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ABSTRACT

One of a series of studies on the development of technical and vocational education in the member states of UNESCO, this report profiles the educational system in Papua New Guinea. The four parts of the document provide information about the following: the geography, the history, and the economy of the country; the educational system; technical education; and a list of technician education institutions. Appendixes provide statistical information about the economy and the educational system. Some of the highlights are as follows: (1) Papua New Guinea is a "lower middle income" country, but its educational status is actually worse than the average of the lowest income countries; (2) the country is made up of at least five ethnic groups, peace is a challenge, and the economy must grow in order to provide employment; (3) mining and education for mining occupations is important for the future of the country; (4) the education system has four levels: primary (grades 1-6), lower secondary (grades 7-10), upper secondary (grades 11-12), and higher education; (5) only about 55 percent of children complete 6 years of schooling, and fewer enter or complete high school; (6) technical education is provided in lower secondary schools and in technical institutions although many more are needed. (KC)

NATIONAL PROFILES IN TECHNICAL AND VOCATIONAL EDUCATION IN ASIA AND THE PACIFIC

Papua New Guinea

UNEVOC International Project on Technical and Vocational Education

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**NATIONAL PROFILES
IN TECHNICAL
AND VOCATIONAL EDUCATION
IN ASIA AND THE PACIFIC**

Papua New Guinea



UNESCO PRINCIPAL REGIONAL OFFICE FOR ASIA AND THE PACIFIC, BANGKOK, 1995

This volume is one of a series of member country profiles on Technical and Vocational Education of the following member countries:

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FOREWORD

Technical and vocational education has always been an important component of UNESCO's consecutive Medium Term Plans. The basic objective of this programme is to support the efforts of Member States to link education systems more closely to the world of work and to promote the expansion and improvement of technical and vocational education in the light of changing employment needs.

The Colombo Plan Staff College for Technician Education (CPSC) also dedicates itself primarily to enhancing the growth and development of the technician education systems in its member countries which are located in the Asia and Pacific region. Its programmes, projects and activities are geared to provide the needed impetus for the professional development of senior level personnel involved in technician education development efforts.

UNESCO has launched an International Project on Technical and Vocational Education (UNEVOC) as of 1992 in co-operation with the Government of Germany, ILO, FAO, UNDP and NGOs interested in the reform of technical and vocational education. This project focuses on exchanging information, research and experiences on policy and programme issues in technical and vocational through a network of co-operating institutions.

In a spirit of co-operation between UNESCO and CPSC, under UNEVOC, an attempt is being made to compile and publish studies on the development of technical and vocational education in Member States in the form of TVE profiles of 21 countries. It is hoped that this series will serve as a handy reference information on TVE systems, staff development, technical co-operation and information networking. These studies have been possible because of the full co-operation to UNESCO PROAP and CPSC by all concerned in the Member States.

The opinion expressed in this study are those of the authors and do not necessarily reflect the position of UNESCO and CPSC in this regard. This profile on Papua New Guinea was prepared by Dr. Iluminada G. Espino, Governing Board-engaged Faculty Member of CPSC from the Philippines, Dr. Romulita C. Alto, Research Officer and Prof. Takashi Uematsu, Seconded Faculty Member to CPSC by the Government of Japan.

C.K. Basu
Director, CPSC

Victor Ordonez
Director, UNESCO PROAP

Part I

INTRODUCTION

1.1 General Information

a) Geography

Papua New Guinea lies barely south of the Equator, just north of the Australian continent. It is the last of a string of islands spilling down from South-East Asia into the Pacific. Apart from the mainland, PNG comprises a remarkable collection of islands, atolls and coral reefs scattered around its coastline. Land area is 451,710 sq. km. that is utilized as: 71 per cent forest and woodland; 1 per cent permanent crops and 28 per cent for other uses.

The mainland is divided by the Owen Stanley Range – a rugged central spine with peaks over 4000 metres high. Great rivers begin their journeys to the sea from these mountains – among them are the mighty Sepik and Fly waterways. Below the mountain chain, fertile coastal plains, flooded delta regions and mangrove swamps exist along side broad sandy beaches, colorful sheltered bays, and dense rainforest.

b) History

It is probable that the first human settlers reached Papua New Guinea by island-hopping down the Indonesian archipelago from mainland Asia some 50,000 years ago. Although Papua New Guinea was never physically linked to a land mass in the West, human migration would have been relatively easy due to lower sea levels caused by an ice age.

The first European sighting of PNG on record took place in 1512 when two Portuguese explorers sailed by. The first landing was also Portuguese. Jorge de Meneses named the country "*Ilhas dos Papuas*" -- Land of the Fuzzy Hairs.

In the following centuries various European nations sailed past, but inhospitable country and savage warriors kept them from seriously considering a permanent landing. Finally, in 1660, the Dutch decided to claim the territory, which they named New Guinea.

It wasn't until the 1870's that the inevitable traders, adventurers and missionaries arrived. Towards the end of the century, the country was divided into three zones -- Dutch, German and British. In 1906, British New Guinea became known as Papua and administration was taken over by Australia. In 1920 the League of Nations handed control over to Australia as the Territory of Papua and New Guinea.

Progress towards independence escalated in the 1960's and in 1973 internal self-government came into effect. On 16 September 1975, full independence was declared, and the country became known as Papua New Guinea.

c) Weather and Climate

PNG's climate is generally warm to hot in coastal areas and cooler in the Highlands. Weather patterns vary greatly because of mountain and valley configurations influencing prevailing air streams. While many regions attract heavy annual rainfalls, Port Moresby is comparatively dry with an average rainfall of 120mm per year.

Temperatures on the coast vary between 25 and 30 degrees Celsius all year round, and in the Highlands the temperature can reach 20 degrees, but can be very cold at night

d) Natural Resources

Gold, copper, silver, natural gas, timber, oil potential are among Papua New Guinea's collection of natural resources.

e) People

There are at least five ethnic divisions in PNG. Among them are the Melanesian, Papuan, Micronesian, Polynesian and the Negrito. As of 1990, population of PNG was 4,011,000 and it is projected to reach 5,141,000 in the year 2000. Total urban population is 525,000. Birth rate is at 38.7 births per 1000 persons while death rate is at 12.1 deaths per 1000 persons.

Fertility rate is at 5.7 children born per woman. Life expectancy for male is 54 and 56 for female.

(World Atlas, 1990)

f) Religion

Over half of the population is nominally Christian (490,000 Roman Catholic, 320,000 Lutheran and other Protestant sects) while the rest still practices the indigenous beliefs.

g) Language

Known as the Land of Cultures, PNG has over 800 vernacular languages. About 1 to 2 per cent, use the English language. The use of Pidgin English is widespread while Motu is spoken in Papua region.

(Source: Papua New Guinea, Land of the Unexpected: PNG Tourism Office, 1991)

1.2 General Setting

a) Economic Context

The World Bank classifies Papua New Guinea as "lower middle-income" country, with an estimated per capita GNP of US\$700 in 1987. On the World Bank ranking, Papua New Guinea was the 50th poorest out of 120 countries listed. Thus Papua New Guinea is not among "the poorest of the poor." Nevertheless, its educational status is actually worse than the average for the Low Income Countries (Education Sector Review, Department of Education, 1991).

Papua New Guinea (PNG) has a dual economy. The effect of highly accelerated development in a few decades has been to produce a small modern economic sector lying within a vast traditional economy and way of life. The small export-oriented enclave is based on subsistence agriculture and, more recently, small holding. The two economies rarely mix. Intersectoral linkages are extremely weak (ADB, 1992).

PNG is richly endowed with natural resources, but exploitation has been hampered by the rugged terrain and the high cost of developing an infrastructure. Agriculture, from which 34 per cent of the GNP is derived, provides a subsistence livelihood for more than half of the population. Fertile soils and favourable climate permits cultivation of a wide variety of crops such as coffee, cocoa, coconuts, palm kernels, rice, corn, cassava, yam, groundnut, sugar cane and other products like tea, rubber, sweet potatoes, fruits, vegetables, poultry, and pork. Mining of numerous deposits, including copper and gold, accounts for about 60 per cent of export earnings. Budgetary support from Australia and development aid under World Bank auspices help sustain the economy. PNG's labour force is estimated at 1,660,000 wherein 732,806 are in salaried employment; 54 per cent in agriculture; 25 per cent in government service; 9 per cent in industry and commerce; and 8 per cent in services. 34.7 per cent of the labour force are female with ages ranging from 15 to 64. As of 1988, unemployment rate is at 5 per cent.

Agriculture, subsistence small holding and export-oriented extraction form the backbone of PNG. Approximately 85 per cent of the country's population are found in the rural areas from which they gain their livelihood. In 1988 export agriculture accounted for 35 per cent of the value of PNG's exports and approximately 31 per cent of GDP. Mining accounted for around 60 per cent of the country's exports and 18.5 per cent of the GDP. Manufacturing accounted for only 10 per cent (ADB, 1992).

b) Current Economic Conditions in PNG

There was a bright outlook for the economy of PNG at the beginning of 1989. It was predicted that the expansion of the mining, mineral and oil exploration activities will offset the effect of the relatively depressed agricultural commodity prices on overall growth. Real GDP was projected to grow at 4 per cent in that year. The Bougainville copper mine experience however, was a major setback. The closure

of the mine and the ensuing militancy in the area caused adverse effects on investor confidence.

