

1 OVERVIEW

1.1 Introduction

Human resource development is a top priority of the national government of Papua New Guinea. Consistent with this priority, in 1990/91 the government instigated an Education Sector Review to identify, document and develop strategies to rectify problems which had become endemic in the education system since independence.

The Review confirmed inordinately high rates of attrition at the primary level ensuring that universal primary education would be unlikely ever to be achieved; low transition rates at the post grade 6 and grade 10 levels; a largely irrelevant curriculum; weak management and administration; declining resource allocations combined with high unit costs and a severe imbalance in the allocation of funding to higher education at the expense of education at the lower levels.

The Sector Review suggested that to do more of the same would be unlikely to have significant effect and would be prohibitively expensive. Consequently an integrated package of strategies was developed which radically changes the education system in its structure and curriculum and establishes a lower cost base at each level of education.

It is to give effect to these reforms that this plan has been developed. The development occurred within the context of the new Organic Law on Provincial and Local Level Government, the Education (Amendment) Act 1995 (which established the new structure of the education system), The Teaching Service (Amendment) Act 1995, and current major government policies relating to manpower reduction, user pay and delivery of services at the provincial and district levels.

The plan is in two parts: Part A discusses the problems of the education system and briefly outlines the programmes designed to ensure full implementation of the reform proposals by the year 2004. Part B takes a rather broader look at the issues and components of the education

system and the problems faced. Both documents should be read in conjunction with the Resources Study, completed in 1995, which looked at all the cost implications of full implementation of the reform proposals. The development of this plan has been heavily reliant upon the work done by the Resources Study team and the projects and programmes mentioned in the text are explained in more detail in the main Resources Study or one of the Resource Study Working Papers.

Of no less importance are the provincial implementation plans. Each province has the responsibility of developing a provincial plan which will give effect to the national policies and plans included in this document. Most provinces are well on the way to developing and implementing their provincial plans.

It is the government's belief that the effective implementation of this plan will raise the general educational level of the population which will contribute to a strengthening of participative democracy and increased productivity and economic and social well-being.

Effective implementation will be dependent on the energetic participation of all stakeholders in education: government, both national and provincial; education agencies - government, church and private; school boards and councils; school heads and teachers; professional support personnel - curriculum developers and inspectors; parents and the wider community.

1.2 Mission

The Department of Education's mission, as defined by the National Executive Council, is fivefold:

- to facilitate and promote the integral development of every individual;
- to develop and encourage an education system which satisfies the requirements of Papua New Guinea and its people;

- to establish, preserve, and improve standards of education throughout Papua New Guinea;
- to make the benefits of such education available as widely as possible to all of the people; and
- to make education accessible to the poor and physically, mentally and socially handicapped as well as to those who are educationally disadvantaged.

1.3 National objectives

The National Executive Council has assigned four national objectives to the Ministry of Education:

- to develop an education system to meet the needs of Papua New Guinea and its people, which will provide appropriately for the return of children to the village community, for formal employment, or for continuation to further education and training;
- to provide basic schooling for all children as this becomes financially feasible;
- to help people understand the changes that are occurring in contemporary society through the provision of non-formal education and literacy programmes; and
- to identify the manpower development needs in the public and private sectors, and to provide appropriate higher education, development and training programmes.

From these objectives, four programmes have been developed and are linked to national development objectives. These programmes are:

1. *The Literacy and Information Programme* which is intended to contribute directly to the fulfilment of **National Objective 13** — to help people understand the changes that are occurring in contemporary society.

2. *The Relevant Education for All Programme* which is designed to contribute directly to **National Objective 24** — to develop a schooling system to meet the needs of Papua New Guinea and its people, which provides appropriately for the return of children to further education or training.
3. *The Education Access and Expansion Programme* which directly fulfils **National Objective 25** — to provide basic schooling for all children.
4. *Higher Education* which will gear resources to satisfy the qualified manpower requirements of the economy.

In addition to these national objectives, education must prepare citizens who:

- will have a strong moral value system which places emphasis on personal integrity, the equality of all members of society, and the importance and relevance of traditional values in modern life;
- are committed in their own personal development, and view education as a continuing life-long process;
- are invested with a productive work ethic and a realisation of the value of both rural and urban community development activities in the context of national development;
- are prepared for the realities of life in most communities; and
- are capable of providing a basis for effective further training for manpower needs.

1.4 Aims

Through integral human development, as outlined in the National Constitution and the Philosophy of Education Report, the government has called for the education system to give value and status back to appropriate social attitudes, knowledge and skills which are relevant to community development. This must be supplemented with a degree of

competence in English, mathematics and science in order to ensure the development of Papua New Guinean citizens who:

- are committed to their own personal development, and view education as a continuing life-long process;
- possess a productive work ethic, and value both rural and urban community development activities in the context of national development;
- are prepared for the realities of life in most communities; and
- have the capacity to participate in further training for manpower needs.

The aims of the plan will be to provide an education system that will adequately prepare :

- school leavers to return to their communities where there is, and always has been, traditional work and opportunities for community-based employment. This covers approximately eighty-five percent of the population. The major source of employment for these citizens will be their own subsistence and small-scale, community-based commercial enterprises. Their education will have prepared them and/or their parents for this reality.
- the approximately fifteen percent of the population who will find paid employment in the slowly increasing government, business, and service industries. Their education will have provided them with the academic and technical skills to allow them to partake in tertiary education.
- the small number of children, like those of any other nation, who will perform at top international standards; and
- the small, but growing, number of marginalised urban youth for the realities of life in an urban situation.

The success of this education plan depends on a number of cost saving and cost recovery measures identified in the Resources Study.

Cost saving measures:

- Minimum average class sizes should be: Elementary 30, Primary 40, Junior Secondary 35 and upper Secondary 30.
- Classes should be regrouped at Grades 3, 6 9 and 11.
- Multigrade classes should be an integral part of school planning and teacher allocation.
- Staff should be allocated to schools on the basis of the number of students rather than the number of classes.
- Teachers should be deployed on the basis of agreed national criteria, with the number of teachers being determined annually in advance, and with any additional appointments being to a province within a given year being subject to central approval.
- Distance education should be the principal mode for teacher upgrading.
- Communities should be encouraged to contribute to the development of infrastructure for schools, particularly at the elementary and primary levels, throughout the provision of local materials and labour.
- Consideration should be given to the privatisation of functions that are not part of the Department of Education's core business, e.g. printing and distribution of school materials.

Cost recovery measures:

- Fees for inservice courses—a precedent that has already been established, at a level that will make them largely self financing.
- Fees for examinations conducted at the end of Grades 6, 8 10 and 12, set at a level that will make them largely self financing.

The department has proposed under the new Organic Law on Provincial and Local Level Government that all education officers within the country will be part of the Department of Education. This arrangement will mean that Assistant Secretaries in the provinces will answer directly to the Secretary for Education.

2 THE REFORM STRUCTURE

In 1990 and 1991, the Department of Education, with assistance from UNDP and UNESCO, conducted an Education Sector Review. The primary recommendation of the sector review called for the reform of the education system. This recommendation was based upon an analysis of major issues, and an identification of basic weaknesses in the system. The reform involved the restructuring of the formal education system from the pre - primary level through to the upper secondary level. The reform is designed to directly address most of the systemic weaknesses and problem areas identified in the sector review.

The existing 6-4-2 structure has been characterised by high attrition rates at the primary level and a serious access problem at the secondary level. The two major bottlenecks are at Grade 7 and Grade 11.

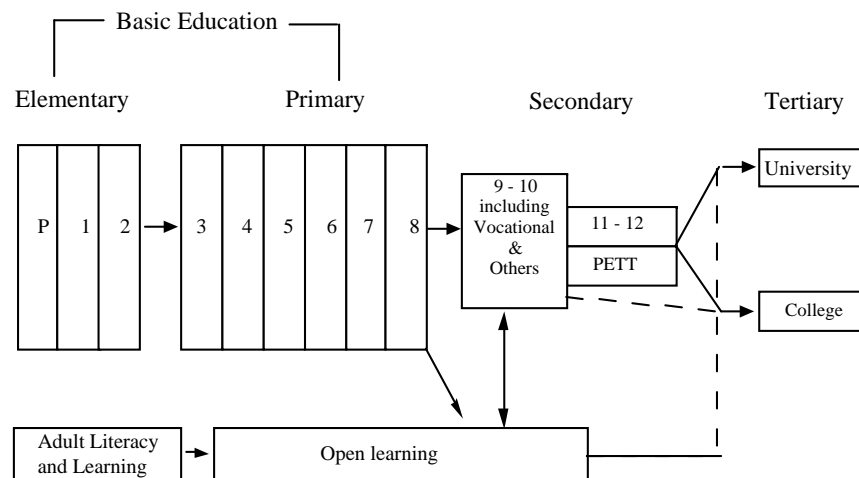


Figure 1 The reform structure

- Notes:**
- 1. Preparatory:** Preparatory class with initial literacy and general education in the vernacular.
 - 2. Vocational:** Two years of lower secondary education with a vocational skills bias.
 - 3. Other:** A wide range of 'permitted' institutions which offer two or more years of secondary education, with a bias determined by the needs and opportunities of the areas which they serve.
 - 4. Grades 11-12:** Upper secondary education or Matriculation will develop particular curriculum biases, for example, academic, agriculture, technical, commercial and so on. Figure 1 provides for Grades 11 and 12 in traditionally separate institutions, or added on to existing provincial high schools.
 - 5. PETT:** Pre-Employment Technical Training courses, which are for two years post-Grade 10, and located in technical colleges.
 - 6. College:** Covers the more than sixty non-university 'tertiary' institutions which currently take mainly Grade 10 leavers, but who are intending to raise their entry level to Grade 12 as the pool of Grade 12 leavers increases.
 - 7. Open learning:** College of Distance Education, and other distance education providers.

At the first level, village or settlement-based elementary schools would be formalised. Annual intakes would be possible allowing for the reduction of staggered intakes. This, in time, should solve the problem of over age entry. Enrolment at the prep level will begin at six years of age. These schools would build on existing Tok Ples Pre Skul (TPPS) initiatives and provide a preparatory year's education (EP) followed by

Grades 1 and 2, often referred to as Elementary 1 (E1) and Elementary 2 (E2) in order to distinguish them from Grades 1 and 2 in the community schools. The language of instruction in elementary schools will be the vernacular allowing for acquisition of literacy in the language which the children speak. Prep curricula would emphasise initial literacy, numeracy, ethics, morality and cultural bonding. To make the curriculum more relevant, expand enrolments, and help improve retention in elementary schools, EP, E1 and E2 will comprise a new integrated curriculum based on the child's own culture and community. In many schools, teaching will be done by one teacher using multi-grade teaching methods. The transition to English will begin in the third year. A new more relevant, integrated activity-based curriculum will be adopted, and will use locally developed materials. An initial literacy kit of eighteen stories will be provided. Classes will be of four hours duration each day.

