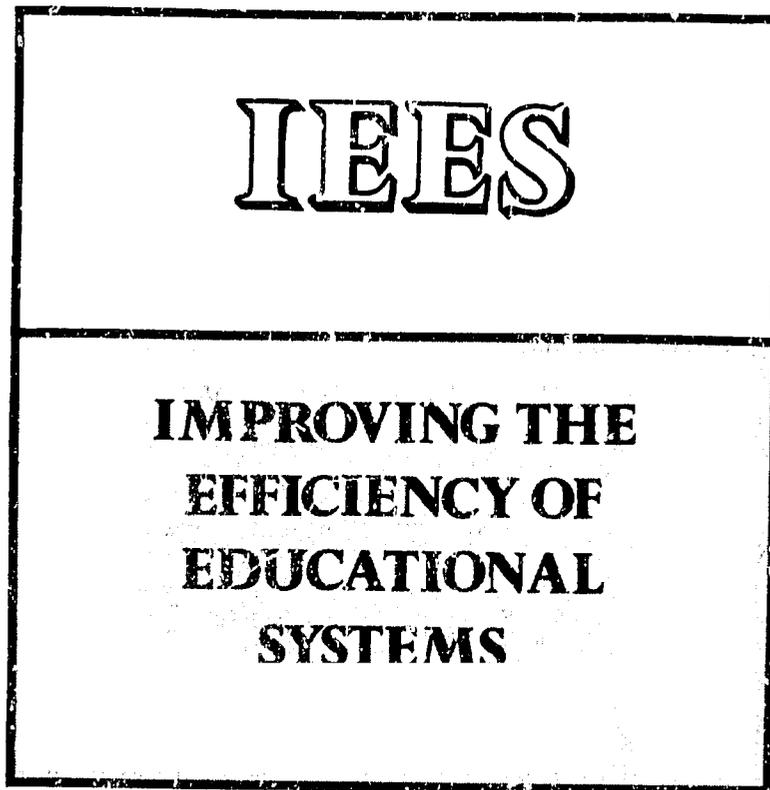


-PN-AX-855 51293 -

**INDONESIA  
EDUCATION AND HUMAN RESOURCES  
SECTOR REVIEW  
April 1986**

**CHAPTER NINE  
HIGHER EDUCATION**



**Coordinated for the Government of Indonesia by the  
Ministry of Education and Culture with USAID**

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INDONESIA  
EDUCATION AND HUMAN RESOURCES  
SECTOR REVIEW

April 1986

Chapter Nine:  
Higher Education

Coordinated for the Government of Indonesia by the  
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# INDONESIA EDUCATION AND HUMAN RESOURCES SECTOR REVIEW

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## 9.0 HIGHER EDUCATION

### 9.1 Introduction

Indonesian higher education encompasses both a public and a private sector, providing postsecondary education for those who have completed 12 years of schooling: six at the primary school level, three at the junior secondary level, and three at the senior secondary level. Entrance to the tertiary level is by competitive examination.

This higher education system has experienced dynamic growth challenging the government's ability to keep up with the demand for postsecondary education and at the same time provide in a planned and orderly way for the human resources required by the nation's modernization process. As part of the response to this demand, a private sector in higher education has developed to the point that it exceeds the public sector. Existence of these private institutions presents an additional challenge to the government to rationalize and maintain order in the higher education subsector.

The Ministry of Education and Culture (MOEC) has been concerned, also with the quality of higher education, in terms of the teaching-learning process, the level of preparation of the instructional staff, and the quality and availability of such teaching resources as laboratories and libraries.

To meet the urgent demand for middle and upper level skilled human resources, the MOEC has embarked on a bold and extensive program to provide technical and vocational education through the construction and development of polytechnic schools within the universities. This effort presents not only great promise, but also a great challenge to the

government in coordinating this initiative with similar efforts at the secondary level and with parallel efforts in the technical institutes such as (ITB) and in the universities. Indonesia is a nation made up of more than 13,670 islands spread from east to west over 3,300 miles with a focal point at the capital on the island of Java. Because of this geographical diversity, there is a concern on the part of the Government to provide more higher educational services in number and in quality to the regions on the outer islands.

These are the major issues in this review of the higher education subsector. The review will cover the historical background, goals and strategies, and structure of higher education as well as particular themes such as the Open University, the teacher training functions, the polytechnic institutes, and their programs.

## 9.2 Status of Higher Education

### 9.2.1 Historical Background

Indonesian higher education began in 1949-1950 with the establishment of the Gadjadara University in Yogyakarta and the University of Indonesia in Jakarta. Prior to 1949, precursor post secondary schools had been established immediately after World War I during the latter part of the Dutch colonial era. For example, there was an engineering school in Bandung and schools of medicine and law in Jakarta. These institutions were independent of one another and were considered equals of institutions in the Netherlands. In the late 1930s, faculties of agriculture, and arts and philosophy were established in Bogor and Jakarta, respectively. There was a plan to merge these faculties with the three older ones to form a university,

but the merger never took place because of the Japanese occupation in 1942.

Before the country gained its independence in 1945, education was available only to a highly select group of Indonesians. Out of a population of approximately 65 million at that time, no more than 3,000 students were enrolled in higher education. The number of graduates never reached 2,000.

During the early years of Indonesian higher education, in the 1950s, the teaching and learning methods were entirely Dutch, characterized by emphasis on the education of a few individuals with little attention given to the need for a more systematic approach to mass education. The teaching staff was primarily Dutch but included a few Indonesians educated in the Dutch tradition. Because of political unrest in the mid-1950s, the Indonesian instructional staff were left on their own after the exodus of the Dutch educators. The departure of the Dutch left a vacuum in the higher education teaching staff which was partially filled by recruitment of faculty from Germany, Austria and Italy, and by sending Indonesian lecturers abroad for advanced training.

In the late 1960s, the American system of education began to influence the existing program through a massive input of American lecturers, educational materials, and equipment. Scholarship programs allowing Indonesian staff to pursue advanced education at U.S. universities were initiated during this period. Technical assistance was offered primarily in the fields of engineering, the sciences, medical sciences, agriculture, and economics. This assistance has continued to the present.

Thus, the current Indonesian system of higher education is the result of an interaction between Indonesian, Dutch, and American educational traditions. Over a 35-year span, from 1950 to 1985, dramatic progress has been made:

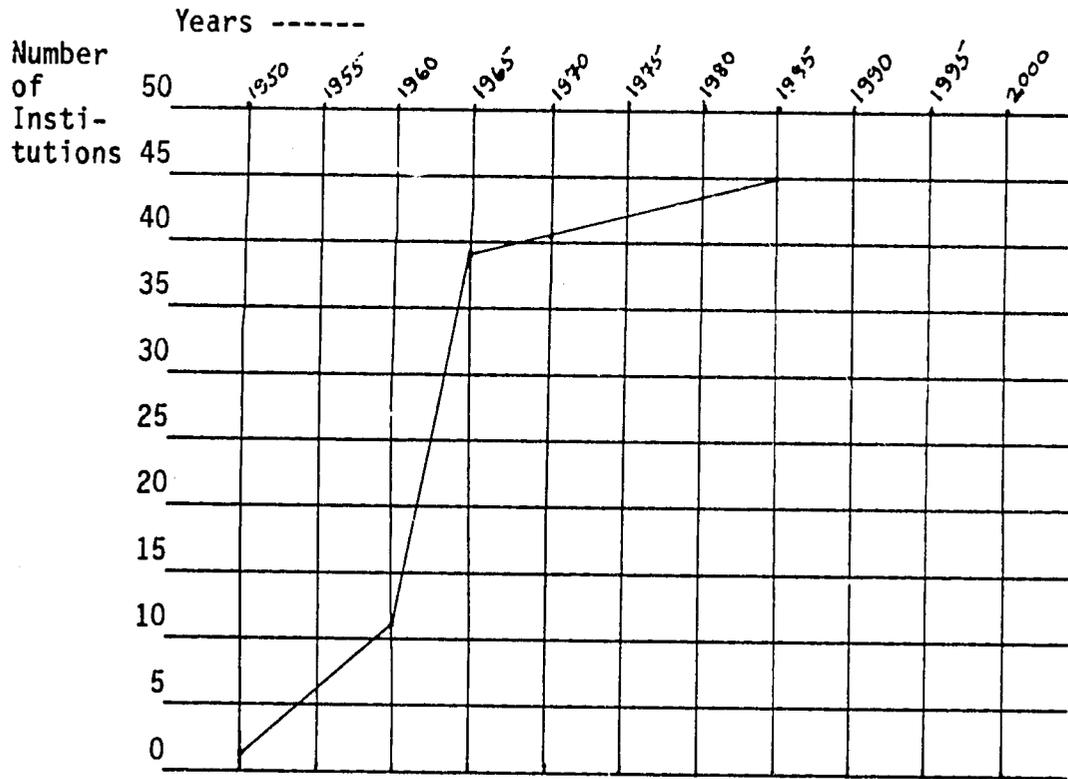
- (a) The number of students in higher education has grown from 10,000 to more than 800,000 in 1985 in both public and private sectors.
- (b) The number of institutions of higher education has grown from two in 1950 to 45 public universities and 553 private tertiary level institutions.
- (c) The number of graduate level institutions has grown in the public sector from one to nine institutions granting doctorates.

The growth of public higher education in the 35-year period is shown in Figure 9.1. The increase between 1960 and 1965, shown in this figure, includes not only universities but also 10 IKIPs, or teacher colleges, all of which opened in 1964 through the Government of Indonesia's (GOI) effort to provide teachers for expanding enrollments at the secondary level.

Although the increase seems to slacken after 1975, it does show a continuous upward trend. Furthermore, the curve would be considerably steeper if it reflected the creation of 17 polytechnic schools which have been built since 1980 and which are considered part of existing universities rather than as new separate institutions. The private university system is not represented in Figure 9.1. If it were, the growth curve would be steeper and more robust, reflecting the creation

FIGURE 9.1

NUMBER OF PUBLIC HIGHER EDUCATION INSTITUTIONS  
FOUNDED IN INDONESIA SHOWN BY YEAR OF OPENING



Source: MOEC data, Chart by SRG

of more than 500 institutions of various size during the same 35-year period.

### 9.2.2 Goals and Strategies

The major goals of higher education, expressed in Repelita IV, the Fourth Five-Year Plan, 1984-1989, are shown below:

- (a) Increasing the absorbtive capacity of the higher education system,
- (b) Increasing the instructional staff,
- (c) Working toward increased collaboration between private and public higher education,
- (d) Increasing higher education's ability to meet human resource requirements necessitated by the development of commerce and industry,
- (e) Continuing with the production of teachers for secondary schools and with upgrading tertiary level personnel,
- (f) Providing for more efficient use of facilities in the universities, and
- (g) Continuing emphasis on the university Tridharma functions (see p. 8), and on the national philosophy embodied in the Pancasila concept.

The goals are to be realized through various strategies:

- (a) Increasing the absorbtive capacity of higher education:

By opening new institutions at the higher education level, the MOEC plans to raise by 3% the proportion of the total population aged 19-24 that attends the tertiary level. This means an increase in enrollments of that age group attending postsecondary education from 4.5% in 1983/84

to 6.2% in 1980/89. The creation of the Open University in 1984 was designed to help meet this Repelita IV target. Although at first glance the percentage seems modest, in absolute numbers it is very great. From 1984/85 to 1988/89, the projection is for 1,522,300 new students to be enrolled in higher education. Of these, 686,300 will be in private institutions. Of the 1,522,300 new students, 416,200 will be in diploma programs and 1,106,100 will be in regular degree programs.

(b) Increasing the instructional staff:

Repelita IV foresees a 79% increase in instructional staff in public and private higher education institutions. From a total of 25,200 instructional staff in 1983/84 the figure will rise to 45,100 in 1988/89. Of this target group, 38,300 will be in the public university system, and some 6,800 in private institutions.

(c) Working toward increased integration of private and public education:

Repelita IV aims at the creation of a national higher education system which includes both the public and private institutions. Therefore, the MOEC will increase its administrative and coordinating functions through the Kopertis, a system of public regional offices to assist and coordinate the private institutions in each of nine regions. Furthermore, the MOEC will provide more than 3,000 civil service teachers out of a total of some 24,000, who will be assigned to teach at private institutions. Technical assistance from MOEC will be provided to help with the establishment of a credit system at private institutions and with laboratory equipment.

(d) Increasing higher education's ability to meet human resource requirements necessitated by the development of commerce and industry:

Through external assistance, primarily from the World Bank, the MOEC will expand the number of polytechnics to 25 by the end of 1988/89. These will be distributed among various public universities and institutes throughout the country. Technology and business administration will be the two major fields emphasized in these institutions.

(e) Continuing with the production of teachers for secondary schools and for upgrading tertiary level personnel:

During Repelita IV, higher education will be expected to supply a large proportion of the teachers needed for junior and senior secondary schools: a total of 245,100 teachers, made up of 142,400 junior secondary school teachers and 102,700 senior secondary school teachers. It will also supply technical staff for nonformal education and sports activities, and technical staff for cultural activities.

(f) Providing for more efficient use of facilities in the universities:

A major strategy for improving the efficiency of instruction is the development of The Inter-University Center for Improving and Developing Instructional Activities (IUCIDIA) and the various inter-university centers (IUCs). These centers will be assisted by IUCIDIA in developing course materials, books, monographs, and manuals on instructional planning, curriculum development, instructional media, and management development. They will also offer workshops and in-country short term training programs. The chief function of UCIDIA is

to facilitate joint efforts among all the postgraduate programs to improve and further develop instructional technologies.

(g) Continuing emphasis on the university Tridharma functions, and on the national philosophy embodied in the Pancasila concept:

The strategies for higher education development also include typically Indonesian features that go beyond the quantitative factors. There is real concern for creating and maintaining a national ethos as part of the nation-building process. At the tertiary level this is expressed in the Tridharma, a concept that delineates three major functions for higher education: teaching-learning, research, and community service. In addition is the alma mater, or school spirit. This embodies a loyalty that extends after graduation, calling for continued participation by graduates in the welfare of the institution from which they graduated. Last, as in all other areas of public life, the Pancasila philosophy is expressed as a strategy to promote harmony, cooperation, and national identity.

Most of the goals and strategy statements in the foregoing section were abstracted from the English language version of Repelita IV, entitled "The Fourth Five Year Plan: Education and the Younger Generation", from The Department of Education and Culture, 1984.

### 9.2.3 Structure of Higher Education

#### 9.2.3.1 University System

The university system consists of 45 public institutions of higher education, of which one is an Open University, 10 are IKIPs devoted primarily to the training of teachers, and four are specialized technical institutes. Seventeen of the universities have diploma, non-

degree polytechnical programs to provide postsecondary technical and agricultural education in addition to other regular academic bachelor degree programs. These units are referred to as the polytechnics, but administratively are under the aegis of the universities with which they are associated. The Open University and the polytechnics will be treated in greater detail below. The IKIPs, or teacher preparation institutions, because of their importance to the whole education sector, are also detailed in Chapter 8.

Nine institutions are authorized to grant master's degrees and doctorates: University of Indonesia (UI), Institute of Agriculture at Bogor (ITB), Institute of Technology at Bandung (ITB), University of Padjajaran at Bandung (UNPAD), University of Gaja Mada at Jogjakarta (UGM), University of Airlangga at Surabaya (UNAIR), and the IKIPs of Jakarta, Bandung and Malang. These are the most prestigious institutions of higher education in Indonesia. Each is at least 21 years old, and the oldest, UGM, is 36 years old. Four of them -- UI, IPB, ITB, and UGM -- have been selected to participate in the World Bank 17 Project to improve their graduate programs through the Interuniversity Center for Improving and Developing Instructional Activities. Participation in this project will enable them to cooperate in the production of new teaching materials and curricula, and to train their teaching staffs through short course and workshop attendance.

The tertiary system provides non-degree diploma programs for one, two, three, and four years in what are termed D-1, D-2, D-3, and D-4 programs. There is also a three-level degree structure consisting of the Sarjana 1 (bachelor's degree) or S-1, the Sarjana 2 (master's

degree) or S-2, and Sarjana 3 (doctoral degree) or S-3 programs. The S-2 and S-3 levels are postgraduate programs of varying length, depending on the specialty.

These public universities are under the Director General of Higher Education. Below the Directorate General are four directors: the Director of Academic Affairs, the Director of Student Affairs, the Director of Private Universities, and the Director of Research and Community Affairs.

Within each university, there is a rector, who is the chief executive officer; he is assisted by three vice-rectors: a vice-rector for curriculum, for administration and finance, and for student affairs. Also reporting to the rector are the deans of each of the faculties in the university. Each dean is served by three assistant deans: one for curriculum, one for administration and finance, and one for student affairs.

The next lower echelon is the departments. Each department has a department head, professional personnel, a secretary, and, where appropriate, a lab director.

In addition to the 45 public universities, there are 553 private institutions of higher education. They vary greatly in quality and size. The private institutions are regulated by the MOEC under the Directorate of Higher Education, which has created nine Kopertis, or regional centers, designed to gather information and coordinate the private institutions within their region. The Kopertis are supported by public funding. This is part of the government's strategy of

considering higher education as an organic whole (Pola Tinggi) encompassing both the public and private sectors.

Policies dealing with students and student life are another aspect of university administration. In Indonesian universities there is no student governance mechanism. Since 1978 any student political activity is supposed to take place off-campus and outside the university framework. The task of the directors of student activities is to organize and provide extra-curricular activities for students through clubs, sports programs and other cultural and youth-oriented programs.

Administration and supervision of the Universities are coordinated through the Directorate General of Higher Education in Jakarta. The civil service framework provides the basic salary and promotion scale. The basic civil service scale and corresponding salaries for university teaching personnel are shown in Figure 9.2.

FIGURE 9.2

UNIVERSITY TEACHING TITLE AND  
CORRESPONDING CIVIL SERVICE RANK AND SALARY RANGE

TITLE	CIVIL SERVICE RANK	MONTHLY* SALARY RANGES Rupiah
Teaching Assistant (Asisten Ahli)	IIIa - IIIc	81,000 - 190,300
Young Lecturer (Dosen)	IIIId	90,800 - 200,200
Lecturer (Lektor Muda)	IVa - b	93,200 - 231,200
Associate Professor (Lektor Kepala)	IVc	104,500 - 242,300
Professor (Profesor)	IVd - e	110,400 - 265,600

\* Within each rank are years of service salary steps.

Source: MOEC data, 1985. Chart: SRG. (\$1 U.S. = +1120 Rupiah in October 1985)

Figure 9.2 shows the instructional staff ladder and the corresponding civil service scale and salary. The monthly salaries in each civil service rank are also a function of years in service within rank. Thus, a person in rank IIIa in the first year received 31,000 Rp./mo., but if he/she were in the 24th year of the same IIIa rank (not having been promoted to rank IIIb), that person would receive 171,000 Rp./mo. These salaries are a basic minimum, as there are also subsidies and various special payments for special services, such as service on committees, or service as a thesis advisor.

Promotion from Teaching Assistant to Young Lecturer and on up through the ranks is determined by a combination of years of service in rank, approval of one's supervisor, and/or by committee peer review. At the upper end of the scale, for promotion to professor, a point system is utilized based on numbers of points for degrees held, workshops attended, books written, and research projects carried out. Professors are formally appointed by the President of the Republic.

Those who serve as administrators in higher education receive special pay allotments over and above their civil service ranking. Few administrators receive any special training for their roles as department heads, deans, assistant rectors, or rectors. This lack is recognized as a special problem in university administration.

Amidjaja, a former Director General of Higher Education, wrote in 1983:

Weakness in managing the conduct of both academic and administrative activities is the prevailing situation in higher education institutions in Indonesia. A career in higher education

management at tertiary institutions is not attractive enough for university graduates with proper qualifications. Besides competition with the private sector, the importance of knowledge and skills in the management of education is not well perceived by teaching staffs which, de facto, occupy most of the available management and administrative positions in higher education institutions. (Amidjaja, 1983, p. 11)

Management is a separate theme in this Sector Review and is treated independently in Chapter 3. There is a pressing need for a study of management and administration of higher education, because the success of the system's expansion and the preservation and enhancement of the system's quality will depend on skilled leadership and modern management systems.