Following two years of decline, a turn-around in Papua New Guinea's economy started in 1991 and continued in 1992, stimulated by new developments in the mining and oil industries. While the economy is forecast to continue expanding in 1993 as oil and mineral production peaks, GDP growth in subsequent years may barely suffice to maintain positive per capita income growth. Hence, despite significant progress in the implementation of more growth-oriented economic policies, severe development challenges remain. These include high unemployment and rapid growth in the labour force, poorly developed human resources and persistent slow growth in agriculture and other non-mineral sectors of the economy (Asian Development Outlook, 1993).

Fortunately, the economic potential of PNG is vast. Land is productive and agricultural diversification could generate significant returns (ADB, 1992). Thus, with the discovery of other economic activities like the gold mine in Porgera and the oil and gas deposits in the Highlands, PNG could find itself in a favourable economic position

All indicators available for the first six months of 1992 point towards continuous buoyant economic activity after the rapid rate of growth in 1991. Based on these developments, it is projected that economic growth in 1992, measured by the increase in real GDP, will surpass the 5.6 per cent forecast at the end of 1991 (Quarterly Economic Bulletin, June, 1992).

The economy is expected to continue growing strongly in 1993, at a rate of about 10 per cent, mainly because output in the mining and petroleum sector is projected to rise by 45 per cent. This will result largely from the Kutubu oil field and from the completion of the third phase of the Porgera gold mine. Despite some improvement in agriculture, GDP growth in the non mining sector will be sluggish, increasing by only 2.7 per cent as construction activity will continue to decline by about 10 per cent. Although public investment remains dominated by investment in construction related to the minerals sector, which will fall sharply in 1993. Investment will thus decline by over 25 per cent (Asian Development Outlook, 1993).

While a lot is being done to stabilize Papua New Guinea's structural adjustment programme, important structural difficulties remain. One difficulty is the need to create employment opportunities in the non mining sectors for greater labour market flexibility, improvements in agricultural support services, and for progress in human resource development. Lastly, the unsolvable problem in peace and order will have adverse effect on the economy of PNG in the next coming years.

c) Administrative and Socio-Cultural Context

Asian Development Bank reports (1992) that a few unique conditions influence the socio-cultural patterns of Papua New Guinea. One of its ethno-linguistic heterogeneity, there being possibly as many as 800 different languages, hundreds of them spoken by fewer than 1000 persons. Such diversity was largely caused by the isolation in which many groups developed, separated from each other and the outside world by impassable terrain. Matching the diversity in languages is the variation in beliefs governing all aspects of human interaction, including those controlling the use of land.

Furthermore, the report states, that part of the islands of New Guinea were occupied possibly as much as 50,000 years ago. There is evidence of sedentary agriculture, drainage and water management practised 9000 years ago in what is now Western Highlands Province. Formal administration of Papua New Guinea began in 1884 with the annexation of the south-eastern quadrant of New Guinea by Great Britain and in the same year the beginning of the administration by the German New Guinea Company of the north-eastern quadrant. In 1906 British New Guinea became Papua and administration was handed over to the newly independent Australia. German New Guinea became a mandated territory of the League of Nations in 1921, remaining administratively separate from Papua. Then in 1945, Australia combined its administration of Papua and of the mandate of New Guinea into the Territory of Papua and New Guinea with Port Moresby as the common capital. From 1946, Australia administered the mandate of New Guinea as a United Nations trust territory. Self government was attained on 1 December 1973, and full independence was gained on 16 September 1975.

Moreover, it was succinctly described by ADB that the government of the new nation was faced with the task of bringing a democracy to a country with an unequalled cultural and linguistic heterogeneity, among a population with very low rate of literacy and very recent exposure to central government. The Constitution was revised in 1979 through the new Organic Law which created provincial governments.

Because of the country's rugged terrain and the isolation of PNG's 860 or so linguistic and ethnic groups, a large number of small settlements, outstations and patrol posts were established, generally situated along the coastline and rivers and on offshore islands. Settlements in the Highlands are of a more recent origin and many still remain relatively isolated.

The challenge Papua New Guinea is now facing as a unified nation is to maintain a balance between tradition and values on one hand, and the realities of the demands from a rapid economic development on the other. Inevitably, the confrontation brings social stress, disruption and alienation (ADB, 1992).

d) Government

Since independence in 1975, PNG has been run by a democratically elected National Government based in the capital, Port Moresby. PNG is a parliamentary

democracy with a *"Westminister"* style of government and is a constitutional monarchy. The Head of State is Queen Elizabeth II, represented in PNG by a Governor-General, presently Sir Serei Eri, and the Head of Government is the Prime Minister elected by the Parliament. The National Parliament of 109 members is elected every five years. There have been three elections since independence. There is one member of parliament elected by each province but the remaining 80 members are distributed according to provincial populations. Each of the 19 provinces are experimenting with their own democratically elected provincial government, also with five yearly terms. Port Moresby has a separate administration being situated in their National Capital District.

1.3 Emerging Trends, Future Needs/Demands

Over the five to ten years, PNG was foreign driven, more service oriented and basically exporting agricultural produce. Major strides made on mining are perceived to be the major activity for the next five years. The passage of the New Mining Act through the Parliament, the pouring of one million ounces of gold at Porgera and the opening of the mining school at UNITECH are indicative of the great potential of the mining industry.

A recent study conducted by the Colombo Plan Staff College for Technician Education in collaboration with the USAID (1993) revealed that the need for more access roads has made construction industry progressing strongly, thus increasing the need for technician skills on civil construction work for PNG's resource industries. Moreover, key respondents are predicting that in the next five years, agricultural production and processing will still be the major economic direction for the country; increased concern for development in civil construction, manufacturing and tourism industries. All these will require upgraded and improved technical skills in all fields of engineering and TVE; increased technology application including automation and computers in all sectors; improved management skills and increased participation of women in technical/vocational labour market.

These foreseeable changes apparently support the initiatives expressed by the National Training Policy (1989) to wit:

On Engineers, Applied Scientists, and Related Professionals:

"We must plan what should be offered here, using private sector resources as well as University and other public sector ones, and ensure that all other essential training requirements are properly catered for overseas.

The particular significance of mining to PNG and its development implies that special attention be given to human resource training and planning in this cluster of professional

disciplines: geology, mining, engineering, environmental science, etc."

On technicians and Artisans:

... sufficient definite indications of demand exist to specify areas of undeniable continuing need. Based upon such information as is presently available (which relates to the public sector), these comprise:

Artisans:

- **Maintenance Fitting and Machining**
- **Metal Fabrication and Welding**
- **General Mechanical/Electrical**
- **Motor Vehicle Mechanic**
- **Heavy Equipment & Diesel Fitting**
- **Panel Beating & Spray Painting**
- **Construction Maintenance**
- **Drawing and Graphic Design**
- **Painting and Sign writing**
- **Printing and Composing**
- **Brickwork and Block laying**
- **Drafting**
- **Plumbing**
- **Carpentry and Construction**
- **Cabinet Making and Joinery**
- **General Construction**
- **Construction Technician**
- **Waste Disposal**
- **Water Engineering**
- **Land Use and Survey Technician**
- **Electrical Installation**
- **Refrigeration and Air Conditioning**
- **Electronics Servicing and Maintenance**
- **Computing and Information**
- **Science Laboratory Assistant**
- **Electrical Technician**
- **Electronics Technician**
- **Agricultural Engineering**
- **Telecommunications**
- **Automobile Maintenance**
- **Property Management**

Technicians:

- **Building & Architectural Drafting**
- **Civil Engineering**

- **Electrical Engineering**
- **Mechanical Engineering**
- **Science and Technology**

Apart from the above, there are courses in Secretarial, Stenography, Clerical; Business Studies, Butchery, Cooks, Tourism and Hospitality.

The importance of technical trainers keeping abreast of working practices in PNG's public and private sectors cannot be over emphasized. What goes on in classrooms must relate to the real workplace, otherwise it is an unacceptable waste of time and money (National Training Policy, 1989)."

Many believe PNG should try it her way and that too much reliance has been placed on foreign "expert advisors" in negotiating current resource development agreements. Inevitably, PNG will do it her way and, over the next decade or two, may achieve a state of "acceptable stability" as perceived by Western democracies and their investors (PNG Resources, 1992).

A look at the timber industry's current status shows timber industry impetus opening the revenue door for PNG, and improving employment opportunities. The country has the second largest forest area in the south-west Pacific region, and of the total current afforested area of 35.6 million hectares, it is estimated that around 14.4 million hectares is of commercial value.

The vision for the Ministry of Trade and Industry is that by the year 2000, Papua New Guinea must have a dynamic and diversified industrial base providing self-sustaining growth, income-earning and employment opportunities, as well as improved living standards. This vision has been translated into more measurable targets (Beyond the Minerals Boom, 1992):

- **double the contribution of the industrial sector to GDP, employment, investment and jobs;**
- **establish a strong PNG citizen entrepreneurial sector with maximum PNG participation in all areas of business;**
- **expand downstream processing of our resources and increase linkage of natural resource projects to the rest of the economy;**
- **develop decentralized industrial and business infrastructure facilities to enable the spread of benefits throughout the country;**
- **encourage the meaningful participation of women.**

Within its overall recommended strategy for the country's development, the World Bank places considerable stress on the need for human resource development (Education Sector Review, 1991).