Elementary teachers will be trained through a programme consisting of three phases and internships. A system of supervision for elementary school teachers is being developed. Teachers will receive a salary commensurate with training and hours of duty.

The elementary schools will act as feeders for primary schools. The introduction of elementary schools in the villages will free classroom space and other facilities within the primary schools. This will allow for the relocation of Grades 7 and 8 classes from the high schools. There will be no great increase in either the enrolments or number of teachers in the primary schools over the plan period. Six years of primary education will be provided through to Grade 8. All children will be expected to continue with their education until Grade 8. It is hoped that this will help overcome the problem of the loss of students, particularly girls, from the system after Grade 6. To improve the quality and relevancy of education, the primary curriculum will become more subject-specific and a strong vocational component will be developed for the upper grades as part of a Curriculum Reform Project. A new examination system will be formulated for graduation from Grade 8 and to enable selection for Grades 9 through to 12. Teachers currently within the system will be offered the opportunity to upgrade

their qualifications to diploma level through an inservice programme. New graduates from the Teachers Colleges will be diploma holders equipped to teach in the upper primary grades.

The facilities freed up by the relocation of the Grade 7 and 8 classes will be used in one of two ways. In the majority of schools there will be an immediate increase in the number of Grade 9 and 10 places - up to double in most cases. At the same time Grades 11 and 12 will be developed at selected schools. It is a government objective to have one such school in each province. Secondary education will therefore consist of four years - Grades 9 to 12. There will be no great increase in either the enrolments or number of teachers in the secondary schools over the plan period. However, additional teachers will be trained to fully localise the teaching force. The University of Papua New Guinea will be requested to develop programmes for the upgrading of existing secondary school teachers.

The curriculum will be broadened to include more technical, agricultural, commercial and scientific content. Vocational centres will become part of the secondary system. Open learning will provide an alternative opportunity for secondary education.

The net effect of all this on schooling will be greatly increased access at all grades. The major expenditures required will be the upgrading of facilities and provision of materials at the primary and secondary levels, and the cost of elementary school teacher salaries. The unit costs of education in Grades 7 through to 12 will be reduced through the increased enrolments utilising facilities at existing primary and provincial high schools. This reduction is further enhanced by the almost complete abolition of boarding students in Grades 7 and 8.

The expansion of the system in terms of enrolments and staffing is almost entirely at the low cost elementary end of the system.

A meticulous implementation schedule is essential in order to achieve these targets whilst at the same time benefiting from the significant unit cost savings that are available.

3 COMPONENTS

Expansion is designed to avoid mistakes in the critical areas of **capital** and **teacher** costs. The long-term sustainability of projects and the absorption of the extra costs into the recurrent budget will be important concerns for government. This plan focuses on the improvement of management of the student flow between grades and includes basic technical education and teacher training, consolidation of facilities through developmental maintenance, and new capital programmes.

3.1 Elementary education

This is the first stage of formal education. It will consist of Elementary Prep, Elementary 1 and Elementary 2 in the child's own language and own community. Elementary education will prepare children for entry into primary education at Grade 3. Elementary education is critical to the economics of this plan.

3.2 Primary education

Policy objectives relate to:

- access to primary education for all

- an increase in retention rates, and
- strengthening of all areas of the curriculum and improvement in standards.

3.3 Secondary education

Secondary education priorities include:

- the doubling of access to Grades 9 and 10;
- the quadrupling of access to Grades 11 and 12;
- the strengthening and broadening of the curriculum.

3.4 Vocational education

There will be some rationalisation of vocational centres to provide upgraded facilities, staff and courses.

3.5 Open learning

A national Open Learning mechanism will be established to deliver courses developed by all distance education providers, e.g. the universities, the College of Distance Education and Teacher Education.

3.6 Technical education

Priorities in technical education will involve:

- rationalisation of courses to 'home colleges';
- upgrading of courses; and
- developing an association with the Trade Testing and Certification system.

3.7 Teacher supply

It is intended to ensure an adequate supply of teachers at all levels through preservice and a multi mode inservice system.

3.8 Staff development

Staff development opportunities will be provided in accordance with the manpower needs of this plan. Initially, this development will focus on the preparation of elementary teachers, the upgrading of primary and lower secondary teachers and the training of system managers.

3.9 Curriculum

The priority is to review and revise the elementary, primary, secondary and vocational curriculum in the light of the education reforms and prepare the necessary curriculum materials for our schools.

3.10 Special education

The priority of the special education programme will be to make it possible for disabled children to attend regular schools, alongside those children with no physical or mental handicaps, through preservice and inservice teacher training.

3.11 Literacy and non-formal education

The Department of Education will support the efforts of NGOs in increasing the national literacy rate and developing community awareness. Pre school support will be the responsibility of local level government and will be dealt with in provincial plans.

3.12 Inspections

The Department will continue to guide and assess the implementation of the approved curriculum; provide advisory services to schools and

their teachers; maintain an inspection system for the appraisal and rating of teachers; and assist with teachers' professional development.

3.13 Management

Management capacity will be strengthened to facilitate the efficient and cost effective implementation of this plan.

4 COMPONENT PLANS

4.1 Elementary education

Elementary education will prepare children for entry into primary education commencing at Grade 3.

Overview

Elementary education will cover the 6-8 years age group. It is the first stage of formal education, and will consist of Prep, Elementary 1 and Elementary 2.

Problems experienced in access, quality, retention and academic achievement will be addressed through this programme. The programme will improve literacy skills and cultural bonding through an appropriate community-based integrated curriculum. The priority issues of low enrolment, poor retention, and inequality of access to education shall be addressed through the establishment of community-based elementary schools with the aim of universal access by 2004.

Vision

All children will acquire literacy and numeracy skills and commence studies in a language that they speak.

Objectives

The reform will be phased in over a period of ten years. The specific target relating to the elementary level is:

- establishing elementary schools as feeder schools to all primary schools in all provinces by the year 2004. Enrolments in

elementary schools should reach about 430,000 by that year with equal access opportunities for males and females

Policies

- Elementary schools will consist of Prep, Elementary 1 and Elementary 2.
- Entry will be for children of six years of age and will be on an annual basis.
- The language of instruction in elementary schools will be that which the children speak and will be determined by the community.
- The duration of the school day will be four hours.
- The curriculum will be based on needs and appropriateness for that level, the local environment and local culture.
- Implementation will be a responsibility shared between communities, non-government organisations, provincial education services, and the Department of Education.

Strategies

In order to implement the elementary school proposal, the following strategies will be undertaken at the community, district, provincial, and national levels.

Community level

- A community-based Board of Management (BOM) will be required to organise regular Parents and Citizens days to plan and organise awareness and build, supply and maintain school

classrooms and facilities. They should assist provincial planners and liaise with primary school headteachers in the clustering of elementary schools.

- Suitable community volunteers will be identified to participate in the development of the local vernacular curriculum to ensure sensitivity to the local culture, and give recognition to the wishes of the community which it serves. Teachers will be nominated by the community.

Provincial/District level

- Curriculum materials will be developed and produced at the provincial and local levels, with the help of district and provincial trainers, and technical assistance teams. LAMP centres will become operational and staff will be trained to provide materials production services as needed. Materials will be produced locally using methods such as silk-screen printing or at LAMP centres with the help of interested church groups and non-government organisations.
- Candidates nominated and accepted for enrolment will complete a national elementary teacher certificate course, upon completion of which they will be registered as members of the Teaching Service.
- Teacher pupil ratios will be 1 to 30 at the preparatory level and 1 to 40 in elementary 1 and 2. Teachers will be trained to teach all grades within the elementary school. Multigrade teaching will be an essential aspect of that training.
- A provincial training team, consisting of the provincial coordinator and teacher trainers, will be established to implement all approved teacher training courses. The province is responsible for budgeting for teachers' emoluments.

National level

- Establish policies for elementary education.
- Develop an elementary curriculum framework.
- Design, develop and coordinate delivery of an elementary teacher training course.
- Source external assistance for elementary infrastructure.
- Design and develop elementary handbooks for Boards of Management and headteachers.
- Provide planning and professional services for the maintenance of standards.

Sub-programmes and projects

Sub-programmes and projects will include:

- Elementary curriculum development—*World Bank*
- Elementary material kits—*AusAID*
- Support for elementary infrastructure—*EU, AusAID*
- Elementary teacher training—*AusAID*
- LAMP Centres—*JICA*
- E2 language broadcasts—*AusAID*
- Inspector, school and community awareness of reforms—*AusAID*

Implementation schedule

Enrolment

The annual targets for the introduction of elementary education are shown in the table on the following page.

Table 1 Annual enrolment targets for implementation of elementary education

Year	Prep	Elem 1	Elem 2	Total
1995	727	555	215	1,497
1996	10,227	727	538	11,492
1997	29,259	10,227	705	40,191
1998	48,292	29,259	9,920	87,471
1999	67,324	48,292	28,382	143,997
2000	86,356	67,324	46,843	200,523
2001	105,388	86,356	65,304	257,049
2002	124,421	105,388	83,765	313,574
2003	143,453	124,421	102,227	370,100
2004	162,485	143,453	120,688	426,626
2005	166,222	162,485	139,149	467,856

Source: Education Resource Study, Working Paper No. 1, April, 1995 (updated)

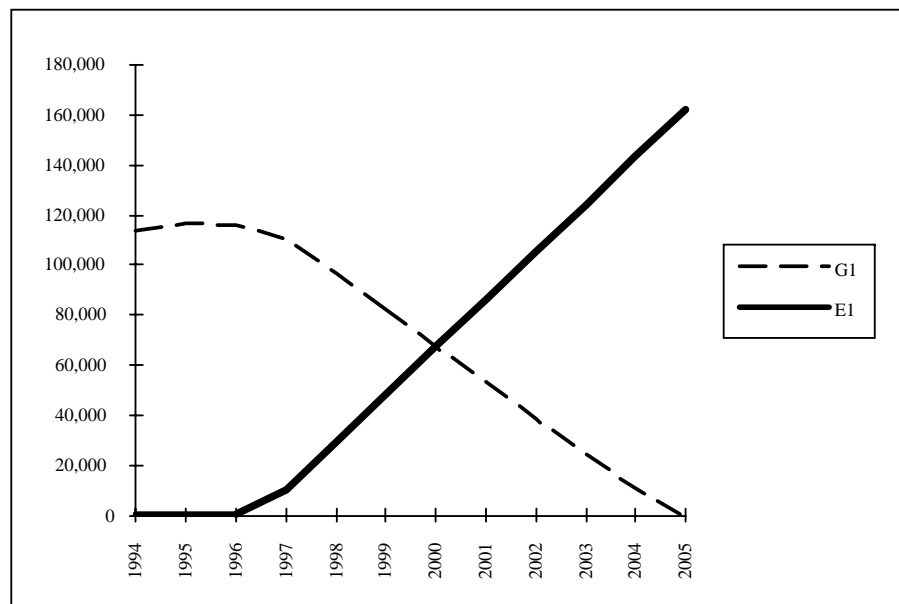
The implementation of elementary education will take 10 years. Grade 1 and 2 children will still be enrolled in primary schools until full implementation is achieved. The table below shows Grade 1 and 2 primary school enrolment.