#### 9.2.3.2 The Open University

The Open University (OU) was established in 1984 with very little time for planning. The primary purpose of the Open University is to increase the capacity of higher education to meet national development needs for university graduates. It is expected, for example, that by 1990 the OU will enroll 500,000 students per year. The size of this enrollment will help to take up part of the shortfall in absorptive capacity of the universities, which was set at 6.2% of the 18-24 age cohort by Repelita IV, but which is expected to be less than that by 1989, according to the director of the Open University. Another purpose of the OU is to provide an opportunity for senior secondary school graduates, employed and unemployed, young and old, to obtain tertiary education.

The Open University offers both diplomas at the D-3 level and degrees at the master's level. It involves a self-study approach based on specially designed instructional materials and a limited tutorial system. The tutorials are special lectures offered three times a semester. Based on self-study at home and the tutorials, the student has two take-home exams accounting for 15% each of the final grade, plus a final in-house exam accounting for 70%. The Open University has 32 branches with 64 study centers spread throughout the country. The branches are housed within the existing public universities, with two study centers per branch.

The Open University has a permanent staff of 360, of whom 40 are "faculty" members. Tutors are hired by semester. There are approximately 3400 tutors, of whom 600 are for teacher education programs and 2800 for other, non-teacher education programs. The Open University utilizes modern instructional techniques including computer grading and management of exams, and materials designed for self-study. The student registers, picks up his or her materials COD (cash on delivery) at the post office, and is then expected to work independently and in small groups. The small, peer groups provide interpersonal stimulation to compensate for the absence of a campus community. They also provide mutual reinforcement. Many of the faculty are teaching personnel from prestigious universities who work part-time for the Open University.

The Open University has no campus or academic infrastructure. The staff consists only of administrative personnel, faculty, and the instructional designers who prepare and publish the course materials and

run the computerized component of the system serving the part-time tutorial staff.

Only senior secondary school (Sekolah Menengah Atas or SMA) graduates who have taken the university entrance exam are eligible to register at the OU. Usually those who apply to the OU have entrance exam scores which did not place them high enough up on the list to be admitted to any regular public institution. The diplomas and degrees granted by OU will be equal to those offered by the regular public institutions. As the Open University has been operating for only a year, there have been no graduates to date.

#### 9.2.3.3 Teacher Training Institutions (IKIPs)

Teacher training at the postsecondary level takes place in 30 different public institutions, and also in the private sector. There are 10 public teacher training institutions (IKIPs) in the country. In addition, there are also 20 colleges of education located in various universities nationwide. These tend to be smaller than the IKIPs, but they provide a complete program for the training of teachers. Because the teacher education function is of special importance in an education sector review, a complete chapter (Chapter 8) of this report addresses the function of the IKIPs and colleges of teacher education.

#### 9.2.3.4 Polytechnical Institutes

The polytechnical institutions train higher level manpower and have a balanced, industry oriented program. The programs of studies at the polytechnical institutes stress linkages between applied engineering and commercial theory and their practical use in industry and business. The

oldest polytechnic is the Polytechnical Institute for Mechanics at the Bandung Institute of Technology (Institute Teknologi Bandung or ITB) which has been in operation since 1967. Six more polytechnic institutes were built with a loan from the World Bank (W.B. Loan VII and Loan XIII), and began operation in September 1982 with curricula in mechanical, electrical, electronic, and civil engineering. They are located in Medan, Palembang, Jakarta, Bandung, Semarang, and Malang.

Under W.B. Loan VIII, 11 more polytechnical institutes are being planned and built, to be located at provincial universities in the provincial capitals. They are scheduled to open in 1986. By the 1990s, there should be 32 polytechnical institutes throughout the country.

As these polytechnics are administered within existing universities (although separate facilities are constructed for them), there does not seem to be an increase in the number of universities. However, the development of these polytechnical institutes at the tertiary level represents a very significant growth in the Indonesian public higher education sector during the past five years. A third phase, scheduled for 1987, which calls for the development of 10 more polytechnical schools, has been delayed for the present, pending consolidation and staff development at the existing 17 polytechnics. The 10 projected polytechnics would be located in selected provincial capitals.

A special center, the Polytechnic Education Development Center at Bandung, trains 300 teachers per year for the polytechnics and is expected to increase its capacity to 600 per year. Its program of training runs from 6 months to one year, depending on entry level of the

trainees. The training staff are professors from ITB, Swiss faculty members, and a number of other nationals.

An additional polytechnic expansion program is being planned by the Government of Indonesia in cooperation with the Asian Development Bank. This project, which has already been approved, will create six agricultural polytechnics and a complementing agricultural center for training the faculty of these schools. The program was in the planning phase as of October 1985.

Although the polytechnics are under the authority of the rector of the university with which they are associated, they have their own budgets that, through the university, are earmarked for the polytechnics.

The 17 polytechnics will graduate approximately 7,000 students per year. The coordinator of the polytechnic project reported that BAPPENAS, the national planning unit, estimates the need for 14,000 graduates per year, thus, explaining the continued thrust in this area.

The polytechnics offer the D-2 and D-3 levels in civil, mechanical, and electrical engineering. A later program development phase will add telecommunications, power and energy, chemical process engineering, air conditioning and refrigeration, aeronautics, and ship building. There are plans to add business and commerce programs at six polytechnics.

The cost per student of polytechnic education is calculated at about \$1,000 U.S. per year per student. The student pays tuition of 108,000 rupiah per year, plus a materials, work clothing, and lab fee of about 45,000 rupiah (\$1 U.S. = 1120 rupiah in October, 1985). At the

polytechnic at Bandung, of the 2,000 who applied for admission in 1984, only 7% were accepted.

The major concerns in the polytechnic program are finding and training teachers, assuring that programs are relevant and up-to-date to meet national needs, and avoiding overproduction of graduates in specific areas.

#### 9.2.3.5 Other Higher Education Institutions

In addition to the public and private sectors of higher education under the Ministry of Education and Culture, other governmental departments and ministries also have some postsecondary level academies, colleges and universities. There are at least 17 such institutions.

Finally, there are 10 Islamic universities (IAIN) (State Institutions of Islamic Religion) under the direction of the Ministry of Religious Affairs. All the foregoing are small institutions with enrollments from 1,000 to 5,000 students.

#### 9.2.4 Higher Education Programs

##### 9.2.4.1 Enrollments

Enrollments in Indonesian higher education have experienced a steady upward trend, as shown in Table 9.1.

Data in this table show that over the past 10 years there has been an average increase of 11.79% per year. The increase in student enrollments in the 10-year span was 3.25 times that of the initial 1974/75 year.

Data in Table 9.2 demonstrate the pressure on the system by those applying to higher education as of September, 1984. Of the 724,856 who

TABLE 9.1  
GROWTH IN STUDENT ENROLLMENTS  
BY YEAR, 1973/74 - 1984/85, PUBLIC HIGHER EDUCATION  
(S-0 and S-1 Programs)

Year	Total Student Enrolled			% Increase
	S-0	S-1	Total	Per Year
1977/85	0	118,910	118,910	-
1975/76	0	131,226	131,226	10.35
1976/77	0	150,298	150,298	12.69
1977/78	0	174,683	174,683	16.22
1978/79	0	196,734	196,734	12.62
1979/80	26,060	214,826	242,886	23.46
1980/81	35,923	236,824	272,747	12.29
1981/82	45,818	260,844	306,662	12.43
1982/83	54,186	282,620	336,806	09.82
1983/84	59,422	303,037	362,459	07.61
1984/85	62,301	324,059	386,360	06.59

Source: DGHE, 1985. Special Memorandum.

Ave. = 11.79%  
per year

TABLE 9.2  
ADMISSIONS TO PUBLIC HIGHER EDUCATION  
S-1 (BACHELOR LEVEL - 4 Yrs) PROGRAMS NATIONWIDE\*

Applied For Admission	ACCEPTED NEW STUDENTS :		TOTAL	Total
	via H.S. Achievement Scores**	via Examination	Admitted	Enrollment Nationwide (all 4 years)
724,856	6,614	131,583	138,114	401,520

\* Represents 49 public institutions

\*\* A recent, non-examination mode of entry into the university based on high school scholastic achievement.

Source: Report of the DGHE, 1984/85, PP. 74-75.

applied for admission to the university system in 1984, only 138,114 (19%) were able to gain admission. Slightly less than 5% of those admitted came in via the non-exam, high school achievement route. The entering class represented 34% of those enrolled in public higher education.

The apparent discrepancy between the 401,520 total enrollment reported in Table 9.2 and the total enrollment of 386,360 reported in Table 9.1 is accounted for in the inclusion of 49 institutions in Table 9.2 (ASTIs of Bandung and Denpasar, and ASKIs at Surakarta and Padang Panjang) rather than the usual 45 represented in Table 9.1. These four art institutes are sometimes not included in higher education statistics, although they should be, since they enroll students at the tertiary level.

Enrollments in private higher education are shown in Table 9.3. In 1984, 55% of those who applied were accepted.

TABLE 9.3

ADMISSIONS/ENROLLMENTS IN PRIVATE HIGHER EDUCATION  
AT THE UNDERGRADUATE LEVELS S-0 AND S-1 (Sept. 1984)

APPLIED	ACCEPTED	TOTAL ENROLLED
258,407	142,714	477,846

Source: DGHE, 1985

The 477,846 students in the private sector, and 401,520 in the public sector comprise the total of 879,366 students enrolled as of September 1984 in university undergraduate programs in Indonesia.

Private higher education enrollment thus represents 54% of the total undergraduate enrollments in the country.

Evidence of the intense pressure on postgraduate programs at public universities is revealed in Table 9.4. These data show acceptance rate of 67% for S-2 (master's programs) and a 38.8% acceptance rate into S-3 (doctoral programs). In 1984/85 401,520 students were enrolled in undergraduate programs; therefore, the 5,032 students in postgraduate programs that year represented only .0125% of the total undergraduate population. The 2,292 who applied to S-2 and S-3 programs, represented 12% of the 19,163 students reported to have graduated at the undergraduate S-1 level that year. It appears, therefore, that the pressure for entrance into graduate programs is not so intense as for entry the undergraduate level; however, national need for advanced human resources in a rapidly modernizing economy would suggest that these low percentages of persons applying and being admitted to postgraduate education is a serious constraint on social and economic development.

TABLE 9.4

ADMISSIONS AND ENROLLMENTS AT PUBLIC  
POSTGRADUATE LEVELS, 1984/85

<u>APPLIED</u>		<u>ACCEPTED</u>		<u>STUDENTS ENROLLED</u>		<u>GRADUATE</u>	
S-2	S-3	S-2	S-3	S-2	S-3	S-2	S-3
Total: 1,898	394	1,273	153	4,043	989	112	117

Source: DGHE Report 1984, P.77

Another indicator of admissions pressure is the projected population growth in the 18-24 age cohort and the projected annual number of high school graduates compared with the projected annual admissions into the tertiary system. These data are shown in Table 9.5.

TABLE 9.5  
 PROJECTED POPULATION AGED 19-24, HIGH SCHOOL GRADUATES  
 AND NEW STUDENTS ADMITTED INTO PUBLIC UNDERGRADUATE UNIVERSITY  
 PROGRAMS, BY YEAR (IN THOUSANDS)

	AGE COHORT 18-24	H.S. GRADUATES	NEW STUDENTS (PUBLIC) AT "D" & "S1" LEVELS	PERCENT H.S. GRADS TO BE ADMITTED
1982/83	-	581.0	-	-
1983/84	15,667.6	666.1	250.0	37.5%
1984/85	18,166.8	720.7	288.4	40.0%
1985/86	18,514.4	783.0	312.0	39.8%
1986/87	18,900.1	875.5	339.1	38.7%
1987/88	19,327.8	937.7	379.0	38.9%
1988/89	19,786.9	1,080.6	421.6	39.0%

Source: REPELITA IV

Table 9.5 shows the projected average percentage of students admitted into tertiary education to be 38.98% of the total projected high school graduating class during the years of Repelita IV. The population of high school graduates is expected to almost double between 1982/83 and 1988/89, and the projected admissions to the universities is projected to increase by almost 60% during the Repelita IV period. Despite this increase, the proportion of graduating high school students to be admitted to initial higher education during Repelita IV will remain at about 39%. Thus, the considerable effort made by the public higher education system to accommodate population growth in this age cohort still results in maintaining, but not increasing, the

percentage of high school graduates who are able to gain admission to public higher education.

Examining Tables 9.2 and 9.5, one sees that the actual admissions (Table 9.2) compared with the projected admissions for 1984/85 (Table 9.5) show that 724,856 persons actually applied for admissions compared to 720,700 who were projected to apply by Repelita IV, thus exceeding the estimated Repelita IV target by some 23,000 students. It is clear that there is accelerating pressure on higher education to grow, expand, and develop.

The Open University began operation in 1984. Its enrollment is shown in Table 9.6.

TABLE 9.6

TOTAL ENROLLMENT, OPEN UNIVERSITY, BY PROGRAM LEVEL, 1984/85*						
Level	D-1	D-2	D-3	S-1	S-2 + S-3	Total
No.	4,282	8,528	0	42,099	0	54,909

\* First year of operation: 1984.  
Source: MOEC - Balitbang Dikbud)

For a discussion of enrollments in the IKIPs the (teacher education programs) and in the 20 teachers colleges in the universities, the reader is referred to Chapter 8, where these are treated separately. Table 9.7 provides a summary of 1984/85 enrollments at the 10 IKIPs. These data show that the IKIPs account for 15.88% of the total student enrollment at the undergraduate level in public higher education. Figures for the 20 education faculties within the universities were not available.

TABLE 9.7

ENROLLMENT IN IKIPs  
September 1984

School	Enrollment
IKIP Jakarta	6,524
IKIP Bandung	9,901
IKIP Semarang	4,780
IKIP Yogyakarta	9,169
IKIP Surabaya	4,771
IKIP Malang	5,972
IKIP Medan	5,668
IKIP Padang	4,749
IKIP Manado	4,290
IKIP Ujung Pandang	7,956
TOTAL	63,780

Source: Report DGHE 1984/85, pp. 74-75.

9.2.4.2 Instructional Staff

In 1984/85, there were 23,837 permanent teaching staff in the public universities, and 16,171 part-time faculty. Table 9.8 shows the distribution of the full-time faculty members at public higher education institutions by level of educational preparation.

TABLE 9.8

EDUCATIONAL LEVEL OF PERMANENT TEACHING  
FACULTY IN PUBLIC HIGHER EDUCATION, 1984/85

	Diploma Or SM--(3 yrs)	Sarjana (4 Yrs)	Pasca Sarj.(5 Yrs)	(6+ Yrs) Doctorate	Other	Total
No.	828	19,290	2,252	1,073	394	23,837
Percent	3.5	81	9.4	4.5	1.65	100

Source: Report DGHE, p. 91

More than 80% of the tertiary teaching staff hold only the bachelor's degree or less. Only 4.5% hold the doctorate, and these are grouped primarily in the nine universities offering doctoral programs. Consequently, the actual number of doctoral graduates teaching in most universities is low -- from 0 to 15 or 20 per school. Only 9.4% hold the master's degree, and the percentage of those with the S2 or S3 in the entire teaching staff of 23,837 is 13.94%. This is disturbingly low for a university system, and indicates the teaching faculty is at a disadvantage in dealing with the issues of advanced knowledge expected as a responsibility of higher education.

The levels of preparation of the part-time faculty are shown below in Table 9.9. Of the total, 65% are at the S-1 level, 4.6% at the master's level, and 3.8 % at the S-3 level. Almost 17% have less than a bachelor's degree. These figures are not unexpected, given the teaching demands of the systems, part-time faculty are used to supplement and complement the regular full-time staff. It is clear that in the

TABLE 9.9  
PART TIME FACULTY IN PUBLIC  
HIGHER EDUCATION BY FORMAL  
EDUCATION PREPARATION, 1984/85

	3 Yrs. Program Or Less	Bachelors S-1 (4 Yrs)	Masters S-2 (5 Yrs)	Doctorate S-3 (6+ Yrs)	Other	Total
Number:	2,709	10,442	759	622	1639	16,171
Percent:	16.7	64.6	4.7	3.8	10.1	100

Source: Report of DGHE, 1984/85

Indonesian system, the part-time faculty, by comparison with full-time faculty, are even less prepared for university teaching. This is a cause for serious concern.

The permanent higher education personnel are also located on a civil service career scale. This scale is shown in Figure 9.2, along with the basic salary schedule. The great majority of teaching personnel are in the middle of the career scale.

The higher education system has experienced a slight, increasing, upward trend in the percent of permanent staff in relation to part-time staff, as shown in Table 9.10.

TABLE 9.10  
AVERAGE PERCENT OF PERMANENT STAFF IN PUBLIC  
HIGHER EDUCATION, 1980/81 TO 1984/85

Year	1980/81	1981/82	1982/83	1983/84	1984/85
Part-time	46	45	46	43	38
Permanent	56	55	54	57	62

Source: Computer Center, UI

An indicator of faculty quality can be inferred by determining the degree to which faculty are able to participate in staff development (inservice) activities to upgrade their skills and knowledge, either in content area or in teaching methodology, or both. Table 9.11 shows the level of faculty development as of March 1985. Data in this table show that 3,089 faculty members received some type of advanced training during the 1984/85 year; 2,242 of these (about 73% of the total) studied in-country. The total number of persons who participated in staff

TABLE 9.11  
 FACULTY DEVELOPMENT ACTIVITY  
 IN PUBLIC HIGHER EDUCATION  
 BY PROGRAMS, LEVEL AND PLACE

A. Participants Sent to Study in-Country		B. Participants Sent to Study Abroad			A + B		
Non-Degree	S-2	S-3	Non-Degree	MA	Ph.D	-	
Total	174	1,583	485	117	324	406	Total: 3,089

Source: DGHE - Report 1984/85

development at home and abroad (3,089) represents almost 13% of the entire faculty nationwide. This is a creditable effort, but given the already low level of faculty with postgraduate degrees, it is an effort that must be maintained and increased if faculty quality levels are to be raised significantly. Further, the Repelita IV target of almost doubling existing faculty will reduce the percentage of faculty with advanced training if the new faculty members begin teaching with only an S-1 degree. The recently established Inter-University Center (IUC) Project will help to improve faculty educational levels.

Regarding the Indonesian higher education faculty, it will be recalled (see Figure 9.2) there are five levels in the career ladder each corresponding to a civil service bracket as follows (Figure 9.3).

Advancement and promotion are by means of a point system based on teaching, public service, and research, with special hurdles at certain points, particularly at the upper reaches of the ladder.

FIGURE 9.3

CIVIL SERVICE RANKS OF UNIVERSITY STAFF

<u>Title</u>	<u>Civil Service Bracket</u>
Teaching Assistant	IIIa - IIIc
Young Lecturer	IIId
Lecturer	IVa - b
Assoc. Professor	IVc
Professor	IVd - e

Retirement is a function of age and rank in the civil service system: age 60 is the retirement age for those in IIIa - IVc, and 65 the age for those in IVd - IVe. After age 65, a retired professor is permitted to teach on a year-to-year basis until age 70. New professors are on probation for the first year and must take an exam in civics at the end of the year, which almost all pass. There is a second year of probation, after which one is given permanent status.

Because of the effort to upgrade the university teaching staffs, at any one time approximately 10% of the faculty members are engaged in some kind of advanced staff development provided by the MOE. These staff development activities are enhanced by a scholarship program for study abroad, especially in high priority areas such as science and technology. One World Bank project provides for 21,000 person years of overseas study, or the equivalent of 700 doctoral degrees at the postgraduate level.

There is a great deal of variance in levels, numbers, systems of promotions, and other related matters for instructional staff at private institutions. The MOEC is concerned about the level of instruction in private universities. To improve instruction, the MOEC assigns 3,000 public university faculty members to teach in private institutions.

Many public university faculty members hold second jobs in private universities, providing a noteworthy interplay between the public and private sectors.