1.4 National Goals

The Constitution of the Independent State of Papua New Guinea, in its Preamble, states the following as the National Goals and Directive Principles:

- a) **Integral human development**
 - for every person to be dynamically involved in the process of freeing himself/herself from every form of domination or oppression so that each man/woman will have the opportunity to develop as a whole person in relationship with others.
 - a call for education to be based on mutual respect and dialogue and to promote awareness of human potential and motivation to achieve the National Goals through self-reliant effort.
- b) **Equality and participation**
 - for all citizens to have equal opportunity to participate in, and benefit from, the development of the country.
- c) **National sovereignty and self-reliance**
 - for Papua New Guinea to be politically and economically independent and for the economy to be basically self-reliant.
- d) **Natural Resources and Environment**
 - for Papua New Guinea's natural resources and environment to be conserved and used for the collective benefit of us all, and be replenished for the benefit of future generations.
- e) **Papua New Guinean ways**
 - to achieve development primarily through the use of Papua New Guinean forms of social, political and economic organizations.

Part II

EDUCATIONAL SYSTEM

2.1 Introduction

Knowledge, skills and attitudes are passed on from one generation to another in the societies of PNG through traditional education. Technology in agriculture, house building and sailing are among the most ancient known. Literacy and formal schooling have much more recent origins introduced by the occupying colonial power to meet the immediate manpower needs of their churches, businesses and later administration.

The National Education Department of PNG was established in 1946 and in 1950 the policy for universal primary education in English was promulgated by the Australian Colonial Government (Suari, 1992).

Responsibility for education is divided between the national and provincial governments. This leads to complexities in planning, particularly when there are differences in priority structure. Broadly, provincial governments are responsible for nonformal and vocational education, for the number and location of primary and secondary schools, and for non-core parts of the primary school curriculum. The national government is responsible for core curriculum in primary schools (English, Mathematics, Science and Community Life), all secondary school curriculum, and all aspects of national high schools, teachers' colleges and universities (Education Sector Review, 1991)

There are two levels of secondary schooling: grades 7-10 which are assigned to the provincial high schools and grades 11-12 to the national high schools. There were 123 provincial high schools as of 1988 with 52,000 students, and four national high schools with 1,800 students.

The main thrust at the tertiary level in recent years has been in rationalization rather than growth (Education Sector Review, 1991). This was brought about by the observed large number of institutions and the seeming overlap of focus and high unit costs.

There are no available figures for adult literacy rates, though it is perceived to be low. Thus, in 1989, the government evolved a new thrust and developed a national literacy policy. However, much yet has to be done in this regard.

2.2 Aims of Education in PNG

Quality education is defined as an education which strengthens citizens identification with, rather than alienation from, their own communities. In this context the programme gives value and status back to the appropriate attitudes, knowledge and skills relevant to community development and supplements this with a degree of competence in English, Mathematics and Science to ensure the development of citizens who are (Education Sector Review, 1991):

- **committed to their own personal development and view education as a continuing life long process;**
- **embued with a productive work ethic and value both rural and urban community development activities in a context of national development;**
- **prepared for the realities of life in most communities;**
- **capable of participating in further training for manpower needs.**

Expansion targets are:

- **the provision of access to basic education so that by 1999 all citizens reaching school age have the opportunity to obtain at least six years of basic education;**
- **the availability by 1999, of two years of basic secondary education for at least 50% of all grade 6 primary school leavers in each province;**
- **the availability, by the year 2010, of four years basic secondary education for all children;**
- **the provision by 1999, of sufficient and suitable candidates for higher education by doubling the output from grade 12.**

2.3 Current Status

With the establishment of the National Department of Education in 1946, Papua New Guinea has built a complete education system within a relatively short period of time. The first senior high school for grades 11 and 12, was opened in 1969. The country has adopted a four-tiered education system: primary or community (grades 1-6), lower secondary (grades 7-10), upper secondary (grades 11-12) and higher education. A large number of primary schools are in very isolated locations where the only means of access is by one, or any combination of, air, canoe or walking. The secondary institutions are almost all boarding establishments, constructed of permanent materials and situated in or near to administrative centres. (See Chart 1 in Appendices for the present educational structure of PNG)

Lower secondary education is provided by more than 230 academic, technical and vocational institutions and a College of Distance Education. There are nine upper secondary academic institutions and many technical education institutions. Primary school teachers are trained at 8 Teachers Colleges. Several provinces and

NGOs train teachers for vernacular preparatory classes. Secondary teachers are prepared by UPNG, while other tertiary education is provided by University of Papua New Guinea, University of Technology, Pacific Adventist College, Divine Word Institute and a host of other institutions. These operate under the umbrella of the Commission of Higher Education.

It is estimated that 92% of all 7-12 year old eventually begin primary education but only about 64% of them complete primary school. About 20% of the lower secondary age cohort (13-16 year old) attend academic, technical and vocational secondary institutions for a period of two to four years. A further 20,000 students are enrolled in the College of Distance Education to study various subjects at the secondary level by correspondence. About 3.8% of the upper secondary age cohort (17-18 year old) obtain a further two years of academic education to grade 12 or training at either technical or teacher education institutions.

a) Pre-Primary and Primary Education

There are approximately 2,516 community (primary institutions) and 22 International Education Agency schools providing primary education for approximately 414,344 students (Education Staffing and Enrolment Statistics, 1991). There were 991,480 enrolled in grade 1, but if current trends persist, only about 55 per cent will complete six years of schooling.

National policy aims to provide primary education to children aged 7-13 by year 1999. Primary education is not compulsory. It is not possible to provide universal primary education due to: lack of teachers and inadequate financing.

On the other hand, Provincial governments do not all see the need for all citizens to obtain basic education as a priority. There is conflict between the competing demands of expansion at all levels versus access to primary education. The evidence seems to suggest that provinces are more concerned with the expansion of secondary education rather than primary education (Education Sector Review, 1991).

Many communities and provinces, on their own initiative, established preparatory classes to provide initial literacy in the vernacular and a culturally oriented base for formal education.

The International Education Agency (IEA) has its own act and therefore operates under this act. It has been observed that enrolment in IEAs are increasing steadily. There is some debate on their existence but since it gives no additional costs to the PNG government, they are considered to provide alternative means to education.

Table-2.1 below presents the indicators for the primary school sector showing the marked improvement between 1982 and 1987. Enrolment rates, however, remain low. Table 2 shows the enrolments over five years in the primary schools. Table 3 presents a summary of enrolments by province and type of schools other than in the primary level.

Table-2.1. Selected Primary School Indicators, 1982 and 1987

Indicators	1982	1987	% change
Enrolment	312,620	373,989	+19.6
Gross Enrolment Rate (7 - 12 year olds)	61%	70%	+14.8
Female Enrolment	43%	45%	+4.6
Number of Teachers	9,876	11,950	+21.0
Number of Schools	2,164	2,470	+14.1
Retention Rate (grades 1-6)	66.1%	62.4%	-5.5
Grade 6 English Exam (Rasch Mean Scores)	1.36	1.86	+36.7
Grade 6 Maths Exam (Rasch Mean Scores)	0.48	0.98	+104.1

(Source: *Education Sector Review*, Department of Education, 1991)

b) Secondary Education

In Papua New Guinea, Secondary Education is comprised of two levels in its mainstream structure and an alternative distance scheme for students who are not able to enter the mainstream schools for one reason or another.

Lower Secondary Education has a duration of four years and is provided to the youth aged 12 - 16. This is provided in the Provincial High Schools. On the other hand, Upper Secondary Education is provided for a duration of two years in the National High Schools. In the secondary education, the distance scheme is in the lower secondary level and is provided through the College of Distance Education.

The main purpose of Lower Secondary Education is that of educating students to become useful and productive members of the society emphasizing on the application of skills and knowledge and the development of desirable social attitudes, as well as providing opportunities for students to achieve self-fulfillment.

Upper Secondary Education however, is the venue for continuing general education (that is non-vocational education) for university entrance

The main aim of Distance Education is that of providing an alternative route to lower secondary education. Alternatives to upper secondary education are provided by the distance matriculation courses offered by the University of Papua New Guinea.

c) Higher Education

Over 60 colleges and universities operate in Papua New Guinea. They were not founded as a result of a national plan, but have grown up in response to the initiatives of missions or government departments. To a large degree, institutions have met the needs for personnel of their parent departments. The over all picture however, shows that higher education have high unit costs but responds

insufficiently to the labour force, and sometimes produce low quality graduates (Education Sector Review, 1991).

Higher Education, like all education in Papua New Guinea, is comparatively underdeveloped. On a world rating of economies, Papua New Guinea has been classified as a low middle income country. However, age-enrolment ratios are worse than average for low income countries. The comparative disadvantage is strongest for the tertiary level of education.

