

### **3.8.4 Summary**

The overall Human Development Index indicate that PNG has performed poorly in terms of providing for its population. Education indicators have shown marked improvement but the increasing output from the education system, have far outstripped formal employment opportunities. There has been a decline in formal employment. Health indicators have generally improved but the areas for concern are the increase in the infant mortality rate, more patients per doctor and the increased incidence of HIV/aids cases. Over 70% of the population do not have access to safe water. The majority of the population, particularly in the rural areas, do not have access to information. Lack of funding and maintenance have led to deteriorated road conditions, therefore has restricted access to markets and services. Law and order remains a problem in PNG.

## **3.9 Provincial Socio-Economic Situation**

### **3.9.1 Central Province**

#### **3.9.1.1 Economic Condition**

Central Province lies in the south coast of the PNG mainland and occupies about 29900 km<sup>2</sup> (or 2987000 ha) of land. Its 504 km coastline runs from Cape Possession to Orangerie Bay. Twenty six percent of the land is arable, 58% is forest and woodland while 0.2% is protected land. Deforestation has taken place at an average annual rate of 11000 ha between 1989 and 1995.

There are four electorates within the province: Goilala (headquarters at Tapini), Kairuku Hiri (Kairuku, headquarters at Bereina, Hiri, headquarters at Konedobu), Rigo (headquarters at Kwikila) and Abau (headquarters at Kupiano).

The National Capital District (NCD) is located within the province and has affected the province in many respects. Villagers sell betelnut, vegetables, fruit and fish in the NCD markets. They also benefit from services and amenities that the city provides. Many work in the public and private sector in NCD. The provincial government has not been able to bring meaningful development to the province because of its inability to generate revenue. Much of the revenue generated in NCD is from resources located in the Central province. For example, the Sirinumu Dam at Sirinumu, agricultural produce from Central, Value Added Tax generated from consumers and business from Central, electricity rates paid by Central consumers, etc. In return, the province gets a mere 5% of the total revenue generated.

Away from NCD, subsistence farming and fishing are the main activities. Wage and income levels in Central are amongst PNG's lowest. Real domestic factor income (DFI) for the province in 1996 was K77.5 million which is about 1.7% of the National DFI (K4,429 million). DFI per capita is K481, about half the national per capita income (K994). Central is ranked 16 out of the 19 Provinces excluding Bougainville on the per capita income basis. The province's main exports are rubber, timber, lobster tails and gold and silver from the Tolokuma mines.

Table 3.10. Ten years and older engaged in the Cash Economy in Central Province (1990 and 2000).

Monetary Activity	1990	%	2000	%
Wage Job	8599	8.8	7042	5.5
Business	447	0.5	1090	0.8
Self-employment	2436	2.5	1108	0.9
Farm/ fish (money)	26750	27.4	8896	6.9
Total Monetary	38232	39.1	18136	14.1
Non-monetary	58894	60.3	104684	81.1
Not stated	596	0.6	6247	4.8
Total all activities	97722		129067	

Source: National Census 1990 and 2000

The 2000 national census show that 14.1 per cent (39.1 % in 1990) of those 10 years and older are involved in the cash economy: 5.5% (8.8% in 1990) work for wages, 0.8% (0.5% in 1990) own a business, 0.9% (2.5% in 1990) are self-employed and 6.9% (27.4% in 1990) sell crops / fish. No doubt the cash economy in the province has shrunk despite the increase in the 10 years of economically active people. The general downturn in the National economy has impacted the Central economy. Cost of living and cost of doing business have increased exponentially since 1994. PNG is import-dependent, which means that the fall in the value of kina since 1994 has contributed a lot to domestic inflation. Deteriorating infrastructure such as roads through either lack of funding, funds mismanagement or outright neglect has also resulted in the contraction in the cash economy.

The main non-monetary activities include subsistence gardening / fishing (47.5%), housekeeping (9.4%), student (9.1%), and those helping in family business without pay (2.9%). Out of the unemployed, 0.3% were waiting to start a job and 0.9% were looking for work.

Most of the households are engaged in the informal sector where the leading income generating activities are betelnut / mustard, food crops / cooked food, fish, meat, and self made items.

The labour profile for the Central Province according to the 1990 and 2000 National Census and the 1998 UNDP PNG Human Development Report is as follows:

Table 3.11. Labour Force as a percentage of the Economically Active Population (EAP) age 10 and older.

	Formal Labour Force (wage earners, business, self employed)		Subsistence & Semi- subsistence Labour		Unemployed (waiting to start job, looking for work)		Real Earnings per Employee
(As % of EAP age 10 and older)							
Year	1990	2000	1990	2000	1990	2000	1996
National	18%	15%	74%	75%	8%	3%	K5,646
Absolute	312774	355555	1269744	1808856	132812	68623	
Central	18%	11%	74%	83%	7%	2%	K2,136
Absolute	11482	9240	46675	70144	4586	1485	

The economically active population (EAP) / labour force (age 10 and older) in the Central Province in 2000 was 84609 compared to 62743 in 1990. In 2000, the formal labour force fell to 11% compared to 18% in 1990. The formal labour force is defined as: wage earners, those who own a business and those in paid self-employment. The subsistence and semi-subsistence labour was 83% in 2000 compared to 74% in 1990. The data show that while the total labour force had increased, the formal labour force shrunk between 1990 and 2000. This finding is consistent with the down turn in the economy at the national and provincial level between this period.

In the 2000 census, the "unemployed" was defined as those waiting to start a job and those looking for work. In the 1990 census, the "unemployed" is not clearly defined so that the unemployment rate between the two census may not be comparable. According to the 1990 and 2000 National Census, unemployment in the province has fallen from 8% in 1990 to 2% in 2000. Unemployment rate at the national level has also fallen. Real earnings per employee in the province were estimated at K2,136 in 1996 less than half the national average.

The 2000 Census reported that about 83,124 persons in the province who are economically active (EAP) worked in industries for wages. The agricultural sector including hunting and forestry and, wholesale and retail sector employed the highest number of workers (EAP) of the province to work. Both sectors employ about 74% and 9.4% respectively from the total EAP by the industry. This is shown on the table below.

Table 3.12. Labour Force by Industry for Central Province (2000).

Industry	Total Labor	%age
Agriculture, hunting and forestry	61,847	74.4
Fishing	4,749	5.7
Mining and Quarrying	229	0.3
Manufacturing	585	0.7
Electricity, gas, steam & hot water	62	0.1
Construction	982	1.2
Wholesale and retail trade	7,858	9.5
Hotels and restaurants	86	0.1
Transport, storage and communication	600	0.7
Financial Intermediation	103	0.1
Real estate, renting and business service activities	862	1.0
Public administration and defence, compulsory social security	1,075	1.3
Education	1,090	1.3
Health	296	0.4
Other community, social and personal service activities	1,230	1.5
Private households with employed persons	317	0.4
Extra-territorial organisations and bodies	6	0.0
Not stated	1,147	1.4
Total	83,124	

Source: National Census 1990 and 2000

### 3.9.1.2 Major Agricultural Crops Produced in the Province

Major agricultural cash crops as economic activities of the households in the Central Province, apart from the traditional subsistence gardening and fishing activity, are centered around copra, coffee, cocoa, rubber, and betelnut. There were only about 30 households involved in oil palm compared to 80 in 1990. An estimated total of 29,742 21,553 households in the province were engaged in these activities compared to 21,553 in 1990. Percentages of total households involved in various major agricultural activities in the Central Province are shown below in Table 3.9. Agricultural cash crop production in the province was estimated at K10.5 million in 1996.



A rice garden at Idoldo village, Kairuku District, Central Province

Table 3.13 Distribution of households engaged in cash cropping activities in Central Province

	1990			2000		
	Total Engaged	Cash*	% Cash**	Total Engaged	Cash	% Cash**
Crop						
Cocoa	840	840	3.90	490	175	0.59
Coffee	3280	3280	15.22	4691	4016	13.50
Rubber	726	726	3.37	1221	1059	3.56
Oil Palm	80	80	0.37	230	30	0.10
Coconut	11864	5245	24.34	15755	2961	9.96
Betelnut	12114	8731	40.51	16955	8219	27.63
Fruit	12179	5627	26.11			
Banana	18688	8708	40.40			
Veg. Crops	17387	8190	38.00			
Spices	2425	1005	4.66			
Food crops / vegetables and other root crops				22386	4086	13.74
Other	1842	808	3.75	94	87	0.29
Total Engaged	81425	43240		61822	20633	
Total Households	21553			29742		

Source: National Census 1990 and 2000.

\*For cocoa, coffee, rubber and oil palm, the own use was not separated out in the 1990 census.

\*\*Total exceeds 100% as some households are engaged in two or more crops.

Table 3.14: Percentage change in the number of households engaged in cash cropping activities between 1990 and 2000.

	1990	2000	% Change over 1990
Crop			
Cocoa	840 <sup>a</sup>	175	-79
Coffee	3280 <sup>a</sup>	4016	22
Rubber	726 <sup>a</sup>	1059	46
Oil Palm	80 <sup>a</sup>	30	-63
Coconut	5245	2961	-44
Betelnut	8731	8219	-6
Total Engaged	18902	16460	-13
Total Households	21553	29742	38

Source: National Census 1990 and 2000.

\*These figures must be interpreted with caution, as the own use purpose was not excluded.

Copra production in the province has averaged around 880 tonnes per year in the last ten years from 1990 to 1999. Rubber, one of the major agricultural activities in the province is cultivated both on estate as well as on smallholder plots. Production in the province had been consistent and had been on an increase from 610 tonnes in 1990 to 1,652 tonnes in 1999, accounting for an average of 1,260 tonnes per years. Cocoa and coffee also are important cash crops for the province. In terms of the production of these two crops, cocoa production had generally been on a decline with an average of 12 tonnes per year from 1990/91 – 1998/99, generating an average of K15,622 for the provincial economy in the last ten years. Coffee on the other hand, averaged around 3.6 metric tonnes per year.

Tables 3.13 and 3.14 above indicate that household involvement in cocoa, oil palm, coconut and betelnut fell between 1990 and 2000 except for coffee and rubber. Apart from the reasons stated above, depressed commodity prices over this period may have been a contributing factor. It is important to note that because of our obligations towards trade liberalization under the auspices of the World Trade Organization (WTO), any form of price support or assistance from the government to agricultural commodities will constitute unfair trading and the government is required to gradually phase out such assistance. In other words, growers will now need to be more independent and competitive. The same set of conditions will apply to the proposed smallholder rice scheme. It is also highly unlikely that the Government will accord protection to new import competing industries.

### **3.9.1.3 Population and Social Conditions**

#### **3.9.1.3.1 Demographic Profile**

From the last national population census in 1990, citizen population of the province has increased by over 30.3% from 140,847 in 1990 to 183,805 in 2000. The Province's annual citizen population growth rate of 2.66% between this period is lower than the national rate of 3.67%. Between 1980 and 1990 the annual growth rate was 1.9% (national 2.3%) so that the population in the province really accelerated between 1990 and 2000. At the growth rate of 2.66%, the provincial population is expected to double by the year 2026. The national population is expected to double by 2019.