The quality of the university faculty overall gives cause for concern. As shown in Table 9.8, only 4.5% have doctorates and only 9.4% have master's degrees. Combined, these figures represent only 14% of the professoriate with postgraduate degrees. This situation is of special concern in light of the projection that in the next three years (1986-1989) the 45 public universities will need to have 14,000 new faculty members to meet expanding enrollments. There are no estimates of future teaching staff requirements for the private universities, but presumably they are also great, given the private sector growth rate.

#### 9.2.4.3 Curriculum and Materials

Indonesian higher education has a full spread of courses and programs, with increasing emphasis on the exact sciences and technologically-oriented programs, evidenced by the construction of 17 polytechnics in the past five years. Programs may be categorized around three themes: practicality, relevance, and nationhood. There is great emphasis on the need for education to lead toward practical applications with the ultimate aim of employment for the graduate or the diploma holder. The second theme of relevance is addressed by ensuring that the programs are grounded in the Indonesian context and focused on Indonesian problems. The third theme that underlies many of the curricular statements is the concern for nation-building -- not only in the economic and technical realms, but also in the cultural and political realms as well.

The spread of offerings in the public universities is shown in Table 9.12. As the listing was drawn up in 1984, it omits the Open University, which was not in operation at that time.

The programs of the polytechnic schools represent a strong turn toward the technology, agriculture, and engineering areas in Indonesian higher education. At the D-2 and D-3 levels, stress is placed on civil engineering with supporting programs in mechanical and electrical engineering. In the second development phase, programs will be added in telecommunications, power and energy, chemical processes engineering, air conditioning and refrigeration, aeronautics, and ship building.

Regarding instructional materials and library facilities, Table 9.13 shows library use and capacities at the public higher education institutions during the 1984/85 academic year.

Considering a total enrollment of 401,520 students at the public higher education undergraduate level, the library-use factor is less than 20% per week. The average total of books borrowed per week is 9%, and the available seats would not serve even 3% of the total student body, taken in the aggregate. For tertiary level education where individual out-of-class study and research are usually considered to be equal at least to time spent in the classroom, it is clear that this function cannot be served in any meaningful way by existing library and reading room facilities.

The GOI set a target in Repelita IV to develop 26 provincial libraries, and there is a translation program aimed at providing text materials in the Indonesian language in the priority areas of agriculture, science, economics, and engineering. The IKIPs have a



TABLE 9.13

LIBRARY USE AT PUBLIC HIGHER EDUCATION  
FACILITIES: (48 Institutions Reporting)

	Total Ave. Times Used per Week	Average Total Books Borrowd/Wk	No. of Seats Available in Library
	78,497	37,572	9,666
PRO-Rated TOTAL:N-48:	1,635	783	201*
N : 29** :	2,707	1296	333

\* 19 institutions of the 48 reported no seats available, no books borrowed, and no use figures

\*\* 29 excludes the 19 non-reporting schools

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Source: DGHE's Report, p.98

translation program targeted at 120 titles, of which 44 have already been accomplished.

Another initiative is being carried out at the Open University where instructional materials for basic coursework at the Sarjana level are being developed by Indonesian authors for use as individualized instructional materials. They are pilot tested and then revised. These materials promise to become helpful input for the other universities in the near future. The Open University is now experimenting with a variety of print and non-print instructional materials. If successful, these materials could have an important beneficial effect on instruction in the regular university programs.

Any shortfalls in materials, in number and in quality, mean that students must rely on the professors' notes and lectures. The

professors themselves have little opportunity to do advanced reading and research on their own. Parts of grants and loans from donors are earmarked for improving laboratories, equipment, and materials, but these will most certainly be concentrated in the priority areas, particularly in technical education and in the sciences. A most important effort is being made to provide quality materials in the polytechnics.

Instructional materials at the university level are also a function of a nation's books and publishing situation. For example, the cost of imported books is prohibitive. It is reported that the book distribution system is lacking, and that, in general, reading habits are not well established among the population. The dosen in Indonesian universities often rely on handouts to make up for the lack of library resources. In the absence of adequate libraries, there are no reading lists to assist a student in self-study to go beyond the basic minimal requirements of the course. Further, many of the latest books in a field of study are in a language other than Indonesian, putting them beyond reach of the average student. These circumstantial factors contribute to the absence of a genuine learning community. Over the long run such problems are amenable to remedial action, but in order for this to occur, the problems need to be recognized and analyzed. Only then can appropriate corrective strategies be developed and implemented.

#### 9.2.4.4 Facilities and Equipment

The report of the Directorate General of Higher Education (DGHE) for 1984/85 provides data on facility and equipment indicators, such as

square meters of campus areas, equipment per institution, and book holdings. However, there are no reports on instructional equipment per se. Because of variation among the universities, the actual information provided in the DGHE's report are offered here. Table 9.14 shows the type of equipment reported and the book holdings in public higher education nationwide. If the number of titles reported (912,916) is divided by the student enrollment (401,520), the figure produced is only 2.2 book titles per student. Considering that students often take 10 to 13 subjects per semester, it is clear that this number is quite low.

Table 9.15 shows classrooms, laboratories, libraries, seminar rooms, auditoria, research rooms and teacher offices given in square meters. This table is also taken directly from the DGHE's report. Considering that the total square meters of classroom space is reported at 364,163 m<sup>2</sup>, and that an average size classroom is probably 10m x 8m, or 80m<sup>2</sup>, and dividing 364,163 by 80, the resulting figure is 4552 classrooms. Dividing the total number of 401,520 students by 4552 produces 88 students per room. It must be realized, however, that these hypothetical 88 students would not all be in class at the same time, which might halve the number to 44. Another approach is to divide the total number of students by 20, the number in an average class. This would give a quotient of 20,076 classrooms needed to accommodate the group. If this amount is divided by 2 (10,038) to allow for scheduling at different times, and then multiplied by 80m<sup>2</sup>, the product is 803,040 m<sup>2</sup>. This suggests that the 364,163m<sup>2</sup> reported for 1984/85 is inadequate space for the student body enrolled.

TABLE 9.14

EDUCATIONAL EQUIPMENT/CAMPUS AT PUBLIC HIGHER EDUCATION  
(September 1984)

No	INSTITUTIONS PERGURUAN TINGGI	BUKU <sup>Books</sup> PERPUSTAKAAN		KENDARAAN RODA EMPAT KEATAS									KEN. RO. DUA	
		Titles Judul	Copies Exemplar	Sedan	Jeep	Pick Mini Bus	Bus	Truck	Ambu- lance	Pemad- Kebak	Trak- tor.	Lain lain	Speda Motor	Speda
1.	Univ. Indonesia	61.063	128.410	16	20	26	6	-	2	-	-	6	32	-
2.	IKIP. Jakarta	11.556	24.267	1	-	7	3	-	-	-	-	1	5	-
3.	Inst. Pertanian Bogor	31.092	64.766	1	13	25	6	1	-	-	-	-	4	-
4.	Inst. Teknologi Bandung	52.089	95.759	3	2	10	12	1	-	-	-	1	20	-
5.	Univ. Padjadjaran	29.689	60.717	16	-	6	2	-	2	-	-	-	37	-
6.	IKIP. Bandung	14.305	29.192	2	1	2	4	-	-	-	-	-	6	-
7.	Univ. Jenderal Sudirman	5.202	25.387	1	-	11	2	-	-	-	11	-	2	61
8.	Univ. Diponegoro	21.925	45.604	1	4	25	1	-	-	-	-	-	21	14
9.	IKIP. Semarang	12.705	37.542	-	1	7	2	-	-	-	-	-	10	20
10.	Univ. Sebelas Maret	6.859	20.917	2	3	5	4	1	-	-	-	-	21	12
11.	Univ. Gadjah Mada	161.254	299.608	14	3	5	4	2	-	-	-	-	-	8
12.	IKIP. Yogyakarta	56.750	118.040	1	-	4	2	-	-	-	-	-	2	5
13.	Univ. Airlangga	23.033	48.369	-	1	11	3	1	1	-	-	-	-	-
14.	Inst. Teknologi Surabaya	7.328	23.761	4	-	10	3	-	-	-	-	-	6	-
15.	IKIP. Surabaya	13.140	30.955	1	14	1	-	1	-	-	-	-	16	-
16.	Univ. Brawijaya	21.222	42.913	2	11	13	2	-	-	-	-	-	9	21
17.	IKIP. Malang	27.575	91.571	1	2	5	4	1	1	-	-	-	6	-
18.	Univ. Jember	26.183	54.715	5	3	5	3	-	-	-	-	-	14	6
19.	Univ. Syiah Kuala	8.854	15.609	1	17	12	2	1	-	-	-	-	8	17
20.	Univ. Sumatera Utara	31.532	119.858	-	-	-	3	-	-	-	-	-	5	14
21.	IKIP. Medan	6.513	40.440	-	-	4	2	-	-	-	-	-	1	-
22.	Univ. Andalas	21.113	63.894	4	3	1	6	1	-	-	-	5	13	-
23.	IKIP. Padang	25.078	52.162	1	1	13	4	2	-	-	-	-	21	15
24.	Univ. Riau	10.356	21.747	-	-	3	2	-	-	-	-	-	-	-
25.	Univ. Jambi	11.508	24.166	1	1	4	2	-	-	-	-	1	7	5
26.	Univ. Sriwijaya	34.901	72.711	2	-	13	4	-	-	-	-	-	2	3
27.	Univ. Lampung	12.314	25.859	-	1	11	2	-	-	-	-	-	1	-
28.	Univ. Tanjungpura	5.048	21.901	1	2	-	6	-	-	-	-	-	10	48
29.	Univ. Palangkaraya	517	1.085	1	-	2	2	-	-	-	-	1	3	-
30.	Univ. Lambung Mangkurat	5.145	14.816	-	-	4	3	-	-	-	-	-	-	-
31.	Univ. Mulawarman	9.116	19.143	-	4	9	2	2	-	-	-	2	17	-

TABLE 9.14 (cont.)

Institutions PERGURUAN TINGGI	BUKU PERPUSTAKAAN		KENDARAAN RODA EMPAT KÉATAS									KEND.ROD. DUA	
	Titles Judul	Copies Exemplar	Sedan	Jeep	Pick/ Mini. Bus	Bus	Truck	Ambu- lance	Pemad Kebak	Trak- tor.	Lain lain	Speda Motor	Speda
Univ. Sam Ratulangi	7.480	15.558	3	4	2	-	-	-	-	-	-	-	-
IKIP. Manado	13.779	43.161	1	1	1	2	-	-	-	-	1	3	9
Univ. Hasanuddin	31.529	76.380	1	2	1	37	-	-	-	-	-	7	-
IKIP. Ujung Pandang	6.648	37.258	-	1	4	4	-	-	-	-	1	-	-
UNIV. Pattimura	5.637	17.761	-	2	5	3	-	-	-	-	-	7	-
Univ. Udayana	14.040	29.203	1	4	21	4	1	-	-	-	-	15	-
Univ. Mataram	7.590	28.171	1	-	2	2	-	-	-	-	-	3	7
Univ. Nusacendana	14.40	43.645	-	-	12	2	-	-	-	-	-	7	4
Univ. Cenderawasih	11.835	31.445	1	9	4	2	4	-	-	1	-	2	-
Univ. Tadulako	4.633	22.624	1	3	2	12	-	-	-	-	-	1	5
Univ. Halu Oleo	7.289	7.289	-	1	4	1	-	-	-	-	-	-	1
Univ. Bengkulu	2.460	5.166	1	8	3	3	-	-	-	-	-	-	-
Inst. Seni Indonesia	8.243	12.760	1	1	8	-	-	-	-	2	-	-	-
ASTI. Bandung	3.946	11.011	-	-	1	-	-	-	-	-	-	6	15
ASKI. Surakarta	4.368	12.830	-	-	1	-	-	-	-	-	-	-	2
ASKI. Padang Panjang	1.304	3.494	-	1	1	-	-	-	-	-	-	2	11
ASTI. Denpasar	840	2.704	-	-	2	-	-	-	-	-	-	4	2
<b>J U M L A H</b>	<b>912.916</b>	<b>2.136.344</b>	<b>93</b>	<b>144</b>	<b>328</b>	<b>175</b>	<b>19</b>	<b>6</b>	<b>1</b>	<b>14</b>	<b>29</b>	<b>356</b>	<b>308</b>

Table 9.15

EDUCATIONAL FACILITIES IN PUBLIC HIGHER EDUCATION  
(September 1984)

NO	UNIVERSITIES	CLASSROOMS	LABORATORIES	LIBRARIES	SEMINAR ROOMS	STUDIO/AUDITORIUM	RESEARCH ROOMS	TEACHER ROOMS
1.	Univ. Indonesia	16.802	11.098	7.915	3.162	-	-	2.195
2.	IKIP. Jakarta	72.401	5.470	687	310	-	-	1.480
3.	Inst. Pertanian Bogor	10.628	21.441	2.474	3.532	-	-	8.644
4.	Inst. Teknologi Bandung	4.883	25.892	280	2.428	-	-	6.469
5.	Univ. Padjadjaran	9.741	7.034	3.132	4.711	-	-	1.821
6.	IKIP. Bandung	7.951	11.998	1.200	1.821	-	-	428
7.	Univ. Jend. Sudirman	4.567	3.988	280	-	-	-	580
8.	Univ. Diponegoro	4.956	9.074	3.494	1.077	-	-	1.001
9.	IKIP. Semarang	6.439	5.510	866	100	-	-	560
10.	Univ. Sebelas Maret	31.938	9.466	2.358	1.290	-	-	1.450
11.	Univ. Gadjah Mada	26.722	25.906	8.647	2.619	-	-	11.322
12.	IKIP. Yogyakarta	5.546	7.812	1.002	100	-	-	2.455
13.	Univ. Airlangga	10.170	6.918	4.288	2.522	-	-	4.362
14.	Inst. Teknologi Surabaya	9.653	13.457	2.458	1.147	-	-	2.926
15.	IKIP. Surabaya	4.669	3.580	1.410	-	-	-	820
16.	Univ. Brawijaya	6.299	13.345	4.694	1.858	-	-	247
17.	IKIP. Malang	7.252	2.075	1.442	1.326	-	-	1.897
18.	Univ. Jember	8.041	1.412	987	816	-	-	937
19.	Univ. Syiah Kuala	15.992	7.403	1.512	760	-	-	860
20.	Univ. Sumatera Utara	13.196	17.332	3.152	2.324	-	-	400
21.	IKIP. Medan	6.574	1.382	987	848	-	-	488
22.	Univ. Andalas	5.906	4.484	1.458	4.861	-	-	567
23.	IKIP. Padang	6.050	2.062	1.890	888	-	-	551
24.	Univ. Riau	3.240	1.092	832	780	-	-	375
25.	Univ. Jambi	2.435	918	400	-	300	408	600
26.	Univ. Sriwijaya	8.241	3.510	2.862	1.040	-	-	2.351
27.	Univ. Lampung	7.520	2.833	720	1.307	-	-	4.070
28.	Univ. Tanjungpura	7.898	1.854	-	100	-	-	336
29.	Univ. Palangkaraya	4.768	596	654	-	-	-	240
30.	Univ. Lambung Mangkurat	9.484	1.050	890	-	-	-	622
31.	Univ. Mulawarman	4.972	2.136	666	120	-	-	728

TABLE 9.15 (cont.)

NO.	Institutions	Classrooms	Labs	Library	Seminar Rooms	Auditorium	Research Rooms	Teacher Offices
32	Univ. Sam Ratulangi	10.970	8.694	1.870	-	-	-	192
33	IKIP. Manado	8.176	3.017	680	480	-	-	400
34.	Univ. Hasanuddin	12.000	3.789	2.239	785	-	-	1.339
35.	IKIP. Ujung Pandang	11.668	4.651	1.274	848	-	-	395
36.	Univ. Pattimura	3.332	1.152	1.700	-	-	-	548
37.	Univ. Udayana	4.021	3.534	1.325	808	-	-	975
38.	Univ. Mataram	5.926	748	900	275	-	-	299
39.	Univ. Nusacendana	2.418	474	320	-	-	-	277
40.	Univ. Cenderawasih	3.746	1.600	924	625	-	-	-
41.	Univ. Tadulako	5.201	699	525	1.101	-	-	186
42.	Univ. Halu Oleo	1.880	462	130	-	-	-	-
43.	Univ. Bengkulu	1.500	-	960	-	-	-	-
44.	Inst. Seni Indonesia Yogya	5.660	470	300	448	1.345	-	117
45.	ASTI. Bandung	400	900	400	-	2.290	-	-
46.	ASKI. Surakarta	674	-	900	-	-	-	-
47.	ASKI. Padang Panjang	1.137	496	120	-	1.200	-	200
48.	ASTI. Denpasar	600	200	255	-	-	-	300
	J U M L A H	364.163	264.014	78.399	49.011	5.135	408	68.065

A particularly glaring shortage is in teacher offices, with 68,065m<sup>2</sup> allowed for the 24,000 public university teachers. Assuming a small faculty office of 2m x 2.5m, the office should be 5m<sup>2</sup>. Dividing 68,065m<sup>2</sup> by 24,000 faculty members produces a quotient of 2.8m<sup>2</sup> -- almost half the space required. The figures in Table 9.15, show some institutions with no offices, and many others with only a few hundred square meters of space. The clear implications of this is that teaching staff have no place to meet with students, to read, to correct papers, or to do research. This is a serious deficiency at the tertiary level.

Another factor in the availability of space and facilities is the skill and method of scheduling space. It has been shown that skillful scheduling can increase use by a third or a half. For example, double sessions, where appropriate, can be quite cost-effective.

#### 9.2.4.5 Examinations/Evaluation

Entrance to public higher education in Indonesia is primarily by means of a nationwide entrance examination. In 1984, 724,856 sat for the exam, and 138,114 (approximately 19%) were admitted to universities. Those whose scores are not high enough on the list for them to be admitted, have several options: go to work, take the exam the next time (they may take the exam three times), apply to the Open University, or go to a private university. The private universities also have their own examinations for admissions. Because many students are unable to score high on the public examination, they enroll in special private coaching academies to prepare themselves for the next exam. This is quite expensive for the average person. Once in the university, the students, like students everywhere, must take various examinations

course by course. The greatest drop-out rate is said to be in the first year, although no precise figures by school year were found to substantiate this. The drop-out rate throughout the whole four years of the Sarjana program is said to be about 15%. In some fields there is an examination at the end of the program. In most universities a thesis (skripsi) is required of the Sarjana students as the final exercise for the degree. Evaluation of students, then, is based on examinations in the courses, grades received in their studies, final examinations at the end of the course of specialization, and the completion of a thesis. Theses are also required at the S-2 and S-3 levels, the master's and doctorate levels, respectively.

Recently, an arrangement was made to admit 10% of the entering class on the basis of good high school performance. This policy permits proven steady achievers to gain admission to higher education without taking the admission examination.

Computerized admission procedures have been initiated which should serve to protect the integrity of the system against political pressure for special treatment of particular groups.

#### 9.2.4.6 Special Issues

There are six special issues in Indonesian higher education that deserve attention. The first is the growth in enrollments and the implacable pressure from the secondary schools for access into higher education. Should the MOEC continue to provide the usual modes of higher education, or should some new instructional strategy be developed and piloted?

A second issue is that the growth of private higher education

recently exceeded the public sector in numbers of students enrolled. In numbers of institutions, there are 10 times more private institutions than public ones. Should the MOEC continue its policy of assistance to the private sector, or should it reassess this policy and freeze assistance at present levels? While it is true that the MOEC needs to continue to control and regulate the private sector through the Kopertis system, one may legitimately question assigning teaching personnel from the public sector to work in private institutions, when there is already a scarcity of teaching personnel in the public sector.

A third issue lies in the maintenance of quality in a time of tremendous quantitative growth. If budgetary support declines per capita as enrollments rise, how can the system maintain itself in the long run?