2.4 Areas of Concern

Some of the characteristics of the present educational system that have to be addressed are:

1. Access to education is very limited. Currently, the gross enrolment ratio is estimated to be about 73 per cent. Universal primary education is still remote.
2. There is a great age disparity among children enrolling in grade 1.
3. Attrition rate of 45 per cent between grades 1 and 6.
4. Literacy and education programmes are largely provided in a foreign language resulting in many school leavers functionally illiterate.
5. There is a drastic shortage of teachers projected to be 2,254 by the year 1994.
6. Only 32 per cent continue education beyond grade 6.
7. Highly academic structure of the Provincial High School curriculum
8. Only about 66 per cent complete grade 10 from grade 7.
9. Vocational education remains to be a deprived area in the educational system. Low manpower resources and financing, it maintains a low public image.
10. Of those who complete grade 10, only about 33 per cent are admitted for further training and education.
11. Majority of the children who benefit from education and schooling do not enter the formal employment sector. This alienates them from the way of life of the people. Likewise, the education they receive does little to equip them with the knowledge, skills and attitudes needed for community or national development.
12. There is a great deal of resource wastage.

2.5 Technical and Vocational Education

a) Goal of Technician Education

- To satisfy, in as economically efficient and educationally effective a manner as possible, the skilled manpower requirements as created by the economy of the country

(Source: *Education Sector Review, Vol. 2, Deliberations and Findings, 1991*)

b) Context of Technical and Vocational Teacher Education

Although the philosophies and contents of these two programmes should not be taken as one, they are a multi-dimensional continuum rather than two opposite poles. What is technical and what is vocational education overlap. The terms also have different meanings in the Papua New Guinean context from those of other countries having different social and economic histories.

A technical and vocational teacher education programme must meet two needs. Technical aspects of the programme must meet labour force needs of the formal economy by tailoring programmes to vacancies, and upgrading the quality of graduates to make Papua New Guinean industry more competitive and to allow efficient replacement of expatriates.

Existing formal employment because of its high technology and capital requires high technical and managerial skills. Technical, managerial and entrepreneurship skills are in short supply in PNG and the existing skilled and educated labour force is often comparatively inefficient and unproductive, largely as a result of the poor quality of training received (ILO, 1989 cited by Education Sector Review, 1991).

Teacher-education programme has been placed at the Port Moresby In-service College campus which was originally designed for short-term courses.

c) Technical Teacher Education

Technical education in PNG is concerned with giving people the skills to fit into established niches in the formal economy.

Technical education is carried out in six technical colleges of which, one (in the North Solomons) is temporarily closed. There are two business colleges which are directly under the jurisdiction of the Technical Education Division of the National Department of Education. The main programmes offered are the one-year Pre-Employment Technical Training (PETT) courses, designed to prepare students for apprenticeships or in the case of business colleges, to prepare students for direct employment. The second type of courses are known as the extension courses of eight-weeks duration provided within the framework of apprenticeship training. The third type of courses lead to certificates, such as Associate Diploma and Diploma, and are provided for higher technical level. The fourth type of courses are specific courses that respond to the specific demands of the economy, *i.e.*, welding, hydraulics, etc. Technical education in broader perspective covers also the colleges of agriculture, fisheries, forestry, nursing, and maritime studies..

The PETT courses have a duration from 30 to 40 weeks and are the responsibility of the Technical Education Department as regards their curriculum. These courses generally include ten vocational areas as mechanical, electrical, vehicle, building, catering, printing, clerical, laboratory, metal and secretarial. Successful completion of the PETT will allow the student to enter the Apprenticeship Training course offered by a technical college in collaboration with an employer with

whom a contract is made. Certificate of Higher Technical Education are in the fields of Architectural Draughting, Building, Catering and Hotel Administration, Civil Engineering, Commerce, Electrical Engineering, Laboratory Techniques and Mechanical Engineering. These courses offer higher level training and are offered in the form of sandwich training.

PETT and apprenticeship training on one hand and the Certificate of Higher Technical Education on the other hand require two kinds of teachers. Most teachers for the technical colleges are trained at the Goroka Teachers' College. PETT teachers are trained in a one-year programme and must have as entry requirements grade 10-qualifications and 5 years of industrial or commercial experience. Teachers who will teach at certificate level are either university graduates or have the Certificate of Higher Technical Education and at least three years of experience.

Qualified teachers for technical colleges are not adequate which required the hiring of overseas staff. In 1990, out of 173 teachers employed in the technical colleges, 49 or 28 per cent are not PNG nationals.

d) Vocational Instructor Education

There are now 105 recognized and aided vocational centres with approximately 6,000 trainees in one, two, three-year programmes throughout PNG. Most trainees have completed Grade six, with a few having completed later grades, and in case of girls, four or more years experience in their trade who have then completed the one-year pre-service course at the Port Moresby In-service College. Some teachers have come from the secondary teacher education programme at Goroka Teachers' College. However, it has been observed that almost half of the instructors do not have proper qualifications..

Moreover, there is a wide range of other institutions offering vocational education which are run by non-government organizations (NGOs): churches, The Young Women's Christian Association, volunteer groups that do not receive aid from the government. The funding of these organizations range from aids from donor groups overseas to centres which are self-income-generating.

Part III

TECHNICAL EDUCATION IN PAPUA NEW GUINEA

3.1 Structure of Technical Education

a) Primary Education

Primary education in PNG starts with the Community Schools. Minimum age requirement is 7.

b) Secondary Education

• The First Step of Secondary Education

After finishing six years of education (grade 6) there are three possibilities as the first step of Secondary Education:

1. One is to get promoted to the Provincial High School which has four grades, from 7 to 10. When finishing grade 8, students with low points do not get promoted to grade 9.

There were 126 provincial high schools in PNG in 1991, and a total of 54,940 boys and girls who had successfully finished grade 6 were enrolled. Admission qualifications differ from province to province. In general, entry permission is given based on the achievement of national tests. Some provinces give priority to girls or people from remote areas where they have few opportunities for education. As of 1991, aside from the provincial High Schools there are five International Education Agency (IEA) Schools where 730 PNG as well as non-PNG students were enrolled and four Seventh Day Adventist (SDA) High Schools where 1,101 students were enrolled.

2. Another is to have basic technical training at a Vocational Centre. Vocational centres provide basic vocational training to those who finish grade 6 but fail to get jobs, rejects from provincial high schools or have dropped out from there. These aim to enrich students' opportunity for employment and to improve their standard of living. There are 112 centres with 7,820 students enrolled in 1991. Many of these centres are operated by missions or churches.
3. Or, to get jobs or to enter Distance Education College. Those who get rejected to grade 9 after finishing grade 8 can apply to this College.

College of Distance Education (CODE) is giving education through radio or some other means of communication, and graduates are given certificate equivalent to grade 10. Enrolment in this College was 14,942

in 1987, of which 326 obtained the certificate of grade 10, and 533 that of grades 7 to 9.

• **The Second Step of Secondary Education**

1. National High Schools

There are four National High Schools in PNG, i.e. Sogeri, Kerevat, Aiyura and Passam National High School. A total of 1,946 students were enrolled in 1991.

Aims of the National High Schools are:

- to train and give preliminary education to those PNG citizens who want to have higher education in universities or some other higher education institutes;
- to train and give preliminary education to PNG citizens for manpower expected for both private and public sectors;
- to develop national identity.

2. Technical Colleges

A total of 1,147 students were enrolled in five technical colleges and two business colleges in 1991. Each college operates the Pre-Employment Technical Training (PETT) courses. PETT courses and apprentice courses are the two main courses for technician education in PNG now. Admission qualifications to the PETT courses are given to those who are studying grade 10 or grade 11, and are looking for jobs. After finishing 40 weeks of PETT courses in the technical colleges they are qualified to be employed as apprentices. After finishing PETT which is still under the jurisdiction of the Department of Education, a graduate takes apprenticeship which comes under the domain of the Department of Labour and Employment.

3. Community Teachers' College

Community Teachers' Colleges give education to grade 10 graduates to prepare them as teachers of primary schools in two years. There are nine Colleges and 1,525 were enrolled in 1991. Seven of them are operated by churches and two by the government.

4. Other Post-Secondary Training Courses

c) Apprenticeship/Extension Courses

After completion of the PETT under the jurisdiction of the Department of Education, a graduate takes an apprenticeship course which now falls under the jurisdiction of the Department of Labour and Employment. It aims to produce "Tradesmen" by providing on-the-job training in enterprises and theoretical learning and training in Technical Colleges for four years.

d) Higher Technician Education

In addition to the Apprenticeship extension courses there are other education schemes. There are three-year sandwich pattern courses requiring in-college training of 20 weeks per year. They are specifically designed to meet needs for higher technicians in commerce and industry.