The rural population of Central in 1990 and 2000 was 134,183 and 178,057 respectively. The province has an average population density of 6 persons per km<sup>2</sup>, among the lowest in the country. Over half of the province is unoccupied. The densely populated areas are the plains west of Bereina with 225 persons / km<sup>2</sup> among, the coastal areas around Cape Hood, Kupiano and Baxter Bay have 120 persons / km<sup>2</sup> and Cape Rodney with an average of 60 persons / km<sup>2</sup>. Tapini, Sogeri and Efogi have significant out-migration of people while Port Moresby, Bereina and Kwikila have significant in-migration. In 1990, there was a net out-migration from the province of 12,500 persons.

The crude birth rate and crude death rate for the Central Province in 1996 were 34 and 11 per thousand population respectively, lower than the national rates of 36 and 12. The total fertility rate in 1996 was an average of 4.6 children born to a woman of reproductive age 15-49, below the national average of 4.8 children per mother.

#### **3.9.1.3.2 Education**

For those 5 years and older, school attendance has increased from 26.5% in 1990 to 31.6% in 2000. This was really a result of the educational reforms that were implemented during the 1990s where most community schools were topped up with grades 7 and 8 and some high schools were converted to secondary schools, which catered for grades 9 to 12. However, among all the persons 5 years and older, the success rate at completing certain grade levels has dropped as indicated below. This may be due to the adjustments that have been taking place during the implementation period in terms of staffing, enrolments, resources, funding etc.

Table 3.15 Highest Grade completed as a % of all persons 5 years and older

Grade completed	1990	2000
6	8.0%	7.1%
8	4.6%	3.6%
10	2.4%	1.8%
12	0.3%	0.3%

The adult literacy rate has improved from 66.4% in 1990 to 69.6% in 2000 for the Central citizen population aged 10 years and over. These rates are higher than the national rate of 45.1% and 54.6% for 1990 and 2000 respectively. This achievement can be attributed to the educational reforms mentioned above. For example, at the elementary level 1 and 2, students are taught first in their vernacular then proceed on to English in the subsequent years. However, despite the expansion in the number of schools and places, maintenance of these facilities has lagged behind.

### 3.9.1.3.3 Health

Life expectancy at birth has improved from 51.2 years in 1980 to 56.6 years in 1996, higher than the national average of 49.6 and 54 years respectively. Males live longer than females, 58.4 and 54.7 years respectively in 1996. The national average is 54.6 and 53.5 years respectively. Infant mortality rate has improved from 59 per 1000 live births in 1980 to 52 in 1996. Mothers are having fewer children, 4.6 children in 1996 than before, 5.8 in 1980. More than half (55.3%) of the populations have access to safe drinking water; the national average is 24.4%. A quarter of the children under age 5 are malnourished, which is slightly lower than the national average of 29%.

The health indicators for the province do indicate some general trend of improvement. The easy accessibility of health services provided in Port Moresby via the Sogeri road, Hiritano and Magi highways have benefited the Central people. Rural health services provided by the National / Provincial governments and churches have brought health services closer to the people. The improvement in the health indicators can also be attributed to the fact that more and more people are becoming educated and literate. The problem has been the lack of continuous supply of essential and basic drugs to health centers in Central and NCD, and the poor upkeep of health facilities.

### 3.9.1.3.4 Access to services

Central province has good roads but these roads are generally in poor condition. Major roads include Hiritano Highway, which runs from Port Moresby to Bereina and on to Kerema in the Gulf Province, Magi Highway which runs southeast from Port Moresby to Kwikila sealed and continues unsealed to Kupiano, and the Sogeri road which runs north into Sogeri. The Sogeri road is also sealed. Sea travel by canoe and outboard motor boat are common along the coast. People in the remotest parts of the province require 4 – 8 hours travel or more than one days travel to reach the nearest service center. There are some 30 airfields in operation in the province, which are mainly serviced by smaller airlines. Central does not have any ports and all shipping services are accessed in Port Moresby. To many Centrals, high transportation cost from passenger fares, to cost of delivery is an impediment to travel and business.

It has been estimated in 1995 that 74 percent of the population have access to roads while 48% have access to waterways. Electricity to the rural community has reached only a few people, especially the areas in Kairuku Hiri and Rigo that are closer to Port Moresby. Rural electrification has basically come to a standstill. The only known minihydro scheme located in Wotape was commissioned in 1992.

Telecommunication services have not reached the bulk of the population and currently only one per cent of the population have telephone connections. Four per 100,000 people have access to postal services. In 1996, 34.8% of household had access to Radios, which is 3% more than the national average of 31.8%, while 9.1% of the households had access to televisions. It is less than 2% of national average of television access.

Thus, the most viable means of communication for the province is radio. The average daily circulation (based on annual circulation) of the two daily newspapers (Post Courier and The National) and weekly circulation show that about 7 and 1 person out of every 1,000 people of the province had access to both newspapers respectively. About 4 people out of every 100,000 people had accessed to post offices. That is, 2 people more than the national average of 2 in every 100,000 people. About 2.9% of the households have telephone connections. The table below gives comparable figures of the most commonly used communication technology in the province.

Table 3.16 Access to information

Type of Communication Technology	%	Year
Radios (% of households)	34.8	1996
TV (% of households)	9.1	1996
Daily English Newspaper (per 1,000 people)	7	1997
Post Offices (per 100,000 people)	4	1997
Telephones (% of households with connections)	2.9	*

Source: UNDP - HDR, 1998

\* Data not available

The UNDP data of 1995 indicated that 1,164km of the national roads in the province including institutional roads are usable nearly 100% of the time. Similarly about 448km of the trunk roads and 345km of feeder roads in the province are usable nearly 80% of the time and 70% of the time respectively. As compared to overall national road usable percentage, people in the province use about 13.20% of the national road, 5.79% of the trunk roads but use feeder roads more than 5 times the overall national feeder roads. That indicates that the bulk of the Central population live in the areas linked by feeder roads and national roads.

Sixty four percent of the population in 1996 had access to adequate health services, the third lowest among all the Provinces. Population per doctor is 161,179, and per nurse is 2270, the second highest in the country after Bougainville. Population with access to sanitation is 56%.

Rural development cannot take place without first providing the basic infrastructural support services in the rural areas. Access to and availability of existing services may play a critical role in deciding the location(s) of the proposed smallholder rice scheme for Central Province. On the other hand, this scheme could provide the opportunity to create new support services

in the rural community provided the financial rate of return exceeds the opportunity cost of such investment.

#### **3.9.1.3.5 Law and Order**

The law and order problem is a nation wide problem. According to crime statistics in 1997, Central fared better than 6 Provinces in robbery cases, better than 16 Provinces in rape and sexual offences. Thirty robberies per 100,000 people were committed while 18 rape and sexual offences were committed. These cases were less than half the national average. Criminal activities have plagued the major roads as well as the minor roads.

#### **3.9.1.4 Summary**

Economic indicators show that the Central economy has contracted between 1990 and 2000. Cost of living and doing business in the province has increased exponentially. While the population has been on the increase, the agricultural production trend of major commodities had generally been on a decline and is mostly attributed to depressed commodity prices, poor infrastructure conditions, transport availability / inefficiency, hence affecting market accessibility to markets in the province and NCD. The inequitable revenue sharing arrangement between the NCD and Central has inhibited development opportunities in the province. The province has been unable to generate revenue because it does not have a city of its own. The province is more or less backward like most rural locations in the country, where development had generally stagnated. On education, while enrolments and the literacy rate has improved, completion rates at certain grade levels have declined. Health indicators show some general improvement. Accessibility to services by road and sea travel is generally good. The problem is high transportation cost and poor infrastructure conditions. Law and order remains a problem.

### **3.9.2 Morobe Province**

#### **3.9.2.1 Economic Condition**

Morobe occupies 33 525km<sup>2</sup> in the central north of Papua New Guinea (PNG) and has the largest population with its most varied character. It has some of PNG's wettest climates and some of its driest, some of its highest mountains and one of its biggest valleys. According to UNDP data of 1996, it shows that 24% hectares of the total land in the province is arable land. There is little high potential land in Morobe Province. Most of that land has very low to moderate potential. It is the area of land under dominant slopes of 0 to 20 degrees with soil drainage from well drained to imperfect suitable that is for use of agricultural machinery and is at low risk of man-induced soil degradation. Likewise the province has 55% hectares of forests as reported by the Inventory Management System.

The province has 2.1% of the total land area protected under any of these nine categories: National Parks, Wildlife Management Areas, Sanctuaries, Provincial Parks, Protected Areas, Nature Reserves, Historical sites, National Walking Tracks and ex-situ as reported by the Department of Environment and Conservation. The UNDP PNGHRD (1998) reported that from 1989 to 1995 Morobe Province had land area logged at an annual average of 5000ha. The logged land area included concessionary logging, logging for cultivation or for other purposes.

Lae City is the capital of Morobe province and it is PNG's second largest city, a major manufacturing center and the hub of transport and trade for the Highlands. It is made up of 9 districts with 21 Local Level Governments (LLGs) and is represented by 10 members of parliament.

The province has the third highest Real Domestic Factor Income per capita of K1,240, which is 24 % more than the national Real Domestic Factor Income per capita of K994. The Real Domestic Factor Income (DFI) of the province is about 12.2% of the national DFI of K4,429,667 (UNDP 1998). This indicates that the salaries and benefits of workers (public and private) and profits from businesses including income from non-formal activities and market trade in Morobe province are fairly higher as compared to other Provinces with that exception of NCD. Morobe has diverse sources of rural cash income. Highest incomes occur close to the major roads. This is true for the people in the Markham and Watut valleys who earn very high income from the sale of betelnut and fresh food. Those along the coast and either side of Lae have moderate incomes from the sale of cocoa, coconut, fish, betelnut and fresh fruit. Mining near Wau, forestry near Bulolo and cattle ranches in the Markham Valley provides some wage employment and royalties. The demand for labour and food in the urban areas of Lae is an important influence in the province and beyond.

The table below shows percentage change in the number of citizen population aged 10 years and over engaged in monetary activities between 1990 and 2000.

Table 3.17 Ten years and older engaged in the Cash Economy in Morobe Province (1990 and 2000).