A fourth issue concerns the growing importance of technical education in the tertiary level as evidenced by the ambitious polytechnic construction projects. These projects respond to the national need for developing human resources to supply the middle and upper manpower needs of industrial development. Given the importance of this specialized area, should there not be some special coordinating office to link these institutions to one another and to provide for better articulation with feeder programs at the secondary school level?

A fifth issue lies in the weak infrastructure in Indonesian institutions of higher education, particularly in libraries and in lab equipment. Should Indonesia allocate scarce budget resources into this area, for perhaps a five-to-ten year period, to redress these deficiencies? If this were done, what would be sacrificed?

A sixth issue concerns the productivity of the higher education system which shows evidence of students taking twice the normal amount of time to earn their degrees. While much is being done to attack this problem by means of a credit system, more interventions are required. With enrollment pressures from the secondary schools increasing, how long can the system afford to keep students in cycle for such an extended period of time? Should not some priority be placed on this aspect of the education process?

### 9.3 ANALYSIS OF HIGHER EDUCATION

#### 9.3.1 Introduction

This section builds on the review of the status of Indonesian higher education outlined in the previous pages. It identifies needs and examines them in the light of current constraints and plans. Finally, a set of conclusions and recommendations is presented.

#### 9.3.2 Needs

There are nine major needs in higher education. They are stated in priority order below:

- (a) The need to make difficult decisions regarding the pressure of increasing enrollments caused by population growth, improved educational opportunity at the primary and secondary levels, and the increasing social demand for higher education.
- (b) The need to study the financing and budget management of higher education to decide whether to maintain or increase the present level of support, or to restructure the budget.
- (c) The need to develop an overarching information management

system and decision making and policy-formulation program that will encompass public higher education, private higher education, teacher education, and polytechnic education.

- (d) The need to continue and to intensify higher education's drive toward workplace relevance, as evidenced by its recent emphasis on polytechnic education designed to meet more directly the needs for human resource development.
- (e) The need to anticipate the coordination, maintenance and future development of the polytechnic program, so that when the World Bank project coordinators phase out, there will be a continued, coordinated thrust in this recently developed program.
- (f) The need to improve productivity in the universities in order to reduce the amount of time required for most students to complete their programs and to obtain their degrees or diplomas. This includes the need to improve the quality of learning so that graduates obtain the skills required for them to be effective workers and citizens.
- (g) The need to continue working toward a coherent private and public higher education system.
- (h) The need to continue to special studies and research on specific higher education problems, such as internal efficiency and tracer studies, in order to address these problems in an effective way.

### 9.3.3 Plans

Government plans in higher education are expressed at three levels: at the national level through the Repelita, at the administrative and functional level through the Directorate General's 10-year plan for higher education, and at the institutional level for each university, institute, or IKIP. The current national plan, Repelita IV, is in its second year and will end in 1988/89. The higher education plan for the period of 1975-1985 is just drawing to a close and a new one is now being planned for 1985-1995. Each university develops its own master plans for staff development, and curriculum and facilities improvement, within the general plans for higher education and of the Repelita.

In the draft of the 10-year plan for higher education developed by the Director General of Higher Education in October 1985, the following policy issues were identified as guiding the planning: quantity, quality, productivity, relevance, equity, future outlook, and system dynamics. Quantity means addressing enrollment growth. Quality means a concern for improvement in teaching-learning. Productivity means gaining greater efficiency in the system. Relevance means achieving external efficiency and greater practicality in programs. Equity means evening out educational opportunity, particularly in regions outside Java. Future outlook means anticipating problems and opportunities that are not now apparent. System dynamics means being responsive and flexible to change.

The 10-year draft plan is also oriented toward planning for the performance of higher education within the remaining term of the Repelita IV, and planning for higher education to provide for its own

needs programs during the 1985-1995 decade.

The plan calls for data-based planning and policy making. To implement this aspect of the plan, in October 1985 the Director General of Higher Education held a three-day seminar to enable top leadership personnel to hear, discuss, and share ideas and information growing out of 11 baseline studies on themes such as quantity, quality, internal efficiency, external efficiency, and some curricular issues. The three-day conference was meant to prime this leadership group for a meeting in for November 1985 with the rectors. At the rectors' meeting, more complete results of the baseline studies were to be shared as the next step in the final preparation of the 10-year plan. The draft of the 10-year plan is a typed double spaced document of 92 pages, entitled Kerangka Pengembangan Pendidikan Tinggi Jangka Panjang 1985 - 1995, by Sukadji Ranuwihardjo (Director General of Higher Education), 1985.

In addition to the foregoing, planning continues for the expansion of the polytechnic system. Under a loan from the Asian Development Bank, the MOEC plans to build six new polytechnics for specialization in agriculture and one polytechnic teacher education training center in agriculture to provide instructional personnel for the six new agricultural schools.

A third phase of the World Bank loan program is planned for the construction of 10 more polytechnics (in addition to the existing 17 polytechnics) in 10 provincial capitals. This phase, planned for 1987, is presently (October 1985) on hold. Under World Bank Loan XIX of \$93,000,000, there are plans to train abroad staffs for six major research centers in science and technology.

#### 9.3.4 Constraints

The four most important constraints in Indonesian higher education are: (1) the limits to the absorbtive capacity of the higher education system, (2) the financial limits in meeting simultaneously both growth and upgrading, (3) the low educational levels of instructional personnel, and (4) the existing managerial system and skill levels of administrators.

With a population growth rate of 2.3 and a primary and secondary education system that are absorbing and graduating more young people, the universities are under pressure to meet the enrollment demand. However, the higher education system is approaching the limits of its absorbtive capacity unless drastic and/or innovative measures are taken. The budget resources allocated to higher education have not kept pace with enrollments. World recession and the oil glut have affected Indonesia and cut back on anticipated national earnings. This in turn has meant more austerity in the budget at a particularly crucial time for higher education. Outside resources have supplemented national ones, particularly in development funding. The Director General of Higher Education indicated that his directorate had some \$600,000,000 (U.S.) from external sources in loan and grant money to be used for development in 1983-1988. The routine budget, however, is at the breaking point, threatening to reduce the amount per student per year required to maintain the present program.

Viewed from another perspective, the situation might be ameliorated somewhat by increased efficiencies, thus obviating the need for massive budget increases. However, this solution would have to be carefully

studied. (One economy, for example, might be achieved via mass instructional techniques at the undergraduate level.)

A third constraint lies in the inadequate preparation of instructional personnel, with only about 15% holding postgraduate degrees. This constraint is an especially serious one in higher education, because knowledge and advanced learning are essential components of instruction at this level, for which there is no substitute.

The structure and functioning of the management system is another constraint because of the size of the system, the accelerated growth of the system, and the emergence of new functions and emphases such as polytechnic education that have not yet been addressed from an overall management point of view.

In addition to these constraints, the lack of a fully developed and integrated policy study and analysis body, linked to the planning apparatus, may be considered a constraint that cuts across the entire system.

### 9.3.5 Issues

The issues deserving particular attention in the education sector are external efficiency, internal efficiency, access and equity, administration and supervision, and costs and financing. These will be dealt with separately below.

#### 9.3.5.1 External Efficiency

External efficiency in education refers to the success graduates have in finding jobs, especially in the fields for which they were

trained, and how well they perform on the job. There is little reliable data on the success of tertiary graduates in finding jobs, although it is commonly assumed that those graduating from scientific and technical programs find appropriate jobs more quickly than those coming from the non-science and non-technical fields. In order to probe these assumptions and to gather data about higher education graduates, a tracer study was conducted in 1984 to survey the 1984/85 graduates at 23 institutions -- 10 public and 13 private. As of October 1985, the study was not yet completed. Accordingly, there are no factual data with which to determine specifically the kinds of jobs graduates get and how fast they get them. Looking at this issue from another perspective, however, it is known through manpower studies that required human resources are not available in significant number and quality to meet the needs of Indonesia's rapidly modernizing economy.

External efficiency is a complex topic that goes beyond the purely statistical realm, as it has important sociological aspects. For example, certain universities and programs have greater prestige than others; thus, graduates of these institutions are favored in the job market. Some persons, wanting a tertiary degree at any cost, enroll in any program that will accept them, regardless of their intent, aptitude or talent for the particular field, and without any real intention to work in that field. For example, high school graduates, wanting any postsecondary diploma or degree, will enroll in a field such as education without any intention of teaching after graduation. Another aspect of the prestige element is the extent to which blue collar and white collar considerations affect the outlook of families and their

school-attending youth. Some youth refuse to take certain jobs or to enter particular fields because they and their families believe such employment (e.g., such as factory or workshop work) is not at a social level high enough for a person with a postsecondary education. Students, defying market realities and earnings potential, will enroll in a prestigious field like law which is usually oversupplied, rather than in a field like mechanical drafting or electronics where there may be more real employment possibilities. These sociological factors, intangible as they seem, exercise powerful forces in considerations of external efficiency.

A further aspect of external efficiency is the performance of graduates in the labor market, and the perceptions of who hire these graduates. Through sample survey techniques, it is possible to appraise the levels of satisfaction or dissatisfaction of employers with graduates from specific programs and from specific institutions, in order to determine the "fit" between the graduates produced by the tertiary level and the needs of employers.

The classical way of meeting external efficiencies concerns is through manpower studies, but such studies have fallen out of favor because the assumptions on which they have been based have not been realized or have not held up, and because so many other extra-national considerations affect a national economy. In a country the size of Indonesia, regional human resource needs studies may be more useful than national ones. This has been the approach utilized in the establishment and strengthening of agricultural programs, for example, on Sumatra.

#### 9.3.5.2 Internal Efficiency

Internal efficiency in education is concerned with input and output, i.e., how many students enter and how many of the same group graduate. It is also concerned with how quickly they graduate. A 100% efficient system would graduate all the students who enter and in precisely the time scheduled for the program. Internal efficiency also depends on quality of instruction, since failure in a subject may be attributed to poor teaching by the professors as well as poor performance by the student. These are some measures of productivity. Surveys through the years show that only 10% to 15% of students complete their programs on time, and that many students (system wide the exact figure is unknown) need up to twice the normal amount of time to finish, as indicted in Table 9.16.

The general consensus on internal efficiency for Indonesian higher education is that it is low. Amidjaja, the former Director General of Higher Education, commented in 1983:

Students are promoted on the basis of a final semester examination. The major bottleneck appears to be the completion of a thesis required for graduation. What would normally take about six months may take one or two years because of shortages or unavailability of thesis supervisors or inadequate facilities to carry out research projects on the basis of which a thesis is written.

Table 9.16 shows the average time to graduation for the 1978 graduating cohorts of the Universities of Indonesia (UI), Gadjadara (UGM), and Andalas (UNAR).

TABLE 9.16  
AVERAGE TIME TO GRADUATE (YEARS) FROM FOUR-YEAR PROGRAM

UI			UGM			UNARD		
econ.	enr.	sci.	econ.	enr.	sci.	econ.	ingr.	sci.
8.4	8.0	8.0	7.5	9.4	7.0	10.0	7.6	8.5

Source: Tisna Amidjaja, 1943, pp. 25-26.

As with external efficiency, internal efficiency is subject to qualitative analysis as well as statistical analysis, as deep sociological and cultural reasons often lie behind low internal efficiency. For example, internal efficiency deficits may not be due to the system itself but rather to the fact that many students cannot "stay the course" financially without working on the outside to meet both personal and family obligations. Viewed from this angle, the reasons for low internal efficiency might be non-school related, requiring a different sort of treatment.

Within the university itself, one needs to look for incentives, or lack of them, that would affect student progress through the system, or which affect faculty members' allocation of time to attend to student needs (e.g., the direction and supervision of the skripsi, or undergraduate thesis). Thesis completion is considered a major bottleneck in timely completion of the S-1 level.

Another problem contributing to past reports of low internal efficiency, reflected in the long time required for a student to graduate, was that failure in a course meant having to repeat the whole semester. This situation, however, has been improved by the

introduction in 1979 of a course credit system that allows students to repeat only the course they failed.

An intangible factor in internal efficiency is the tradition of extended time to complete the degree. In extending their time to graduation, students may feel they are just like everyone else, and may experience no pressure to be prompt in their completion times.

#### 9.3.5.3 Access and Equity

In Indonesia, the major access and equity problems are economic, geographical, and gender related. Low income youth have less chance of attending higher education, not only because they may not be able to afford the tuition, but because they are unable to forego the earnings they would lose as full-time students. Data are just being gathered in the baseline study on student characteristics to ascertain socioeconomic profiles of higher education students. Regarding geographical factors, the most prestigious institutions -- those which serve to select and prepare secondary school graduates for the higher status jobs in society -- are located on the island of Java. The government has been attempting to redress this inequity by pursuing a plan of more equitable geographic distribution in establishing new tertiary schools on the outer islands. Polytechnics will be located in each provincial capital. However, students who wish to pursue advanced degrees must do so at one of the nine institutions offering postgraduate training, including the doctorate; all of these schools are located on Java.

A baseline study on productivity was reported at the October 1985 conference on baseline studies for higher education. In this study, 33

institutions were surveyed to determine the percentages of productivity in the 1975-80 admission group and in the 1979-83 graduating group. Nine of the institutions with a productivity index of 60% or more were located on the island of Java, and 18 scoring at 59% or less (eight of them below 20%) were located off Java. Among the institutions that scored 59% or less, only four were on Java. These figures provide another indication of geographical disparity in higher education.

With respect to gender, Table 9.17 shows that the number of women enrolled in higher education decreases at the upper levels. Data in the table show that women are underrepresented in levels above D-2, and especially at the postgraduate level. Overall, women represent 30% of the total number of students receiving diplomas or degrees in higher education.

TABLE 9.17

PERCENT OF WOMEN ENROLLED IN  
HIGHER EDUCATION BY DIPLOMA  
AND DEGREE PROGRAM, 1984/85

Diploma-Degree level	D-1	D-2	D-3	S-1	S-2 + S-3
Percent Women enrolled	51%	53%	36%	34%	15%

Source: MOE&C figures - Original table SRG

9.3.5.4 Administration and Supervision

Administration and supervision at the higher education level suffer from two major shortcomings. The first is that most university administrators have no specific training in administration. The second is the absence of modern administrative systems that would simplify and

facilitate administrative and supervisory tasks. In part, these shortcomings are a consequence of the rapidity and size of the expansion of higher education since the country gained its independence. Also, many administrators in higher education continue to teach and carry instructional loads. Third, there is a lack of reliable information on which administrators can base their decisions in carrying out their functions.

The administration of a large, expanding, centralized national university system involving both public and private institutions requires a high degree of coordination and sophistication not usually available among persons without special training in such skills. To meet this need, the Director General of Higher Education has implemented an inservice program of special workshops to train administrators. The program is targeted at 800 administrators, of whom 302 have been trained. They have not been evaluated, and it remains to be seen if these workshops will be effective.

Another factor in higher education administration, and one which makes it different from administration at other levels of education (i.e., primary and secondary education), is the use of faculty committees to achieve administrative purposes and to participate in some levels of governance. This involvement means that university administrators are not always able to exercise the "command" taken for granted at lower levels in educational administration. The accelerated growth of higher education in Indonesia, however, makes the exercise of vigorous administration imperative, requiring not only remedial measures to help those already in administrative and supervisory posts, but also

a system that would help fledgling administrators before, or immediately after, they assume their positions.

Another important consideration is the structure and processes of administration, aside from the personnel who participate in the structure. For example, in sociotechnical systems, one may organize 10 persons to do a task, all working at the same time as individuals, or one could take the same persons and organize them into two teams of five persons each, or into five pairs of two persons working as small teams to do a particular job. Studies have shown that such structural rearrangements can have a marked effect on productivity without any increase in cost or in personnel, indicating that administrative effectiveness and efficiency depend not only on the training level of the personnel but also on the organizational structure itself and on the procedures used to run the system. Furthermore, if a structure and its procedures are not sound, or are not appropriate for the task, extra training will not solve the efficiency problem.

Additional factors essential for administrative and planning purpose are information flow and data collection. In a large complex system that is so dynamic in its growth, traditional administrative structures and techniques can no longer meet planning and policy needs. Not only must central units in MOEC and in the Director General's office be able to gather information quickly and efficiently, but the institutions in the field also need to receive feedback and acquire the information needed for their own administrative effectiveness.

Quality control is another administrative concern. By what standard shall personnel performance be judged, and how often? What

standards will be applied for the quality of the reporting coming in to central units from outlying institutions?

The most important concern in such a large, dynamic system is whether there should be more centralization, or more decentralization and deconcentration. The two may not be as mutually exclusive as they seem. Highly centralized data collection and information management systems may be combined with a high degree of regional and local planning and decision making; indeed, the existence of a computer capability with satellite components makes it feasible to consider this dual approach to centralized and decentralized features in a single system. Such an approach may be especially practical at the tertiary education level where presumably the personnel are more familiar with advanced, computerized data management systems.

A general discussion of administrative and management issues in this sector will be found in Chapter 3.

#### 9.3.5.5 Costs, Financing, and Donor Support

##### 9.3.5.5.1 Financing Higher Education

The basic budget picture for public higher education for the past 10 years is shown in Table 9.18. Since 1974, the gross total routine budget has grown by a factor of 8. Examination of routine budget per student shows an average of Rp. 158,900 over the 10-year span, with Rp. 88,600 in 1974 and Rp. 208,800 in 1984. However, the percent of increase per student for routine budget per year has declined sharply through the years, from a high of 36.1% in 1980/81 to a low of 2.3% in 1984/85. This is a very serious problem. It shows that while the

TABLE 9.18  
 AVERAGE GROWTH RATE OF ROUTINE BUDGET PER STUDENT IN PUBLIC  
 HIGHER EDUCATION, 1974-1984

Fiscal Year	Routine Budget						Total Students Enrolled			Average	Increase	Average	Increase
	Personnel Salaries ( 000.0 )	Non Personnel Budget				Total Routine Budget ( 000.0 )	50	51	Total	Budget	per	Person-	Budget
		Equipment ( 000.0 )	Maintenance ( 000.0 )	Travel ( 000.0 )	Non Personnel ( 000.0 )		(orang)	(orang)	(orang)	Year	Year	Year	Year
1974/1975	8,743,079.5	1,376,039.8	342,213.3	52,905.0	1,791,158.1	10,534,237.6	0	118,910	118,910	38.6		13.1	
1975/1976	11,708,479.0	2,449,945.0	588,311.0	96,536.0	3,147,012.0	14,855,491.0	0	131,226	131,226	113.2	27.8	24.0	59.2
1976/1977	12,167,808.0	3,344,297.0	633,794.0	112,308.0	4,092,391.0	16,268,279.0	0	150,298	150,298	108.2	-4.4	27.2	13.5
1977/1978	19,867,995.0	3,649,177.0	943,092.0	112,702.0	4,704,971.0	24,572,946.0	0	174,683	174,683	140.7	30.0	26.9	-1.1
1978/1979	24,692,185.0	4,098,818.0	1,284,186.0	111,889.0	5,486,893.0	30,179,078.0	0	196,734	196,734	153.4	9.0	27.9	3.3
1979/1980	23,774,331.0	5,322,919.0	1,901,735.0	112,308.0	7,336,974.0	33,111,305.0	28,060	214,826	242,886	136.3	-11.1	30.2	9.3
1980/1981	40,467,873.0	6,749,398.0	2,883,291.0	153,858.0	9,986,531.0	58,594,404.0	33,923	236,824	272,747	185.5	36.1	36.6	21.2
1981/1982	58,063,859.0	9,062,840.0	4,129,716.0	201,008.0	14,193,554.0	64,257,413.0	45,818	260,844	306,662	209.5	13.0	46.3	26.4
1982/1983	52,033,141.0	10,532,034.0	4,349,348.0	206,408.0	15,127,774.0	67,162,915.0	54,186	282,620	336,806	199.4	-4.8	44.7	-3.0
1983/1984	58,899,179.0	11,028,755.0	3,927,523.0	153,519.0	15,101,797.0	74,008,976.0	59,422	303,037	362,459	204.2	2.4	41.7	-7.2
1984/1985	63,688,972.0	12,045,808.0	4,781,323.0	153,519.0	16,980,642.0	88,641,614.0	62,301	324,039	386,340	208.9	2.3	44.0	5.3
JURUAN	348,240,781.5	70,704,014.8	25,778,742.3	1,466,940.0	97,949,697.1	466,190,678.6				158.9	9.1	33.2	12.6

Source: Directorate General of Higher Education  
 Memo - September 1985

system is expanding and enrollments are increasing, the allocation increase per student is decreasing, and has arrived at a point where it threatens to erode even further the present modest quality level.