Entry requirement is the completion of apprenticeship programme with three to four years job experience in the industry. Students are selected on the basis of their academic and job experience and are usually sponsored by their employers.

e) Post Technician Education

This is designed as short duration courses of normally 6-8 weeks with specialization in middle management, sub-professional and supervisory levels. The courses are conducted in response to specific requests from industry and commerce. The prerequisite for these courses is usually successful completion of a higher technician education course. The duration of these courses is dependent on the content. Currently, the range extends from practical taxation assessment to draughtmanship.

f) Specialized TVEs

Specialist Training for special needs are conducted also by other organizations which do not fall within the functions of the Ministry of Education. These schools include:

- Post and Telecommunication College (PTC Training College) (offers courses in Telecom; communications technology, etc.)
- Electricity Commission
Electrical Apprenticeship Training
- Timber Industry Colleges offer courses on Timber Industry
- Private Industry Based Training is also conducted by individual companies e.g. Tandy Electronics company conducts computer courses for those interested in undertaking these courses. Several mining companies conducted their own courses also (refer to Figure 1 for the structure).

3.2 Main Courses in TVE

a) Pre-Employment Technical Training (PRTT) Courses

Pre-Employment Technical Training (PETT) Courses are given to those who complete grade 10 or 11 or 12 and are looking for jobs.

b) Apprenticeship/Extension Courses

Apprenticeship/Extension Courses involve on-the-job training in enterprise, theoretical learning and training in Technical Colleges in four years. To qualify, completion of 40 weeks of PETT work is required. Table 2 presents a listing of the apprenticeship courses offered in the country and an accompanying enrolment statistics. Supervision and administration of these courses are within the jurisdiction of the Department of Labour.

c) Technician Courses

Technician Courses are divided into four levels - Post Trade Certificate and Associate Diploma and Diploma. Table 3.3 presents a listing of the various technician courses offered in the country in addition to enrolment statistics.

Table 3.1 PETT Enrolment by Trade and Sex as of 1991

Courses	Male Students	Female Students	Total No. of Students
Auto Electrical	14	-	14
Block laying	13	-	13
Butchery	12	-	12
Cabinet Making	32	-	32
Carp/Const. Join.	73	-	73
Clerical	50	31	81
Composing	13	1	14
Draughting	14	1	15
Electrical	64	1	65
M/F/Machining	75	-	75
Diesel H/E/F	48	-	48
Hotel & Catering	10	6	16
Electronic	31	-	31
M/F Welding	96	-	96
Motor Veh. Mech.	66	-	66
P/Sign/Writing	19	-	19
PNL. B & S/PT.	16	-	16
Plumbing	31	-	31
Printing	-	-	-
Refrigeration	16	-	16
Sheet Metal	16	-	16
Basic Secretarial	3	299	302
PETT Steno	96	-	96
Lab. Assistant	-	-	-
Diesel Fitting	-	-	-
TOTAL	712	435	1147

Source: *Education Staffing and Enrolment Statistics* (National Education System: Planning Branch), 1991.

Table 3.2 Apprenticeship (Extension) Courses Enrolment as of 1991

Courses	Male Students	Female Students	Total No. of Students
Auto Electrical	8	-	8
Block laying	-	-	-
Butchery	-	-	-
Cabinet Making	-	-	-
Carp/Joinery	31	-	31
Clerical	-	-	-
Composing	-	-	-
Draughting	-	-	-
Electrical	75	-	75
M/F/Machining	74	-	74
Diesel H/E/F	42	-	42
Catering	-	-	-
Electronic	37	-	37
M/F/Welding	54	-	54
Motor Veh. mech.	90	-	90
P/Sign/Writing	10	-	10
PNL. B. & S/PTG.	25	-	25
Plumbing	46	-	46
Printing	-	-	-
Refrigeration	14	-	14
Sheet Metal	-	-	-
Diesel Fitting	-	-	-
TOTAL	506	-	506

Source: *Education Staffing and Enrolment Statistics (National Education System: Planning Branch), 1991.*

3.3 Technical Colleges in PNG

1. Port Moresby Technical College
2. Port Moresby Business College
3. Goroka Technical College
4. Mt. Hagen Technical College
5. Lae Technical College
6. Madang Technical College
7. Rabaul Business College
8. Arawa Technical College (temporarily closed)

Table 3.3 Enrolment in Technician Courses as of 1991

Courses	Male Students	Female Students	Total No. of Students
Building/Architectural Drawing	18	-	18
Tourism and Hospitality	-	-	-
Civil Engineering	9	9	9
Mechanical Engineering	20	-	20
Electrical Engineering	34	-	34
Science and Technology	8	1	9
Business Studies	38	3	41
TOTAL	127	4	131

Source: *Education Staffing and Enrolment Statistics (National Education System: Planning Branch), 1991.*

3.4 Policy Making and Administration of the Trade Training Institution (*Trade Technician Level*)

Policy making and administration of the trade training institutions are the responsibility of the National Education Board. A Governing Council consisting of not less than ten members is formed in each institution in consultation with the National Education Board. The Governing Council implements the policy laid down by the National Education Board. The Council consists of those appointed by the National Board, broadly representative of the following interests:

- National Education Board
- Provincial Education Board
- Local Level Government
- Teaching Staff of the Institution
- Papua New Guinea Teachers Association
- University of Papua New Guinea
- Any other persons with special knowledge and interest who the agency considers may be valuable to the management of the institution.

3.5 Curriculum

a) Design and Evaluation of Technician Curriculum

1. *Procedures of Curriculum Design*

In order to design a suitable curriculum, information is collected on needs of industries, needs of individuals, e.g. trainees, and policy of the Government and needs of the country. The first two types of

needs are collected through survey, either by face to face interview, telephone interview and/or postal questionnaire.

For Extension (block) courses once details of the survey are analyzed, the course aim is established. A broad outline of the course comprising the aim, structure and a list of general objectives based on the survey result is prepared and presented to the Board of Panel for amendment and/or endorsement.

After ratification of the Board of Panel the general objectives are grouped into common areas and are rewritten into specific objectives. The final document is again presented to the Board of Panel which recommends approval for trial. After trial with minor modifications, if necessary, it is presented to the Secretary for approval and implementation.

2. *Organizational Arrangement of Curriculum Design*

The Board of Studies is a group of people representing one or two Curriculum Officers from the Department of Education's Central Unit plus Curriculum Officers from the institutions and various members representing private organizations and other government organizations. Representatives from the two universities are also present.

The Department of Education, Technical Division has a Curriculum Officer (Technician) based at the Head Office. His responsibility is to monitor technician education at the national level in all areas.

The actual design of course curriculum is done by Curriculum Development Officers, sponsored by the World Bank for a two-year term based at the training institutions.

3. *Evaluation of Technician Curriculum*

If the feedback from employers show that the newly developed curriculum does not meet their needs, the procedures outlined above are repeated. Usually the curriculum is reviewed every five years.

The curricula and syllabi are now being rewritten in the form of behavioral objectives.

b) *Instructional Materials*

Teacher's manuals and student's workbooks form the major part of instructional materials. Charts, models, filmstrips and slides are used to some extent.

c) *Student Assessment*

Individual teachers develop their assessment materials for the normal weekly or monthly tests. For final examinations, the HOD reviews assessment materials before giving to students.

In case where the subjects are similar to other colleges, a central unit, usually the Department of Education develops the assessment materials.

Technical colleges are now starting to set up a data bank on all courses.

d) Liaison with Industry

The Boards of Study, Trade Panels, Apprenticeship Board aids in establishing rapport with commerce and industry.

3.6 Technical Teacher Training

a) Pre-Service Teacher Training

Goroka Teachers' College provides one-year courses for persons who are to teach in technical and secretarial colleges. Candidates for technical and secretarial teacher training must complete the apprenticeship training and be a tradesman, and have had at least four to five years work experience. In addition, candidates should also possess certain personal characteristics such as health, stability and an outgoing personality.

b) In-Service Staff Development

1. *National In-Service Training Week*

The National Education Board has set that each teacher may spend five days doing some form of in-service teacher training. It is the responsibility of each College Governing Council in consultation with the Technical Division to plan the schedule and strategy of the in-service training.

2. *Overseas Courses*

Overseas courses remain fairly static. Various overseas aid organizations provide funds for the costs but the Department of Education shoulders the internal travel and accommodation.

3. *Associateship*

Each individual will have a programme worked out for his/her particular needs. The programme is further theoretical and practical training in their subject area or some experience of allied trade areas where appropriate. It may be for a week only or for any period within a year or two.

Part IV

LIST OF TECHNICIAN EDUCATION INSTITUTIONS

Notations used in the list:

1. Address
2. Courses Offered
3. Number of Students/Full-Time (Part-Time) Teaching Staff

Technician Education Institutions

a) **Administrative College of Papua New Guinea**

1. P. O. Box 1216, Boroko
2. Diploma - Library Science, Public Finance and Accounting, Public Administration, Social Development;
Advance Certificate - Communication Skills
Higher Certificate - Public Service
Certificate - Library Studies, Library Assistant, Accounting, Development Administration, Rural Development and Change, Land Administration, Provincial Planning, Local Government, Management, Advanced Management, Statistics

The Certificate in Statistics was not run in 1981 due to too few students enrolling.

The Library Assistants Certificate and Library Studies Certificate will be replaced by a Library Technicians Certificate in 1992.

The Diploma in Public Finance and Accounting will be upgraded to an Advanced Diploma in Public Finance and Accountancy.

The college offers a wide range of short job skill oriented courses in addition to the technician qualification certificate and diploma courses mentioned above.