Table 2 Annual enrolment targets for grades 1 and 2 in primary schools

Year	1	2
1995	116,457	98,341
1996	115,797	102,482
1997	110,332	101,901
1998	96,844	97,092
1999	82,130	85,223
2000	67,547	72,274
2001	53,101	59,442
2002	38,793	46,728
2003	24,630	34,138
2004	10,614	21,674
2005	0	9,340

Source: Education Resource Study, Working Paper No. 1, April, 1995 (updated)

Chart 1 Phasing in and out of elementary 1 and grade 1



**Table 3 Projected target enrolments for staffing,
and costs in elementary schools, selected years**

	1996	2000	2004
Enrolment	11,492	200,523	426,626
Staffing	426	7,593	16,179
Enrolment/Teachers	26.98	26.41	26.37
Salaries (K millions)	1.87	33.41	71.19
Salary/student	163.10	166.61	166.86

Source: Education Resource Study, 1995 (updated)

**Table 4 Indicative costs of elementary education projects
(Thousands of kina)**

	Total	1996	2000	2004
National support team	2566	219	253	253
Elementary teacher trainers	8958	142	1003	1003
Goods & services	26801	747	3827	4260
for teacher trainers				
Teaching materials	12523	150	150	4587
& special activities				
Orthography development	500	50	50	50
Transition to English	1000	100	100	100

Source: Education Resource Study, April, 1995 (updated)

There will also need to be a considerable number of classrooms - to a maximum of about 1800 per year - built in order to achieve the expansion targets required in order that the reform as a whole is sustainable. The cost of these could, nominally, be put at approximately K144m although the local communities will be expected to provide the vast majority of this in terms of their labour etc.

4.2. Primary education

Primary education will begin at grade 3 and finish in grade 8 catering for the 9 to 14 year age group.

Overview

Developments at the primary level will focus on the removal of Grades 1 and 2, the establishment of Grades 7 and 8, retention and the rehabilitation of primary school infrastructure.

Programmes to address the problems relating to access, retention and quality will include:

- adjusting student/teacher ratios to improve cost effectiveness;
- multigrade teaching to allow for annual intakes;
- upgrading teacher qualifications;
- modifying preservice training, and improving inservice training of teachers to suit the new demands of primary school teaching;
- improving management and delivery capabilities; and
- improving coordination and support services, and monitoring the implementation of the programmes.

Vision

All children will complete nine years of basic education. As this will be the only formal education for the majority of students this education must provide them with the education to be productive members of their community.

Objectives

The programme will improve access, retention, female participation rates and academic achievements, thus improving the chances of achieving quality universal primary education. This basic level of education will be extended from the current six years to nine years.

Specific objectives related to primary education are that by the year 2004:

- all children will have the opportunity to complete nine years of basic education;
- there will have been an improvement in the Grade 1 to 6 retention rate;
- participation and completion rates for females will improve;
- rehabilitation of existing and construction of new primary infrastructure will take place; and
- staff deployment will have been rationalised.

Policies

The government's stated policy objectives relating to this level of education include:

- Universal Primary Education (UPE),
- the establishment of Grades 7 and 8 in primary schools; and
- the strengthening of standards and the child's social, cultural, spiritual, ethical, moral and vocational education.

Strategies

In order to implement the primary school proposal, the following strategies will be undertaken at the community, provincial and national levels.

Community and school responsibilities

- Establish a community-based board of management (BOM) which will be required to organise regular parents & citizens days to plan for and contribute to the construction and maintenance of school classrooms and facilities. The community should also be responsible for the security of school facilities, the maintenance of an inventory of facilities, materials and equipment and the good governance of the institution.
- Assist the province in decisions regarding appropriate clustering arrangements.

Provincial-responsibilities:

- Plan for the establishment of new Grade 7 classes in conjunction with plans for the clustering of elementary schools in accordance with national policy guidelines.
- Plan for the flow of students from the lower to upper primary levels through effective consolidation of classes.
- Ensure that schools maintain an inventory for all facilities, equipment and materials;
- Manage funds in accordance with the finance management act;

- Appoint teachers; and
- Budgeting for teacher emoluments; capital works; maintenance; rehabilitation of facilities, and other operational costs.

National Government Responsibilities

- Establish policies for primary schooling.
- Source external assistance for primary infrastructure.
- Develop a relevant primary curriculum.
- Preservice and inservice training of teachers.
- Provide planning and professional services for the improvement of standards.

Sub-programmes and projects

Sub-programmes and projects will include:

- Support for primary school infrastructure—*AusAID*
- Development of primary school curriculum—*World Bank, AusAID*
- Development of school journals—*NZODA*
- Health promoting skills—*UNDP*
- Population awareness—*UNFPA*
- Vernacular materials—*JICA*

Implementation

The annual targets for primary-level implementation are shown in Table 5. The total enrolment in primary schools does not rise dramatically. This is because the new Grade 7 and 8 classes replace the Grades 1 and 2 classes that have been relocated in the elementary schools.

Table 5 Annual enrolment targets for implementation of primary education.

Year	1	2	3	4	5	6	7	8	Total
1995	116,457	98,341	90,205	76,127	69,319	59,290	6,955	4,324	521,018
1996	115,797	102,482	90,676	82,989	70,037	61,001	14,945	6,399	544,325
1997	110,332	101,901	94,790	83,426	76,350	61,632	22,935	13,749	565,115
1998	96,844	97,092	94,412	87,217	76,756	67,188	30,925	21,100	571,533
1999	82,130	85,223	98,650	86,873	80,249	67,556	38,915	28,451	568,045
2000	67,547	72,274	105,083	90,944	79,935	70,646	46,905	35,802	569,136
2001	53,101	59,442	110,524	97,210	83,844	70,378	54,895	43,153	572,546
2002	38,793	46,728	116,072	102,563	89,935	74,277	62,885	50,503	581,757
2003	24,630	34,138	121,730	108,014	95,186	80,557	70,875	57,854	592,984
2004	10,614	21,674	127,500	113,566	100,527	86,098	76,863	65,205	602,048

Source: Education Resource Study, Working Paper No. 1, April, 1995 (Updated)

The implementation of a full primary education programme will take 10 years. Grade 7 and 8 children will still be enrolled in existing high schools until full implementation is achieved. The table below shows Grade 7 and 8 high school enrolment.

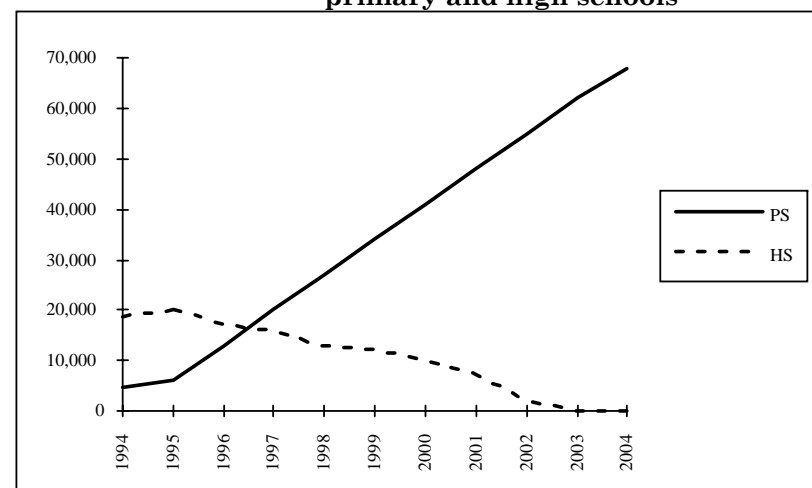
Table 6 High school grade 7 and 8 enrolments

Year	G7	G8
1995	20,225	17,704
1996	17,356	19,012
1997	14,641	16,315
1998	11,493	13,762
1999	10,315	10,804
2000	7,063	9,697
2001	4,899	6,639
2002	1,392	4,605
2003	0	1,308
2004	0	0

Source: Education Resource Study, Working Paper No. 1, April, 1995 (Updated)

Chart 2 illustrates the transition from the present system to the reform system by showing numbers in Grade 7 at primary school and high school.

Chart 2 Phasing in and out of grade 7 in primary and high schools



2002	91
2003	95
2004	95

Source: Education Resource Study, Working Paper No. 1, April, 1995 (updated)

Indicative costs

Table 7 Projected enrolments, teaching staff and costs in primary schools, selected years only

	1996	2000	2004
Enrolment	544,325	569,136	602,048
Staffing	17296	18834	19855
Enrolment/Teachers	31.47	30.22	30.32
Salaries (K millions)	138.37	150.67	158.84
Salary/student	254.20	264.74	263.83

Source: Education Resource Study, Working Paper No. 1, April, 1995 (updated)

The Gross Enrolment Rate will rise over the period due to increased access to elementary education and the extra opportunities available beyond Grade 6. The transition rate will rise to 100% over the transition period. This is shown in Table 8. It is assumed that there will be a 5% attrition between Grades 6 and 7.

Table 8 Grade 6 to 7 percentage transition rates

Year	Rate
1995	48
1996	54
1997	62
1998	69
1999	73
2000	80
2001	85

Infrastructure development will be required in the early years until the introduction of the elementary sector frees up school facilities for the new Grades 7 and 8 classes. Estimates for the costs of housing and classrooms are given in Table 9.

Table 9 Indicative costs of primary education projects (Thousands of kina)

	Total	1996	2000	2004
Classrooms	25,740	12,960		
Staff Houses	18,450	1,545	2,145	2,145

Source: Education Resource Study, April, 1995

4.3 Secondary education

Secondary education covers Grades 9 to 12.

Overview

The restructuring involves relocating Grades 7 and 8 to the primary schools and utilising the facilities thus freed up with extra Grade 9 and 10 classes and, in certain selected schools, Grade 11 and 12 classes. The plan will also involve the development of the vocational school system within the lower secondary level. These changes will allow the progressive increase in access of Grade 8 leavers to secondary education.

Vision

To upgrade the general education level of the population through greatly increased access to secondary education.