Enrollments are directly correlated with budget performance and goals. Figure 9.4 shows the projected enrollment, based on actual 1984/85 - 1985/86 data compared with the projections based on the Repelita IV enrollment targets for the same period. As can be seen, they diverge sharply, indicating that public higher education will probably not be able to absorb additional enrollment. Consequently, the Repelita IV target of achieving an 6.2% participation rate of the 18-24 age population is quite unlikely.

A comparison of enrollments with budget projections shows again a discrepancy in public higher education between what the Repelita IV calls for and what is, and is likely to be, budgeted. Figure 9.5 shows three projection lines: A is the projection based on past and present reality, B is a budget projection based on what Repelita IV calls for, and C is the projection of what would be needed to maintain the current per unit student cost. It is evident that the real budget situation for public higher education will fall far short of what will be required to maintain even modest enrollment increases, much less the increases called for in Repelita IV, unless more money is allocated to higher education routine budgets.

With respect to financing and budget, there are preliminary studies being carried out to determine unit costs by field of study. These studies are not yet completed. It was learned, however, that overall, researchers working on these problems calculate a unit cost per student

FIGURE 9.4

GROWTH IN S-1 ENROLLMENTS:  
PUBLIC HIGHER EDUCATION

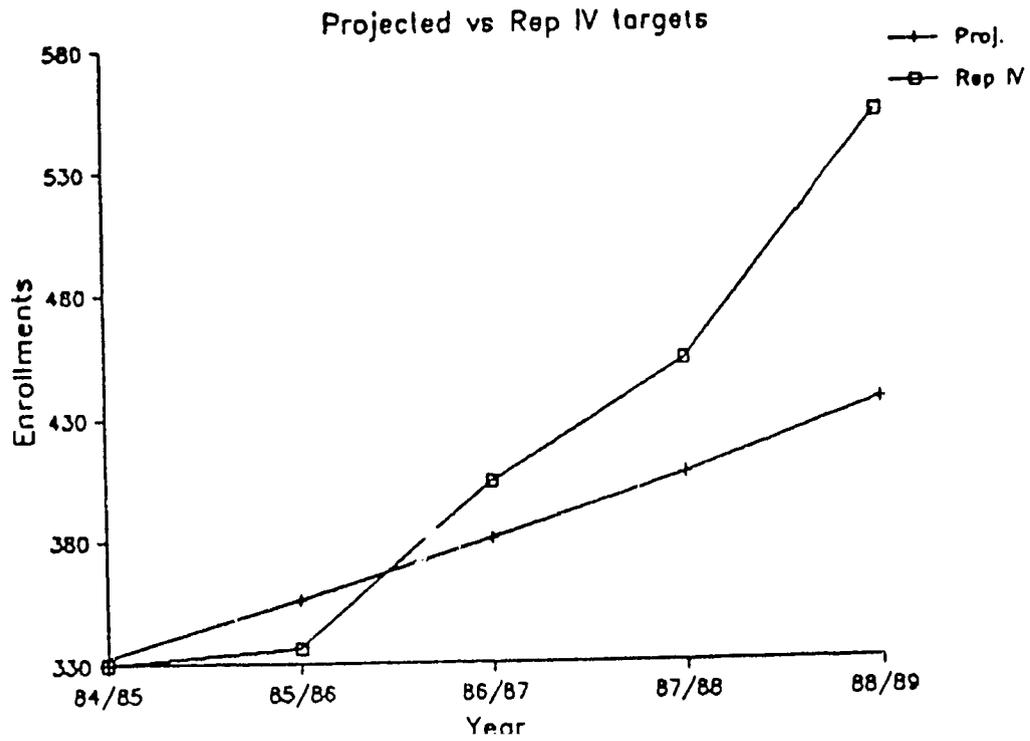
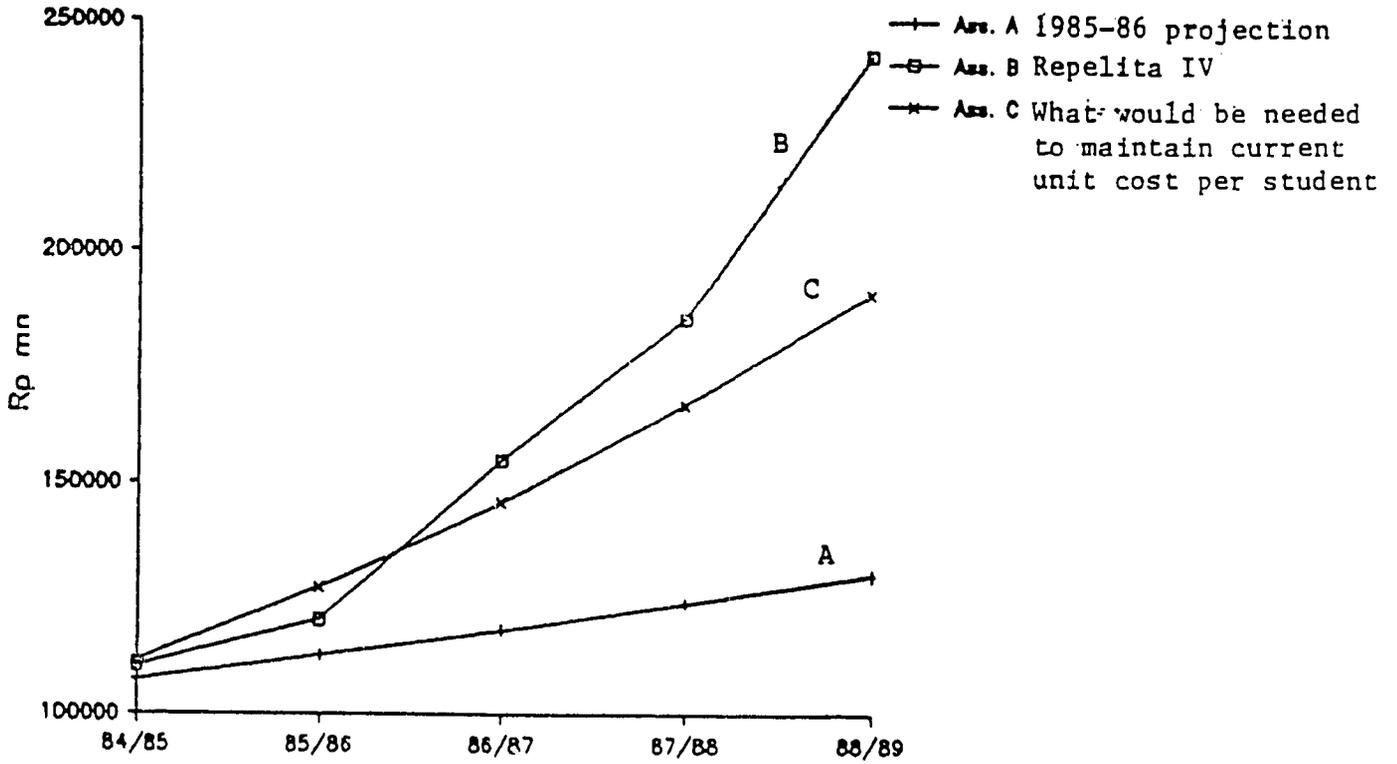


FIGURE 9.5

OPERATIONAL BUDGET PROJECTIONS:  
PUBLIC HIGHER EDUCATION



at Rp.330,000 per year. This is calculated by dividing the operating budget for the year by the total number of students enrolled in that same year. The student fee paid by a student per year in higher education is Rp.33,000, or 10% of the unit cost.

The major findings resulting from this review of the financial situation in public higher education is that there is a downward trend in the percent of support in the routine budgets over the past 10 years. Viewed against the upward trend in enrollments, the divergence will become more pronounced during the coming years of Repelita IV. Should this continue without some remedial intervention, quality will most certainly suffer, and Indonesia will lose ground in its effort to provide credible higher education.

Donor support to the higher education sector comes from various sources, such as US/AID, the World Bank, the Asian Development Bank, various foreign governments, and private foundations. This aid is in the form of loans, grants, scholarships and technical assistance.

The World Bank began its assistance to higher education in 1970. The following are the World Bank Projects between the Bank and GCI in higher education. Dollar costs will be found in the special section of this report on donor assistance and inputs:

- WB IV - To develop two IKIPs at Padang & Yogyakarta in vocational education
- WB V - A portion to higher education for teacher training institutes, and curriculum development
- WB VI - For nonformal education and teacher preparation in nonformal education (NFE);

- WB VII - All to higher education for construction and development of polytechnical institutes;
- WB IX - For the development of three universities;
- WB XI - For the development of 9 IKIPs and 1 university;
- WB XIII - To extend WB VII, for the construction of polytechnical institutes;
- WB XVII - To develop the inter-university centers.

The Asian Development Bank and USAID have also provided loans and grants for higher education development, particularly in agricultural higher education, and for scholarships.

The major inputs from external sources have been aimed at the educational targets in industrialization and in agricultural development.

Support from USAID to higher education during the past 10 years (1974/75 to 1984/85) has been as follows:

Project Title	Dates	Amount (U.S. dollars)
1. Agricultural University of Bogor	08/13/79 - 07/31/86	\$ 7,500,000
2. Western Universities (11) Agricultural Education	04/16/81 - 08/31/86	\$ 9,850,000
3. General Participant Training II	05/05/83 - 04/30/90	\$12,750,000
4. Education Policy and for MOEC	06/06/84 - 09/30/90	\$ 6,500,000
		TOTAL: \$36,600,000 (1979 - 1990)

Source: AID Project Implementation Report as of 03/31/85.

#### 9.3.5.5.2 Student Flows and Cycle Costs

In this section, the information on: (a) unit costs which are calculated by level of education, and (b) student flows, from enrollments trends shown in Chapter 2 are combined to yield (c) cost per graduate for each level of education. The cost per graduate, or cycle cost, is an important indicator of the relative efficiency with which available educational resources are used at each level. It is one approach to relating educational inputs to educational outputs. In other words, it is a very simple measure of how much "education" is produced, given the current levels of investment and the prevailing inefficiencies within a given subsector of education. Educational inputs are narrowly defined, for purposes of this analysis, as costs and outputs are measured in numbers of graduates. A truer measure of inputs and outputs would reflect the quality of inputs (e.g., not just teacher salaries, but the quality of instruction purchased with these salaries) and the quality of outputs (e.g., ability of graduates). Measuring educational quality in quantitative terms, however is very difficult in general and certainly beyond the scope of this analysis. A cycle cost is calculated for the various levels of education by first analyzing students flows for the instructional years per graduate, then multiplying the years times the estimated unit cost. The first half of this section deals with the methodology for calculating instructional years per graduate and the application of this methodology to the various subsectors of Indonesian education. The second half of this section brings together unit costs and instructional years per graduate to produce a total cost per graduate, or cycle cost. A comparison is

then made across subsectors of the resulting cycle costs.

At the time of this analysis, the available information on student cohorts in higher education was not complete enough to allow construction of student flow models or calculation of instructional year per graduate, as was done for primary and secondary programs. As noted earlier, a special study that addresses the internal efficiency issue in higher education is nearing completion under the auspices of the Director General for Higher Education. At the time this report was prepared, data collected for that study were not available.

The problem of internal efficiency in higher education is widely recognized. On average, students are assumed to require six to eight years to complete a four to five-year sarjana program. Table 9.16 summarizes trends in average number of years to program completion per graduate by faculty for several universities. These three universities are among the oldest and highest quality public universities in Indonesia; consequently, the average number of years required for a student to graduate from that university summarized in Table 9.16 is probably lower than the overall average for higher education in Indonesia.

#### 9.3.5.5.3 Analysis of Unit Costs for Returns to Higher Education: Introduction

In this and the following section, current investment in the higher education subsector of Indonesian education are examined within the framework of three branches of economic analysis: unit cost analysis, cycle cost analysis, and internal rate of return analysis. Unit cost analysis and cycle analysis can provide policy makers and planners with

important information about existing inefficiencies when the need arises to cut costs, and about future opportunities that will increase the contribution of each rupiah spent on education to growth within each of the education and human resource development subsectors. More importantly, these analyses together with benefit/cost (rate of return) analysis provide policy makers and planners with a standard that can be employed to evaluate the relative efficiency with which current levels of resources are being used in each of the main education subsectors.

Each of the three types of analysis included in this and the following section provides a different type of information regarding the cost and financing of education. The unit cost analysis attempts to measure recurrent (or annual) inputs of resources into each of the subsectors. In this analysis, the aim is to identify and measure the total annual cost of instruction per student (or per "client" for higher education programs), regardless of the source of funds. In Indonesia's public schools a large portion but not all, of educational costs are borne by the government. The portion of schooling that is funded from private sources is also a cost to the economy. It is a part of the current level of resources needed at each level of education that must be considered by the government when decisions are made as to whether the education is contributing effectively to economic growth.

Unit costs that encompass both public and private sources of funds can also help policy makers and planners reach decisions about the minimum of resources needed for schools or human resource development programs, about internal efficiency, and about the level of resources that would be required for some level of expansion or quality

improvement. Although increases in per student expenditures are often associated with improvement in the quality of schooling, planners should not expect the educational quality of schooling to be maintained or improved simply by raising unit costs. The effectiveness with which resources are used is also an important determinant of the level of educational quality attained.

The analysis of cycle costs relates the educational inputs examined under unit costs to the full costs of a student's degree program used as a measure of educational output. Specifically, the cycle cost analysis combines costs and student flows (i.e., prevailing rates of progression, repetition and drop out) to yield a cost per graduate. Instructional years per graduate are calculated from student flow information and provide a measure of a system's relative internal efficiency. For example, in a six-year primary school program found to be 100% efficient (e.g., 0% repeaters and 0% dropouts), the average number of instructional years per graduate would be six. The cycle cost would then be the unit cost multiplied by instructional years per graduate. Hence, an education program with relatively high unit costs could have lower cycle costs than a program with much lower unit costs if the first program had significantly smaller numbers of repeaters and dropouts. The cycle cost analysis is an indicator of how efficiently schools or programs are using current allocations of resources. This analysis helps policy makers and planners identify what output can be expected from a given level of investment in a specific subsector or program. From a macro planning perspective, instructional years per graduate and

cycle costs can aid in identifying those subsectors that are using resources less efficiently.

### Unit Costs For Higher Education

This section examines unit costs for higher education. Higher education in Indonesia is comprised of a private and public sector (each of approximately equal importance in terms of numbers enrolled) and provides several options for pursuing post-secondary education. Both the public and private sectors offer academic degrees and one-, two-, and three-year diplomas, which are considered non-academic courses of study. In addition to the sarjana and diploma, post-graduate degrees are offered by none of the 45 public universities. Although the numbers enrolled are currently quite small (approximately 6,600 in 1983), Repelita IV envisions a three-fold increase in polytechnical programs by the end of the decade. In addition to these in-school programs, students can also earn a sarjana or diploma from Indonesia's recently established Open University.

Data for each university, and the methods of estimating unit costs are presented in Chapter 2, Appendix E. As the numbers enrolled are still small compared to other programs, costs of these programs will not be examined in this section. Because data are more readily available (and presumably more consistent) for the larger, better established programs, this section will concentrate on unit costs for the Sarjana programs offered by public and private universities. Within this broad context, this section has a two-fold aim:

- (a) to examine trends in annual per student costs in public universities;

- (b) to make a very preliminary comparison of unit costs in public and private universities by major field of study.

The beginning point is an analysis of trends in overall public universities per student expenditure. At the outset, it is necessary to provide a few additional comments regarding the sources of funding for public universities. As mentioned, the main sources of public university income are routine and development budget allocations from the Director General for Higher Education in MOEC. In addition, public universities also receive a relatively small amount of funds from the SPP fee collected from students. SPP fees, averaging Rp.60,000/year, are the only direct tuition paid by students. Some of the larger universities also receive income from research contracts with government or other private entities. Overall, there is perhaps a handful of universities that actually have any noteworthy research contracts. Tables 9.19 and 9.20 give a complete breakdown of the routine and development budget by university for 1980/81 and 1984/85.

The analysis of annual per student costs for public universities will be based on these macro level budget data. Although a typical school or faculty approach would be preferable, this is difficult in analyzing public universities in Indonesia. The size, quality and course offerings vary so considerably among the 45 public universities that it would be very misleading to use averages. The numbers of public universities are large enough to preclude an analysis of costs for individual faculties, which was the approach used in Sector Reviews carried out in countries with only one or two universities. On the other hand, with 45 universities the members are small enough and the

TABLE 9.19  
1980/81 ROUTINE BUDGET  
BY PUBLIC UNIVERSITY

Name of University	Staff	Supplies	Maint.	Transport	Total
2 Univ Indonesia	3,892,748	294,114	94,556	3,637	4,285,055
3 IKIP Neg Jakarta	1,191,463	124,891	80,339	2,803	1,399,496
4 Univ Padjadjaran	2,463,963	266,879	96,999	2,098	2,829,939
5 Inst Teknologi Bandung	1,788,484	293,414	104,802	2,077	2,188,777
6 IKIP Neg Bandung	1,572,794	172,787	84,514	2,347	1,832,442
7 Inst Pertanian Bogor	1,818,794	261,986	101,214	2,072	2,184,066
8 Univ Diponegoro	1,003,935	216,431	54,908	3,117	1,278,391
9 IKIP Neg Semarang	657,209	113,592	50,732	3,085	824,618
10 Univ Nas Sebelas Maret	969,189	234,608	89,560	3,815	1,297,172
11 Univ Jenderal Soedirman	425,628	88,605	44,528	2,171	560,932
12 Univ Gadjah Mada	4,353,815	614,484	149,597	4,224	5,122,120
13 IKIP Neg Yogyakarta	1,058,927	147,870	70,913	3,331	1,281,041
14 Inst Kesenian Indonesia	319,684	68,183	27,610	2,850	418,327
15 Univ Airlangga	1,831,452	220,769	85,112	3,683	2,141,016
16 Inst Teknologi Surabaya	436,358	176,793	51,572	2,012	666,735
17 IKIP Neg Surabaya	1,050,125	123,017	46,859	3,063	1,223,064
18 Univ Brawijaya	540,562	183,722	47,343	2,321	773,948
19 Univ Jember	545,814	125,105	45,009	3,456	719,384
20 IKIP Neg Malang	682,455	112,181	49,276	2,442	846,354
21 Univ Syiah Kuala	768,642	142,929	79,819	3,478	994,868
22 Univ Sumatera Utara	1,602,791	264,534	78,616	3,377	1,949,318
23 IKIP Neg Medan	1,003,281	130,487	66,592	3,433	1,203,793
24 Univ Andalas	1,071,605	166,499	78,331	3,304	1,319,739
25 IKIP Neg Padang	689,328	110,107	74,800	3,435	877,670
26 Univ Riau	391,002	88,028	53,177	3,057	535,264
27 Univ Jambi	131,006	77,216	40,518	3,022	251,762
28 Univ Sriwijaya	967,323	166,774	70,943	3,066	1,208,106
29 Univ Lampung	259,558	81,360	45,953	3,022	389,893
30 Univ Bengkulu	0	0	0	0	0
31 Univ Tanjung Pura	236,338	93,449	57,426	3,122	390,335
32 Univ Palangkaraya	113,588	67,433	40,071	3,122	224,214
33 Univ Lambung Mangkurat	562,697	114,374	86,170	3,246	766,487
34 Univ Mulawarman	198,078	78,247	39,332	3,222	318,879
35 Univ Sam Ratulangi	778,152	174,260	48,398	3,255	1,004,065
36 IKIP Neg Manado	730,879	146,114	54,809	4,455	936,257
38 Univ Tadulako	0	0	0	0	0
39 Univ Hasanuddin	1,576,697	307,886	109,812	5,808	2,000,198
40 IKIP Neg Ujung Pandang	770,933	168,058	82,278	5,642	1,026,911
41 Univ Halu Oleo	0	0	0	0	0
42 Univ Pattimura	417,945	110,434	82,632	3,039	614,050
43 Univ Udayana	900,777	188,951	80,047	3,222	1,172,997
44 Univ Mataram	214,616	87,221	60,378	3,351	365,566
45 Univ Nusa Cendana	307,113	121,873	56,289	3,478	488,753
46 Univ Cenderawasih	312,130	223,725	121,457	25,090	682,402
Total	40,607,873	6,949,390	2,883,291	153,850	50,594,404

Source: Calculation completed by UI (Computer Service Center for DGHE special study on financing higher education.