3. 403/85
(August 1981)

b) **Burns Philp Automotive Training Centre**

1. c/o Burns Philp (PNG) Limited
P. O. Box 75
Port Moresby
National Capital District

2. **Apprentice Skill Progression, Skill Development of Mechanics, Product Knowledge Upgrading.**
This Centre is an internal section of the Training Department of the Burns Philp (PNG) Limited. The Centre operates service oriented courses for the Automotive Division of the company.
3. -/6
(March 1982)

Agricultural Colleges

- a) **Highlands Agricultural College**
 1. P. O. Box 312, Mount Hagen
 2. Certificate - Tropical Agriculture
 3. 200/25
(August 1981)
- b) **Sepik Agricultural College**
 1. P. O. Box 171, Maprik, E.S.P.
 2. Certificate - Tropical Agriculture
 3. 98/14
(August 1981)
- c) **Vudal Agricultural College**
 1. P. O. Keravat, East New Britain Province
 2. Certificate - Tropical Agriculture
 3. 140/14(7)
(August 1981)
- d) **Air Niugini Training Centre**
 1. P. O. Box 7186, Boroko, NCD
 2. -
 3. -
- e) **Civil Aviation Training College**
 1. P. O. Box 2087, Konedobu, N.C.P.
 2. Communications Diploma - Radio
Certificate - Radio 'A', Radio 'B', Radio 'C', Radio 'D',
Electrical 'E', Radio 'F'
 3. 78/21
(August 1981)

Colleges of Allied Health Sciences

- a) **College of Allied Health Sciences, Madang**
 1. Box 2033, Yomba P.O., Madang

2. Diploma - Health Extension
Certificate - Health Inspection
 3. 232/46
(August 1981)
- b) College of Allied Health Sciences, Port Moresby**
1. P. O. Box 1034, Boroko, NCD
 2. -
 3. -
- c) College of External Studies**
1. P. O. Box 2500, Konedobu, NCD
 2. -
 3. -
- d) Defense Academy of Papua New Guinea**
1. Igam Barracks, Lae
 2. Permanent Commission in Defense Force
 3. Approx. 90/39
(August 1981)
- e) Divine Word Institute**
1. P. O. Box 483, Madang
 2. -
 3. -
- f) Elcom Training Centre**
1. PNG Electricity Commission
Elcom Training College
P. O. Box 1105, Boroko
 2. Apprenticeship Certificate - Electrical Filter, Power Station Operator,
Linesmen, Diesel Fitter, Clerks.
Electrician License - Electrician Licensing
 3. 328/20
- g) Fire Service Training College**
1. P. O. Box 5390, Boroko, NCD
 2. -
 3. -
- h) Laloki Co-operative College**
1. P. O. Box 1864, Boroko
 2. Diploma - Business Management
Certificate - Business Management
 3. 150/7(5)
(August 1981)

- i) National Arts School**
 - 1. P. O. Box 5098, Boroko, Port Moresby
 - 2. Diploma - Graphic Design, Music
Foundation Course - Visual Arts, Music
 - 3. 90/11(6)
(September 1981)

- j) National Computer Science**
 - 1. Post Office Wards Strip, Waigani
 - 2. Computer Programming and Systems Analysis and Design
(commenced in 1982)
 - 3. 4 p.a./2

- k) National Fisheries College**
 - 1. P. O. Box 239, Kavieng, New Ireland
 - 2. Diploma - Tropical Fisheries (commenced in 1983)
Certificate - Tropical Fisheries
The college also offers occasional in-service courses for college fishermen,
school teachers as required.
 - 3. 70/9

- l) National Posts and Telecommunication Training Centre**
 - 1. P. O. Box 70, Taraka, Morobe Province
 - 2. Teletechnician (Radio & Transmission, Customer Equipment, Exchange
Switching, Telegraph & Data) Lineman (conduits & cable joining), Short
Modules as Secondary Training for Graduates of Technician or Lineman
Courses.
 - 3. 216 max./40
(April 1982)

- m) National Weather Service Training School**
 - 1. P.O. Box 1240, Boroko, NCD
 - 2. -
 - 3. -

- n) Nautical Training Institute**
 - 1. P.O. Box 1040, Madang
 - 2. Grade 4 Master Mariner (Pacific), Grade 5 Master Mariner (Pacific),
Coxswain, Direct Entry Induction Leading to Coxswain.
Seaman Certificate, Seamanship Induction.
Grade 4 Marine Engineer, Grade 5 Marine Engineer, Mechanics, Direct
Entry Induction Leading to Mechanics.
Radar Observer (Limited), Restricted Post and Telegraph Operator.
 - 3. 132/9(1)
(August 1981)

- o) Papua New Guinea Banker's College**
 - 1. P.O. Box 3721, Port Moresby, NCD
 - 2. -
 - 3. -
- p) Papua New Guinea Defense Force Training Depot**
 - 1. Goldie River Barracks Free Bag, Boroko
 - 2. -
 - 3. -
- q) Papua New Guinea Forestry College**
 - 1. P. O. Box 92, Bulolo
 - 2. Diploma - Forester
 - 3. 120/13(4)
(August 1981)
- r) Papua New Guinea Harbours Board Training College, Lae**
 - 1. P. O. Box 671
Port Moresby
 - 2. Wharf Superintendent Training, Port Clerical Procedures,
Maintenance Procedures
 - 3. 30/1(2)
(February 1982)
- s) Papua New Guinea University of Technology**
 - 1. P. O. Box 793, Lae, Morobe
 - 2. -
 - 3. -
- t) Port Moresby Dental College**
 - 1. P. O. Box 1881, Boroko
 - 2. Diploma - Dental Technician
The Dental Technician Course has been temporarily discontinued
because there are more dental technicians than dental surgeons who are
in short supply at this moment.
 - 3. -/2
(August 1981)

Schools of Nursing (Church)

- a) APCM Balimo School of Nursing**
 - 1. Box 4 Balimo W.P.
 - 2. Enrolled Community Health Nurse
 - 3. 40/3(4)
(August 1981)

- b) Kapuna School of Nursing**
 - 1. Via Baimuru
Gulf Province
 - 2. Enrolled Community Health Nurse, Aid Post Orderly
 - 3. 38/4(4)
(February 1982)

- c) Lutheran School of Nursing, Madang**
 - 1. P.O. Box 2099, Yomba, Madang
 - 2. General Nurse Programme
 - 3. 55/8
(July 1981)

- d) Nazarene School of Nursing**
 - 1. Box 456, Mount Hagen, W. H. P.
 - 2. Enrolled Community Health Nurse, Nurse Aide
 - 3. 70/6
(August 1981)

- e) Sacred Heart School of Nursing**
 - 1. Lemakot Health Centre, Kavieng, New Ireland
 - 2. Enrolled Community Health Nurse
 - 3. 60/3
(August 1981)

- f) St. Barnabas School of Nursing Dogura**
 - 1. P. O. Box 21, Dogura, via Alotan
 - 2. Enrolled Community Health Nurse
 - 3. 46/6(1)
(September 1981)

- g) St. Genard's School of Nursing, Veifa'a (Bereina, C.P.)**
 - 1. P.O. Box 7207, Boroko
 - 2. Enrolled Community Health Nurse, Nurse Aide
 - 3. 42/4(1)
(August 1981)

- h) St. Mary's School of Nursing, Vunapope**
 - 1. P.O. Box 75, Kokope, ENBP
 - 2. General Nurse, Bridge Course, Nurse Aide
 - 3. 157/-
(August 1981)

- i) Sopas Adventist Hospital**
 - 1. P.O. Box 112, Wabag
 - 2. Enrolled Hospital Nurse

3. 40/2(2)
(September 1981)

j) Tinsley School of Nursing

1. Baiyer River, W.H.P.
2. Enrolled Community Health Nurse
3. 40/3
(August 1981)

Schools of Nursing (Government)

a) Arawa School of Nursing

1. P.O. Box 1211
North Solomon Province
2. General Nurse
3. 25/3
(February 1982)

b) Goroka School of Nursing

1. P.O. Box 392
Goroka Base Hospital
2. Graduate Nure, Nurse Aide
3. 6/4
(August 1981)

c) Lae School of Nursing

1. P.O. Box 457
Lae, Morobe Province
2. Enrolled Hospital Nurse
3. 22/7

d) Mendi School of Nursing

1. Department of Health
P.O. Box 105
Mendi, Southern Highlands Province
2. Nurse Aide
3. 20/1
(February 1982)

e) Mount Hagen School of Nursing

1. P.O. Box 787, Mount Hagen
2. Enrolled Community Health Nurse
3. 105/3(1)
(March 1982)

- f) **Port Moresby School of Nursing**
 - 1. P.O. Box 1034, Boroko
 - 2. Nursing (Basic), Post Basic
 - 3. 116-124/16
(June 1982)

- g) **Rabaul School of Nursing**
 - 1. Nonga Base Hospital, P.O. Box 464, Rabaul, E.N.B.P.
 - 2. Enrolled Hospital Nurse, Post-Basic Midwife, Nurse Aide
 - 3. 95-117/8
(August 1981)