Objectives

Specific objectives at this level of education are to:

- double access to Grades 9 and 10;
- increase access to Grades 11 and 12 to 5000 per annum;
- increase female participation in secondary education to 50%; and
- provide a broader curriculum in secondary education.

Policies

The government's stated policies relating to this level of education are to:

- achieve a 50% transition rate between primary and secondary education
- achieve a 25% transition rate between Grades 10 and 11, and
- establish one school in each province to offer Grades 11 and 12.

Strategies

In order to implement the secondary school proposal the following strategies will be undertaken at the community, provincial and national levels:

Community and school responsibilities

- Establish a Board of Governors (BOG) which will be responsible for organising the maintenance of school classrooms and facilities; the upkeep of an inventory of facilities, materials and equipment; and recommending appointments to the Provincial Education Board.

Provincial responsibilities

- Doubling access to Grades 9 and 10 through the relocation of Grades 7 and 8 to the primary schools.
- Appointment of teachers.
- Budgeting for teacher emoluments; capital works; maintenance; rehabilitation of facilities; other operational costs, and in conjunction with the BOG develop an annual maintenance plan.

National responsibilities

- Establish policies for secondary education.

- Sourcing external assistance for secondary infrastructure, materials and equipment.
- Upgrade qualifications of teachers and improve preservice and inservice training.
- Improve management and delivery capabilities at central and provincial levels.
- Improve coordination and support services.
- Provide planning and professional services for the improvement of standards.

Sub-programmes and projects

Sub-programme and project options will include:

- Development of secondary schools—*EU, AusAID*
- Materials and equipment—*World Bank, AusAID*

Implementation

At the secondary level, the general responsibilities for the implementation of the Grades 11 and 12 programme will be shared by national and provincial governments. Provinces will continue to assume full responsibility for the lower secondary level of education.

Table 10 Annual targets for implementation of secondary education

Year	7	8	9	10	11	12	Total
1995	20,225	17,704	16,452	14,205	2,040	1,632	72,258
1996	17,356	19,012	18,763	15,136	2,270	1,979	74,516

1997	14,641	16,315	20,960	17,262	2,649	2,202	74,029
1998	11,493	13,762	23,321	19,283	2,989	2,570	73,419
1999	10,315	10,804	24,204	21,455	3,210	2,900	72,888
2000	7,063	9,697	26,644	22,268	3,820	3,114	72,605
2001	4,899	6,639	28,267	24,512	4,226	3,705	72,248
2002	1,392	4,605	30,897	26,005	4,883	4,099	71,881
2003	0	1,308	31,941	28,425	5,144	4,737	71,555
2004	0	0	31,941	29,385	5,144	4,990	71,461

Source: Education Resource Study, Working Paper No. 1, April, 1995 (updated)

Indicative costs

Table 11 Projected enrolments, teaching staff and costs in secondary schools, selected years only

	1996	2000	2004
Enrolment	69,287	74,032	70,879
Staffing	3064	3118	2971
Enrolment/Teachers	22.61	23.74	23.86
Salaries (K millions)	29.44	30.73	30.31
Salary/student (Kina)	424.92	415.06	427.69

Source: Education Resource Study, Working Paper No. 1, April, 1995

Table 12 Indicative costs of secondary school projects (Thousands of kina)

	Total	1996	2000	2004
Jun Sec Classrooms	4,025	2,275		
Jun Sec Staff Houses				
Sen Sec Classrooms	47,635	5,673	5,134	3,534
Sen Sec Staff Houses	16,695	1,127	1,666	1,666

Source: Education Resource Study, April, 1995

4.4 Vocational Education

Vocational education will become a post Grade 8 course designed to provide students with vocational skills for community development and to meet employment opportunities where they exist in a province.

Overview

This plan aims to give some status to the Vocational Centres. This will both be through the establishment of 'Vocational Secondary Schools', and an improvement in curriculum and teaching standards in 'traditional' style centres.

The system will allow for centres to offer extension services and short courses.

Vision

The major thrust will be to provide access to two years of quality secondary level vocational education for Grade 8 students in each province. This will be achieved through the upgrading of existing institutions with linkages to other sub-sectors of the education system by the year 2004. It is not anticipated that there will be any significant overall growth in the vocational centre sector. Instead, provinces will be expected to consolidate the centres that are already in existence. Progressive development of the lower technical system capability is an envisioned target.

Objectives

The National Department of Education aims to develop a system of secondary level vocational education which will incorporate the following objectives:

- the development of programmes to cater for a variety of needs including extension courses to meet local and community requirements;
- the upgrading of courses in certain centres to be equivalent to Grades 9-10 ;
- the establishment of trade testing and certification systems;
- increased female participation;
- the involvement of industry in programme planning and teaching;
- to conduct a strategic study of vocational centres; and
- the rehabilitation, reconstruction and equipping of existing centres.

Policies

Legislative changes provide for nationally accredited subjects. Selection for further training will be based on skills testing.

Strategies

In order to implement the vocational centre proposals the following strategies will be undertaken.

Community and school responsibilities

- Establishment of a Board of Management (BOM) responsible for organising the maintenance of centre classrooms, workshops and other facilities; the upkeep of an inventory of facilities, materials and equipment and recommending appointments to the Provincial Education Board.

Provincial responsibilities

- Maintenance of current enrolment levels.
- Planning for the rationalisation and upgrading of existing institutions.

- Appointment of teachers.
- Budgeting for teacher emoluments; capital works; maintenance; rehabilitation of facilities; other operational costs; and in conjunction with the BOM develop an annual maintenance plan.

National responsibilities

- Establish policies for vocational education.
- Source external assistance for vocational centre infrastructure, materials and equipment.
- Upgrade qualifications of teachers.
- Improve management and delivery capabilities at central, provincial and institution levels.
- Improve coordination and support services.
- Provide planning and professional services for the improvement of standards.

Sub-programmes and projects

Sub-programme and project options will include:

Strategic Study—*ADB*

Infrastructure and equipment—*AusAID*

Trade testing and certification—*AusAID*

Teacher In Service training—*AusAID*

Development of model centres—*GTZ*

Trade curriculum development—*GTZ*

Implementation

Enrolments and staffing

The table below shows enrolments by year. Over the plan period trainees will move from the present three year courses to two year Grade 9 and 10 equivalent courses.

Table 13 Annual enrolment targets for implementation of vocational education

	Year 1 enrolment	
	3 Year Course	2 Year Course
1995	5,453	531
1996	4,905	1,139
1997	4,268	1,836
1998	3,538	2,626
1999	2,713	3,511
2000	1,786	4,498
2001	754	5,590
2002	0	6,404
2003	0	6,464
2004	0	6,524

Source: Education Resource Study, Working Paper No. 1, April, 1995

Table 14 shows staffing requirements split into vocational centre trade teachers and secondary teachers who will teach core subjects.

Table 14 Projected staffing for vocational education

	Voc	Jun Sec	Total
1995	629	14	643

1996	618	30	648
1997	611	48	659
1998	601	68	669
1999	588	90	678
2000	572	115	687
2001	552	142	694
2002	535	166	701
2003	532	178	710
2004	526	180	706

Source: Education Resource Study, Working Paper No. 1, April, 1995

Indicative costs

Table 15 Projected target enrolments for staffing, and costs in vocational schools, selected years

	1996	2000	2004
Enrolment	11,506	12,150	12,471
Staffing	648	687	706
Enrolment/Teachers	17.76	17.69	17.66
Salaries (K millions)	5.69	5.262	4.839
Salary/student	494.18	433.09	388.02

Source: Education Resource Study , April, 1995

Table 16 Indicative costs for vocational education projects (Thousands of kina)

	Total	1996	2000	2004
Strategic Plan for VSS	500	250		
Add teachers to VSS	4070	407	407	407
Upgrade of facilities	37,000	1,000	4,000	4,000
Train VSS managers	60	30		

Provide DOE management	280	28	28	28
Home Ec training house	120			

Source: Education Resource Study, April, 1995

4.5 Open Learning

Overview

An open learning structure will provide for the delivery of courses developed by a range of distance education providers

Vision

Courses will be offered at secondary, matriculation, college and university levels. These courses will lead to the awards of certificates, diplomas and degrees. Open learning providers will allow for articulation into the formal education system.

Policy

Open Learning has been endorsed as being the primary means of delivery of inservice training for teachers. Open Learning constitutes part of the Extended Services of the NDOE providing training and professional development (Section 80, Organic Law on Provincial and Local Level Government, 1995)

Objectives

- To transfer all matriculation programmes from IDCE to CODE.
- To strengthen the institutional capacity of the NDOE to manage, coordinate and resource the implementation and growth of an integrated distance education system.
- Support the further training of teachers, teacher educators and education leaders by provision of access to open learning opportunities.
- Institutions engaged in the delivery of distance education services to operate within an integrated model which coordinates

centralised course development; a shared decentralised delivery network; localised student support mechanisms; systemic management and decision making processes.

Strategies

In order to encourage broad support for distance education in Papua New Guinea in accordance with social demand, CODE will:

- progressively restructure its curricula and services in line with the restructured school system to concentrate to a greater extent on Grades 11 and 12 whilst running down Grade 7 and 8 services;
- liaise with the University of Papua New Guinea regarding the administration of the matriculation programme;
- complete the development of the certificate of business studies;
- strengthen the in country capacity for the development of distance education courses;
- seek assessment mechanisms to allow for students to qualify for nationally recognised certification;
- establish a Division of Open Learning within the NDOE; and
- establish a Distance Education coordinating group which will plan for the management and coordination of Open Learning activities.

Indicative costs

**Table 17 Indicative costs for open learning projects
(Thousands of kina)**

	Total	1996	2000	2004
--	-------	------	------	------

Develop DEP(I) and BEd	2648	572	128	161
Deliver DEP(I) distance	6631	708	675	581
Grad dip Dist Education	642		236	

Source: Education Resource Study, April, 1995

4.6 Technical Education

Technical education is designed for skills training of vocational personnel in technical areas at post secondary and the provision of further opportunities for those already in the work force.

Overview

Technical education is firmly biased towards meeting the needs of industry and commerce.

Four levels of courses will be offered:

1. The Pre-Employment Technical Training (PETT) programme will be changed to a 2 year Technical Training Certificate (TTC) programme. These will be offered in the various trade areas and provide the basic skills necessary for students to gain formal employment in industry and commerce.
2. Apprenticeship Extension courses. These courses will provide advanced skills training required by industry to obtain trade certification issued by the Department of Labour and Employment.
3. Diploma courses conducted in blocks of twenty weeks, over a four year period, and a certificate issued on completion.
4. Special courses run on demand by industrial, commercial and community organisations with special training requirements.

Vision

To develop an appropriately trained work force for a developing, informed Papua New Guinea.