TABLE 9.20

1980/81 DEVELOPMENT BUDGET  
BY PUBLIC UNIVERSITY  
(1000 Rp.)

Name of University	(01)	(02)	(03)	(04)	(05)	(06)	(07)	Total
Univ Indonesia	300,979.0		136,610.0	489,898.0	64,340.0	3,239,855.0	728,634.0	4,960,316.0
IKIP Neg Jakarta	114,490.0	4,500.0	39,560.0	111,045.0	51,620.0	443,620.0	177,045.0	941,880.0
Univ Padjadjaran	97,310.0	150,000.0	29,700.0	169,950.0	23,600.0	304,150.0	295,025.0	1,069,735.0
Inst Teknologi Bandung	401,635.0		130,100.0	507,123.0	150,546.0	643,200.0	689,777.0	2,522,381.0
IKIP Neg Bandung	96,892.0	75,000.0	43,785.0	239,570.0	26,608.0	349,150.0	224,925.0	1,055,930.0
Inst Pertanian Bogor	535,790.0		182,110.0	419,560.0	227,950.0	812,320.0	652,901.0	2,830,631.0
Univ Diponegoro	99,569.0	250,000.0	41,683.0	120,100.0	45,261.0	115,630.0	209,579.0	881,822.0
IKIP Neg Semarang	46,740.0		18,305.0	94,221.0	7,450.0	138,755.0	107,890.0	413,361.0
Univ Nas Sebelas Maret	61,242.0	.0	16,080.0	77,265.0	24,955.0	1,311,897.0	263,072.0	1,754,511.0
Univ Jenderal Soedirman	31,480.0	11,200.0	10,560.0	12,175.0	14,010.0	117,360.0	66,895.0	263,680.0
Univ Gadjah Mada	208,890.0	170,000.0	70,561.0	154,010.0	47,265.0	842,800.0	819,051.0	2,312,577.0
IKIP Neg Yogyakarta	50,300.0	175,000.0	19,700.0	20,375.0	12,400.0	57,000.0	103,019.0	437,794.0
Inst Kesenian Indonesia	46,815.0	32,000.0	24,150.0	52,800.0	42,160.0	280,427.0	144,933.0	623,285.0
Univ Airlangga	174,272.0		53,840.0	225,575.0	54,010.0	1,032,240.0	282,947.0	1,822,884.0
Inst Teknologi Surabaya	32,720.0		20,975.0	213,017.0	15,450.0	1,092,705.0	60,464.0	1,435,331.0
IKIP Neg Surabaya	47,740.0	75,000.0	22,550.0	69,775.0	19,600.0	.0	95,653.0	330,318.0
Univ Brawijaya	40,175.0	202,000.0	13,595.0	77,026.0	10,450.0	129,360.0	80,730.0	553,336.0
Univ Jember	44,560.0	108,500.0	19,505.0	75,350.0	22,285.0	27,860.0	78,914.0	376,974.0
IKIP Neg Malang	60,810.0		23,855.0	151,812.0	16,600.0	325,414.0	144,540.0	723,031.0
Univ Syiah Kuala	82,621.0		39,800.0	226,985.0	33,398.0	309,730.0	206,266.0	898,800.0
Univ Swadana Utara	85,820.0	.0	32,035.0	254,075.0	25,155.0	264,771.0	165,620.0	827,476.0
IKIP Neg Medan	81,190.0	118,468.0	25,480.0	54,175.0	18,360.0	55,760.0	101,835.0	455,268.0
Univ Andalas	79,340.0	44,740.0	42,846.0	307,450.0	35,632.0	435,798.0	151,399.0	1,097,205.0
IKIP Neg Padang	46,319.5	.0	16,279.3	62,584.0	16,714.5	385,094.0	99,108.7	626,100.0
Univ Riau	24,640.0		10,480.0	57,980.0	6,900.0	152,410.0	63,361.0	315,771.0
Univ Jambi	31,460.0	.0	17,260.0	58,290.0	17,180.0	118,250.0	47,113.0	299,553.0
Univ Sriwijaya	76,195.0	133,100.0	28,250.0	131,202.0	22,520.0	202,740.0	96,933.0	690,940.0
Univ Lampung	28,510.0		9,790.0	83,839.0	7,200.0	444,388.0	65,950.0	639,677.0
Univ Bengkulu	.0	.0	.0	.0	.0	.0	.0	.0
Univ Tanjung Pura	49,938.0	.0	16,105.0	52,600.0	18,990.0	214,650.0	64,383.0	416,566.0
Univ Palangkaraya	22,655.0	.0	6,850.0	6,362.0	10,867.0	176,676.0	39,162.0	262,572.0
Univ Laabung Mangkurat	48,870.0	.0	21,110.0	53,911.0	18,010.0	163,020.0	95,333.0	400,254.0
Univ Mulawarman	44,170.0	18,000.0	14,270.0	63,570.0	24,210.0	457,180.0	70,015.0	691,415.0
Univ Sam Ratulangi	56,378.0		42,047.0	100,639.0	35,097.0	177,750.0	165,389.0	577,300.0
IKIP Neg Manado	57,775.0	.0	20,960.0	91,687.0	20,600.0	256,600.0	130,755.0	578,377.0
Univ Tadulako	.0	.0	.0	.0	.0	.0	.0	.0
Univ Hasanuddin	88,636.0		51,800.0	103,670.0	85,780.0	1,009,120.0	312,147.0	1,651,153.0
IKIP Neg Ujung Pandang	55,110.0	.0	21,900.0	52,940.0	17,075.0	170,766.0	110,845.0	428,636.0
Univ Halu Oleo	.0	.0	.0	.0	.0	.0	.0	.0
Univ Pattiaura	33,620.0	5,000.0	14,350.0	96,405.0	19,200.0	203,180.0	73,168.0	444,923.0
Univ Udayana	65,687.0	150,000.0	32,302.0	111,348.0	29,692.0	50,080.0	97,484.0	536,593.0
Univ Mataram	22,920.0	.0	10,090.0	19,845.0	10,440.0	125,420.0	59,595.0	248,310.0
Univ Nusa Cendana	47,285.0	8,000.0	11,875.0	74,540.0	20,185.0	104,143.0	86,003.0	352,031.0
Univ Cenderawasih	25,720.0		9,300.0	19,290.0	30,400.0	400,100.0	53,643.0	538,453.0
<b>Total</b>	<b>3,647,268.5</b>	<b>1,730,508.0</b>	<b>1,412,403.3</b>	<b>5,364,034.0</b>	<b>1,400,065.5</b>	<b>17,141,369.0</b>	<b>7,581,501.7</b>	<b>38,277,150.0</b>

budget data complete enough to estimate average annual per student costs for each university. Budget allocations are used as a proxy for expenditure in this approach. (Certain inaccuracies must be expected when using budget data as a proxy for expenditure).

In Indonesia, it is possible that the budget data overstates actual expenditures because of the high incidence of SIAPs (i.e., unexpended budget) in the education sector. From other perspective, it is quite likely that estimates of annual per student costs from budget data are an understatement of actual costs. The routine and development budgets do not include earnings from research contracts, nor do they include private donations from non-government sources. In addition, these estimates do not include students' contributions through the obligatory SPP fee (approximately Rp.60,000 per student per year) or other non-tuition related contributions for books, transportation, food, etc. Because there are two types of distortions operating in opposite directions, it is quite difficult to interpret whether the budget allocation per student used in the following analysis overstates or understates actual per student costs.

An additional problem encountered when using universities' routine and development budgets to analyze unit costs per student is the presence of recurrent items in the development budget. As noted in earlier subsections, this unit cost analysis attempts to examine only those costs that can be identified as annual operating expenditures. In other subsections, the cost of facilities, land, and equipment are analyzed. In theory, the development budget contains investment costs, including costs related to the construction of buildings and purchase of

land and equipment, while the routine budget contains annual operating expenditures. A comparison of the 1980/81 and 1984/85 budget data given in Tables 9.21 and 9.22 shows that the routine budget has been declining as a percent of the total. Table 9.23 summarizes this trend.

The average annual growth rate of enrollments during the same period was approximately 8.0%. Comparing this to the growth in the budget, in real terms the development budget grew at approximately 12.4% per annum while the routine budget grew at about 0.7%. Given the relatively rapid increase in enrollments, it is reasonable to assume that universities are financing a portion of their recurrent expenditures out of their development budget.

As illustrated in other sections of this Sector Review, the precise identification of the recurrent components in the development budget would require an item-by-item analysis of each university's development budget. For example, the salary component of the development budget includes salaries directly related to new development projects (which should not be considered as recurrent expenditures) as well as salaries related to routine operations. For purposes of this analysis, the recurrent proportion of the development budget is assumed to include all salary, materials, and "other" expenditures, which amount to 20-30% of the development budget. The residual components (land, construction and equipment) are assumed to be capital expenditures. Annual operating budget per student is defined for purposes of this analysis as routine budget plus the salary, materials, travel, and other components of the development budget. Combining this estimate of total operating expenditures per university with total enrollments for 1980/81, yield

TABLE 9.21

1984/85 ROUTINE BUDGET BY PUBLIC UNIVERSITY  
( '000 Rp. )

Name of University	Staff	Supplies	Maint.	Transport	Total
2 Univ Indonesia	4,666,483	420,174	147,588	2,982	5,237,227
3 IKIP Neg Jakarta	1,637,913	198,671	126,761	2,327	1,965,572
4 Univ Padjadjaran	3,414,070	387,266	153,702	2,092	3,957,130
5 Inst Teknologi Bandung	2,605,582	408,123	165,252	2,071	3,181,028
6 IKIP Neg Bandung	2,273,830	301,183	138,610	2,627	2,716,250
7 Inst Pertanian Bogor	2,777,228	470,576	170,331	2,067	3,420,202
8 Univ Diponegoro	1,646,367	411,978	96,027	2,998	2,157,370
9 IKIP Neg Semarang	1,085,848	183,692	83,679	2,967	1,356,186
10 Univ Nas Sebelas Maret	1,344,350	408,232	143,040	3,670	2,399,292
11 Univ Jenderal Soedirman	761,724	179,500	72,422	2,162	1,015,808
12 Univ Gadjah Mada	5,457,040	807,447	229,489	3,695	6,497,671
13 IKIP Neg Yogyakarta	1,622,393	283,233	113,751	3,205	2,022,582
14 Inst Kesenian Indonesia	795,681	127,086	70,168	2,500	995,435
15 Univ Airlangga	2,721,437	356,887	127,747	3,544	3,209,615
16 Inst Teknologi Surabaya	828,343	271,782	90,686	2,009	1,192,820
17 IKIP Neg Surabaya	1,541,246	200,240	80,402	3,684	1,825,572
18 Univ Brawijaya	1,282,143	327,404	84,207	2,749	1,696,503
19 Univ Jember	950,865	228,120	75,871	3,324	1,258,180
20 IKIP Neg Malang	1,196,134	187,516	77,357	3,086	1,464,093
21 Univ Syiah Kuala	1,214,829	254,064	120,674	3,346	1,592,913
22 Univ Sumatera Utara	2,496,547	383,752	125,456	3,248	3,009,003
23 IKIP Neg Medan	1,496,395	248,090	102,619	3,302	1,850,406
24 Univ Andalas	1,693,483	281,624	126,114	3,178	2,104,399
25 IKIP Neg Padang	1,285,464	192,741	117,531	3,304	1,599,040
26 Univ Riau	708,900	195,698	93,764	3,014	1,001,376
27 Univ Jambi	293,575	146,380	66,146	2,981	509,082
28 Univ Sriwijaya	1,490,432	303,879	112,901	3,018	1,910,230
29 Univ Lampung	569,274	189,705	80,671	3,176	842,826
30 Univ Bengkulu	155,312	78,973	44,122	1,770	280,077
31 Univ Tanjung Pura	468,621	169,754	92,581	3,003	733,959
32 Univ Palangkaraya	292,625	140,235	65,607	3,003	501,470
33 Univ Lambung Mangkurat	967,935	211,252	121,251	3,123	1,303,561
34 Univ Mulawarman	406,286	169,575	63,941	3,099	642,801
35 Univ Sam Ratulangi	1,410,717	428,796	103,962	5,862	1,949,337
36 IKIP Neg Manado	1,026,301	230,150	92,224	3,792	1,352,467
38 Univ Tadulako	433,362	193,273	102,579	3,328	732,542
39 Univ Hasanuddin	2,329,481	515,430	163,468	3,561	3,011,940
40 IKIP Neg Ujung Pandang	1,160,696	224,329	87,820	3,204	1,476,049
41 Univ Halu Oleo	77,418	78,540	37,038	3,318	196,314
42 Univ Pattimura	787,743	187,864	126,470	4,412	1,106,489
43 Univ Udayana	1,685,324	323,907	129,400	3,099	2,141,730
44 Univ Mataram	523,445	178,051	97,298	3,223	802,017
45 Univ Nusa Cendana	631,647	222,783	93,008	4,083	951,521
46 Univ Cenderawasih	966,583	337,945	167,688	19,313	1,491,529
Total	63,680,972	12,045,800	4,781,323	153,519	80,661,614

TABLE 9.22

1984/85 DEVELOPMENT BUDGET BY PUBLIC UNIVERSITY  
( '000 Rp. )

Name of University	(01)	(02)	(03)	(04)	(05)	(06)	(07)	Total
2 Univ Indonesia	469,161		78,591	692,440	35,993	5,898,238	1,198,457	8,372,880
3 IKIP Neg Jakarta	180,659		58,060	213,550	30,300	614,250	1,034,241	2,131,060
4 Univ Padjadjaran	93,094		29,178	345,910	23,276	1,394,620	622,232	2,508,310
5 Inst Teknologi Bandung	398,407		96,312	122,000	53,533	3,035,505	1,191,388	4,897,145
6 IKIP Neg Bandung	232,958	775,000	85,862	275,400	23,790	377,000	939,850	2,709,860
7 Inst Pertanian Bogor	623,486		145,830	496,000	152,960	3,660,700	2,031,524	7,110,500
8 Univ Diponegoro	284,488		45,535	90,800	11,979	2,125,860	261,618	2,920,280
9 IKIP Neg Semarang	188,821		61,768	375,100	2,570	497,320	344,481	1,470,060
10 Univ Nas Sebelas Maret	188,362	60,000	65,152	173,750	25,626	2,110,520	381,090	3,004,500
11 Univ Jenderal Soediraaan	38,798	234,500	12,472	39,625	3,600	588,760	111,145	1,028,900
12 Univ Gadjah Mada	264,543		90,322	207,300	119,600	2,477,760	2,335,925	5,495,450
13 IKIP Neg Yogyakarta	274,425		188,375	90,650	54,498	675,000	829,742	2,102,690
14 Inst Kesenian Indonesia	84,000	928,000	27,590	79,660	17,320	185,750	193,247	1,415,567
15 Univ Airlangga	97,714		34,767	519,629	33,100	1,970,200	682,160	3,237,570
16 Inst Teknologi Surabaya	58,960		17,671	1,199,875	6,350	206,000	195,024	1,663,880
17 IKIP Neg Surabaya	184,612	320,000	61,612	65,850	5,645	639,100	337,241	1,614,060
18 Univ Brasiijaya	287,091		31,423	151,030	8,190	2,728,500	181,306	3,387,540
19 Univ Jember	56,432	550,000	14,670	239,200	7,750	345,760	153,488	1,367,300
20 IKIP Neg Malang	168,187		55,924	30,900	5,897	1,145,650	305,812	1,712,370
21 Univ Syiah Kuala	122,360		42,333	42,400	22,420	1,033,700	291,532	1,554,745
22 Univ Sumatera Utara	233,022	437,500	34,517	557,200	12,232	2,480,600	236,779	3,991,950
23 IKIP Neg Medan	168,187		55,924	30,900	5,897	1,145,650	305,812	1,712,370
24 Univ Andalas	113,040	1,500	45,148	119,400	16,250	2,470,100	243,742	3,008,180
25 IKIP Neg Padang	288,377	174,000	160,146	124,100	55,020	296,440	820,097	1,918,180
26 Univ Riau	72,742		19,399	95,270	11,000	652,200	173,969	1,024,580
27 Univ Jambi	45,324	12,600	13,615	4,250	8,475	575,250	124,056	783,570
28 Univ Sriwijaya	227,561	37,500	61,107	215,775	93,378	1,792,125	396,894	2,824,340
29 Univ Lampung	61,896		15,936	302,050	10,780	1,432,500	158,818	1,281,940
30 Univ Bengkulu	40,168		10,472	37,450	8,200	424,250	69,670	590,210
31 Univ Tanjung Pura	65,079	3,000	12,830	164,500	12,713	865,000	158,818	1,281,940
32 Univ Palangkaraya	55,670	21,000	11,505	47,500	11,160	529,450	119,795	796,070
33 Univ Lambung Mangkurat	86,528	130,500	23,993	262,150	10,400	890,550	202,719	1,606,840
34 Univ Mulawarman	90,521	260,000	28,513	32,200	8,250	1,089,920	166,976	1,576,350
35 Univ Saa Ratulangi	93,512	25,000	29,863	119,750	19,290	1,360,520	279,455	1,927,390
36 IKIP Neg Manado	100,026	75,000	21,346	339,625	22,420	1,231,920	239,003	2,029,340
38 Univ Tadulako	63,051	5,100	13,214	64,150	9,435	565,400	139,110	859,460
39 Univ Hasanuddin	72,540		42,495	56,145	32,046	8,010,025	325,474	8,518,725
40 IKIP Neg Ujung Pandang	167,765		57,836	150,300	8,940	820,200	354,039	1,568,980
41 Univ Halu Oleo	45,373	98,000	11,370	19,250	11,225	389,000	104,252	677,470
42 Univ Pattimura	86,780	266,000	22,966	256,375	26,570	840,020	170,479	1,669,190
43 Univ Udayana	117,018		28,234	62,250	14,270	1,151,500	273,788	1,547,060
44 Univ Mataram	52,734	234,000	14,043	204,125	11,090	328,620	128,588	973,200
45 Univ Nusa Cendana	74,766		21,174	49,935	9,747	746,750	167,148	1,069,420
46 Univ Cenderawasih	75,212		14,872	76,950	30,250	868,295	194,521	1,260,110
Total	6,793,450	4,548,200	2,013,965	8,810,569	1,103,345	62,566,478	19,185,495	104,321,462

TABLE 9.23  
PUBLIC UNIVERSITY ROUTINE AND DEVELOPMENT BUDGETS  
1980/81 AND 1984/85

	Development Budget -----	Routine Budget -----	Total -----
I. TOTALS (Rp million)			
1980/81	38,277.2	50,594.4	88,871.6
1984/85	104,321.5	80,661.6	184,983.1
II. PROPORTION OF TOTAL (%)			
1980/81	43.1%	56.9%	100.0%
1984/85	56.4%	43.6%	100.0%
III. RATES OF GROWTH (1980-84) (%) (in constant 1980 prices)	12.4%	0.7%	6.5%

Source: Computer Science Center, University of Indonesia

the estimates of annual operating budget per student given in table 9.24.

The data summarized in Table 9.24 allow formulation of some preliminary conclusions about trends in operating budget per student (i.e., a proxy for unit costs) between 1980/81 and 1984/85, and about variations in operating budget per student by type of university. In Table 9.24 the public universities and institutes are categorized into the following groups: (a) universities with postgraduate programs (pasca sarjana); (b) universities with enrollments exceeding 6,000 in 1984; (c) universities with enrollments less than 6000; and (d) IKIPs (teacher training colleges).

