- depends on concomitant socio-economic actions. In an ideal sense, population policy should always be socio-economic policy just as socio-economic policies should also serve demographic ends. This means that there is always a need for population policy, although its aims and strategies will change"².

For Brunei, such a strategy is viable as long as the cost is affordable. But in view of the present reserves and planned exploration and production programmes, oil and gas could continue to support the economy for only another twenty years³. Alternative sources of national income have to be sought soon. The government has in fact foreseen the coming of such a situation, hence has attempted to diversify the economy, as manifested in the *Fifth National Development Plan, 1986-90*. Among other major objectives, improving the quality of life of the people was given top priority. This means further promotion and maintenance of high levels of social services, hence ensuring the welfare conditions of the people with the cost borne by the government.

At present Brunei has a large proportion of young population indicating high fertility potentials. In effect the young

age structure will maintain high population growth for several decades to come, even after fertility levels fall to replacement levels. In order to maintain the desired quality of life of the people, integrated socio-demographic planning policy need to be appropriately organized. With respect to this, particularly the probability of continued high fertility levels and population growth, some of the considerations associated with such population trend that should be viewed are: 1) increased public expenditure on social services especially on education and health services; 2) substantial demands for infrastructure investments, such as housing; 3) increased investments on industrial developments to ensure greater employment opportunities for the expanding labour force."

With regard to the current demographic and economic conditions in Brunei, it means that the considerations described above are less likely yet to cause problems in Brunei at least in the next few decades. In fact, the present moderately high fertility levels and high population growth may well act as a stimulant to keep up the level of public investments and economic growth.

Nevertheless, appropriate socio-demographic planning is desirable in order to alleviate the future socio-economic consequences of unchecked population growth. With respect to Brunei as an Islamic country with strong pro-family values, socio-demographic policy formulation needs to be adapted with Islamic values in order to avoid contradictions.

REFERENCES

1. Wander, H., (1984), The Relationship between Population Policy and Socio-Economic Development, in Schubnell, H., et al. (eds.), *Population Policies in Asian Countries: Contemporary Targets, Measures and Effects*, Hong Kong: Centre of Asian Studies University of Hong Kong, p. 432.
2. United Nations, (1985), *Population Policy Compendium: Brunei Darussalam*. A joint publication of the Population Division of the United Nations, Department of International Economic Affairs and the United Nations Fund for Population Activities, p. 2.
3. United Nations, *ibid.*, p. 1.
4. United Nations, (1986), Population Reference Bureau.
5. United Nations, (1985), *Population Policy Compendium: Brunei Darussalam*, *op.cit.*, p. 2-3.
6. United Nations, *ibid.*, p. 2.
7. Wander, H., (1984), *op.cit.*, p. 441.
8. Brunei, Ministry of Finance, *Fifth National Development Plan*, (1986-90), Brunei: Government Printing Office.
9. World Bank, (1984), *Population Policies and Economic Development*, Baltimore and London: The Johns Hopkins University Press, p. 23-43.

BIBLIOGRAPHY

- Birks, J.S. and Sinclair, C.A. (1982) 'Contemporary International Migration and Human Resources Development in the Arab Region: Background and Policy Issues', in United Nations *Economic Commission for Western Asia, Population and Development in the Middle East*. Beirut, pp. 259-74.
- Roserup, E. (1986) 'Shifts and Determinants of Fertility in the Developing World: Environmental, Technical, Economic and Cultural Factors', in Coleman, D. and Schofield, R. (eds.), *The State of Population Theory: Forward from Malthus*. Oxford: Blackwell, pp. 239-255.
- Caldwell, J. C. (1979) 'Education as a Factor in Mortality Decline: An Examination of Nigerian Data', *Population Studies*, 33, pp.
- Caldwell, J. C. (1980) 'Mass Education as a Determinant of the Timing of Fertility Decline', *Population and Development Review*, Vol. 6, No. 2, (June), pp. 225-55.
- Caldwell, J. C. (1982) *Theory of Fertility Decline*. London: Academic Press,
- Caldwell, J. C. (1982) 'Fertility Transition with Special Reference to the ECWA Region', in United Nations, ECWA (1982), *Population and Development in the Middle East*, pp. 97-118.
- Chamie, J. (1982) 'International Migration and Population Growth in ECWA Region', in the United Nations ECWA, *International Migration, in the Arab World*, Vol.2. Beirut, pp. 863-904.
- Chandna, R. C. and Sidhu, M. S. (1980) *Introduction to Population Geography*. New Delhi: Kalyani Publishers.
- Clarke, J. I. (1972) *Population Geography 2nd Edition*. Oxford: Pergamon Press Ltd.
- Clarke, J. I. (1981) *Population Geography in Developing Countries*. Oxford: Pergamon Press Ltd.
- Clarke, J. I. (1984) 'Geography, Demography and Population, in Clarke, J. I. (ed.) *Geography and Population: Approaches and Applications*. Oxford: Pergamon Press Ltd., pp. 1-10