Cash Economic Activity	1990	%age	2000	%age	%age changed
Business	1,704	0.6	5,727	1.5	236.1
self-employment	7,815	2.9	9,037	2.4	15.6
Not stated	2,822		11,309		
farm/ fish (money)	66,363	24.7	26,610	7.0	-59.9
Wage Job	8,659	10.7	31,525	8.3	10.0
Total Monetary Activities	104,541		72,899		
Total non-monetary Activities	161,587		297,555		
Total Activities	268,950		381,763		

Source: National Census 1990 and 2000

The overall cash economic activities of the province have increased by over 40% over the past ten years. That is because of the improved infrastructure services especially to the rural areas including better market facilities. However, the major natural disasters that struck the province are the landslides that have affected several parts of the province and the prolonged drought season (El Nino) experienced in 1997. The most affected were the persons engaged in farming and fishing activities. Over the ten-year period the farming and fishing activities of Morobe Province have dropped by almost 60% while the number of households engaged in the business activity has doubled. The latter shows that the business activity in the province is very vibrant.

The labour profile for the Morobe Province according to the 1990 and 2000 National Census and the 1998 UNDP PNG Human Development Report is as follows:

Table 3.18 Labour Force as a percentage of the economically active population age 10 and older.

Formal Labour Force (wage earners, business, self employed)			Subsistence & Semi- subsistence Labour		Unemployed (waiting to start job, looking for work)		Real Earnings per Employee
(as % of EAP age 10 and older)							
	1990	2000	1990	2000	1990	2000	1996
National	18%	15%	74%	75%	8%	3%	K5,646
Absolute	312774	355555	1269744	1828856	132812	68623	
Morobe	20%	19%	68%	69%	11%	4%	K6,360
Absolute	37,021	46,289	123,790	168,705	20,251	9,899	

The economically active population (EAP) / labour force (age 10 and older) in the Morobe Province in 2000 was 46,289 compared to 37,021 in 1990. In 2000 the formal labour force fell to 19% compared to 20% in 1990. The formal labour force is defined as: wage earners, those who own a business and those in paid self-employment.

In the 2000 census Morobe Province had about 46,289 persons aged 10 years and above who stated their main economic activity as working for wages, owning a business, or self employed. It declined from 20% (1990) to 19% (2000) of the total Labour force in the province. However, in absolute terms the formal labour force increased between 1990 and 2000.

The subsistence and semi-subsistence labour was 69% in 2000 compared to 68% in 1990. The data show that while the total labour force had increased, the formal labour force contracted between 1990 and 2000. This finding is consistent with the down turn in the economy at the national and provincial level between this period.

With the economic hardships faced by the country and the province, a 4% unemployment rate in 2000 in the province compared to 11% in 1990 could be attributed to the fact that an increasing number of people are engaging in subsistence and semi-subsistence activities.

As reported by UNDP, real earnings per employee in the province was estimated at K6,360 in 1996 is about 12% more than national average.

The census (2000) reported that about 234,787 persons in the province who are economically active (EAP) worked in industries for wages. The agricultural sector including hunting and forestry and, wholesale and retail sector employed the highest number of workers. Both sectors employed about 68% and 16.5% respectively. This is shown on the table below.

Table 3.19 Labour Force By Industry for Morobe Province (2000).

Industry	Total Labor	%age
Agriculture, hunting and forestry	59,547	68.0
Fishing	1,212	0.5
Mining and Quarrying	3,701	1.6
Manufacturing	4,160	1.8
Electricity, gas, steam & hot water	279	0.1
Construction	5,161	2.2
Wholesale and retail trade	38,663	16.5
Hotels and restaurants	591	0.3
Transport, storage and communication	3,291	1.4
Financial Intermediation	331	0.1
Real estate, renting and business service activities	4,022	1.7
Public administration and defence, compulsory social security	3,141	1.3
Education	2,660	1.1
Health	1,123	0.5
Other community, social and personal service activities	2,828	1.2
Private households with employed persons	1,510	0.6
<b>Extra-territorial organisations and bodies</b>	<b>2</b>	<b>0.0</b>
Not stated	2,565	1.1
<b>Total</b>	<b>234,787</b>	

Source: National Census 1990 and 2000

### 3.9.2.2 Major Agricultural Crops Produced in the Province

The major agricultural crops produced in the province are banana, sweet potato, and Chinese taro. The leading village cash sources are coffee, cocoa, rubber, oil palm, vegetables, betelnut, bananas, fruit, and coconuts. Coffee, copra, cocoa and betelnut are the major cash crops in the province that engaged about 82.8% of households (2000 census).

A total of 95,774 households in the province are engaged in these activities. Percentages of total households involved in various major agricultural activities in Morobe are shown as follows:

Table 3.20 Distribution of cash cropping activities in Morobe Province.

Cash Cropping Activities	Households engaged - 1990			Households engaged - 2000		
	Total engaged	<sup>a</sup> Cash	Cash %	Total engaged	Cash	Cash %
Cocoa	715	715	6.4	3,718	3,477	3.6
Coffee	2,992	2,992	26.6	43,728	42,578	44.5
Rubber	37	37	0.3	346	95	0.1
Oil palm	39	39	0.3	705	199	0.2
Coconut	5,218	2,022	18.0	35,367	8,928	9.3
Betelnut	6,353	3,891	34.6	56,847	24,347	25.4
Fruit	5,850	1,994	17.8			
Banana	7,722	2,594	23.1			
Vegetable crops	6,984	2,779	24.7			
Spices	1,949	679	6.0			
Food crops/ vegetables and root crops				66,240	11,994	12.5
Other	1,515	841	7.5	435	399	0.4
Total Engaged	39,374	18,583		207,386	92,017	
Total Households	11,232			95,774		

Source: National Census 1990 and 2000

\*Total may exceeds 100% as some households are engaged in two or more crops.

<sup>a</sup>For cocoa, coffee rubber and oil palm, the own use was not separated out in the 1990 census.

In 1996 Morobe Province produced only K12,845,000 worth of agricultural commodities which was the second lowest in the Momase region. That includes cocoa, copra, coffee, tea, rubber, and oil palms as reported by the Department of Agriculture and Livestock. It was merely 2.2% of the total national cash crop produced in that year.

### 3.9.2.3 Population and Social Conditions

#### 3.9.2.3.1 Demographic Profile

The 2000 census showed that the population of the province has increased by over 30% from 380,117 in 1990 to 536,917 in 2000. It is about 10.5% of the national population with an annual growth rate of 2.7% since 1980. The estimated rural population of the province in the year 2000 is 307,000, which is 7.6% of the national rural population. The average provincial rural population growth rate is 1.5% per annum. The population density of the province is 16 people per square kilometer. The crude birth rate and crude death rate for Morobe Province in 1996 were 38 and 12 per thousand population respectively, close to the national rates of 36 and 12.

#### 3.9.2.3.2 Education

For those 5 years and older, school attendance have increased from 21.9% in 1990 to 24.6% in 2000. This was really a result of the educational reforms that were implemented during the 1990s where most community schools were topped up with grades 7 and 8 and some high schools were converted to secondary schools, which catered for grades 9 to 12.

The 2000 census showed that over 62% of persons in the province can read; write and understand a simple message in English, Pidgin, Motu or any other language as compared to 52% in 1990. That is the Adult literacy rate for the province over the 10-year period has gradually increased. The reason could be that of the educational reform, which was introduced under the Structural Adjustment Programme (SAP) of 1992.

### **3.9.2.3.3 Health**

The average life span for men and women in the province (53.2 years) is approximately equal to the national average, which is 54 years. The annual number of infant deaths under one year of age is 80 infants per 1000 live births during the same year in the province. This is 9% more than the national infant mortality rate. On the other hand, the average number of children born to a woman of reproductive age 15- 49 is 5.2 children per woman. Again this is 8% more than the national average. Thus the province is said to have a high number of infant deaths and a high number of infant born during the same year.

The 1996 UNDP data show that 52% space of children 0 to 5 years of age in Morobe weigh less than 80% of the median weigh for their age. It is approximately 79% more than the national percentage of underweight children under age 5. That is the province has a higher number of underweight children under age 5.

### **3.9.2.3.4 Access to services**

According to UNDP data of 1996, it indicate that 30.6% of the population in the province do have access to safe water whose water supply is piped, well water or covered. Similarly, about 85% of the population in the province do have access to adequate health services in terms of number of trained health staff and 91% of the population have access to flush toilets and latrines. There is about 80% of the total population in the province that have access to roads as a mode of travel. The UNDP data of 1995 indicated that 491km of the national roads in the province including institutional roads are usable nearly 100% of the time. Similarly about 571km of the trunk roads and 247km of feeder roads in the province are usable nearly 80% of the time and 70% of the time respectively. As compared to overall national road usable percentage, people in the province use about 5.5% of the national road, 7.3% of the trunk roads but use feeder roads more than 3 times the overall national feeder roads. That indicates that bulk of the Morobe population live in the areas linked by the feeder roads.

Despite its large size and mountainous terrain, there is a good road network in Morobe Province and access to services is generally good. The Highlands Highway runs from Lae to the Madang and Eastern Highlands borders through the Markham Valley. An excellent sealed road runs from Lae to Wau, while a gravel road connects Bulolo to Menyama and Aseki. There are roads from Wasu to Kabwum and from Finschhafen to Sialum and Pindiu, although they do not connect to Lae. Small boat transport is common in all coastal areas. Sea travel is dangerous between December and March.

In 1996, 29.4% of household had access to Radios, which is 2.4% less than the national average of 31.8%, while 11% of the households had access to televisions. It is more than 4% of national average of television access.

About 3.8% of household in the province had a telephone connection, which is about 1% less than the national average of 2.9%. Thus the most viable means of communication for the province would be radio and television.

The average daily circulation (based on annual circulation) of the two daily newspapers (Post Courier and The National) and weekly circulation show that about 3 and 6 persons out of every 1,000 people of the province had access to both newspapers respectively. About 2 people out of every 100,000 people had accessed to post offices, which is equal to the national average of 2 people in every 100,000 people, and about 3.8% of the households have telephone connections.

The table below gives comparable figures of the most commonly used communication technology in the province.

Table 3.21 Access to information

Type of Communication Technology	Value	Year
Radios (% of households)	29.4	1996
TV (% of households)	11	1996
Daily English Newspaper (per 1000 people)	3	1997
Post Offices (per 100,000 people)	2	1997
Telephones (% of households with connections)	3.8	*

Source: UNDP – HDR, 1998

\* Data not available

### 3.9.2.3.5 Law and Order

The UNDP data of 1997 reported that there were about 81 incidences of robbery per 100,000 people in the province. That is the robbery incidence in Morobe Province is 26% more than the reported incidences of robbery at the national level, while 112 rape and sexual offences were committed per 100,000 females ages 15 and older. These cases were close to the national average of 110 rape and sexual offences committed per 100,000 females' ages 15 and older.

### 3.9.2.4 Summary

The economic indicators show that Morobe Province has improved between 1990 and 2000. For example, the overall cash economic activities of the province have increased by over 40% over the past ten years. That is because of the improved infrastructure services especially to the rural areas including better market facilities. The adult literacy rate and the labour force in formal subsistence and semi-subsistence have increased. There were considerable improvement in the road networks, access to safe water, health and sanitation. However, the province has also experienced some drawbacks over the ten-year period. There was a sharp decline in the cash crop production. The level of unemployment has increased steadily that it outweighs the number of industries capable of absorbing the unemployed. Despite improvements in basic amenities, the life expectancy is stagnant with an increase in the number of fertility and mortality rates and underweight child. Criminal activities have plagued the major as well as the minor roads thus increasing the rate of law and order problems in the province.