Figure 9.6 below summarizes average operating budget per student by type of university in 1984/85.

Figure 9.6 indicates that the highest unit costs per student are to be found in those universities with postgraduate programs. The assumed

TABLE 9.24

## OPERATING BUDGET PER STUDENT, 1980/81 AND 1984/85

	1980/1981		1984/1985		84/85 at 80 pr	
	Per Operati					
	Student Budget					
<b>I. UNIVERSITIES w/ POST GRAD PROGRAMS</b>						
2 Univ INDONESIA	472	5516	505	7019	309	4295
4 Univ PADJADJARAN	302	3276	389	4725	238	2891
5 ITB	439	3561	499	4921	306	3011
7 IPB	862	3783	829	6374	507	3900
12 Univ GADJAH MADA	339	6268	425	9308	260	5695
15 Univ AIRLANGGA	530	2706	557	4057	341	2483
PASCA AVERAGE	490	4185	534	6067	327	3712
<b>II. LARGER UNIVERSITIES</b>						
8 Univ DIPONEGORO	219	1674	286	2761	175	1689
10 Univ Neg SEBELAS MARET	163	1663	225	3060	138	1872
18 Univ BRAWIJAYA	118	919	243	2205	148	1349
19 Univ JEMBER	150	885	181	1491	110	912
21 Univ SYIAH KUALA	225	1357	220	2072	135	1267
22 Univ SUMATERA UTARA	197	2258	237	3526	145	2157
24 Univ ANDALAS	420	1629	383	2523	235	1543
28 Univ SRIWIJAYA	203	1432	343	2689	210	1645
29 Univ LAMPUNG	136	501	173	1090	106	667
33 Univ LAMBUNG MANGKURAT	166	950	219	1627	134	996
35 Univ SAM RATULANGI	225	1303	168	1969	103	1205
39 Univ HASANUDDIN	250	2349	252	3484	154	2132
43 Univ UDAYAMA	155	1398	229	2575	140	1576
> 6000 AVERAGE	202	1409	243	2390	149	1462
<b>III. SMALLER UNIVERSITIES</b>						
11 Univ JENDERAL SOEDIRMAN	304	684	253	1182	155	723
14 Inst Seni Indonesia Yogya	701	1253	705	1318	432	806
16 ITS	220	796	332	1471	203	900
26 Univ RIAU	200	641	303	1278	185	782
27 Univ JAMBI	231	365	243	701	149	429
31 Univ TANJUNG PURA	144	540	192	983	118	602
32 Univ PALANGKARAYA	205	304	284	700	174	428
34 Univ MULAWARMAN	124	472	195	937	119	573
42 Univ PATTINURA	208	754	266	1413	163	865
44 Univ MATARAM	184	469	205	1008	125	617
45 Univ KUSA CENDANA	162	654	256	1224	157	749
46 Univ CENDERAWASIH	320	603	413	1205	252	737
30 Univ BENGKULU	0	409	283	409	173	250
38 Univ TADULAKO	0	415	270	957	165	586
41 Univ HALU OLEO	0	369	128	369	78	225
47 Fak Pert UNCEH MANOKWARI	0	601	0	601	0	368
< 6000 AVERAGE	250	583	289	985	177	603
	13	17	16	17	16	17

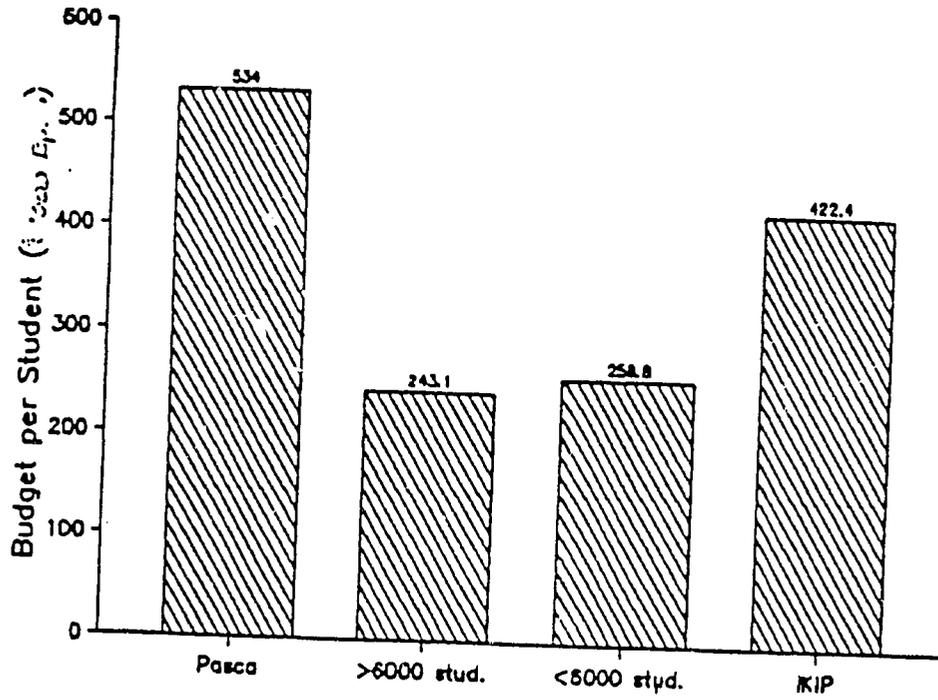
TABLE 9.24 (cont.)

<u>IV. IKIPS</u>										
3	IKIP Neg JAKARTA	:	349	1782	:	501	3269	:	307	2000
6	IKIP Neg BANDUNG	:	243	2225	:	404	3999	:	247	2447
9	IKIP Neg SEMARANG	:	265	1005	:	409	1954	:	250	1195
13	IKIP Neg YOGYAKARTA	:	237	1466	:	368	3370	:	225	2062
17	IKIP Neg SURABAYA	:	350	1409	:	506	2413	:	310	1477
20	IKIP Neg MALANG	:	257	1092	:	335	2090	:	205	1224
23	IKIP Neg NEDAN	:	278	1431	:	421	2386	:	258	1460
25	IKIP Neg PADANG	:	334	1056	:	615	2923	:	377	1788
36	IKIP Neg MANADO	:	223	1018	:	404	1735	:	247	1062
40	IKIP Neg UJUNG PANDANG	:	179	1062	:	261	2075	:	160	1269
37	FKIP UNSRAT GORONTALO	:	0	273	:	0	403	:	0	246
	IKIP AVERAGE		272	1355		422	2612		258	1598
			10	10		10	10		10	10

← # of cases

Figure 9.6

AVERAGE BUDGET PER STUDENT BY UNIVERSITY GROUPINGS  
(Operational Budget 1984/85)



higher cost of postgraduate programs does not necessarily explain why per student costs are higher for universities with S-2 (Pasca Sarjana) programs. A further examination of Table 9.22 by type of university shows that operating budget per student was also highest for the Pasca Sarja universities in 1980/81 which was prior to the establishment of postgraduate programs. In addition, current Pasca Sarjana enrollments are a very small proportion of each university's total enrollment. Figure 9.6 also suggests that annual per student costs in IKIPs are high compared to costs in the other two categories of universities. Finally, from this analysis it would appear there is relatively little difference between per student costs in the larger universities and such costs in universities with enrollments of less than 6000 students.

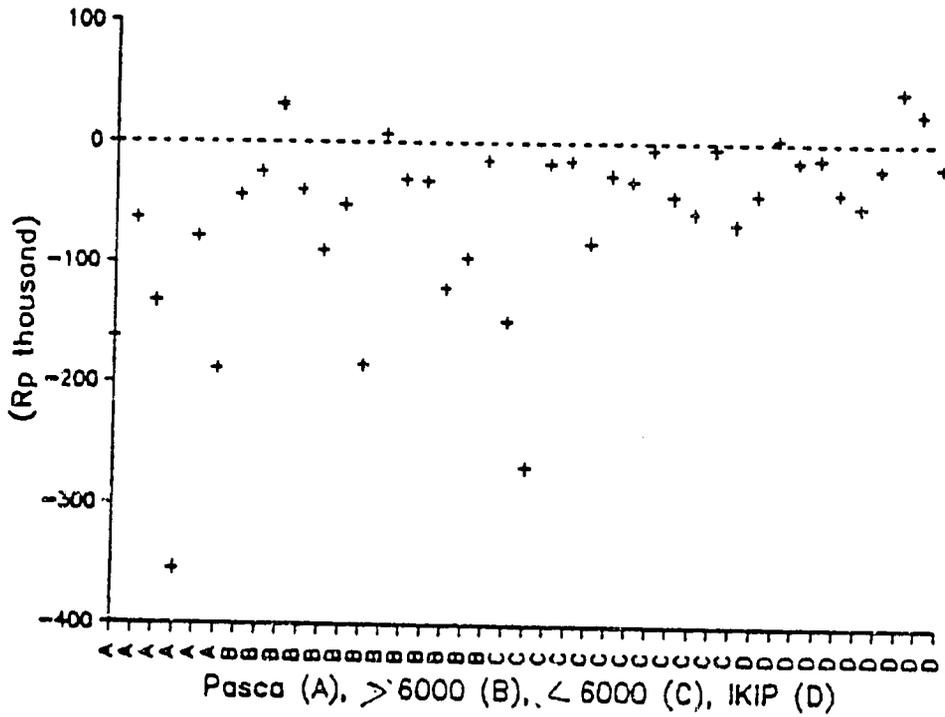
Table 9.24 also shows that, in real terms, the annual operating cost per student costs decreased between 1980/81 and 1984/85.

Figure 9.7 shows the extent to which the operating budget per student has declined if the 1980/81 budget per student is held at a constant of 0 for each university.

Figure 9.7 shows that only five universities have enjoyed real increases in real operating budget per student. There are dramatic decreases in real operational budget per student for all groups of universities except the IKIPs; three of these exhibit an increase in real terms and the others show only modest decreases. The overall decline in annual operating budget per student raises some concerns about the long term effect of this decline on the quality of higher education.

FIGURE 9.7

COMPARISON OF OPERATIONAL BUDGET PER STUDENT



In 1984/85 the average annual per student cost for public universities was approximately Rp.339,000 (see Table 9.23). This figure includes only MOEC allocations to universities' routine and development budgets. In 1984/85, an SPP fee of approximately Rp.60,000 was collected from each student. The total annual cost per student is, thus, Rp.330,000 + Rp.60,000 or Rp.399,000 per student. This figure does not include additional school-related expenses that students or their families must pay for themselves, e.g., special handouts, notebooks, food, transportation, etc. The 1985 Baseline Study for Higher Education, which is now nearing completion, has attempted to collect information regarding these additional private contributions. These data were not available at the time this Sector Review cost analysis was being prepared. Using the combination of known public and private contributions, however, it is assumed that public university students, on the average, contribute only 15% of their total annual cost of their higher education. Compared to private contributions at the secondary level, this proportion is quite low. In light of the current low (and declining) operational budget per student and the ambitious goals of Repelita IV for expanding enrollments in higher education, it appears that efforts should be made to increase the private contribution to public higher education. There should, of course, be a parallel effort to assess individuals' ability to pay and to provide grant or loan funds for able students from lower income families.

The second half of this section uses preliminary findings from the Baseline Study to make comparison of private and public higher education by field of study. The study attempted to collect a variety of data on

all public and private higher education institutions in Indonesia, including information regarding many aspects of higher education financing. The purpose of this higher education census was four-fold: (a) to provide data inputs for the eight special studies, completed in November 1985, which provide data and conclusions to guide formulation of a 10-year plan for high education; (b) to provide feedback to universities for their own planning needs; (c) to help establish a more complete base of higher education statistics; and (d) to identify areas that require further study. Analysis of the surveys began in August 1985 at the computer center of the University of Indonesia. Overall, the return rate for the survey was quite good (approximately 60% for the universities overall). The quality of the data is somewhat less reliable: each university or institution was responsible for its own reporting and no specific measures to control for quality were taken by the survey team. For the financial data (i.e., data on financial units) used in the preliminary estimates of unit costs in the section, approximately 30% of the surveys were returned and the quality of the financial data is relatively low, compared, for example, to data on student characteristics. Approximately 60% of the surveys on university-level financial data were returned and the quality of data was rated as average. The unit costs estimated for the different fields of study in public and private universities should therefore be considered as very preliminary. At this early stage, the usefulness of these cost estimates lies in allowing some very general comparisons of the difference (in order of magnitude) between public and private programs and among major fields of study. It is clear that further

study will be needed to verify the reliability of these early estimates.

From the Baseline Study, it was possible to get expenditure and enrollment data for structural units within universities; these units are subdivisions of faculties. As in the case of the previous analyses of unit costs, only expenditures on annual operations were examined. Operational expenditures were included for the following activities: education, research, community service, student activities, teacher upgrading, and housekeeping. Expenditures for each of these activities were grouped within four general categories: salaries, materials, maintenance, and travel. In theory, the totals of these expenditure categories should equal total income from the following sources of funds:

- (a) Funds from government:
  - (i) MOEC (non DIP/DPP);
  - (ii) Local government;
  - (iii) Other department;
  - (iv) Other government sources.
- (b) Funds from Nongovernment Aid:
  - (i) Foundations (private universities only);
  - (ii) Alumni contributions;
  - (iii) Private groups and individuals;
  - (iv) State-owned enterprises;
  - (v) Other domestic sources;
  - (vi) Foreign sources.
- (c) Funds from Public Sector:  
(e.g., laboratory analyses, computer facilities.)
- (d) Funds received for services rendered:  
(e.g. research, education, consulting)
  - (i) to government;
  - (ii) to private organizations.
- (e) Funds received from loans less debt service:

- (i) government banks;
  - (ii) national privately owned banks;
  - (iii) international banks;
  - (iv) private groups and individuals.
- (f) Funds from students:  
(including fees for registration, admission, building, lectures, and exams.)

During this Sector Review, there was insufficient time to verify the closeness of the match between income and expenditure data for the selected universities. Future refinements of the preliminary unit costs presented here should include an examination of the comparability of income and expenditure data as a test of data reliability. The sources of income data are available for total universities as well as for the structural units of universities examined in this section. As noted earlier, the university-level data are of better quality and are more complete than the structural unit data (e.g., 60% of the surveys were returned for university-level data). This data base appears to have a wealth of information regarding the financing of public versus private education. The current lack of data concerning total student contributions to public higher education and the general lack of information on financing of private higher education suggests the need for further study. This portion of the Higher Education Baseline Study could be the data base for such a study.

Annual pre-student costs were calculated for selected units within selected universities on the basis of total operating expenditures per structural unit and enrollments per structural unit, as reported in the expenditures portion of the Higher Education Baseline Study. These

structural units (e.g., faculty subdivisions) were grouped by the following fields of study:

- (a) Medicine
- (b) Natural Science
- (c) Agriculture
- (d) Economics
- (e) Social Science
- (d) Engineering
- (f) Education

These fields of study were chosen because of their expected cost difference and because of the relevance of these skills areas in making assessments about future manpower needs for sustained economic development.

Unit costs were calculated for all structural units reporting costs for each of the four categories of expenditures: salaries, materials, maintenance, and travel. Each annual per student cost that was calculated for a structural unit was then categorized under one of the seven main fields of study listed above. For example, Pancasila University, a fairly-well-established private university in Jakarta, reported the following total expenditures for its economics programs (figures are in 000 current 1984/85 Rupiah):

Item	TOTAL ANNUAL COST
- Salaries	434,022
- Materials	24,454
- Maintenance	3,950
- Travel	14,696
TOTAL	477,122

Enrollments for this unit were 1,582; the annual cost per student could thus be estimated at Rp301,600. One representative per student cost was chosen from all those calculated for each of the seven fields of study on the basis of the following criteria:

(a) assumed accuracy based on the emerging range of unit costs for each field of study, and

(b) The degree to which the university was well-established.

In the case of public universities, a portion of the rektorat costs, based on number of students enrolled in a given faculty as a proportion of total university enrollments was added to the annual cost per student. The data were not complete enough to allow this method for private schools. The amount of rektorat costs added to the public university unit costs is very small and is not likely to overstate these costs greatly compared to those for private schools.

Table 9.25 shows annual cost per student for field of study in public universities. Table 9.26 provides the same information for the private sector. Both tables include actual and proportions of annual per student costs by expenditure category. In general, salary costs appear to be lower and travel costs higher in private higher education than in public.

Table 9.27 summarizes the preliminary per student cost estimates calculated for private and public universities.

A number of general observations can be made concerning the annual per student costs summarized in Table 9.25. First, these costs are quite low compared to unit costs for secondary students. For example, the annual per student cost for STM (technical senior secondary) was Rp.176,724. This is actually higher than the unit cost estimated for social science programs in public universities. One explanation is that the unit costs in the other sections are based on teachers' salaries from the 1985 civil service pay scale. The costs for higher education

TABLE 9.25  
PUBLIC UNIVERSITIES  
ANNUAL COST PER STUDENT BY FIELD OF STUDY  
(000 Current 1984/85 Rupiah)

Field	Total	Salary	Materials	Maintenance	Travel
Medicine (Sam Ratulangi)	50,142,564,111	(84.8%)	(12.9%)	(2.1%)	(0.2%)
Nat. Science (Gadjah Mada)	656,556,791,110	(84.7%)	(12.1%)	(1.7%)	(1.5%)
Agriculture (IPB)	2,702,422,611	(89.7%)	9.7%	(0.3%)	(0.3%)
Economics (Padjadjaran)	196,155,356	78.9%	(18.0%)	(3.1%)-	
Social Science (Sam Ratulangi)	1,701,361,816	(80.4%)	(10.4%)	(9.4%)-	
Engineer (Gadjah Mada)	377,246,105,206	(5.3%)	(27.8%)	(5.2%)	(1.7%)
Education (IKIP Manado)	297,262,314	(88.2%)	(10.4%)	(1.4%)-	

(weighted average for all fields: 280.0)

Source: Higher Education Baseline Study, 1984.

TABLE 9.26

PRIVATE UNIVERSITIES  
AVERAGE ANNUAL COST PER STUDENT BY FIELD OF STUDY  
(000 Current 84/85 Rupiah)

Field	Total	Salary	Materials	Maintenance	Travel
Medicine (U. Methodist Ind)	350	168.3 (48.0%)	88.6 (25.0%)	66.5 (19.0%)	26.6 (8.0%)
Nat. Science (U. Nasional)	832.4	439.8 (52.8%)	112.1 (13.5%)	25.9 (3.1%)	254.6 (30.6%)
Agriculture (U. Methodist Indo))	511.9	367.7 (71.8%)	114.0 (22.3%)	17.7 (3.5%)	12.5 (2.4%)
Economics (U. Pancasila))	301.6	274.3 (90.9%)	15.5 (5.1%)	2.5 (1.0%)	9.3 (3.0%)
Social Science (STI Kemasyarakatan)	266.9	179.7 (67.4%)	56.4 (21.1%)	16.9 (6.3%)	13.9 (5.2%)
Engineer (U. Kristern Petra))	616.8	545.9 (88.5%)	18.5 (3.0%)	17.1 (2.8%)	35.3 (5.7%)
Education (IKIP PGRI Jatim))	236.7	125.7 (53.1%)	54.0 (22.8%)	31.6 (13.4%)	25.4 (10.7%)

(weighted average for all fields: 343.8)

Source: Higher Education Baseline Study, 1984.

TABLE 9.27

PRELIMINARY ESTIMATES OF ANNUAL COST PER STUDENT  
BY STATUS OF UNIVERSITY AND BY FIELD OF STUDY  
(1984/85 Rupiah)

Field of Study	Annual Cost Per Student	
	Public	Private
Medicine	501,000	350,000
Natural Science	656,000	832,400
Engineering	377,000	616,800
Agriculture	270,000	511,900
Economics	196,000	301,600
Social Science	170,000	266,900
Education	297,000	236,700
Average (weighted)	280,000	343,800

are based on budgeted expenditures for 1984/85 which do not reflect the more than two-fold increase in civil service salary implemented in 1985. For public universities, some adjustment will need to be made to the salary component if these unit costs are to be comparable with those at the other education levels. It is difficult, however, to determine what adjustments are needed in unit costs for private higher education. It is quite possible that the per student costs of higher education are relatively low compared to those of secondary education programs. The downward trend in annual operating budget per student (in real terms) that was identified among public universities in the previous section is consistent with the finding in the private sector.