- Clarke, J. I. (1985) 'Islamic Population: Limited Demographic Transition', *Geography*, Vol. 70, No. 307, pp. 118-128.
- Cleland, J. (1985) 'Marital Fertility Decline in Developing Countries: Theories and the Evidence', in Cleland, J. and Hobcraft, J. (eds.) *Reproductive Change in Developing Countries: Insights from the World Fertility Survey*. Oxford: Oxford University Press, pp. 223-252.
- Coldclough, C. and Godfrey, M. (chief consultants) (1982) 'Brunei Manpower Masterplan', a Study Conducted by the British Council for the Ministry of Finance, (Unpublished).
- Cox, P. R. (1970) *Demography*. Cambridge: Cambridge University Press, pp. 181-205.
- Da Vanzo, J. and Haaga, J. (1982) 'Anatomy of a Fertility Decline: Peninsular Malaysia, 1950-1976', *Population Studies*, 36, pp. 373-93.
- Dixon, R. B. (1971) 'Explaining Cross-Cultural Variations in Age at Marriage and Proportions Never Marrying', *Population Studies*, 25, pp. 215-33.
- Easterlin, R. A. (1980) 'Fertility and Development', *Population Bulletin of ECWA*, No. 18, (June), pp. 5-40.
- El-Shalakani, M. (1984) 'Level and Pattern of Mortality in the Kuwaiti Population, 1980 in Population Bulletin of ECWA, No. 25, (December), pp. 89-106.
- Frederik, A. D. and George, J. Demko (1981), 'Population Distribution, Problems and Policies in Asia', *Population Geography*, Vol. 3, No. 1 and 2, June-December, pp. 16-40.
- Fulton, S. J. (1984) 'Brunei: Past and Present', *Asian Affairs*. London, Vol. 14, Part 1, pp. 5-14.
- Gary, L. P. (1976) *Population Geography, Problems, Concepts and Prospects*, Iowa: Kendall / Hunt Publishing Company.
- Ghallab, M. E-S. (1984) 'Population Theory and Policy in the Islamic World', in Clarke, J. I. *Geography and Population: Approaches and Application*. Oxford: Pergamon Press Ltd., pp. 233-41.
- Graff, H. F. (1979) 'Literacy, Education and Fertility, Past and Present: A Critical Review', in *Population and Development Review*, Vol. 5, No. 1 (March), pp. 105-40.

- Gwatkin, D. R. (1980) 'Indications of Change in Developing Country Mortality Trends: The End of an Era?', in *Population and Development Review*, Vol. 6, No. 4 (December), pp. 615-44.
- Hansluka, H. (1974) 'Health, Population and Socio-Economic Development', in Tabah, L. (ed.) *Population Growth and Economic Development in the Third World*, Vol. 1. Belgium: International Union for the Scientific Study of Population, pp. 191-249.
- Hill, A. G. (1972) 'The Gulf States: Petroleum and Population Growth', in Clarke, J. I. and Fisher, W. B. (eds.) *Population of the Middle East and North Africa: A Geographical Approach*. New York: Africana Publishing Corporation (APC), p. 243-273.
- Hill, A. G. (1981) 'Population Growth in the Middle East since 1945 with Special Reference to the Arab Countries of West Asia', in Clarke, J. I. and Bowen-Jones, H. (eds.) *Change and Development in the Middle East*. London and New York: Methuen, pp. 130-53.
- Hobercraft, J. N., McDonald, J. W. and Rutstein, S. O. (1984) 'Socio-Economic Factors in Infant and Child Mortality: A Cross-National Comparison', *Population Studies*, 38, pp. 193-223.
- Hock, K. O. et al. (1976) *Brunei in Transition: Its Human Geography in the Sixties*. Occasional Paper No. 2. Kuala Lumpur: Universiti Publication Ltd.
- Jain, A. K. (1981) 'The Effect of Female Education on Fertility: A Simple Explanation in Demography' *A Publication of Population Association of America*, pp. 577-96.
- Jamil, Hj. P. O. K. A. D. (1976) *Scheme for the Implementation of a New Education Policy*. Brunei: Language and Literature Bureau.
- Jones, L. W. (1966) *The Population of Borneo: A Study of the People of Sarawak, Sabah and Brunei*. London: The Athlone Press.
- Judge, J. (1974) 'Brunei: Borneo's Abode of Peace' *National Geographic Magazine*, Vol. 145 No.2, pp. 207-24.
- Katner, J. F. and McCaffrey, L. (eds.) (1975) *Population and Development in Southeast Asia*. Massachusetts: Heath and Company.