### 3.9.3 East Sepik Province

#### 3.9.3.1 Economic Condition

East Sepik occupies 43 700km<sup>2</sup> in the northwest of PNG and is the second largest province in land area. It is one of the best-known Provinces outside PNG because scared masks, carvings, and pottery from East Sepik are in museums around the world. Fourteen per cent of the total land in the province is arable land. It is the area of land under dominant slopes of 0 to 20 degrees with soil drainage from well drained to imperfect and suitable for use of agricultural machinery and low risk of man-induced soil degradation. Likewise the province has 46% hectares of forests as reported by the Inventory Management System.

The province had 0.1% of the total land area protected under any of these nine categories: National Parks, Wildlife Management Areas, Sanctuaries, Provincial Parks, Protected Areas, Nature Reserves, Historical sites, National Walking Tracks and ex-situ as reported by the Department of Environment and Conservation.

The UNDP PNGHRD (1998) reported that from 1989 to 1995 East Sepik Province had land area logged at an annual average rate of 2000 ha. The logged land area included concessionary logging, logging for cultivation or for other purposes.

In the 2000 census East Sepik Province had about 19,151 persons aged 10 years and above who stated their main economic activity as working for wages, owning a business, or self-employed. It was about 12% of the total Labour force in the province. This has indicated an increase of 86.2% in the formal Labour force as compared to 1990 figures, which was about 10, 285 persons or 8% of the total Labour force for the province engaged in the formal economic activities.

Similarly the province had about 105,918 persons aged 10 years and above in both rural and urban who farm or fish for own use plus some extra for cash (2000 census). It was 68.5% of the total Labour force in the province. There has been a decline of about 1.8% of the Subsistence and Semi-Subsistence Labour force as compared to 1990 figures, which was 107,833 persons or 86.1% of the total Labour force for the province that were engaged in the non-formal farming or fishing activities.

The people there make scared objects and sell to tourists and commercial buyers. Robusta coffee, cocoa and lately introduced vanilla beans are the major source of income. However, the province is mostly underdeveloped. The Sepik River is the heart of the province, but its flooding limits the use of nearby plains. The level of the Sepik River rises and falls by up to five metres every wet season. The Sepik Valley is around 80km wide and 320km long covered with infertile grasslands. Half the population is crowded in the hill country north of the river. Malnutrition is a problem there. The Wewak town is the capital of East Sepik province. The province is made up of 6 districts with 26 Local Level Governments (LLGs) and is represented by 7 members of parliament.

The province has a Real Domestic Factor Income per capita of K449, which is only about 45 % of the national Real Domestic Factor Income per capita of K994. The Real Domestic Factor Income of the province is merely about 2.9% to the national DFI of K4, 429,667 (UNDP 1998). This indicates that the salaries and benefits of workers (public and private) and profits from businesses including income from non-formal activities and market trade in the province are

fairly low as compared to other Provinces. That is, the average income in East Sepik Province is relatively low because a large number of people, especially in the Sepik Valley, live in a low potential environment. The table below shows percentage change in the number of citizen population aged 10 years and over engaged in monetary activities between 1990 and 2000.

Table 3.22 Ten years and older engaged in the Cash Economy in East Sepik Province (1990 and 2000).

Cash Economic Activity	1990	%age	2000	%age	%age changed
Wage Job	7,246	4.1	7,029	3.0	-3.0
Business	1,123	0.6	2,812	1.2	150.4
self-employment	2,137	1.2	9,310	4.0	335.7
farm/ fish (money)	63,343	36.1	16,358	7.0	-74.2
Total Monetary Activities	73,849		35,509		
Total non-monetary Activities	100,488		190,926		
Not stated	1,298		8,837		
Total Activities	175,635		235,272		

Source: National Census 1990 and 2000

The overall cash economic activities of the province have increased moderately by over 30% over the past ten years. The province has fairly low real earning per employee. That is about K2,949 real earning per employee in public and private sector as reported in the Annual Business Census of 1993, adjusted to 1996.

The labour profile for the East Sepik Province according to the 1990 and 2000 National Census and the 1998 UNDP PNG Human Development Report is as follows:

Table 3.23 Labour Force as a percentage of the economically active population age 10 and older.

Formal Labour Force (wage earners, business, self employed)			Subsistence & Semi- subsistence Labour		Unemployed (waiting to start job, looking for work)		Real Earnings per Employee
(as % of EAP age 10 and older)							
	1990	2000	1990	2000	1990	2000	1996
National	18%	15%	74%	75%	8%	3%	K5,646
Absolute	312774	355555	1269744	1828856	132812	68623	
East Sepik	8%	7.7%	86%	80%	6%	2%	K2,949
Absolute	19,151	10,285	107,833	105,918	7,098	3,041	

The economically active population (EAP) / labour force (age 10 and older) in the East Sepik Province in 2000 was 19,151 compared to 10,285 in 1990. In 2000 the formal labour force fell to 7.7% compared to 8% in 1990. The formal labour force is defined as: wage earners, those who own a business and those in paid self-employment.

In the 2000 census East Sepik Province had about 10,285 persons aged 10 years and above in the formal labour force. It declined from 8% (1990) to 7.7% (2000) of the total labour force in the province.

The subsistence and semi-subsistence labour was 80% in 2000 compared to 86% in 1990. The data show that while the total labour force had increased, the formal labour force contracted between 1990 and 2000. This finding is consistent with the downturn in the economy at the national and provincial level between this period.

With the economic hardships faced by the country and the province, a 2% unemployment rate in 2000 in the province compared to 6% in 1990, the decline could be explained by labour out-migration from the province.

As reported by UNDP, real earnings per employee in the province was estimated at K2,949 in 1996 is less than half the national average.

The 2000 Census reported that about 137,858 persons in the province who are economically active (EAP) worked in industries for wages. The agricultural sector including hunting and forestry and, wholesale and retail sector employed the highest number of works (EAP) of the province to work. Both sectors employ about 73% and 13.9% respectively from the total EAP by the industry. However, there are no large-scale resource extraction industries in the province. This is shown on the table below.

Table 3.24 Labour Force By Industry for East Sepik Province (2000).

Industry	Total Labour	Percentage
Agriculture, hunting and forestry	100,574	73.0
Fishing	4,702	3.4
Mining and Quarrying	355	0.3
Manufacturing	2,262	1.6
Electricity, gas, steam & hot water	79	0.1
Construction	2,642	1.9
Wholesale and retail trade	19,220	13.9
Hotels and restaurants	167	0.1
Transport, storage and communication	675	0.5
Financial Intermediation	59	0.0
Real estate, renting and business service activities	547	0.4
Public administration and defence, compulsory social security	1,571	1.1
Education	1,232	0.9
Health	619	0.4
Other community, social and personal service activities	1,321	1.0
Private households with employed persons	612	0.4
Extra-territorial organisations and bodies	25	0.0
Not stated	1,196	0.9
Total	137,858	

Source: National Census 1990 and 2000

### 3.9.3.2 Major Agricultural Crops Produced in the Province

The major agricultural crops produced in the province are yam, taro and banana. Sago and coconut are also important. The leading village cash sources are coffee, cocoa, rubber, oil palm, betelnut, coconut and fresh food including fish. Coffee, copra, and betelnut are the major cash crops in the province that engage about 82.9% households for money (2000 census).



*Yams, bananas and some taro are planted after the rice crop is harvested. A row of ratoon rice can be seen between the rows of banana in a food garden in Warak village, Muschu Island, Wewak District*

More than 200,000 households in the province are engaged in these activities. Percentages of total households involved in various major agricultural cash cropping activities in East Sepik are shown as follows:

Table 3.25. Distribution of cash cropping activities in East Sepik Province.

Cash Cropping Activities	Households engaged - 1990			Households engaged - 2000		
	Total engaged	Cash	Cash *%	Total engaged	Cash	Cash *%
Cocoa	22200	22200 <sup>a</sup>	49.4	39,980	39,333	60.3
Coffee	25,436	25,436 <sup>a</sup>	56.6	37,466	36,674	56.2
Rubber	1171	1171 <sup>a</sup>	2.6	1,680	1250	1.9
Oil palm	228	228 <sup>a</sup>	0.5	780	99	0.2
Coconut	38,599	15,805	35.2	51,585	6,801	10.4
Betelnut	36,319	18,575	41.3	47,132	11,260	17.3
Fruit	31,475	12,486	27.8			
Banana	39,868	17,885	39.8			
Vegetable crops	37,683	17,818	39.7			
Spices	7,703	2,838	6.3			

Food crops/ vegetables and root crops				49,378	6,305	
Other	6,631	3,514	7.8	6,722	6,685	
Total Households	44,925				65,231	

Source: National Census 1990 and 2000

\*Total may exceeds 100% as some households are engaged in two or more crops.

"for cocoa, coffee, rubber and oil palm, the own use was not separated out in the 1990 census.

In 1996 East Sepik Province produced K24,429 million worth of agricultural commodities which was the second highest in the Momase region. That includes cocoa, copra, coffee, rubber, and oil palm as reported by the Department of Agriculture and Livestock. It was about 4.2% of the total national cash crop produced in that year. There is potential for agricultural development in the foothills especially from Dreikikir to Angoram, due to the high to very high land potential and good access to markets. Poor maintenance of the Sepik Highway and feeder roads is a major constraint to development in the area. There is potential for expansion of smallholder cocoa in the inland hills, given the active research and extension activities in the province and the suitability of the recently developed solar dryers to the local climate. The production of Robusta coffee is generally constraint by poor prices. Vanilla production is in an early stage of development and further expansion will depend on adequate marketing arrangements and pr. Fresh food and betelnut are also established smallholder cash earning activities.

### 3.9.3.3 Population and Social Conditions

#### 3.9.3.3.1 Demographic Profile

The 2000 Census shows that the population of the province has increased by over 34% from 254,371 in 1990 to 343,181 in 2000. It is about 6.7% of the national population with an annual growth rate of 2.2% since 1980. The estimated rural population of the province in the year 2000 is 270,000, which is 7 % of the national rural population. The average provincial rural population growth rate is 1.6% per annum. The population density of the province is 8 people per square kilometer. The crude birth rate and crude death rate for East Sepik Province in 1996 were 41 and 13 per thousand population respectively, which are quite higher than the national rates of 36 and 12.

#### 3.9.3.3.2 Education

For those 5 years and older, school attendance have increased from 18.9% in 1990 to 26% in 2000. This was really a result of the educational reforms that were implemented during the 1990s where most community schools were topped up with grades 7 and 8 and some high schools were converted to secondary schools, which catered for grades 9 to 12.