- h) **Wewak School of Nursing**
 - 1. Medical Training Division
Nursing Education Section, Wewak School of Nursing
P.O. Box 395, Wewak, East Sepik Province
 - 2. Enrolled Hospital Nurse
 - 3. 55/6(2)
(August 1981)

Secretarial Colleges

- a) **Port Moresby Secretarial College**
 - 1. P.O. Box 5675, Boroko
 - 2. Basic Secretarial, Stenography, Advanced Secretarial
 - 3. 115/10
(August 1981)

- b) **Rabaul Secretarial College**
 - 1. P.O. Box 504
Rabaul, East New Britain Province
 - 2. Secretarial, Clerical, Stenography, Advanced Secretarial
 - 3. 236/19
(August 1981)

Technical Colleges

- a) **Goroka Technical College**
 - 1. Box 556, Goroka
 - 2. Pre-Employment Technical Training - Carpentry, Plumbing, Auto Diesel, Metal Fabrication, Clerical, Secretarial, Art/Design
 - 3. 210/24
(August 1981)

b) Lae Technical College

1. Box 305, Lae
2. Certificate of Higher Technical Education - Building/Architectural, Draughting, Commerce, Laboratory Techniques, Civil Eng., Electrical Eng., Mechanical Eng., Catering and Hotel Administration. Pre-Employment Technical Training - Butchery, Catering, Lab. Assistants, Fitting/Machining, Welding, Secretarial
3. 599/48
(August 1981)

c) Madang Technical College

1. P.O. Box 595, Madang
2. -
3. -

d) Mount Hagen Technical College

1. P.O. Box 1155, Mount Hagen
2. Pre-Employment Technical Training - Motor Mechanic, Agricultural Mechanic, Carpentry and Joinery, Block Laying, Secretarial, Clerical
3. 172/15

e) Port Moresby Technical College

1. P.O. Box 46, Konedubu, NCD
2. Pre-Employment Technical Training - Clerical/Commerce, Painters/Signwriters, Aircraft Maintenance Engineers, Printing, Compositor, Panel beater/Spray painter, Auto Electrician, Electrician, Refrigeration Mechanic, Radio Mechanic
3. 263/54
(March 1982)

f) Department of Works and Supply Training Center

1. P.O. Box 1108, Boroko
(All correspondence to be addressed to the Secretary, Attention: Assistant Secretary, Education and Training);
2. Apprenticeship, Traineeship, Professional Training
This branch offers national employees of Works and Supply Department various formal in-service technical training. Professional training is under discussion.
3. -/24
(September 1981)

g) Timber Industry Training College

1. P.O. Box 2132, Lae
2. Apprenticeship - Saw Doctoring and Wood Machining
This college offers various other specialized courses in Saw-Miling, Saw-Doctoring, Wood Machining, Timber Drying and Treatment, Chain Saw Maintenance and Operation, and in other associated fields.
3. 30/15
(August 1981)

h) University of Papua New Guinea

1. P. O. Box 4820, University, NCD
2. -
3. -

Technical Teachers' Training Institution

a) University of Papua New Guinea - Goroka Teachers' College

1. P. O. Box 1078, Goroka
2. Diploma in Teaching - Carpentry, Electrical, Engineering
3. 15/42(2)
(August 1982)

**Institution Relating to Technician Education,
Curriculum Unit, Technical Division, Department of Education**

1. P.S.A. Haus, P.M.B.S., P. O. Boroko
2. Types of Activities - To organize Boards of Study and "Trade Panels" to ascertain industrial development.

To conduct in-service training, to provide support resource materials for variety of courses.
3. Number of Professional Staff: 10
(November 1981)

Table 1. Population in 1985 (estimate)
(there will be a full National Census in 1990)

Region	Population	Area (km ²)	Density (per km ²)
Highlands Region (Eastern Highlands, Simbu, Western Highlands, Enga and Southern Highlands provinces)	1,206,100	62,400	19.33
Momase Region (Morobe, Madang, East Sepik and Sanduan provinces)	958,300	142,600	6.72
Papuan Region (Western Gulf, Central, Oro and Milne Bay provinces and the National Capital District)	658,000	200,340	3.28
Islands Region West new Britain, East New Britain, North Solomons, New Ireland and Manus provinces)	505,600	57,500	8.79
Papua New Guinea	3,327,900	462,840	7.19

Table 2. Papua New Guinea's External Visible Trade in 1988

Total value of exports	Total value of imports
K 1,210,804	K 902,071

Table 3. Composition of Trade by Commodity

Commodity	Exports (by value)	Commodity	Imports (by value)
Copper	58%	Manufactured goods	60.5%
Coffee	9.3%	Food products	18.9%
Gold	9.2%	Fuels	10.3%
Timber logs	7.5%	Chemicals	9.0%
Copra & other coconut products	4.7%	Other products	1.3%
Cocoa	3.8%		
Palm oil	2.7%		
Crayfish	0.6%		
Processed timber products	0.6%		
Tea	0.5%		
Rubber	0.3%		
Other products	2.7%		

Table 4. Composition of Trade by country

Country of destination of exports (by value)	Per cent	Country of origin of imports (by value)	Per cent
West Germany	34.5	Australia	41.1
Japan	26.2	Japan	19.3
Australia	14.1	U.S.A.	9.0
South Korea	6.3	Singapore	6.6
United Kingdom	4.5	New Zealand	4.6
U.S.A.	3.2	United Kingdom	3.3
Spain	2.1	West Germany	3.1
Singapore	1.7	China	1.7
New Zealand	0.8	Hong Kong	1.7
Others	6.6	Taiwan	1.1
		Others	8.5

Table 5. Economic Indicators

Gross Domestic Product in 1988	K2,880,000,00
GDP per capita	\$US800 ?(cf. Indonesia \$600)?
Kina valued (10/90) at	\$US1.07; \$A1.28; Sterling 0.56; Jap Y144.23; DM1.64.
Inflation (average C.P.I. increase, 192-88)	3.9% p.a.
Economic Growth Rate (average growth in GDP, 1982-88)	5.5%
Labour costs - if average wages in 1980 = 100	1988 = 166

Table 6. Social Indicators (1988)

Social Indicators	
Proportion of school age children enrolling in community (primary) schools	70%
Adult literacy (in any language) rate	55% of the population
Illiteracy rate among women	65%
Life expectancy	53 years
Natural increase in population	2.7% p.a.
Urban population	18% of the total population
Number of people per qualified doctor	10,000
Number of people per hospital, health clinic or aid post	1,300
Number of motor vehicles	116,000 of which 41,000 were passenger cars
Length of vehicular roads	23,000 kilometers, approx. 3,000 km. are sealed.