- Knodel, J. E. (1977) 'Family Limitation and the Fertility Transition: Evidence from Age Patterns and Fertility in Europe and Asia. ' *Population Studies*, 31, pp. 219-49.
- Lee, Y. L. (1962) 'The Population of British Borneo' *Population Studies*, 15, pp. 226-43.
- Lee, E., Ong, M. and Smith, T. E. (1972) 'Family Planing in West Malaysia: The Triumph of Economics and Health over Politics', in Smith, T. E. (ed.) *The Politics of Family Planning in the Third World*. London: George and Unwin Ltd., pp. 256-90.
- Leete, R and Kwok, K. K. (1986) 'Demographic Changes in East Malaysia and their Relationship with those in the Peninsula 1960-1980. ' *Population Studies*, 40, 83-100.
- MacDonald, M. (1968) *Borneo People*. Singapore: Donald Moore Press.
- Mason, K. O. and Palan, V. T. (1981) 'Female Employment and Fertility in Peninsular Malaysia: The Maternal Role Incompatibility Hypothesis Reconsidered. ' *Demography*. Vol. 18, No. 4, pp. 549-76.
- Mohamed, J. M. (1981) 'Housing Problems in Developing Countries with Special Reference to Brunei. (Master's Thesis, University College, London.
- Nam, C. B. and Gustavus, S. O. (1976) *Population: The Dynamics of Demographic Change*. Boston: Houghton Mifflin Company.
- Neville, W. (1985) 'Economy and Employment in Brunei', *Geographical Review*. (October) pp. 451-51.
- Nicholl, R. (1983) 'Brunei Rediscovered: A Survey of Early Times.' *Journal of Southeast Asian Studies*. Vol. 14 No.1, pp. 32-45.
- Palmore, J. A., Chander, R. and Fernandez, D. Z. (1975) 'The Demogarpfic Situation in West Malaysia.' in Kantner, J. F. and McCaffray, L. *Population and Development in Southeast Asia*. Massachusetts: Heath and Company.
- Peters, G. L. and Larkin, R. P. (1976) *Population Geography: Problems, Concepts and Prospects*. Iowa: Kendall/Hunt Publishing Company.
- Population Division of ECWA. (1982) 'Mortality Differentials in the Countries of ECWA Region.' in *ECWA Population and Development in the Middle East*, pp. 155-68.

- Pressat, R. (1972) *Demographic Analysis: Methods, Results, Applicants*. London: Edward Arnold (Publisher) Ltd.
- Preston, S. H. (1980) 'Causes and Consequences of Mortality Declines in Less Developed Countries during the Twentieth Century', in Easterlin R. A. (ed.) *Population and Economic Change in Developing Countries*. Chicago: The University of Chicago Press. pp. 289-310.
- Preston, S. H. (1985) 'Mortality in Childhood: Lessons from WFS.' in Cleland, J. and Hobcraft, J. (Eds.) *Reproductive Change in Developing Countries: Insights from the World Fertility Survey*, Oxford: Oxford University Press. pp. 253-72.
- Ridker, R. G. ed. (1976) *Population and Development: The Search for Selective Interventions*. Baltimore & London: The John Hopkins University Press.
- Ruzicka, L. T. and Hansluwka, H. (1982) 'Mortality Transition in South and East Asia: Technology Confronts Poverty'. *Population and Development Review*, Vol. 8, No. 3, pp. 567-88.
- Samha, M. (1982) 'Migration Trends and Patterns within the ECWA Region' in the United Nations, ECWA, *International Migration in the Arab World*, Vol. 1, pp. 93-141.
- Schult, T. P. (1980) 'An Economic Interpretation of the Decline in Fertility in a Rapidly Developing Country: Consequences of Development and Family Planning', in Easterlin, R.A. (ed.) *Population and Economic Change in Developing Countries*. Chicago: the University of Chicago Press, pp. 209-88.
- Singh, S. and Casterline, J. (1985) 'The Socio-Economic Determinants of Fertility', in Cleland, J. and Hobcraft, J. (eds.) *Reproductive Change in Developing Countries: Insights from the World Fertility Survey*. Oxford: Oxford University Press, pp. 199-222.
- Tabbarah, R. (1982) 'Population, Human Resources and Development in the Arab World', in the United Nations, ECWA, (1982), *Population and Development in the Middle East*, pp. 19-52.
- Thomson, G. G. and Smith, T. E. (1972) 'Singapore: Family Planning in an Urban Environment', in Smith, T. E. (ed.) *The Politics of Family Planning in the Third World*, London: George Allan and Unwin Ltd., pp. 217-55.
- The Europa Yearbook (1985) *A World Survey*, Vol. 1 and 11.

The World Bank (1983) *World Development Report 1983*. New York: Oxford University Press.

The World Bank (1984) *Population Development and Economic Change*. Oxford: Oxford University Press.

The World Bank (1986) *World Development Report 1986*. Oxford: Oxford University Press.