Objectives

Through the 'Home College' programme and expansion of technical education, and the establishment of the Institute of Technical Education to:

- prepare students for entry into the work force;
- provide access to technician and Diploma programmes; and articulation opportunities to other higher level courses;
- provide self-employment opportunities; and
- establish two-way communication between the Ministry of Industrial Relations, industry, commerce and the community, to provide relevant programmes and enhance employment opportunities.

Policies

The Higher Education Plan allows for the relocation of the Institute of Technical Education into the administrative hierarchy. The Education Act allows for the registration of private training institutions for the monitoring and certification of available courses.

Departmental policies have dictated a rationalisation programme, through the 'Home Colleges' project; the lecturer student ratio to be 1: 15 and the minimum entrance qualifications to be the completion of Grade 10.

Strategies

Strategies will be undertaken to:

- increase the number and skills of technical and vocational personnel in technological areas, by teaching adaptable, broad-based, analytical and creative skills;
- rationalise the provision of technical education services through the relocation of courses on the basis of related skills areas;
- increase female participation in the improvement of the education system;
- increase the quality and standards of education;
- incorporate industry in programme planning and teaching;
- modernise and improve teaching and training facilities; and
- develop programmes to cater for a variety of needs, including the combining of entrepreneurial training with skills training. Such training skills will include managerial technology and developing and handling new materials and inorganic compounds.

Sub-programmes and projects

Sub-programmes and projects will include

- Technical Teacher Training focussing on subjects in the areas of new technology, computer education, innovative instructional methods, and on combining entrepreneurial training with skills training.
- Curriculum developments which will include the development of a Technical curriculum that is relevant and responsive to the needs of the industry and the employment sector:
- Expansion which will include the upgrading of facilities and increased enrolment, particularly of female students.

Implementation schedule

Enrolments and staffing

Table 18 Annual enrolment and staffing targets for implementation of technical education

	Students (FTE)	Teachers
1995	1,669	176
1996	1,753	176
1997	1,840	176
1998	3,113	208
1999	3,272	218
2000	3,439	229
2001	3,615	241
2002	3,799	253
2003	3,992	266
2004	4,196	280

Source: Education Resource Study, Working Paper No. 1, April, 1995)

Table 19 Projected target enrolments for staffing and costs in technical colleges, selected years.

	1996	2000	2004
Enrolment	1,753	3,439	4,196
Staffing	176	229	280
Enrolment/Teachers	9.96	15.02	14.99

Salaries (K millions)	2.64	3.435	4.20
Salary/student	1505.99	998.83	1000.95

Source: Education Resource Study, April, 1995

Table 20 Indicative costs of technical education projects
(Thousands of kina)

	Total	1996	2000	2004
Tech Coll upgrade	12,433	1,000		
Rationalise Tech Ed programs	8,820	20		
Upgrade equipment	2,228	1,114		
Develop TTC curriculum	50	25		
Add teachers	1,552		165	224
Strengthen App/Trade testing Unit	5010	501	501	501
Strengthen training and evaluation unit	4390	439	439	439

Source: Education Resource Study, April, 1995

4.7 Teacher supply

This section outlines the structures, functions and guidelines for the development of teacher education for Elementary, Primary, Secondary, Vocational, and Technical Teacher programmes where they relate to the functions of general education.

General Policies

Teacher Training strategies within the National Higher Education Plan from which this section was developed are:

- a coordinating body for teacher education will be established;
- entry levels for primary school teachers colleges be raised to grade 12 by the year 2000; and
- an increased proportion of students be women.

4.7.1 Elementary teacher education

Overview

A nationally recognised, modular, non-campus based elementary teacher education course with linkages to other national teacher education programmes will be developed. Successful completion of this course will be a prerequisite to registration as an elementary teacher.

Vision

A fully trained teaching service.

Objectives

Objectives for elementary teacher education will include:

- the development of a cadre of elementary teacher trainers;
- the development of a nationally recognised, modular, non-campus based elementary teacher education course with linkages to other national teacher education programmes;
- the supply of an adequate number of elementary teachers;
- the training and registration of approximately 16,000 elementary school teachers by the year 2004;
- the development of three phases of elementary teacher training and implementation of teacher training by 1996; and
- the training of national and provincial elementary trainers.

Elementary teacher requirements

Table 21 Elementary school staffing requirements by year and grade

Year	Prep	Elem 1	Elem 2	Total
1995	27	15	0	42
1996	384	27	15	426
1997	1,100	384	27	1,512
1998	1,815	1,100	384	3,300
1999	2,531	1,815	1,100	5,446
2000	3,246	2,531	1,815	7,593
2001	3,962	3,246	2,531	9,739
2002	4,677	3,962	3,246	11,886
2003	5,393	4,677	3,962	14,032
2004	6,108	5,393	4,677	16,179

Source: Education Resource Study, Working Paper No. 1, April, 1995 (updated)

The number of teachers to be trained per year are shown in Table 22.

Table 22 No. of elementary teachers in training by year

Year	No. in training
1994	15
1995	42
1996	426
1997	1,497
1998	3,258
1999	5,020
2000	6,081
2001	6,439
2002	6,439
2003	6,439
2004	6,439

Source: Education Resource Study, Working Paper No. 1, April, 1995 (updated)

Policies

Elementary teachers will be nominated by the communities in which they will work, and candidates should have gained a good secondary education certificate. Teachers will work for four hours a day, five days a week. Registration and salary levels will be tied to successful completion of the three phases of the course.

Strategies

- The Department will, through the Field Services Unit of the Port Moresby Inservice College, provide training for the teachers. Existing TPPS teachers wishing to teach in Elementary Schools will be given provisional restricted registration by the TSC provided that they enrol in the Elementary Teacher Training course and are nominated by their communities.

- Training will be completed through three phases over a period of three and a half years. There will be a minimum of 300 hours of tuition in each year. Training will be carried out at the Provincial and District level. This is cost effective and enables community participation.

Sub-programmes and projects

- Elementary trainers programme—*AusAID*
- Elementary teacher training project—*AusAID, GOPNG*

Indicative costs

**Table 23 Indicative costs of elementary teacher education projects
(Thousands of kina)**

Activity	Total	1995	1999	2004
National support team	2566	262	253	253
Elementary teacher trainers	8958	1811	955	1003
Goods & services for teacher trainers	26801	31	3052	4260
Teaching materials & special activities	12523	428	150	4587
Orthography development	500	50	50	50
Transition to English	1000	100	100	100

Source: Education Resource Study, April, 1995 (updated)

4.7.2 Primary teacher training

This section discusses programmes to improve the quality and quantity of primary teacher education.

Overview

Primary Teacher Education is conducted in eight Community Teachers' Colleges, seven of which are run by the churches and one by the government. These colleges have until recently ensured that Papua New Guinea trained, certificated and registered the number of primary school teachers required by the national education system. The entry requirement for Primary Teacher Training is a minimum of four upper passes in Grade 10. Until 1990, a two year certificate in Primary Teacher Education was offered. In 1991, however, a three year Diploma programme was introduced in an effort to upgrade content knowledge, pedagogical skills, and the status of primary teachers. Simultaneously, a reduction of about one third of student teacher intake occurred. The 1991 enrolment was 1419 students (25 percent female), which would be expected to provide an annual output of approximately 500 new teachers per year.

A tertiary level professional support mechanism is now required, in line with the improved qualifications of the staff, the Diploma level course, and the intention to raise the entry level to Grade 12.

Vision

Teacher education programmes will provide an adequate supply of well-trained, innovative and self-reliant teachers committed to the education of individual children, and to their own professional development. They will be equipped to teach throughout the primary school system.

Objectives

Objectives of the primary teacher education programme are to:

- strengthen the three year programme to include preparation of teachers to take Grades 7 and 8;

- devise alternative modes of delivery for primary teacher education, both preservice and inservice;
- rationalise and upgrade community teachers' college facilities; and
- restructure the inservice programme in line with the education reform.

Policies

Primary teacher education will continue to be a cooperative effort between the government and church education agencies. A variety of modes of delivery of preservice and inservice teacher education courses will be developed to ensure an adequate supply of well-trained, innovative and self-reliant teachers. The entry level will be raised to Grade 12 and the proportion of female teachers increased.

Strategies

Preferred strategies to be pursued will be:

- continued lecturer development opportunities;
- rationalisation and upgrading of college facilities;
- increased number of non-residential students;
- designing of modular programmes to minimise residential requirements;
- maximum utilisation of college facilities throughout the year;
- the development and implementation of programmes for the specialisation of community school teachers in multigrade

teaching; and specialisation in no more than three subjects for the last three years of the primary school;

- the continuation of the development in a variety of delivery modes of the Diploma in Primary Education (Inservice) for the upgrading of certificated teachers, headmasters, other education officers and inspectors to cater for the needs of the restructured system; and
- the retraining of unemployed primary teachers through short up-grading courses on recent classroom technologies.

Primary teacher requirements

Table 24 Primary school teacher requirements

	Gr 1 to 6	Gr 7 & 8	Total
1995	15,901	449	16,351
1996	16,454	842	17,296
1997	16,675	1,457	18,132
1998	16,515	2,072	18,586
1999	16,012	2,686	18,698
2000	15,533	3,301	18,834
2001	15,052	3,915	18,967
2002	14,722	4,530	19,252
2003	14,454	5,145	19,598
2004	14,173	5,682	19,855

Source: Education Resource Study, Working Paper No. 1, April, 1995 (updated)

Sub-programmes and projects

Sub-programme and project options will include:

- Development of the DEP (I) and B Ed in distance mode—*EU, AusAID*
- Rationalisation and upgrading of facilities—*EU, AusAID*
- Development and delivery of a multi grade teaching package—*AusAID*
- Redevelopment of courses—*AusAID*
- Lecturer development—*AusAID*

Indicative costs

**Table 25 Indicative costs of teacher education projects
(Thousands of kina)**

Activity	Total	1995	1999	2004
CTC Operation	32610	3261	3261	3261
CTC Library & media enhancement	1000	100	100	100
In-service operation	12180	1218	1218	1218
Training	150	30	30	
Buy multigrade distance ed package	140	140		
In-service training package in mg	104		13	15
Develop DEP(I) & BEd distance	2648	501	171	161
Deliver DEP(I) distance	6631	495	616	581
Tr Ed staff upgrading	260		88	
MEd Admin for CTC staff	1053		351	

Source: Education Resource Study, April, 1995

4.7.3 Secondary teacher training

This section discusses programmes to improve the quality and quantity of secondary teacher education. The programmes outline the support services to be provided by the Department of Education, as secondary teacher education is the primary responsibility of the University of Papua New Guinea.

Overview

The University of Papua New Guinea is currently in the process of centralising all education courses at Goroka, dropping the diploma courses and moving to a four year B Ed programme.