The 2000 census shows that over 51% of persons in the province can read; write and understand a simple message in English, Pidgin, Motu or any other language as compared to 36% in 1990. That is the Adult literacy rate for the province over the 10-year period has gradually increased. This could be attributed to the Educational Reform, which was introduced under Structural Adjustment Programme (SAP) of 1992.

#### **3.9.3.3.4 Health**

The average life span for men and women in the province (52.7 years) is approximately equal to the national average, which is 54 years. The UNDP data of 1996 indicated that the annual number of infant deaths under one year of age is 84 infants per 1000 live births during the same year in the province. This is 15% more than the average of national infant mortality rate. On the other hand, the average number of children born to a woman of reproductive age 15- 49 is 5.8 children per woman. Again this is 20% more than the average of national total fertility rate. Thus the province is said to have a high number of infant deaths and a high number of infant born during the same year. About 37% of children 0 to 5 years of age in East Sepik Province weigh less than 80% of the median weigh for their age. It is approximately 27% more than the national rate of underweight children under age 5. That is the province has a fairly high number of underweight children under age 5.

#### **3.9.3.3.5 Access to services**

According to UNDP data of 1996, it indicated that 34.6% of the population in the province does have access to safe water whose water supply is piped, well water or covered. Similarly, about 90% of the population in the province do have access to adequate health services in terms of the number of trained health staff and 95% of the population have access to flush toilets and latrines. The UNDP data of 1995 shows that about 74% of the total population in the province have access to roads as a mode of travel. About 478km of the national roads in the province including institutional roads are usable nearly 100% of the time. Similarly about 252km of the trunk roads and 360km of feeder roads in the province are usable nearly 80% of the time and 70% of the time respectively. As compared to overall national road usable percentage, people in the province use about 5.4% of the national road, 3.2% of the trunk roads but use feeder roads more than 5 times the overall national feeder roads. That indicates that bulk of the East Sepik population lives in the areas linked by the feeder roads.

The Sepik Highway runs from Wewak to Maprik and is a well-designed road, but is poorly maintained. It runs through the areas, which have the highest population densities in the province. Traffic from inland Sandaun Province also traverses this road enroute to Wewak. Roads from Pagwi and Angoram connect the Sepik River to the Highway. There is a good road along the coast of Wewak to Aitape in Sandaun Province, but many river crossings are not bridged and flash floods are common. Outboard motorboats and canoe travel are common along the Sepik River and between the coast and the islands.

In 1996, 28.5% of household had access to Radios, which is 3.3% less than the national average of 31.8%, while 4.3% of the households had access to televisions. It is less than 3% of the national average of television access. About 2.2% of household in the province had a telephone connection, which is 0.7% less than the national average of 2.9%. Thus the most viable means of communication for the province is radio.

The average daily circulation (based on annual circulation) of the two daily newspapers (Post Courier and The National) and weekly circulation show that about 1 person per 100 people and 4 persons per 10,000 people of the province had access to both newspapers respectively. About 1 out of every 100,000 people had accessed to post offices, less than the national average of 2 in every 100,000 people. About 2.2% of the households have telephone connections. The table

below gives comparable figures of the most commonly used communication technology in the province.

Table 3.26 Access to information

Type of Communication Technology	Value	Year
Radios (% of households)	28.5	1996
TV (% of households)	4.3	1996
Daily English Newspaper (per 100 people)	1	1997
Post Offices (per 100,000 people)	1	1997
Telephones (% of households with connections)	2.2	*

Source: UNDP – HDR, 1998

\* Data not available

### 3.9.3.3.6 Law and Order

The UNDP data of 1997, reported that there were about 13 incidences of robbery per 100,000 people in the province, while 54 rape and sexual offences were committed per 100,000 females ages 15 and older. These cases were half the national average of 110 rape and sexual offences committed per 100,000 females' ages 15 and older.

### 3.9.3.4 Summary

The economic indicators of East Sepik Province show some progress in few socio economic variables between 1990 and 2000. The overall cash economic activities of the province increased by 30% over the past ten years. The adult literacy rate has increased as well as the labour force in the formal sector. There were mild improvements to access to safe water, health and sanitation. The cash cropping activity, particularly robusta coffee and cocoa, have increased. However, the province fell behind in terms of improving some socio economic activities over the ten-year period. The number of labour force engaged in subsistence and semi-subsistence has dropped. There was a sharp decline in the provision of basic amenities including deteriorating road networks. There has been an increase in the number of fertility and mortality rates and underweight child. The level of unemployment has increased rapidly that it outweighs the number of industries capable of absorbing unemployed. There is no improvement in the life expectancy for the population. The rate of crime activities is gradually increasing.

## 3.9.4 Madang Province

### 3.9.4.1 Economic Condition

Madang has a landmass of 28, 000 square kilometre, situated in the north of the PNG mainland. The province has a diverse range of environments, from the top of Mt Wilhelm, the highest peak in PNG, to the coast. Areas include the extensive flood plains of the Ramu Valley, the coastal limestone plains from Bogia to Saidor, the dry seasonal hills inland of Bogia and the volcanic offshore islands. Manam, Karkar, and Long islands are active volcanoes that present a serious hazard to people living on them. Altitude ranges from sea level to over 4000m on the slopes of

Mt Wilhelm. It has many of PNG's highest peaks, its most active island volcanoes, and its biggest mix of languages. Rainforest covers most areas. Grasslands occur in areas of lower rainfall in the upper Ramu valley and the Bogia coast. Mixed gardens and grasslands cover heavily populated coastal areas, Manan and Karkar islands, south of the Shrader Range. Swamp forests cover the Ramu west of Annanberg.

Madang town is the capital of Madang Province and is PNG's third biggest city and one of its beauty spots. Average annual rainfall varies from 2000mm around Bogia, to more than 4000mm in the Ramu Valley, with a moderate to long dry season in the northwest and southeast of the province. The six districts in the province are Bogia, Madang, Middle Ramu, Rai Coast, Sumkar and Usino Bundi.

About 22% of the land is arable, which is less than the national average of 30%. Fifty percent of the land constitutes forest and woodland, which is also less than the national average of 57% and 0.1% is protected land.

From 1957 – 1996, it showed that, out of every 1000 hectares of land, 12 hectares of land was reforested. It shows that relatively small areas of land were reforested. This was far less than the national average. The national scale showed that out of every 1000 hectares, in the same period, 55 hectares of land was reforested. The national average deforestation figures showed that, out of every 1000 hectares of land, 231 hectares was deforested. (UNDP – HDR, 1998).

The province is PNG's second leading producer of copra and cattle, and third in cocoa. Ramu sugar and the Jant/Gogol woodchip mill are among PNG's biggest employers. The new tuna cannery at Alexishafen will be another major employer.

There is a clear relationship between cash income and access to markets. There are numerous non-agricultural sources of income in the province including wage employment at the Ramu Sugar estates, the site for the new Ramu nickel mine and the Gogol and Josephstaal forestry operations. Wage Employment and business activities around Madang are also important sources of income.

The 1990 cash economy of the province constituted 30.0 per cent of those 10 years and older work for money, 27.6% sell crops or fish, 8.4% work for wages, 3.2% are self-employed and, 0.8% own a business. In 2000, the cash economy shrunk, where only 14.3% of those 10 years and over worked for money. The great decline was due to reduction of the population participation in self-employment and commercial farming and/or fishing (1990 & 2000 Census).

The 1996 figure shows that, on the average, the province earns a real DFI of K145, 223 per year, which is about 32.8% in proportion to the national DFI average. Out of that, each person earns about K505 in real terms per year, which is lower than the per capita national average of K994, and among the lowest compared to other Provinces. (UNDP – HDR, 1998).



*Peanut in crop rotation after harvesting rice at Danaru village in Usino-Bundi, Madang.  
At the right is the black polyethylene pipeline leading to fishponds beside the house in the background*

The table below shows the distribution of cash economic activities in 1990 and 2000. Leading village cash sources are vegetables, betelnut, bananas, cocoa, coconuts, fruit, coffee, and pigs. People not in the cash economy included 33.2 per cent who keep house and/or provide food; 14.1 per cent students; and 3.0 per cent old, ill, or disabled persons.

Table 3.27 Ten years and older engaged in the Cash Economy in Madang Province (1990 and 2000).

Cash Economic Activity	1990		2000		
	Total	%	Total	%	% Change
Monetary Activities					
Wage Job	14754	8.59	15084	6.07	2.23
Business	1302	0.75	7022	2.82	439.32
Self Employed	5423	3.15	1975	0.79	-63.58
Farm/Fish for money	47237	27.52	11381	4.58	-75.90
Total Monetary Activities	68716	40.03	35462	14.28	-48.39
Total Non-Monetary Activities	101531	59.15	205203	82.681	102.10
Not Stated	1383	0.801	7509	3.02	442.95
Total Activities	171630		248174		

Source: NSO - National Census 1990 and 2000

Most people are still heavily relying on agriculture and fishing for income and running their own business. The number has more than doubled, where in recent times, about more than 7% of the people who are engaged in the cash economy rely on these activities.

The most disadvantaged people in the province are those in the Schrader Range west of Simbai, where small numbers of people in low potential environments, earn very low incomes and have poor access to services.

Table 3.28 Labour Force as a percentage of the economically active population age 10 and older.

	Formal Labour Force (wage earners, business, self employed)		Subsistence & Semi-subsistence Labour		Unemployed (waiting to start job, looking for work)		Real Earnings per Employee
As % of EAP age 10 and older							
Year	1990	2000	1990	2000	1990	2000	1996
National	18%	15%	74%	75%	8%	3%	K5, 646
Absolute	312774	355555	1629744	1808856	132812	68623	
Madang	19%	15%	75%	74%	7%	3%	K2, 264
Absolute	21,479	24,081	84634	114,978	7782	4547	

Economically active citizens in the formal labour force increased from 1990 to 2000. In 1990, there were about 21,479 citizens (19% of economically active citizen population) engaged in the formal labour force. This slightly increased in 2000 to about 24,081 citizens (15% of economically active citizen population). However, a proportionate decline from 19% to 15% in this sector was experienced. In comparison to the national percentage average, the provincial percentage average of economically active citizens in the formal labour force exceeded the national average by 1% (1990 = 18%), but dropped in 2000 to 15% which was equal to the national average of 15%.

In the subsistence and semi-subsistence labour force, there was an absolute increase in the number of labourers from 1990 to 2000. In 1990 there were 84,634 persons, which increased to 114,978 in 2000. However, in proportionate terms, the province experienced a slight decline from 75% to 74%.

The unemployment rate, fell from 7% in 1990 to 3% in 2000. The decline in the unemployment rate can be attributed to the fact that an increasing number of people are shifting into subsistence and semi-subsistence activities given the economic downturn over this period.