Chart 1. Educational System in PNG

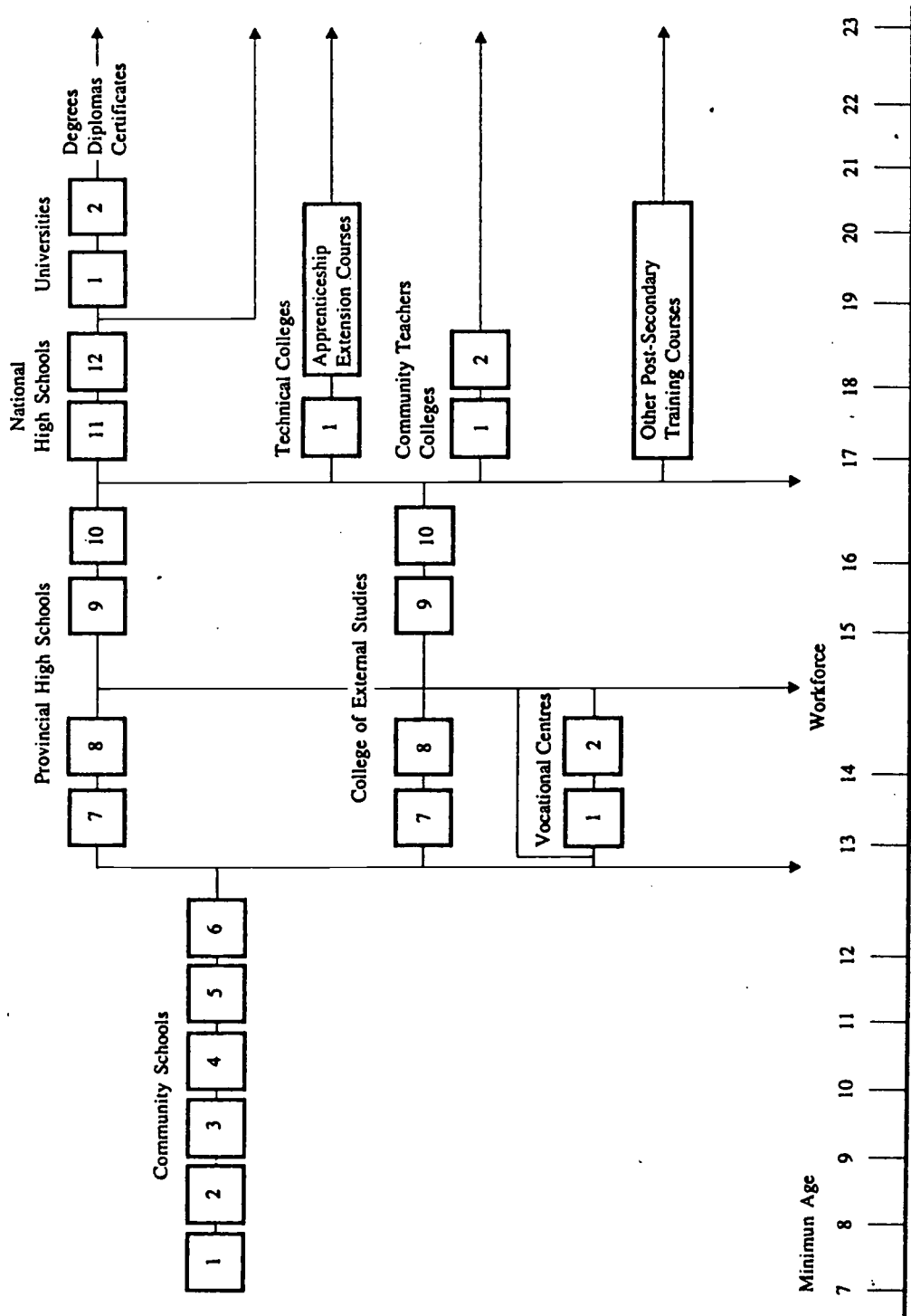
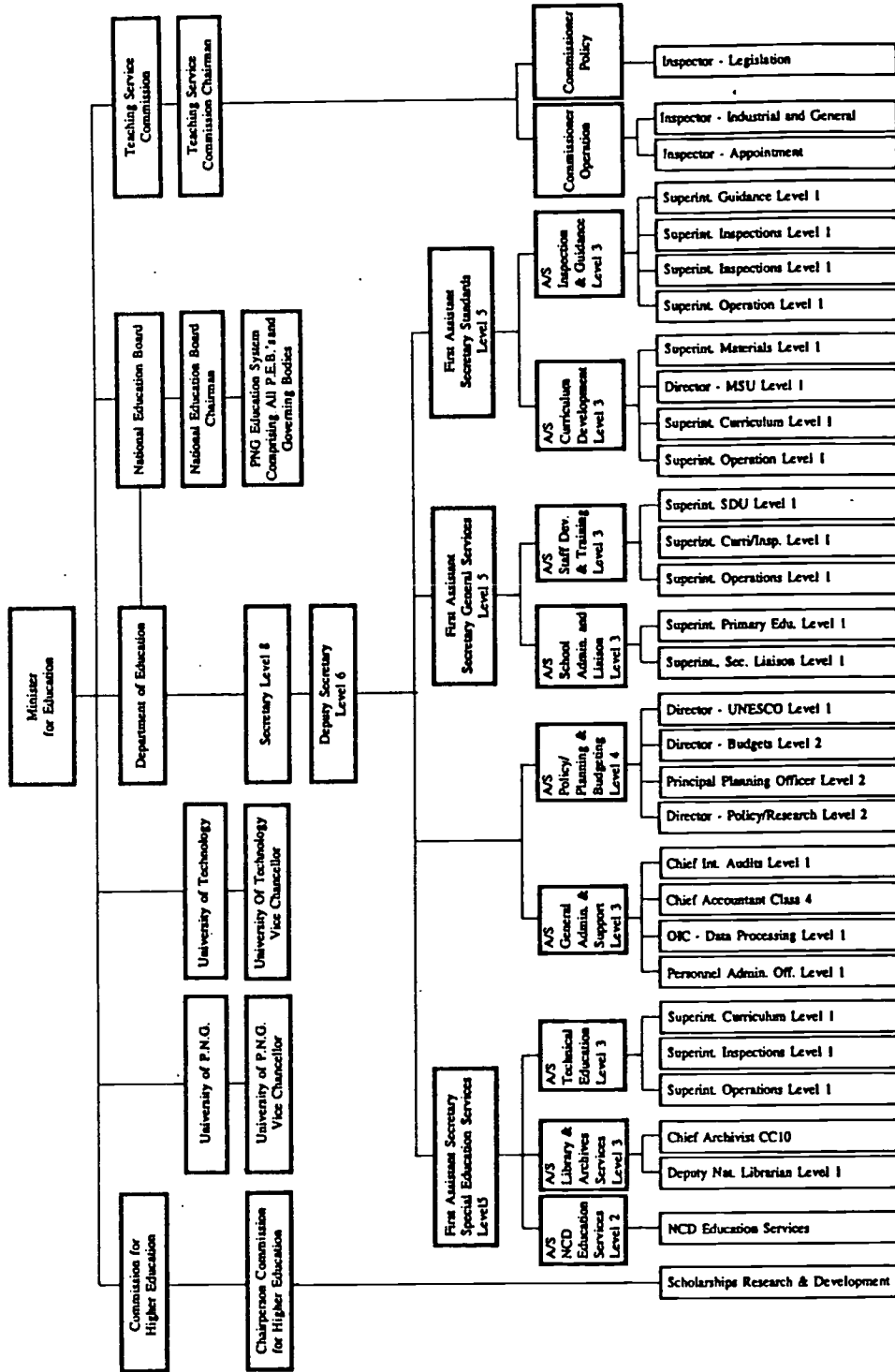


Chart 2. Structure of Ministry of Education



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Table 7. Enrolments over 5 years (1986-1990) in Grades 1 - 6

Province	1986	1987	1988	1989	1990
Western	7,359	7,520	7,595	7,840	8,103
Gulf	8,618	8,711	8,809	8,620	8,858
N.C.D.	18,621	19,695	20,766	22,789	25,092
Central	17,103	18,595	19,220	19,718	20,414
Milne Bay	17,600	17,172	17,761	18,082	19,373
Oro	10,525	10,735	11,058	11,424	11,952
S. Highlands	24,274	24,194	22,856	25,668	27,950
E. Highlands	24,058	33,718	35,945	36,451	32,709
Simbu	19,214	19,466	21,807	25,086	17,163
W. Highlands	26,642	27,709	28,973	30,640	36,262
Enga	14,914	16,175	15,805	16,166	24,482
Morobe	34,844	37,831	38,748	42,483	45,805
Madang	24,500	25,631	26,999	29,185	29,698
West Sepik	12,979	13,261	13,835	15,384	16,088
East Sepik	30,220	28,514	29,916	29,686	29,639
Manus	3,911	4,301	4,310	4,372	4,602
New Ireland	9,834	10,450	10,793	10,120	11,680
E. New Britain	19,364	20,083	2,435	21,407	22,592
W. New Britain	13,904	13,665	73,926	14,606	14,406
North Solomons	17,855	19,309	20,283	20,445	
Kiunga/L. Murray	4,988	5,349	5,602	5,802	6,332
Totals	371,307	382,093	395,542	415,974	413,089

(Source: Education Sector Review, 1991)

Table 8. Enrolment Rate of Primary Schools by Province (%)

Province	1973	1984
New Ireland	92.0	82.3
North Solomon	90.5	70.4
East New Britain	88.8	75.6
West New Britain	86.7	79.7
Manus	75.5	85.4
Milne Bay	70.5	74.6
Western	67.8	73.8
Central	66.5	79.3
NDC	66.5	74.7
Gulf	64.7	70.7
Oro	61.0	67.3
East Sepik	56.5	69.4
Madang	54.9	56.8
Morobe	48.2	61.0
Cimbu	47.9	59.3
Sest Sepik	45.0	60.3
Enga	36.2	56.2
West Highland	36.2	55.1
South Highland	33.4	51.6
East Highland	31.4	59.3

Source: Dept. Edu., "Growth Of Education Since Independence 1975-1985

Table 9. Rate of Dropping Out in Primary Schools

1976	26.9%
1977	28.5%
1978	28.2%
1979	29.0%
1980	30.6%
1981	33.1%
1982	33.9%
1983	31.6%
1984	32.0%

Table 10. Summary of Enrolment by Province and Type of Schools

Province	Prov. High Schools	IEA High Schools	SDA High Schools	National High Schools	Voc'nl Centres	Tchn'l College PETT	Teachers College
Western	1,058				97		
Gulf	1,385				189		
NCD	4,558	495			1,013	242	168
Central	3,118		308	491	205		
M/Bay	2,480				381		
Oro	2,000				176		
SHL	3,299				151		116
EHL	3,845	21	311	492	307	226	
Simbu	3,278				146		
WHL	3,532	35	145		754	247	157
Enga	2,319				243		
Morobe	4,941				805	112	230
Madang	3,524	150			293	178	285
W. Sepik	1,894				456		
E. Sepik	3,208			473	463		190
Manus	1,306				63		
New Ireland	2,092				309		
E. New Bri	4,374	29	337	490	1,128	142	379
W. New Bri	2,983				409		
N. Solomon							
KLMD	746				232		
Totals	54,940	730	1,101	1,946	7,820	1,147	1,525

(Source: Education Staffing and Enrolment Statistics, 1991)

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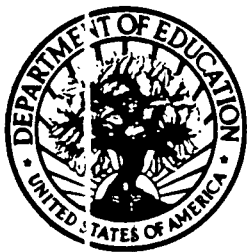
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