The expansion of the facilities and the transfer of some courses to other institutions (Physical Education to the National Sports Institute; PVTC and Technology to Lae), will be necessary to produce the required number of graduates.

Table 26 Output of both the Goroka and Waigani campuses, 1987-1990

Year	1987	1988	1989	1990
B.Ed (pre-service)	11	17	16	15
Diploma in Secondary Teaching	85	119	Nil	84

Source: UPNG

Table 27 UPNG projection for graduates from the Diploma in Secondary Teaching and / or B. Ed. Pre service

Year	Enrolment	Graduates
------	-----------	-----------

	Intake	Total	
1995	132	349	75
1996	147	382	104
1997	149	400	119
1998	164	430	64
1999	167	448	125
2000	181	478	159

Source: UPNG

Vision

All secondary preservice teacher education programmes will be at the Bachelor level, and all specialisations will be covered.

Objectives

It is essential to provide sufficient teacher graduates to:

- eliminate the current secondary teacher deficit and fully localise the workforce;
- provide for the additional (small) numbers required for Grades 9 and 10, and to cater for attrition;
- provide sufficient graduate teachers for the rapidly expanding Grade 11 and 12 classes; and
- provide sufficient technical teachers adequately trained to offer the upgraded courses.

The following projection shows the number of teachers that the general education system will require.

Table 28 Projected junior and senior secondary teacher requirements

Year	Jun Sec	Sen Sec	Total
1995	2,755	189	2,944
1996	2,848	216	3,063
1997	2,827	246	3,073
1998	2,799	282	3,081
1999	2,782	310	3,092
2000	2,766	352	3,118
2001	2,738	402	3,141
2002	2,696	455	3,151
2003	2,650	501	3,152
2004	2,457	514	2,971

Note: Jun Sec includes provision for teachers at Vocational Centres

Source: Education Resource Study, Working Paper No. 1, April, 1995 (updated)

The numbers of teachers in junior secondary positions will not rise greatly over the plan period. Any excess that there may be produced from Goroka can be used in both reducing the reliance on expatriate labour and the number of unqualified teachers in the system. The challenge for the country is the increase in the number of teachers required for the upper secondary sector.

Policies

That an adequate supply of secondary teachers is ensured while standards are upgraded and updated.

Strategies

Major strategies for ensuring an adequate supply of secondary teachers will include:

- consolidation of the education faculty at Goroka;
- ensuring the availability of sufficient scholarships for projected system needs;
- strengthening and expanding the Post-Graduate Diploma in Education programme to provide sufficient teachers for Grades 11 and 12; and
- providing postgraduate study opportunities for the most able teachers.

Sub-programmes and projects

Sub-programme and project options will include:

- Upgrading of facilities—*AusAID*
- Design and delivery of a B Ed through distance mode—*AusAID*

Indicative costs

**Table 29 Indicative costs of secondary teacher education projects
(Thousands of kina)**

Activity	Total	1995	1999	2004
Salaries	35000	3500	3500	3500
Operations	28000	2800	2800	2800
Capital-upgrade services	2050			

Source: Education Resource Study, April, 1995

4.7.4 Vocational teacher education

This section discusses the training of teachers for vocational centres and vocational secondary schools.

Overview

Two courses provide training for teachers in vocational centres. These courses are currently conducted at the Port Moresby Inservice College.

Vocational Centre trades instructors must have completed an apprenticeship, hold relevant qualifications, have four or more years work experience in their trade, and have completed the one year Teacher's Certificate Programme.

A three year Diploma programme prepares post-grade 10 candidates as Vocational Centre teachers specialising in home economics.

A small number of teachers have come from courses conducted at Goroka Teacher's College. Others are ex primary and secondary teachers. There are others who are specialists and crafts people, who cannot qualify academically to undertake teacher training, but because of their superior skills are able to gain provisional registration to teach their specialisation in selected vocational centres. Almost half of the Vocational Centre staff are not formally qualified, 10% of staff in vocational centres in 1994 were overseas officers.

Vision

A cadre of trained instructors for all trade subjects and trained teachers for all general education courses.

Objectives

The major objectives include:

- Provision of better training for secondary level vocational education teachers.
- Development of inservice opportunities for vocational education teachers.

Table 30 Projected and needed output of vocational school teachers, selected years

	1996	2000	2004
Requirements			
Voc Centre Instructors	618	572	526

Note: This is trade instructors only.

Source: Education Resource Study, April, 1995 (updated)

There will not be any increase in the number of trade instructors required over the plan period. This is because of the plans to offer an alternative form of Grade 9 and 10 education at the centres and to improve the existing centres. This will give a chance to ensure that all instructors have teaching qualifications.

Policies

- Teachers in trade subjects must be qualified tradesmen with four or more years work experience in their trade before enrolling for teacher training.
- Preservice training will remain the responsibility of the Department of Education.

Strategies

A range of options for the better training of teachers of vocational courses will be considered. These include:

- Distance education in association with the Commonwealth of Learning.
- Sub contracting to the Don Bosco organisation.

Sub-programmes and projects

Sub-programmes and project options will include:

- an instructional skills course for instructors who have trade qualifications but no teacher training—*AusAID*
- further projects awaiting results of ADB study.

Table 31 Indicative costs of vocational teacher education projects
(Thousands of kina)

Activity	Total	1995	1999	2004
Train VSS managers	60	30		
HEc training house	120			
Instructional package	81			
HEc training equipment	15			

Source: Education Resource Study, 1, April, 1995

4.7.5 Technical teacher training

Overview

PETT teachers are trained in a one year programme and are expected to have the required Grade 10 qualifications and five years of industrial or commercial experience for entry. Teachers who teach at Certificate level are either university graduates or have the Certificate of Higher

Technical Education and three years of experience. Teachers for other specialised technical education, in the broader sense of the term, are also trained at Goroka.

Vision

To provide sufficient well trained and suitably qualified Papua New Guinean technical college lecturers.

Objectives

Major objectives are to:

- rationalise and plan the supply of technical education to meet labour force needs; and
- prepare budget proposals to meet these tasks.

The number of technical college lecturers will remain constant for the first few years of the plan period. This will allow the student teacher ratio to rise from the present very low level of less than 10 to a more reasonable target of 1:15.

Table 32 Projected and needed output of technical school teachers, selected years

	1996	2000	2004
Requirements			
Tech Coll teachers	176	229	280
St : Tr ratio	9.96	12.1	14.71
Extra teachers			
Tech Coll teachers	0	9	14

Source: Education Resource Study, Working Paper No. 1, April, 1995

Policies

Entrance to Teacher training will require candidates with higher technical and academic specialisation

Strategies

Awaiting completion of ADB funded study into Vocational and Technical Education.

Sub-programmes and projects

Awaiting results of ADB study.

4.8 Staff development

Overview

Staff development programmes aim to assist staff members to cultivate those skills whose application will improve the efficiency and effectiveness of all aspects of the organization.

Some training needs activities are based on specific skills improvement, improving knowledge and changing attitudes, while other programmes change according to Government and Department of Education policies and priorities, needs, and expectations. Staff development and INSET programmes must be cost effective and the projected outcomes must be in line with the National Government's Education policies. Furthermore, the Staff Development Unit collaborates with provincial education divisions to involve them in the training.

Vision

The development of a cadre of professionals who are committed to using all available opportunities for life long development.

Objectives

The overall aim of staff development in the DOE and the NES is to provide opportunities for the integral human development of teachers, public servants and other support staff, by increasing their capabilities to:

- improve their efficiency and competency in managing their institutions, divisions or their jobs;
- continue their personal and professional growth;
- improve the teaching and learning programmes in the schools and colleges;

- develop existing, and learn new knowledge and skills to meet the changing needs of the system;
- improve efficiency for better management, and the economic utilisation of resources in the NES;
- plan career developments for national staff;
- liaise with the Department of Personnel Management and International Agencies on scholarships and training bids; and
- use creative problem-solving approaches to find ways to provide the above.

Policies

The provision of professional development opportunities to allow for the professional growth of individuals and groups in all divisions and institutions within the NES.

Strategies

To ensure that the training needs of the national education system are effectively catered for, in order to deal with the changes in educational developments through the provision of appropriate training programmes relating to:

- upgrading of skills and knowledge;
- in-house courses to improve efficiency in management of the system;
- inservice courses;
- local and overseas fellowship;
- on-the-job training and work experience; and
- localisation.

A series of committees including the Secretary's Staff Meeting (SSM), the Executive Development Committee (EDC) and the Staff Development Committee (SDC) will meet to select and evaluate teachers and public servants for training courses and recommend related policy matters to the Secretary.

The National Inservice Committee (NIC) will meet quarterly to make recommendations to the Secretary on matters concerning training courses of less than three months' duration.

Sub-programmes and projects

Primary

Development of multi mode DEP(I) courses which provide for the needs of:

- Grade 7 and 8 teachers;
- headteachers of primary schools;
- primary inspectors;
- multi grade teachers; and
- development of short courses to meet specific needs—*AusAID*.

Secondary

The provision of content upgrading for secondary teachers which provides for the needs of:

- Grade 11 and 12 teachers; and
- upgrading Diploma of Education holders to degree level—*AusAID*.

Vocational

The provision of instructional packages to provide qualification for instructors in vocational education—*COL and AusAID*.

Staff development, localisation and training

The provision of:

- on-the-job training;
- in-house specific training programmes;
- work experience and attachments;
- expansion of post-graduate courses available to staff;
- expansion of field work by PMIC;
- development of distance education as an effective mode of course delivery; and
- long and short courses both overseas and in country.

Indicative costs

**Table 33 Indicative costs of staff development projects
(Thousands of kina)**

	Total	1996	2000	2004
Primary				
Multigrade training	150	30		
In Service training package in multi grade	104	2	15	15
Develop DEP(I) residential	3745	587	228	364
Develop DEP(I) & BEd distance	2648	572	128	161
Deliver DEP(I) distance	6631	708	675	581
Sec & Tech - UPNG Goroka				
Upgrade facilities	2050	2050		
Vocational				
Instructional package	81	27		
Home Economics training equipment	15			
Teacher education staff				
Non award	260		28	
Ed admin appointment	612	204		
M Ed admin	1053		236	
Grade dip dist education	642		54	

Source: Education Resource Study, April, 1995

4.9 Curriculum

Overview

Curriculum Development consists of the design and development of syllabuses, curriculum statements and textbook specifications and teachers guides and the monitoring of standards.

Vision

To provide a curriculum which develops from the culture of the community and equips students with the knowledge, skills and attitudes required to be productive members of their communities, participate in economic growth, and to meet the manpower needs of the nation.