In 1996, average real earnings of an employee per year were K2, 264. In other words, a person on the average earned about K40.43 per fortnight. However, in comparison with the national average of K5646 per employee per year, an employee in the province was earning approximately 2 times less than the national average.

In the year 2000, the agriculture, hunting and, forestry industry constituted the most economically active population. About 56% of the citizen population who were ten years and above worked in the agriculture, hunting and, forestry industry. The table below shows this industry in comparison to other industries.

Table 3.29 Citizen population aged 10 years and over in private dwellings and employed by industry in Madang (2000).

No	Industry	Total Labour	% Total labour force	% Total Pop
1	Agriculture, hunting and forestry	111231	114.318	50.55
2	Fishing	1564	1.607	0.71
3	Mining and Quarrying	106	0.109	0.05
4	Manufacturing	3646	3.747	1.66
5	Electricity, gas, steam & hot water	51	0.052	0.02
6	Construction	3224	3.313	1.47
7	Wholesale and retail trade	20639	21.212	9.38
8	Hotels and restaurants	218	0.224	0.10
9	Transport, storage and communication	1443	1.483	0.66
10	Financial Intermediation	107	0.110	0.05
11	Real estate, renting and business service activities	1650	1.696	0.75
12	Public administration and defence, compulsory social security	1394	1.433	0.63
13	Education	1445	1.485	0.66
14	Health	643	0.661	0.29
15	Other community, social and personal service activities	1755	1.804	0.80
16	Private households with employed persons	647	0.665	0.29
17	Extra-territorial organizations and bodies	2	0.002	0.00
18	Not stated	1529	1.571	0.69
	Total	151294		68.76
	2000 Total Population	220035		

Source: Census 2000

In 1997, the province had a public expenditure per capita of K15.00 less than the national average of K46.00. About 10.5% of total government expenditure was spent on health, and 50.3% on education, particularly, on grades 1 to 12.

Health (except hospital care) and education expenditure constituted 0.1% and 0.6% of GDP, respectively. The national averages were 5.8% and 9.7% for national expenditure on health and education, respectively. The average amount expended on each person for health, except hospital care was K14.60, which was far less than the national average of K46.10, while K470.00 was expended on each person or student for education (grades 1 – 12), which was also less than the national average of K558.00.

### 3.9.4.2 Major Agricultural Crops produced in the province

Agriculture provides the main source of cash income in the province. Cocoa, betelnut, copra and fresh food are the most important smallholder cash crops. Other sources of income include fish, firewood, coffee and tobacco.

Below is a table, which lists the main cash crops that people are involved in for production and income purposes.

Table 3.30 Distribution of cash cropping activities in Madang Province.

Activity	1990			2000			
	Total	Cash	% Cash	Total	Cash	% Cash	% Change
Cocoa	15969	15969	41.9	24,090	23691.0	39.0	48.35619
Coffee	10989	10989	28.8	13,554	12681.0	20.9	15.397215
Rubber	314	314	0.8	341	45.0	0.1	-85.7
Oil palm	382	382	1.0	568	172.0	0.3	-55.0
Coconut	22,601	13782	36.2	35,581	19037.0	31.4	38.1
Betelnut	28,368	17087	44.8	42,934	15346.0	25.3	-10.2
Fruit	25,411	12065	31.7				
Banana	32,639	16761	44.0				
Vegetable crops	31,972	17431	45.7				
Spices	5,573	2414	6.3				
Food Crops/Vegetables & and other root crops				46322	8076	13.3	
Others	3,537	1785	4.7	403	387	0.6	
<b>Total Engaged</b>	<b>177,755</b>	<b>108979</b>		<b>163,793</b>	<b>79435.0</b>		
<b>Total Household</b>	<b>38119</b>				<b>60709</b>		

Source: NSO - National Census 1990 and 2000

Agriculture in the province is diverse. Common crops include taro, Chinese taro, yam, banana, sweet potato and coconut. Sago is the most important food in the middle and lower Ramu Valley, and is supplemented by low intensity mixed staple cultivation. Sweet potatoes are more important in the mountains, yams in drier areas near the Ramu mouth, and sago in the swamps upstream near Annanberg.

### 3.9.4.3 Population and Social Conditions

#### 3.9.4.3.1 Demographic Profile

In 1990, the province had a population of 253, 195, which increased to 362, 805 in the year 2000. This recorded a population growth rate of approximately 3.6%, and 7.1%. The provincial growth rate was higher than the national average of 3.1%. From 1980 to 1990, the growth rate declined from 2.7% to 1.8% and then doubled to 3.6% in 2000. It shows that in the next 10 years the population will double if it grows at the 2000 rate (2000 Census). There are relatively more males than females in the province. The population density is 12 persons per square kilometer and, the average household size was 5.7 persons per household.

In the late 1990s crude birth rate was four times greater than the crude death rate, and also higher than the national average. The province has experienced a higher birthrate than death rate since 1990, which has contributed to the increase in population. The province recorded a crude birth rate of 46 compared to a death rate of 10(UNDP-HDR, 1998)

#### 3.9.4.3.2 Education

Two-thirds of the province's students attend church run schools. In 1990, 38.5 per cent of those aged 7-16 attended school in which 49.7 per cent of those 10 years and older have attended school, 30.2 percent completed grade 6 and 5.9 per cent per cent grade 10. 45.9 per cent can read at least one language, either the Local language, English, Tok Pisin or, Motu. In terms of adult literacy, 5.2% of the population are literate in any one language (English, Pidgin, Motu, and others).

#### **3.9.4.3.3 Health**

In relative terms, 1996 records reveal that males live longer than females. Males have a life expectancy of 54.2 years, while females have life expectancy of 53.3 years. Both of these figures were less than the national average (53.5 years for females and 54.6 for males) (UNDP – HDR, 1998).

The records also reveal that out of every 1000 births per year, about 57 infants died. This has improved. In 1980, the mortality rate at that time was 62 out every 1000 births per year. There has been a decline of underweight children under 5 years since 1982, but still needed to be further cut because it far exceeded the national average in 1996. By year 1982, 51.9% of children under 5 years of the populations were underweight, which later improved to 40 in 1996. However, this was less than the national average, where in PNG, for every 1000 births, 73 infants died. Fertility rate increased from 1980 to 1996. In Madang, women over their average life expectancy, give birth to about 6.6 children (increased from 5.9 in 1980), which was greater than the national average of 4.8 births to a women over their living years (UNDP – HRD, 1998).

#### **3.9.4.3.4 Access to services**

Most areas are still far from transport and undeveloped. People in most areas require between 4-8 hours travel to reach the nearest centre, except those west of Simbai who are very remote and require more than one days travel. The Ramu and the Highlands highways connect Madang to Lae, Goroka and Mt Hagen. The road from Madang to Lae is mostly sealed. A good quality road runs from the Ramu Highway at the Bogadjim to Saidor along the Rai Coast, but numerous rivers are not bridged. People travel from the islands to the mainland by sea or air. Boat travel is common between the islands and along the coast. The 1998 UNDP Report shows that 54% of the population had access to waterways. People on the coastal plains around Madang require less than one hour's travel to reach Madang town.

However, in 1995, 50% of the population had access to roads (UNDP – HDR, 1998). In 1995, 737 km of National Roads constructed and maintained, including institutional roads were used more than 90% during the that year. For trunk roads (district roads), and 289 km of roads maintained by the provincial government were more than 75% usable during the year. However, feeder roads were not accessible. In 1990, there were 30 airfields and 1 seaport in operation.

In 1996, only about 28.8% of the total population had access to safe water, which was greater than the national average of 24% of total population, which had access to safe water. 85% of the population had access to basic health services, and 82% of the population to sanitation. The percentage of population that had access to health services and sanitation exceeded the national average percentage of 79% and 83% of population in these two services, respectively. Population per doctor was 26,160 people to a doctor, which was greater than the national average of 17,210. This implies that, medical patients hardly access doctors in the province.

In 1996, 34% of household had access to Radios and 6.6% had access to televisions. It is about 3% more than the national average of 31.8% and less than 1.4% of the national average respectively. Also access to telephones was greater than the national average of 2.9%. It shows that 3.1% of households had access to telephones. This means that the province was better in this medium of communications. In 1997, access to Daily English Newspapers

showed that only about 13 people accessed (or bought) Daily English newspapers out of every 1,000 people. This was less than the national average of 18 people in every 1,000 people. On the other hand, 2 people had access to post offices, out of every 100,000 people, which was equal to the national average. The table below gives comparable figures of the most commonly used communication technology in the province.

Table 3.31 Access to information

Type of Communication Technology	Value	Year
Radios (% of households)	34	1996
TV (% of households)	6.6	1996
Daily English Newspaper (per 1,000 people)	13	1997
Post Offices (per 100,000 people)	2	1997
Telephones (% of households with connections)	3.1	*

Source: UNDP - HDR, 1998

\* Data not available

### 3.9.4.3.5 Law and order

In 1997, the province had relatively fewer law and order problems as far as the robbery and, rape and sexual offences were concerned. In that year, out of every 100,000 people, it was found that only 19 people engaged in robbery, which was far less than the national average of 64 people. Though sexual and rape offences were lower than the national average. This implies that Madang is a relatively peaceful place to live compared to other Provinces according to the 1998 UNDP Report.

### 3.9.4.4 Summary

The province has been PNG's second leading producer of copra and cattle, and third in cocoa. Ramu sugar and the Jant/Gogol woodchip mill are among PNG's biggest employers. The new tuna cannery at Alexishafen will be another major employer. There is mine developments recently in the province such as the Ramu nickel and alluvial mines. It is also known as one of the most peaceful Provinces in the country.

Majority of the people in Madang are still agriculture dependant, as it has become the main source of income and subsistence living for the many. Road maintenance is still a problem in the province and therefore needs attention. Most areas are still far from transport and undeveloped. People in most areas require between 4-8 hours travel to reach the nearest centre, except those west of Simbai who are very remote and require more than one days travel. Population is increasing very rapidly in the province. From 1980 to 1990 the growth rate declined from 2.7% to 1.8% and then doubled to 3.6% in 2000. It shows that in the next 10 years the population will double if it grows at the 2000 rate.

Two-thirds of the province's students attend church run schools. However, most disadvantaged people in the province are those in the Schrader Range west of Simbai, where small numbers of people in low potential environments, earn very low incomes and have poor access to services. On the whole, socio-economic indicators have shown that the province needs proper government support for a better infrastructure especially roads and health services.

### **3.9.5 East New Britain Province**

#### **3.9.5.1 Economic Condition**

The province includes roughly 15,500 km<sup>2</sup> of the island of New Britain in the northeast of PNG. The area is densely settled and well developed. Past volcanic eruptions have covered the area in fertile volcanic ash, but the 1994 eruptions caused widespread damage to infrastructure, cash crops and water supplies. Average annual rainfalls vary from 2000mm near Kokopo, to over 5000mm on the south coast. There are moderate dry seasons in the northeast of Gazelle Peninsula.