United Nations, ECWA (1978) *Demographic and Related Socio-Economic Data Sheets For Countries of the ECWA*. Beirut, (January).

United Nations, ECWA (1982) *Demographic and Related Socio-Economic Data Sheets for the Countries of ECWA*. Beirut, (May).

United Nations, ECWA (1981) *The Population Situation in the ECWA Region: Kuwait*. Beirut.

United Nations, ECWA (1981) *The Population Situation in the ECWA Region: Oman*. Beirut.

United Nations, ECWA (1981) *The Population Situation in the ECWA Region: Qatar*. Beirut.

United Nations, ECWA (1981) *The Population Situation in the ECWA Region: United Arab Emirates*. Beirut.

United Nations *Demographic Yearbook, 1955*. New York.

United Nations *Demographic Yearbook, 1963*. New York.

United Nations *Demographic Yearbook, 1968*. New York.

United Nations *Demographic Yearbook, 1970*. New York.

United Nations *Demographic Yearbook, 1975*. New York.

United Nations *Demographic Yearbook, 1978*. New York.

United Nations *Demographic Yearbook, 1979*. New York.

United Nations *Demographic Yearbook, 1980*. New York.

United Nations *Demographic Yearbook, 1982*. New York.

United Nations *Demographic Yearbook, 1983*. New York.

United Nations *Demographic Yearbook, 1984*. New York.

- United Nations (1985) 'Population Compendium: Brunei Darussalam', Population Division, Department of International Economic and Social Affairs and Fund for Population Activities.
- United States, Bureau of the Census. (1980) *International Population Dynamics 1950-79: Demographic Estimates for the Countries with a Population of 5 Million or More*. Washington, D.C.
- United States, Bureau of the Census. (1983) *World Population: Recent Demographic Estimates for the Countries and Regions of the World*. Washington, D.C.
- United States, Population Reference Bureau, Data Sheets, 1984.
- United States, Population Reference Bureau, Data Sheets, 1986.
- Wander, H. (1984) 'The relationship between Population Policy and Socio-Economic Development', in Schubnell, H. et al. *Population Policies in Asian Countries: Contemporary Targets, Measures and Effects*. Hong Kong: University of Hong Kong, pp. 429-43.
- World Confederation of Organizations of the Teaching Profession (1978) *Compulsory Education: Social Expectations*. National Reports on the Theme for 1977 in their original languages, 26th. Assembly of Delegates, Switzerland: Morges.
- Woods, R. (1982) *Population Analysis in Geography*. London and New York.
- Woods, R. (1982) *Theoretical Population Geography*. New York: Longman.

OFFICIAL SOURCES

- Colonial Annual Report, Brunei, 1947*. London: His Majesty's Stationary Office.
- Colonial Annual Report, Brunei, 1948*. London: His Majesty's Stationary Office.
- Colonial Annual Report, Brunei, 1949*. London: His Majesty's Stationary Office.
- State of Brunei Annual Report, 1959*. London: Her Majesty's Stationary Office.

- State of Brunei: Report for the Year 1960*, . London: Her Majesty's Stationary Office.
- Colonial Annual Report, Brunei, 1964*. London: Her Majesty's Stationary Office.
- State of Brunei Annual Report, 1966*. London: Her Majesty's Stationary Office.
- State of Brunei Annual Report, Brunei, 1968*. London: Her Majesty's Stationary Office.
- Department of Education, *Annual Report, 1974*.
- Department of Education, *Annual Report, 1976/77*.
- Ministry of Education and Health, *Educational Statistics of Brunei Darussalam, 1973-82*.
- Ministry of Finance, Economic Planning Unit, (1981) *Brunei Population Census, Summary Tables, 1981*.
- Ministry of Finance, Economic Planning Unit, *Fifth National Development Plan, 1986-90*.
- Ministry of Finance, Economic Planning Unit, *Brunei Statistical Yearbook, 1982/83*.
- Ministry of Finance, Economic Planning Unit, *Brunei Statistical Yearbook, 1983/84*.
- State Secretariat, Economic and Statistic Section, (1972) *Brunei Report on the Population Census, 1971*.
- State Secretariat, Economic Planning Unit, *Brunei Statistical Yearbook, 1975/76*.
- State Secretariat, Economic Planning Unit, *Brunei Statistical Yearbook, 1977/78*.
- State Secretariat, Economic Planning Unit, *Brunei Statistical Yearbook, 1978/79*.
- State Secretariat, Economic Planning Unit, *Brunei Statistical Yearbook, 1979/80*.
- State Secretariat, Economic Planning Unit, *Brunei Statistical Yearbook, 1981/82*.
- State Secretariat, Economic Planning Unit, *National Development Plan, 1975-1979*.
- State Secretariat, Economic Planning Unit, *National Development Plan, 1980-1984*.