Objectives

The main objectives of the Curriculum Development Division are:

- to give strong support to development of the elementary component which uses the language which the child speaks as the language of initial literacy and early education;
- to redirect curriculum bias to provide a balanced and relevant education, particularly to support the restructure of the Education system that is currently taking place;
- to enhance the writing, production and distribution capacity of the Department of Education;
- to progressively emphasise the radio and television production capacity of the Department of Education as PNG develops its technological capability;
- to expand and strengthen the Measurement Services Unit;

- to increase flexibility in examination and certification procedures to support the curriculum reform;
- to integrate the post-primary structure;
- to develop advanced courses at the upper secondary level;
- to support provincial curriculum development and restructure initiatives;
- to increase training opportunities to ensure that an adequate supply of middle management and technical personnel at both the national and provincial level is provided; and
- to fund new capital works and upgrade and maintain equipment at the national level.
- to develop a three cycle, nine year basic education curriculum to provide for the social, spiritual, ethical, moral and vocational development of the child. The unique characteristics of each cycle are:
 - cycle 1 provides for initial vernacular literacy which accepts the culture of the community as its basis;
 - cycle 2 assists the child to bridge to English language skills; and
 - cycle 3 develops appropriate vocational skills in a more subject specific manner.
- to develop at the secondary level two further two year cycles. The unique characteristics of each cycle are:

cycle 1 strengthens the subject specific skills, and

cycle 2 sees a broadening of the curriculum to take account of the new needs, including student competency, of the students at that level.

Other objectives are to:

- support the development of courses based upon an approved scope and sequence and provide a course accreditation mechanism;
- ensure that syllabus documents, teachers guides and other support materials such as broadcast scripts are prepared which are appropriate to the education reforms currently taking place;
- support provincial curriculum development, particularly at the elementary level; and
- monitor standards during the current changes taking place under the education reform and provide relevant examination and certification procedures in line with the curriculum reforms.

Policies

- Learners should acquire initial literacy in a language they speak, and then transfer this literacy, through a bridging curriculum, to English or one of the national languages as outlined in the Literacy and Awareness Programme.
- Integral Human Development will be strengthened as outlined in the Philosophy of Education.
- The curriculum needs to be reviewed in light of the Relevant Education for All Programme.

Strategies

- Production of national attainment targets across the curriculum. This will lead to revised syllabi and curriculum statements. This will lead to the preparation of teachers guides, textbook specifications, broadcast scripts etc.
- Resupply of current curriculum materials while the reform is being implemented.
- Development of a Grade 8 examination.
- Upgrading of facilities and staffing so that objectives can be achieved.

Sub-programmes and projects

Sub-programmes and project options should include the following:

- Curriculum development—*World Bank*
- Textbook resupply—*World Bank, AusAID*
- Strengthening MSU—*AusAID*
- Language course development—*AusAID*
- PNG School Journals—*NZODA*
- Population awareness—*UNFPA*
- Health promoting skills—*UNDP*
- Literacy—*UNDP, JICA*
- Vocational curriculum—*GTZ*

Indicative costs

**Table 34 Indicative costs of curriculum projects
(Thousands of kina)**

Activity	Total	1995	1999	2004
Supply of educational materials	32,636	1,785	3,183	4,684
Develop Voc Ed curriculum	370			
Supply of tools and mats to VSS	22,000	2,200	2,200	2,200
Develop low cost teaching aids	192			
School library books supply	4,854	206	582	480

Source: Education Resource Study, April, 1995

4.10 Special education

Overview

At present there are thirteen centres registered with the National Board for Disabled Persons, which provide special education and/or cater for the needs of disabled persons. Seven of these have educational programmes for children which support integrating handicapped children into ordinary schools and providing temporary bridging schooling in preparation for integration.

Vision

Educational opportunities for every child in Papua New Guinea including those with Special Education needs.

Objectives

Major objectives are to:

- provide teachers with the skills and attitudes to deal with the education of children with special education needs;
- develop suitable curriculum materials for children with special needs, and
- strengthen professional support mechanisms through the National Special Education Unit and provincial Special Education Resource Centres.

Policies

The key policies will be:

- where feasible, disabled children will attend regular schools along with normal children; and

- teachers will be trained to provide for disabled children who attend regular schools. Preservice and inservice training courses in special education will therefore be offered by all teachers' colleges.

Strategies

- Provide special education teacher training in each of the teachers colleges and to prepare Papua New Guinean staff as lecturers in these positions.
- Develop braille, large print books and sign language curriculum materials.
- Strengthen the National Special Education Unit and provincial Resource Centres through provision of administrative support, the funding of teachers, the provision of educational materials and training.

Sub-programmes and projects

Sub-programmes and project options will include:

- a housing project to build houses at both the colleges and for Headquarters staff;
- consultancies to help with curriculum development within the colleges and to visit Centres; and
- further training for lecturers, both in country on Lahara type courses and overseas.

Indicative costs

**Table 35 Indicative costs of special education projects
(Thousands of kina)**

	Total	1996	2000	2004
Housing	450	180		
Overseas study	220		44	
Consultancy	355	71		
Lahara	250	50	50	

Source: Education Resource Study, April, 1995

4.11 Literacy and non-formal education

Overview

Papua New Guinea's population was estimated at 3 512 000 in 1990. Over 40% were under fifteen years of age, and about 15% is under the age of five. The sex ratio is 109 males to 100 females. Over ninety percent of the people live by rural farming on communally owned land. The growth rate is anticipated to average 2.3 percent giving a population of 7.4 million by 2010. Approximately 40% of the population will be in the 13-34 age range.

The annual urban population growth rate in the 1970s was 7.0 percent which slowed to 4.5 percent over the 1980-1990 period. The growth in urban population is creating severe overcrowding, increasing the spread of urban crime and other attendant problems.

A large population creates competition for resources to meet various social needs, all of which appear urgent and legitimate. It is essential to meet the basic subsistence needs of all our people, remove the sources of social problems protect the environment, and control excessive population growth. However, these demands must not replace the learning needs of the population.

Although education produces knowledge and skills, and health services protect, extend and improve the quality of life, government spending on health and education has declined in relative terms.

Literacy, through non-formal education, has a crucial role to play in Papua New Guinea, where only seventy-six percent of the children between six and twelve years of age go to school, and only one-third of those who finish Grade 6 continue their education. Whether it occurs through vocational education, agricultural or health extension programmes, adult literacy activities, distance education, or community-based libraries, non-formal education is a very important part of the effort to meet the learning needs of the majority of Papua New Guineans.

Vision

Non-formal education will target youths who are not in the formal school system, out-of-school adults, and second-chance learners, by mobilising the expertise of government agencies and non-government organisations to:

- improve health and nutrition;
- develop an interest in literacy and awareness;
- implement appropriate technology skills for economic development;
- develop leadership skills for political development;
- mount communication networks for social development;
- encourage and support creative activities for spiritual and cultural development; and
- help people to learn and appreciate the need for the preservation of the environment.

Objectives

The major goal of non-formal education will be to carry out literacy campaigns involving non-government organisations, women's associations and youth groups, and institutionalise early childhood care. Utilising self-help and community cooperation for carrying out non-formal education projects will emphasise equality and enable clients to compete effectively in the market place. Non-formal education will attempt to transform rather than supplement basic institutions by developing alternative forms of economic and political ventures that affect particular sectors.

Targets

In the first instance, the programme will target the out-of-school youths and adults in the 13-34 year age group. The size of this target group is shown in Table 36.

Table 36 Projected target group of youths, selected years, 1995 to 2004

	1995	2000	2004
Females Aged 13 - 34	747,811	852,113	929,610
Males Aged 13 - 34	807,096	919,667	1,003,308
Staff	4	6	6

Source: Department of Education 1994.

The present budget is approximately K370,000 which is grossly inadequate if the country wishes to ever eradicate illiteracy.

Policies

The basic principle underlying non-formal education is that programmes must be person-centred. This shift means:

- giving high priority to nurturing and promoting creativity in the **personal** and **collective** development of the learners;
- giving higher valuation to the learners' freedom to explore and inquire, their developing awareness of the self and their identities, their questioning, challenging and self-learning habits, and enhancing sensitivity, compassion and empathy; and
- only supplementing national funding of a local initiative as long as it does not entail a recurrent cost.

Strategies

The experiences of non-government organisations in village-level programmes have made them experts in many aspects of non-formal education. Government departments as well as non-government organisations will jointly be involved in the planning, implementing, maintaining, and evaluation of non-formal education programmes. Programmes will include:

- maximising community planning. Goals will be determined as much as possible by the community which will host and support the programmes. Communities will be involved from the beginning in designing the programmes in order to help them solve urgent problems and achieve their most pressing needs;

- promoting community control, responsibility and participation. Programmes will be community-based and people-centred. Wherever possible, non-formal education must rely on community control, responsibility and participation;
- developing human and community resources first. Training in community resource development will be provided for effective non-formal education programmes; and
- not overlooking or bypassing local or community resources. Dependence on external assistance will be minimal, and more reliance will be placed on local resources. Grants from external agencies will be carefully administered to help local communities develop and achieve their aims.

Sub-programmes and projects

Sub-programmes and project options are:

- Recruitment and training of manpower in the National Literacy and Awareness Secretariat in researching material, production and distribution.
- Monitoring and evaluating the programme.
- Implementation of a National Literacy Campaign by the Literacy and Awareness Secretariat in consultation with the National Non-formal Education Council established to provide functional literacy training for women and first-chance learners.
- Expansion of community libraries by the National Library and Information Services.
- The UNICEF programme for strengthening the mechanism for inter agency collaboration through the National Literacy and Awareness Council, a programme for promoting literacy and non-formal education for out-of-school youth and adults. It will also

support literacy for women, out-of-school youth and children through research and evaluation, training opportunities for literacy workers, and materials production for literacy classes.

- Orthography development under the teacher education project.

4.12 Inspections

Overview

Inspectors provide the school level supervision and management for school systems at elementary, primary, secondary and vocational levels. They monitor curriculum implementation for the approval of student certification, offer advice for institutional support and teachers' professional development and carry out teacher appraisal for registration and promotion.

The division is unique within the Department of Education in that over 200 of its present 215 positions are occupied by field based officers in provincial and district locations.

Vision

The development of systems to provide appropriate quality, advisory and inspection services for the school system.

Objectives

Inspectors will regularly visit schools to:

- guide and assess the implementation of approved curriculum; and
- provide advisory and appraisal services to schools and their teachers.

The Inspectorate will:

- maintain an inspection system for the appraisal and rating of teachers;
- report to relevant education authorities in respect to quality assurance of the curriculum and staff; and

- draft policies relating to professional support for, and appraisal of, teachers.