About 18% of the total land is arable, which is less than the national average of 30% of arable land use. Sixty per cent of the land constituted forest and woodland, which is 3% greater than the national average of 57%. No portion of land is protected. From 1957 – 1996, records reveal that, out of every 1000 hectares of land, 11 hectares of land was reforested. However, from 1989–1995 the annual average deforestation was about 8 hectares per 1000 hectares that was deforested. This was far less than the national average. On the national scale, it shows that out of every 1000 hectares in the same period, 55 hectares of land was reforested while, the national average deforestation showed that, out of every 100 hectares of land, 231 hectares was deforested. (UNDP – HDR, 1998).

The four districts in the province are Gazelle, Kokopo, Pomio and Rabaul. Kokopo is the Province's headquarter replacing Rabaul after being devastated by the 1994 volcanic eruption. There are 5 members of parliament, who represent the districts.

East New Britain relies on subsistence and plantation agriculture together with forestry, fishing, coastal shipping and commercial activities to provide its economic base. The province is fertile, with established plantations and gardens and considerable forest reserves. A relatively long contract with outsiders has resulted in a stable society with functioning social systems such as schools and health services and a tolerance of tourists. The Gazelle Peninsula is proud of its network of sealed roads.

In 1989, the province benefited from an ADB funded project worth K25million. The project titled ENB Cocoa/Coconut Rehabilitation Redevelopment was aimed to improve incomes and livelihood of cocoa and coconut farmers in the East New Britain province by enhancing productivity. The project ended in 1998. It covered Warangoi and Vunapalading settlement schemes and only supported cocoa rehabilitation. The beetle pests of coconuts limited the coconut rehabilitation and redevelopment activities (JICA, 2001).

Leading village cash sources are cocoa, coconuts, betelnut, vegetables, banana, fruit, pigs, and poultry that people mainly engage for subsistence and cash purposes. The table below shows the four main economic activities that people engage for cash purposes.

On the average, the province earns a real DFI of K194,076 per year, which is about 22.8% in proportion to the national DFI. Out of that, each person earns about K833 in real terms per year, which is lower than the per capita national average of K994 (UNDP – HDR, 1998).

Table 3.32 Total Population aged 10 years and over in cash economic activities 1990 – 2000.

Cash Economic Activity	1990		2000		
	Total	%	Total	%	% Change
Monetary Activities					
Wage Job	21057	16.30	17701	11.71	-15.93
Business	990	0.76	5004	3.31	405.45
Self Employed	5080	3.93	2389	1.58	-52.97
Farm/Fish for money	35350	27.37	18896	12.50	-46.54
Total Monetary Activities	62477	48.37	43990	29.10	-29.59
Total Non-Monetary Activities	65943	51.05	102987	68.13	56.17
Not Stated	735	0.56	4164	2.75	466.53
Total Activities	129155		151141		

Source: NSO - National Census 1990 and 2000

On the average, participation in cash economic activities from 1990 to 2000 has declined by approximately 30% by year 2000. This was mainly due to the decline in the farm and fish activities, and wage job activities. Destructions caused by the volcanic eruptions in 1994 and, the drought (El Nino effect) experienced in 1997 were the main contributing natural disasters that culminated in the decline on cash economic activities and increased number of unemployed. Also, worth noting is the downturn of the national economy that has led to the general decline in employment in the wage sector.

However, the majority of the people are still heavily relying on agriculture and fishing for income. More people are now running their own business. The number has more than doubled, about 5% of the people are engaged in this activity. In 2000, about 1% of the population were self-employed.

People not in the cash economy include 22% who keep house and/or provide food; 18.6% students; and 2.8% old, ill, or disabled persons. (NSO – 2000 Census)

The most disadvantaged people in the province are those in the Nutuve and Leli areas inland of Pomio, the Melkoi and Torlu valleys inland of Uvol, and on the Mamusi Plateau. Here, large numbers of people have limited opportunities to improve their livelihoods due to low potential environments, very low incomes and poor access to services. Large numbers of people on the south coast around Uvol, and on the north west coast between Lassul and Open Bay, are constrained by low potential environments and very low incomes. People in the south east of the Baining Mountains, and on the south east coast, between Warangoi Bay and Cape Oxford, earn very low incomes.

Table 3.33 Labour Force as a percentage of the economically active population age 10 and older

	Formal Labour Force (wage earners, business, self employed)		Subsistence & Semi- subsistence Labour		Unemployed (waiting to start job, looking for work)		Real Earnings per Employee
As % of EAP age 10 and older							
Year	1990	2000	1990	2000	1990	2000	1996
National	18%	15%	74%	75%	8%	3%	K5, 646
Absolute	312774	355555	1629744	1808856	132812	68623	
East New Britain	31%	25%	61%	62%	8%	2%	K2, 731
Absolute	26595	25094	52258	61026	6581	1943	

On the average, economically active citizens in the formal labour force from 1990 to 2000 declined. In 1990, there were about 26,595 citizens (31% economically active citizen population) engaged in the formal labour force. This slightly declined in 2000 to about 25,094 citizens (25% of economically active citizen population). In comparison, the provincial average was greater than the national average (1990 = 18% and 2000 = 15%).

On the other hand, there was an absolute increase in the number of economically active citizens who were engaged in the subsistence and semi-subsistence activities from 1990 to 2000. Though the province experienced an increase in the subsistence and semi-subsistence labour force from 1990 to 2000, in both years, the provincial average was lower than the national average.

This was mainly caused by a great decline in the number of citizen laborers who sold food crops for money, shifted interest towards farming and/or fishing only for subsistence consumption. Increases in this activity showed that, in 1990 there were 16,912 economically active citizen laborers mainly involving in farming and/or fishing, which later increased by three fold to 42,130 in 2000. One of the main reasons that contributed to the average decline in citizens selling food crops for money was the destruction of rural and urban markets by the 1994 volcanic eruptions, which mainly affected the citizens of the Rabaul and Gazelle Peninsula districts. These two districts constitute the largest population between the other two districts.

The unemployment rate declined from 8% to 2% from 1990 to 2000. This could be as a result of more people shifting into subsistence and semi-subsistence activities.

In 1996, average real earnings of an employee per year were K2731. In other words, a person on the average earned about K105 per fortnight. However, in comparison with the national average of K5646 per employee per year, an employee in the province was earning approximately 2 times less than the national average. There were many other province that had better real earnings per employees than the province, according to the UNDP report.

In the year 2000, about 68% of the citizen population who are ten years and above work in the agriculture, hunting and, forestry industry. The table below shows this industry in comparison to other industries.

Table 3.34 : Citizen population aged 10 years and over in private dwellings and employed by industry (2000).

No	Industry	Total Labour	% Total labour	% Total Population
1	Agriculture, hunting and forestry	65931	67.761	29.90
2	Fishing	833	0.856	0.38
3	Mining and Quarrying	53	0.054	0.02
4	Manufacturing	1229	1.263	0.56
5	Electricity, gas, steam & hot water	122	0.125	0.06
6	Construction	2174	2.234	0.99
7	Wholesale and retail trade	15846	16.286	7.20
8	Hotels and restaurants	206	0.212	0.09
9	Transport, storage and communication	1666	1.712	0.76
10	Financial Intermediation	176	0.181	0.08
11	Real estate, renting and business service activities	1363	1.401	0.62
12	Public administration and defense, compulsory social security	1478	1.519	0.67
13	Education	1584	1.628	0.72
14	Health	687	0.706	0.31
15	Other community, social and personal service activities	1543	1.586	0.70
16	Private households with employed persons	695	0.714	0.32
17	Extra-territorial organizations and bodies	1	0.001	0.00
18	Not stated	1713	1.761	0.78
	Total	97300		44.2
	2000 Total Population	220035		

Source: Census 2000

### 3.9.5.2 Major Agricultural Crops produced in the province

East New Britain has been, and is still PNG's top producer of copra, cocoa, and a leader in timber. This has been seen in the later years of the last decade (1990-2000). The province, compared to the other 19 Provinces contributed approximately 59% of cocoa, and 32% of copra production to the national product from the nations agriculture sector (AusAid, 2001). These two crops including, betelnut and fresh food, are established smallholder cash-earning activities in the province. However, there is also widespread interest in alternative cash crops such as balsa and vanilla.

In 1996, the province earned an average income of K89, 145 from cash crops, which is far less than national average of K578, 600. However, the province ranked highest in the island region and third highest in the country (UNDP – HDR, 1998).

The table below lists the main cash crops that people are involved in.

Table 3.35 Distribution of cash cropping in the East New Britain Province

Activity	1990			2000			
	Total	Cash*	% Cash**	Total	Cash	% Cash**	% Change
Cocoa	18513	18513	59.9	23673	22844	58.2	23.4
Coffee	1142	1142	3.7	790	469	1.2	-58.9
Rubber	53	53	0.2	283	28	0.1	-47.2
Oil Palm	185	185	0.6	516	214	0.5	15.7
Coconut	21652	16482	53.3	25102	19438	49.6	17.9
Betelnut	21834	13583	43.9	25938	14162	36.1	4.3
Fruit	21227	10401	33.6				
Banana	26952	13359	43.2				
Vegetable Crops	25665	13443	43.5				
Spices	4806	2164	7.0				
Food Crops/Vegetables & other root crops				29175	10081	25.7	
Others	2034	807	2.6	176	169	0.4	
<b>Total Engaged</b>	<b>144063</b>	<b>90132</b>		<b>76302</b>	<b>57155</b>		
<b>Total Household</b>	<b>30921</b>			<b>39220</b>			

Source: NSO - National Census 1990 and 2000

\* For Cocoa, Coffee, Rubber, and Oil Palm, the "own use" was not separated out in the 1990 Census.

\*\* Total Exceeds 100% as some households are engaged in two or more crops

Agriculture on the volcanic plains and hills of the Gazelle Peninsula and in the Duke of York Islands is dominated by high intensity banana cultivation, supplemented by Chinese taro and sweet potato. Here, coconut is an important food, and triploid bananas can produce for 20 years if they are managed properly. There are two consecutive plantings before a fallow period of 5-10 years. Tillage and the rotation of legumes are used to improve production. Agriculture in the lower Kerevat and Warangoi valleys is similar, but less intensive. People in Baining Mountains cultivate low intensity Chinese taro gardens, while those on the northwest and southeast coasts make low intensity mixed staple gardens. Agriculture in the Nakanani Mountains and on the south coast is characterized by low intensity sweet potato cultivation. Coconut is an important food in all coastal areas. There is no agricultural pressure in the province; however, there is concern over gulying and soil erosion on the volcanic soils of the Gazelle Peninsula. There is potential for agriculture development in the Warangoi and Kerevat valleys, and in the coastal plains and valleys of Ataliklikun Bay, where land potential is moderate to very high and access to market is good. Existing cash crop development and very high population densities limit agricultural potential on the volcanic plains and hills of the Gazelle Peninsula. The south east coast has potential for agricultural development given the moderate land potential, but access to markets depends on expensive coastal shipping. This was the main reason for the collapse of the copra industry on the south coast during the 1980s.

The northeast of the Gazelle Peninsula, including the Duke of York Islands, is one of the wealthiest areas in PNG. People earn high to very high incomes from the sale of cocoa, betelnut, fresh food, copra and fish. There are low incomes in the west Baining Mountains derived from the sale of fresh food. People in all other areas in the province earn very low incomes from minor sales of cocoa, copra and fresh food. There are many sources of non-agricultural income in the northeast of the Gazelle Peninsula. People run small businesses such as PMVs, trade stores and cocoa fermentaries; and gain wage employment from businesses and plantations. A limited number of people in the Baining Mountains, in the inland Pomio area and in other coastal areas receive wages and royalties from forestry operations.

The land potential is high to very high on the volcanic plains and hills of the Gazelle Peninsula, on Watom Island and in the Duke of York Islands. The land in these areas is among the most productive in PNG. The plains and hills on the southeast coast have moderate potential due to poor soils and high rainfalls. The Baining Mountains have very low to moderate potential constrained by steep slopes and frequent cloud cover, while the plain and hills on the south coast have low potential caused by poor soils, steep slopes and high rainfall. The Nakanai Mountains and other inland areas have very low potential due to steep slopes, poor soils, high rainfall and frequent cloud cover.

Plantation and smallholder cocoa development in the northeast of the Gazelle Peninsula has created one of the most well developed areas in PNG. The support for smallholder production is increasing through targeted research and extension programmes.

### **3.9.7.5.3 Population and Social Conditions**

#### **3.9.5.3.1 Demographic Profile**

In the year 2000, the province had a total citizen population of 220, 035, which is 4.3% of the national population of 5, 130, 365. This has increased from a population of 185,459 in 1990. The average annual growth rate from 1990 to 2000 was approximately 1.7%, which is less than national population growth rate of 3.1%. However, from 1980 to 1990, average annual growth rate was 3.4%, which was higher than the national average of 2.3%.

In the late 1990s, the crude birth rate was three times greater than crude death rate, which were slightly higher than the national average. This also explains why total population has increased in the province, among other factors.

#### **3.9.5.3.2 Education**

In terms of adult literacy, the province is among the highest in the country where 73% of the rural population and 81% of the urban population are literate in any one language (English, Pidgin, Motu, and others) (AusAid, 2001). Adult literacy rates in any one language (English, Pidgin, Motu, & others) have improved between 1990 and 2000. In 1990, about 73.4% of the population were literate, compared to 80% in year 2000. The number of people without education has greatly declined from 1990 to 2000. In 1990, about 40.1% of the population had no education, compared to 5% in year 2000. (UNDP-HDR, 1998, 2000 Census & AusAid, 2001).

#### **3.9.5.3.3 Health**

Males and females have the same life expectancy. Both on the average have 55 to 56 years of living, which is slightly higher than national average of 53.5 years for females and 54.6 for males (ibid, 1998). In 1996, records reveal that out of every 1000 births per year about 61 infants die. This has improved since the 1980s where the mortality rate at that time was 77 deaths out of every 1000 births per year. This was less than the national average, where in PNG, for every 1000 births, 73 infants died. On the other hand, women over their average life expectancy, give birth to about 5 children, which was slightly greater than the national average of 4.8 births. On the average, this rate has been maintained, since 1976 according to the 1990 census.

There has been a decline of underweight children under 5 years since 1982. By year 1982, 32.8% of children under 5 years of the populations were underweight, however, improved by year the 1990. In 1990, 23% of the populations at this age category were underweight.

#### **3.9.5.3.4 Access to services**

In 1995, 73% of the population had access to roads. The Provinces road networks are relatively in good condition and the majority of the population had access to national, trunk, and/or feeder roads. Also, those who wish to travel by air out of the province or within the province have access to airfields and seaport for the waterway transport.

In 1995, 246 km of National Roads constructed and maintained, including institutional roads were used more than 90% during the year. For trunk roads (district roads), 592 km of roads maintained by the provincial government were used more than 75% during the year and 362 km of feeder roads were used 60% during the years. However, during that year 73% of the population had access to roads while 90% of the population had access to waterways. In 1990, there were 12 airfields and 1 seaport in operation. The Gazelle Peninsula benefits from one of the best natural harbors in the South Pacific, and a good road network.

The north east of the Gazelle Peninsula has an extensive network of sealed roads. Good quality roads extended into the Baining Mountains and along the north coast to Lassul Bay. A road of lesser quality crosses the island from Hoskins in West New Britain Province, to Amio and Uvol. There are few roads in the south of the province. Outboard motor boat and canoe travel are common in the coastal areas. People in north east of the Gazelle Peninsula require less than one hour's travel to reach Kokopo, while those in the West Baining Mountains, in the Duke of York Islands and on Watom Island require less than four hours' travel. People on the south and north west coasts require 4-8 hours' travel to reach the nearest service centre, while those in the inland mountains of Pomio District are very remote and require more than one day's travel.

Also in 1996, only about 5% of the total population had access to safe water, which is less than the national average, where 24% of the population had access to safe water. 96% of the population had access to basic health services, and 89% of the population to sanitation. The percentage of population that had access to health services and sanitation exceeded the national average 79% and 83% respectively. Population per doctor was 14,553, which was less than the national average of 17,210. Though the province is relatively better off than the national situation, it still shows that more people do not easily have access to doctors. (UNDP – HRD, 1998)

In 1997, the Government through the provincial Government spent spends about 3.2% of its total public expenditure on health. In kina terms, it spent K11.00 per person on the average. These were less than the national average.

In 1996, 46.1% of household had access to radios and 7.9% had access to televisions for exceeding the national average 31.8% and 7.2% respectively. This shows that the province was better off compared to the average province in this medium of communications. In 1997, access to Daily English Newspapers showed that only about 31 people had access to (or bought) Daily English newspapers out every 1,000 people, and 2 people had access to post offices, out of every 100,000 people which was equal to the national average. Access to Daily English Newspapers was above national average of 18 people out of every 1,000 people. About 1.4% of the households have telephone connections. The table below gives comparable figures of the most commonly used communication technology in the province.

Table 3.36 Access to information

Type of Communication Technology	Value	Year
Radios (% of households)	47.1	1996
TV (% of households)	7.9	1996
Daily English Newspaper (per 1,000 people)	31	1997
Post Offices (per 100,000 people)	2	1997
Telephones (% of households with connections)	1.4	*

\* Data not available

### 3.9.5.3.5 Law and order

The province has relatively experienced severe law and order problems compared to other Provinces. In 1997, out of every 100,000 people, it was found that 57 people engaged in robbery. The province recorded the 4<sup>th</sup> highest out of the 20 Provinces and the highest in the Island region in terms of rape and sexual offences. 131 people were found to have involved in this crime. The rape and sexual offences was 2 times greater than the national average, while robbery cases were less than the national average (UNDP-HDR, 1998).

### 3.9.5.4 Summary

Volcanoes and earthquakes have stricken the feature of the mainland and caused adverse effects on the socio-economic situation of the province since 1994. In later years, a number of smaller cones have erupted around the old crater. However, The Gazelle Restoration Authority set up earlier has been assisting in its funding through outside agencies. The Kokopo District is now headquarters of the province and is expanding.

Despite the above, East New Britain, relies on both subsistence and plantation agriculture together with forestry, fishing coastal shipping and commercial activities to provide its economic base. Copra and coconut products are important, as is cocoa. The province is fertile, with well-established plantations and gardens and considerable forest reserves. A relatively long period of contact with a variety of outsiders has resulted in a stable society with functioning social systems such as schools and health services, and a tolerance of tourists.

## 3.10 Direction of Economic & Financial Policy

Current government economic policies and plans are set out in the Medium-Term Development Strategy (MTDS) 1997-2002: A Bridge Into the 21<sup>st</sup> Century. The goal of broad-based economic growth is at the heart of the strategy. Trade liberalization and other measures designed to improve the environment for private sector investment is to be promoted to encourage private sector development. Thus the government has adopted a market-based economic development strategy, moving away from an economic development strategy based upon extensive government intervention in markets and commercial activities. The current National Government's economic and financial policy direction is more or less dictated by the Structural Adjustment Programmes of the International Monetary Fund and the World Bank as agreed in 2000.

The reforms mainly are geared towards addressing macro-economic stability. The broad programmes under the macro-economic stability are:

- Economic Management;

- Financial Management;
- Privatization;
- Governance; and
- Public Service

In 1999, the National Government adopted a National Program for Reconstruction. The primary aim was to create a conducive environment for the citizens to mobilize and use their resources in a beneficial and sustainable fashion to improve their livelihood. Based on the National Charter of Reconstruction and Development, the five main objectives of the *Economic and Financial policy entails to;*

- i. Restore integrity of core state institutions;
- ii. Stabilization of the National Budget;
- iii. Stabilization of domestic currency and price;
- iv. Remove obstacles to investment and growth; and
- v. Promotion of peace

### **3.11 Conclusion**

The MTDS will expire in 2002. As mentioned above, up to 2001, the economy contracted. The poor economic performance suggests that the MTDS had not achieved its desired economic goals. The provincial and local level government reforms have also failed miserably in delivering goods and services to the masses in the provinces. The poor provincial socio-economic indicators discussed above attest to this. The reform has failed because the provinces lack capacity in terms of qualified manpower and financial resources. This must be seriously addressed. The repair and maintenance of the existing infrastructure is vital for the success of the subsistence village rice farmer concept. The smallholder rice project is been proposed against a backdrop of ill equipped and under-resourced provincial administrations.

A new or a modified version of the current strategy has been developed to bail the economy out of the economic ruin – MTDS 2002 - 2007. The current Somare-Marat Government has adopted an Export Led Growth Strategy. The problem with this strategy is that it addresses only the supply side of foreign currency. The demand side has not been accorded the same level of prominence it deserves in light of the fact that PNG is and has been an import dependent country. PNG needs to earn more foreign exchange as well as save more. The only way to save foreign exchange is to vigorously promote import-competing industries. Rice is one such industry. This study is promoting the smallholder village farmer rice type concept for subsistence consumption. The idea is that rice growing must become a culture at the village level first. Then when a village farmer becomes good at the art of rice farming, may be he or she could explore possibilities of going semi-commercial and then eventually some may become fully commercial. Rural development and food security must be priority areas of development. But development cannot be set in motion if the pre-conditions are not in place.

It is important to note that because of our obligations towards trade liberalization under the auspices of the World Trade Organization (WTO), any form of price support or assistance from the government to agricultural commodities will constitute unfair trading and the government is required to gradually phase out such assistance. In other words, growers will now need to be more independent and competitive. The same set of conditions will apply to the proposed smallholder rice scheme. It is also highly unlikely that the Government will accord protection to new import competing industries.