Policies

- The needs of the education reform will be responded to with authority from:
 - ♦ the Education Act and the Teaching Service Act;
 - ♦ General Orders of the Department of Personnel Management;
 - ♦ Determinations from the Teaching Service Commission.
- Inspector Review Committee recommendations will be implemented.
- Elementary teachers will be supervised by a group of supervisors, including the trainers, primary school headteachers and community school inspectors. For teacher inspection purposes this group will be coordinated by the community school inspectors.
- The current community schools inspection system will be expanded and will continue to service the primary schools .
- The existing secondary inspection services to provincial high schools, national high schools, secondary schools and CODE will be maintained and expanded.
- The existing advisory and inspections services to vocational centres, will be maintained.

Strategies

- To involve headteachers and teachers, at all levels of the system, in staff appraisal and institutional audit.
- At the elementary level the Inspectorate will assist in the design of a system for the appraisal of elementary school teachers.
- Existing practices will be continued and strengthened at the primary and secondary levels as per the Inspectorate Review Committee recommendations.

Sub-Programmes and projects

Sub-programmes and project options will include the following:

- Expansion of the inspectorate—*World Bank*
- Institutional strengthening—*AusAID*

Indicative costs

Table 37 Projected staffing and associated costs in the Inspectoral and Guidance Division, 1995 - 2004.

	1996	2000	2004
Staffing			
Administrative	12	13	13
CI (Elem and Primary)	170	192	242
Vocational Centre Inspectors	12	14	16
Secondary Inspectors	24	26	26

Guidance Officers	14	17	20
Costs (K'000s)			
Salaries	3712	4192	5072
Operational	2320	2620	3170
Capital	600	600	600
Total	6632	7412	8842

Source: Education Resource Study, April, 1995)

An elementary teacher inspector ratio of 250:1 has been allowed with a community/ primary ratio of 100:1 to give the CI total.

**Table 38 Indicative costs of inspections projects
(Thousands of kina)**

	Total	1996	2000	2004
Strengthen Inspectorate	4720	470	470	470

Source: Education Resource Study, April, 1995

4.13 Planning and management

Overview

The education system is in transition and it is this that is causing many of the management problems. Reform of the administration will be a prerequisite for education development. The basic issues and problems affecting planning and management are:

- where plans have been written there has been a tendency of many to remain not implemented;
- delivery of education services is complicated by poor coordination between agencies at the national and local levels;
- lack of planning capacity and adequate information bases in the system results in poor coordination and inefficient application of educational resources; and
- the majority of managers who run educational institutions, or who occupy senior positions in educational administration, possess very little training in the managerial skills required. This leads to poor implementation of plans;

The role of the National Department of Education in relation to the provinces will entail management, planning and pedagogical support services, and the progressive delegation of administrative responsibilities to provinces and schools. Training will be a key factor in this area. A major overhaul of the system for teacher appointment, ranking, promotion and assignment will be undertaken to increase personnel and policy efficiency.

Vision

The provision of systems and trained personnel to deliver efficient planning and management of the education system.

Policies

The Resource Management System and Programme budgeting will remain the major instruments for planning, financing and implementing education programmes. Other authorities will include the Education Act, Teaching Service Act and the Organic Law on Provincial and Local Level Governments.

Objectives

The most urgent action to be taken will be the improvement of routine management, planning and personnel management. Specific objectives relating to Management and Planning are:

- production and annual review of education plans;
- development of a management information system;
- strengthening of the planning capacity at both national and provincial levels;
- full implementation of an efficient staff appraisal system; and
- to develop a greater awareness of the education reform amongst all sectors of the government and the community.

Strategies

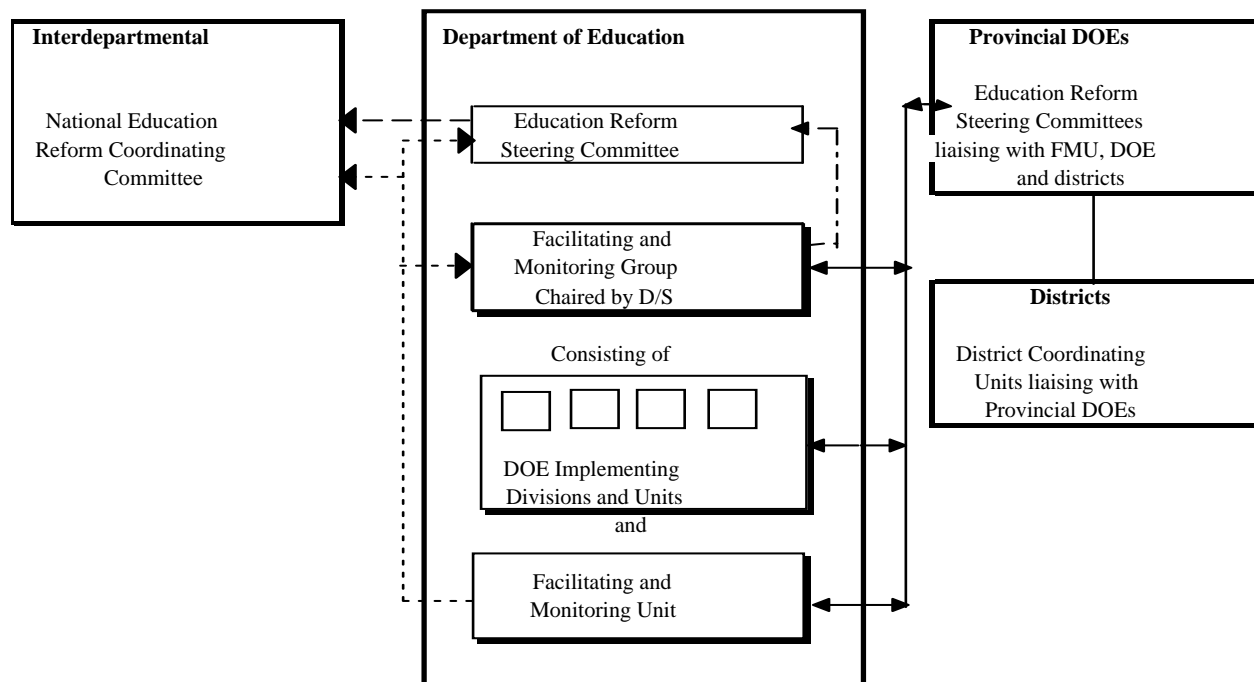
- Implement a regional planning and management project.
- Implement a community awareness programme on education reform.
- Develop a management information system.
- Strengthen professional and technical skills for line and provincial divisions.

- Institute a new management structure, as below, for the management of education reform.

Management Structure for Reform

Central Government Level

Provincial and District level



Secretariat support from Facilitating and Monitoring Unit

Operational interaction

Referral of resource and interdepartmental issues

Referral of educational and administrative systemic constraints

Sub-programmes and projects

Sub-programmes and project options will include the following:

- Institutional strengthening programme—AusAID
- Establishment of an MIS—AusAID
- Training of key planners and managers—AusAID
- Upgrading personnel and payroll systems—AusAID.

Indicative costs

**Table 39 Indicative costs of management projects
(Thousands of kina)**

	Total	1996	2000	2004
Establish FMU	3,866	772	386	
Strengthen Provincial management	5,000	500	500	500
Train key planning personnel	606	202		
Establish MIS system	407	18	18	18
Establish district coordination	2,672	64	288	544
Upgrade personnel and payroll systems	158	158		
Qualifications of key staff	2,790	433	480	
New executive staff	93	93		
Coordination of Tr Educ	5,520	552	552	552

Source: Education Resource Study, April, 1995

5 MONITORING, EVALUATION AND RESEARCH

The monitoring and evaluation system will support the continual review of policy guidelines, the assessment of programme and project implementation and will make proposals for the review of the rolling plan. Systems will be set in place to strengthen and support implementation and management, monitoring and evaluation and social mobilisation and advocacy of the plan.

Monitoring and evaluation will involve the active units of the NDOE, NGOs, the National Research Institute and the universities and be coordinated by the National Steering Committee. In addition, as part of the Implementation Project a PhD study will be undertaken to ascertain the sustainability of the plan.

The objectives of the monitoring and evaluation system are:

- **Data collection**—to build awareness, by collecting reliable and timely data to continually monitor factors pertinent to the success of the programme. This will allow decision makers to determine whether targets are being achieved.
- **Data Analysis**—to alert management and staff to trends and identify areas where intervention is necessary.
- **Intervention**—to develop strategies for recommended actions in areas identified.

The framework of the evaluation will consist of context, input, process and product, and will include the use of quantitative and qualitative measures. Indicators will be identified by the initiators and managers of the programmes and projects.

Research will concentrate on the implementation of the plan, the outputs at each level of the system, and the cost effectiveness of the system.

Tables

	Page
1. Annual enrolment targets for implementation of elementary education	10
2. Annual enrolment targets for grades 1 and 2 in primary schools	10
3. Projected target enrolments for staffing and costs in elementary schools, selected years	11
4. Indicative costs of elementary education projects	11
5. Annual enrolment targets for implementation of primary education	14
6. High school grade 7 and 8 enrolments	14
7. Projected enrolments, teaching staff and costs in primary schools, selected years only	15
8. Grades 6 and 7 percentage transition rates	15
9. Indicative costs of primary education projects	15
10. Annual targets for implementation of secondary education	17
11. Projected enrolments, teaching staff and costs in secondary schools, selected years only	17
12. Indicative costs of secondary school projects	17
13. Annual enrolment targets for implementation of vocational education	19
14. Projected staffing for vocational education	19
15. Projected target enrolments for staffing and costs in vocational schools, selected years	20
16. Indicative costs for vocational education projects	20
17. Indicative costs for open learning projects	21
18. Annual enrolment and staffing targets for implementation of technical education	23
19. Projected target enrolments for staffing and costs in technical colleges, selected years	23
20. Indicative costs of technical education projects	24
21. Elementary school staffing requirements by year and grade	25
22. Number of elementary teachers in training by year	26
23. Indicative costs of elementary teacher education projects	26

24.	Primary school teacher requirements	28
25.	Indicative costs of teacher education projects	28
26.	Output of both the Goroka and Waigani campuses	29
27.	UPNG projection for graduates from the Diploma in Secondary teaching and/or B.Ed.(Preservice)	29
28.	Projected junior and senior secondary teacher requirements	29
29.	Indicative costs of secondary teacher education projects	30
30.	Projected and needed output of vocational school teachers, selected years	31
31.	Indicative costs of vocational teacher education projects	32
32.	Projected and needed output of technical school teachers year 0-16	32
33.	Indicative costs of staff development projects	34
34.	Indicative costs of curriculum projects	37
35.	Indicative costs of special education projects	37
36.	Projected target group of youths, selected years 1995-2004	39
37.	Projected staffing and associated costs in the inspectoral and guidance division 1995-2004	42
38.	Indicative costs of inspections projects	42
39.	Indicative costs of management projects	45