With exceptions of medicine and education, cost per student appears to be higher for private education. If public universities were not able to provide complete information on student contributions additional to the SPP fees, the public university costs would be understated relative to the private sector costs. It is quite reasonable to assume, however, that private higher education costs are greater, as these schools are able to respond more flexibly to the increased costs of education by increasing tuition and other fees. Per student expenditures in public universities are determined by government allocations to the universities routine and development budgets; these budgets appear to be driven by instructors salaries rather than enrollments (Ridwan, U.I., 1985).

Finally, the following indices can be calculated from Table 9.25 to illustrate the cost implications of expanding enrollments in the

fields of study that are of highest priority for Indonesia's development:

	Public	Private
Average	1.00	1.00
Medicine	1.79	1.02
Science	2.34	2.42
Engineering	1.35	1.79
Agriculture	0.96	1.49

In both public and private schools, annual per student costs for science were found to be the highest relative to the weighted average; in both cases they were over two times higher.

#### Cycle Cost Comparisons

By combining cost data with information on student flows and instructional years per graduate, one can estimate costs per graduate or "cycle costs" for each educational level. These cycle costs overestimate the total costs incurred per graduate in that they disregard the value of education acquired by students who do not complete the cycle. Simply multiplying annual unit costs by the average number of years it takes a graduating student to complete the cycle underestimates total costs because it does not account for the resources that have been spent on repeaters and dropouts. Cycle costs, however, allow one to account for the inefficiencies of dropouts and repeaters in monetary terms. The cycle cost measure also allows for the calculation of an "attrition cost index" which indicates the difference between cycle costs in an ideal cycle with no repeaters or dropouts (assuming a constant unit cost) and actual cycle costs under prevailing dropout and repetition rates. In a very rough way, the difference between actual and optimal cycle costs represents the level of resources wasted on

internal inefficiencies. The attrition cost index is a ratio of actual to optimal cycle cost. Hence, an attrition cost index of 1.00 would show there is no "waste" of resources on attrition. The higher the index, the higher would be the level of resources spent on repeaters and dropouts.

Table 9.28 summarizes unit costs, optimal cycle costs, instructional years per graduate, actual cycle costs, and attrition cost indices for all levels of education. This summary allows for a comparison across subsectors of annual costs and the relative efficiency with which these resources are used.

The ratio of unit costs at the various levels of education to the average cost of primary education allows for a comparison of annual per student costs across subsectors. All unit costs were calculated in 1985 prices except those for higher education. These were based on 1984 budget data and do not reflect the large salary increase for civil servants (including public university professors) that took place in 1985. To make higher education unit costs roughly comparable to other unit costs, the portion of higher education unit costs that goes to salaries was adjusted to reflect the 1985 salary scale increase.

In general, there is not a great deal of variation in unit cost from one level of education to another. Compared to the average unit cost for primary, public general junior secondary is 1.36 times higher and public general senior secondary is 1.67 times more expensive. The ratio of public higher education to primary education is quite low by international standards. This comparison supports earlier observations about declining annual budget per student in public universities.

TABLE 9.28

SUMMARY OF UNIT AND CYCLE COSTS  
ALL LEVELS OF EDUCATION

	TOTAL COST/ STUDENT	RATIO TO AVG PRIMARY	OPTIMAL COST/ GRAD	INSTRUCTION YEARS PER GRADUATE	ACTUAL COST/ GRAD	ATTRITION COST INDEX
<b>I. PRIMARY</b>						
- AVG. INDONESIA	78,948	1.00				
- JAKARTA	63,455	0.80	380,730	6.80	436,570	1.15
- JAVA + BALI	82,702	1.05	496,212	7.80	645,076	1.30
- OUTER ISLANDS	75,011	0.95	450,066	8.43	632,342	1.41
<b>II. JUNIOR SECONDARY</b>						
(A) <u>GENERAL:</u>						
- PUBLIC SMP	107,300	1.36	321,900	3.29	353,017	1.10
- PRIVATE SMP (I) *	118,609	1.50	355,827	3.56	422,248	1.19
- PRIVATE SMP (II)**	94,205	1.19	282,615	3.56	335,370	1.19
(B) <u>VOCATIONAL/TECHNICAL</u>						
- PUBLIC ST/SKKP	107,300	1.36	321,900	3.57	383,061	1.19
<b>III. SENIOR SECONDARY</b>						
(A) <u>GENERAL:</u>						
- PUBLIC SMA	131,797	1.67	395,391	3.45	454,700	1.15
- PUBLIC SMA/JAKARTA	131,797	1.67	395,391	3.25	428,340	1.08
- PUBLIC SMA/JAVA+BALI	131,797	1.67	395,391	3.21	423,068	1.07
- PUB. SMA/OUTER ISLANDS	131,797	1.67	395,991	3.71	488,967	1.24
- PRIVATE SMA (I) *	198,456	2.51	595,368	3.80	754,133	1.27
- PRIVATE SMA (II) **	114,276	1.45	342,828	3.80	434,249	1.27
(B) <u>TECHNICAL</u>						
- PUBLIC STM	176,724	2.24	530,172	4.58	809,396	1.53
(C) <u>COMMERCIAL</u>						
- PUBLIC SMEA	135,747	1.72	407,241	3.33	452,038	1.11
(D) <u>TEACHER TRAINING</u>						
- PUBLIC SPG	149,894	1.90	449,682	3.29	493,151	1.10
- PRIVATE SPG (II)	119,562	1.51	358,686	3.41	407,706	1.14

Table 9.28 (cont.)

IV. HIGHER

A. PUBLIC

- (AVE. PUBLIC)	399,000
- MEDICINE	501,000
- NATURAL SCIENCE	656,000
- ENGINEERING	377,000
- AGRICULTURE	270,000
- ECONOMICS	196,000
- SOCIAL SCIENCE	170,000
- EDUCATION	297,000
 (AVG. /WEIGHTED)	 (280,000)

B. PRIVATE

- MEDICINE	350,000
- NATURAL SCIENCE	832,400
- ENGINEERING	616,800
- AGRICULTURE	511,900
- ECONOMICS	301,600
- SOCIAL SCIENCE	266,900
- EDUCATION	356,700
 (WEIGHTED AVG)	 343,800

\* Scenario I : "action" private schools; based on actual budget data for 10 schools in Jakarta

\*\* Scenario II : Estimates based on current salaries figures + other assumptions for "typical" private school.

#### 9.4 CONCLUSIONS

The preceding analysis provides the basis for general conclusions. These conclusions form the foundation for the specific recommendations advanced in the final section of this chapter.

##### Conclusion 1

The present and projected polytechnic institutions represent a bold and significant initiative in higher education, not only because of their number and cost, but also because they address human resource development needs in a very direct way. Despite the growing size, importance, and uniqueness of the polytechnic program, there is no specialized unit within the Directorate of Higher Education to guide, coordinate, and oversee the functioning of this newly created component of the university system function. At present, coordinators from the World Bank are still working on the polytechnic program, and to a large degree they now serve this coordinating and supervisory function. However, when the World Bank projects are completed, these personnel will most likely be phased out, leaving the polytechnics on their own within their mother institutions. They will be without a central coordinating body to make sure the new units not only fulfill their individual function but also act as a coordinated whole to meet human resource development needs on a regional and national scale. This need should be anticipated and considered.

##### Conclusion 2

Enrollment pressure in higher education is a problem. The newly-created Open University is an important initiative that shows great

promise in alleviating the pressure. Not only will the Open University be able to assist significantly in increasing the absorptive capacity of the higher education system (assuming it continues to draw students), but it also has the potential to become an important materials design and production unit for the entire university undergraduate system.

The possible absorption of the rural satellite project within the Open University could be a future development of great importance and promise, because of its potential as an additional mass communications element.

### Conclusion 3

The internal efficiency study carried out as one of the Baseline Studies was still in progress at the time of this research, and final reports had not yet been prepared. There was enough evidence, however, available to conclude that internal efficiency in higher education is low. Only an estimated 10% of students graduate on time, and some students take double the amount of time projected to complete their degrees.

The introduction of the credit system in 1979 has ameliorated this problem somewhat. Now if a student fails a course, he or she can repeat only that particular course instead of the whole year. Furthermore, use of the credit system has allowed for more standardized calculation of student grade point averages, which results in more precise academic accounting and thus to more probing studies of student performance with relation to faculty, or subject areas or courses.

In past studies on productivity at the undergraduate level (S-1), the requirement of the undergraduate thesis (skripsi) has repeatedly

been identified as the major stumbling block to timely graduation, not only because students may delay or fail to complete the thesis, but also because they may have difficulty finding instructional staff available to supervise their thesis and to examine them.

#### Conclusion 4

The academic preparation of the professoriate is very low. Less than 15% have postgraduate degrees. At the tertiary level, this is an especially serious problem because knowledge and advanced thinking are a central component of higher education. To keep pace with increased enrollments, the number of instructional personnel are targeted to double by the end of Repelita IV. It is likely that the level of educational preparation of the professoriate will either remain near 15% or even decline despite the remedial measures to upgrade personnel undertaken in the Inter-University Centers and other in-country and overseas graduate training programs. The problem is especially acute at the postgraduate S-2 and S-3 levels.

#### Conclusion 5

The management capacity of university administrators appears to be inadequate. In many higher education systems, teaching faculty move up the career ladder to become managers and supervisors without any specific preparation in management skills. In a growing, dynamic higher education system such as that of Indonesia, academic administrators are faced with demanding, complex tasks. They lack knowledge of proven techniques of organizational theory and practice, specific management skills and training, and administrative theory and leadership; they are

at a serious disadvantage in their jobs. As a consequence, the whole management system suffers -- in budgeting, staffing, scheduling, and student and faculty personnel practices.

The organizational and administrative structure for higher education may also require streamlining to facilitate decision making, planning, and information flow. It is possible that with improved administrative systems and with greater local "autonomy," more work could be done in the same, or less time and at no additional cost.

#### Conclusion 6

There are regional inequities in higher education. It is clear that Java still leads the other islands in terms of educational opportunity and quality even though great strides have been taken to correct this imbalance. The development of new universities and polytechnic institutions on the outer islands has helped to open up previously deprived areas. It is also clear from productivity studies at various institutions that internal efficiency on the outer islands is lower than on Java.

With respect to opportunities for women, because of cultural reasons, women are not fully represented at the S-1, S-2, and S-3 levels. Low enrollment of women represents ineffective use of resources.

It is probable that a proportion of the population capable of higher education is unable to take advantage of that education because of financial inability to pay fees and attend school full time. This is a socioeconomic inequity.

### Conclusion 7

Coordination between public and private higher education institutions has been very good, and needs to be continued. The polatinggi or single system policy is viable and necessary. It is clear that both the private and the public sectors in higher education are increasingly interdependent. The MOEC's policy concern to meet enrollment pressure and raise standards in all institutions, both private and public, is the common link between public and private higher education.

### Conclusion 8

The Baseline Studies Project was an excellent higher education initiative. Although the studies were not completed in toto for the special workshop in October 1985, at which time the designs of the study were reported and analyzed, and some of the results presented, it was clear that the studies had value in gathering data and in arraying data in new ways to review important information and insights on persistent problems. The workshop itself provided a spinoff for all the participants because they were able to see the overall picture as the subgroups reported on their own studies.

There should be a special caveat for projects such as this one. The danger is that it could be considered a one-time exercise without any follow up. The Directorate General of Higher Education will take a great step forward if it institutionalizes these prototype studies and others like them as part of the system's regular research function.

## Conclusion 9

Information-based decision making and coordinated research and data collection for policy formation are not yet operationalized in higher education. The Director General's staff have begun to collect and publish data on an annual basis. They have also published a 10-year data set. This is a start, but there appears to be some uncertainty as to who has the prime function for the collection of various kinds of data and for various important research studies.

Both Balitbang and the DGHE's planning office gather data, and do research. Each university has data collection needs, and should have their own data collection programs for planning and for local policy-making purposes. Accordingly, there is lacking an overall coordinated management information system that would integrate these data-for-policy-formation services and coordinate the allocation of research and data collection tasks among the various units: Directorate General of Higher Education, Balitbang Dikbud, the Kopertis, Bappenas, and the institutions and universities themselves.

## 9.5 RECOMMENDATIONS

### 9.5.1 Policy recommendations - Recommendations 1 to 10

The recommendations are discussed in relation to the main conclusions presented above.

Recommendation 1. Create a new sub-directorate for polytechnic education within the Directorate General of Higher Education.

#### Discussion

The function of this sub-directorate would be to coordinate and supervise the new and expanding polytechnic system. Particular emphasis should be placed on planning for external efficiency through industry cooperation with the polytechnics, with attention to maintaining up-to-date curricula in accordance with the needs of modernization.

#### Implementation Alternatives

1. The polytechnics could remain within the university system and be associated within the various universities. This would enhance their status and help to erase the false dividing line between the theoretical and the practical in higher education. Nevertheless, to take advantage of the polytechnics and their potential, certain differences in operations and procedures would have to emerge. For example, the question of a different entrance exam for the polytechnics would have to be considered.

2. The proposed sub-directorate for polytechnic education could also develop cooperative programs with business and industry for systems of teaching and learning. The goal would be eventually to place students for a time within commercial and industrial centers for practicums, and

to utilize industrial personnel for selected instructional situations on campus.

3. Eventually, industry might support some of the costs of polytechnic education, as they would be in a partnership position and would be the primary beneficiaries of such programs. The staff of the polytechnic sub-directorate should be composed of persons knowledgeable and experienced in polytechnic education. They would work closely with the staff of the directors of curriculum, student affairs, research and community service, and the director of private universities, under the leadership of the Director General of Higher Education.

4. The sub-directorate could develop a master plan to supervise the maintenance, repair, and replacement of equipment at the polytechnics and to plan for the training of new faculty.

Recommendation 2. Support mastery learning systems and other mass-oriented programs such as those practiced at the Inter-University Centers and the Open University.

#### Discussion

Allocate special development funds to the Open University and to the Inter-University Centers for the design and development of self-instructional, mastery learning type materials suitable for reaching large numbers of students at the undergraduate levels.

These materials would be utilized in the regular higher education institutions, to compensate in part for the lack of books and reference materials and for the low level of academic preparation of the academic staff. The utilization of mastery learning instructional materials would permit much higher teacher-student ratios with no loss in

instructional productivity, thus representing a valuable cost-reduction feature for undergraduate education.

#### Implementation Alternative

Allocate the rural satellite project, and other satellite applications, to the Open University for experimentation and piloting of additional mass education projects, especially for outlying and remote islands in order to compensate quickly for lack of access and scarcity of resources.

Recommendation 3. Design specific interventions to attack the internal efficiency problem, and give them special priority in the 10-year higher education plan. All interventions will require careful research to pinpoint the reasons for low productivity.

#### Implementation Alternatives

Specific actions might be the following:

1. Eliminate the skripsi, or thesis, as a requirement for graduation at the S-1 level. The skripsi is probably not worth its cost to the system nor to the student in terms of real learning when compared to the deficits in productivity it causes.
2. Continue to utilize and refine the recently installed credit system to help speed students through the higher education system.
3. Develop a special counseling system to assist students who are more than two years behind schedule in their programs to help them organize and energize their performance, and make more realistic decisions about their futures.
4. Provide a bank of compensatory, supplementary, individualized

self-instructional materials (perhaps developed by the Inter-University and the Open University) as remedial resources for students who may be having difficulty in certain courses, thus allowing them to keep up with other students.

5. Install a peer tutoring system at the undergraduate level so that through a small peer group, team spirit is developed whereby students work in small groups of five or six. This would provide mutual support both inside and outside the classroom.

6. Design special programs for part-time students, allowing them more time to complete a four-year program, but on a paced basis. Such persons would not be counted as "behind time" in productivity studies.

These are just a few of the techniques that could be studied, tested, and installed to promote internal efficiency in higher education, without adding great costs.

Recommendation 4. Continue staff development programs through study in-country and abroad, concentrating on instructional staff at the postgraduate levels.

#### Discussion

The recently established Inter-University Centers are an excellent initiative and should be extended if possible. For study in-country, both short term workshops and seminars as well as advanced degree work are valuable for staff development.

#### Implementation Alternatives

1. For study abroad, establish a foreign language short term immersion center where students preparing for foreign study may acquire foreign languages through the latest methods of second language

instruction. This Higher Education Foreign Language Institute would not only be responsible for such instruction, but also would be involved in translation of new and vital materials in priority areas, such as math and science. Important works could be available in a shorter period of time, translated into Bahasa Indonesia, ensuring both faculty and students of up-to-date materials.

2. Develop a policy whereby faculty members will be required to achieve postgraduate degrees in a reasonable time in order to continue on the career promotion scale.

Recommendation 5. Develop a system for groups with similar jobs in each region and Kopertis to assist in developing brief workshops for department heads, assistant deans, deans, and rectors, enabling them to work together on real day-to-day problems under the guidance of specially trained group leaders.

#### Discussion

Group leaders would be experienced administrators who would receive further preparation for offering this training. In order to provide for a balanced program, a uniform sequence could be developed systematically, focusing over a two-year period on topics such as budget management, personnel management and supervision, evaluation policies and practices, community relations, and other topics pertinent to higher education administration in Indonesia. Such programs should incorporate performance goals into their design, so that the results of these workshops could be more accurately evaluated.

Recommendation 6. Consider low cost innovative ways to reduce inequities based on regional differences.

Implementation Alternatives

1. Use educational radio or satellite radio-telephone to provide educational programs to remote corners of the Republic, compensating for scarce and inadequate local resources.

2. Use the external examiner system, whereby specially trained examiners visit and participate periodically in locally conducted examinations. This will help to guarantee quality standards and provide further credibility to programs in remote areas.

3. Continue to set up at least one quality higher education center in each region, striving eventually to establish at least one postgraduate center oriented toward the needs of the region. This could be built into the next 10-year higher education plan now being formulated.

4. With respect to inequities based on gender, the specific intricacies of this problem need to be studied in depth. In some programs women exceed men in enrollment; in others there are few or no women enrolled, e.g., engineering. Such curricular stereotyping has been shown to be remediable once women are given the opportunity and encouragement to enter careers previously denied them by regulation or general custom.

5. In order to compensate for inequities based on socio-economic level, a scholarship program should be extended to include a merit scholarship for at least one outstanding graduate from each high school who, because of financial reasons, might otherwise not be able to go

into higher education. The scholarship would be for one year, renewable, depending upon continued high scholastic performance. Prior to implementation of such scholarships, cost studies should be carried out to determine what the cost of such a program would be, and if it is viable within present financial aid resources.

Recommendation 7. Continue to work toward the integrated system (pola tinggi) of public and private higher education.

Discussion

Since the MOEC controls the permission to start and the licensing of private education, this authority could be used to determine the establishment of new institutions, or of new programs within existing institutions, based on a set of national priorities.

Implementation Alternatives

Set priority for charters for institutions offering programs in the sciences. Similarly, incentives could be offered to private institutions wishing to establish themselves in off-Java locations. Steps should be taken to guarantee that the integrated data management system follows pola tinggi and provides for data collection from private as well as public institutions. The system should be designed to consider public and private institutions not only as separate sectors, but also to consider them together in a broader, national framework of higher education.

Recommendation 8. Continue the baseline studies research program as part of a long range program to gather trend data on specific critical areas such as access and equity, internal efficiency, program quality and others.

Discussion

The baseline research program should also allow for ad hoc one-time studies on particular topics as required. Part of the research should be qualitative and inquiry-oriented as well as quantitative and fact gathering. Care should be exercised to avoid too large a sample so that studies and analyses may be more agile without losing validity. Research should be lean and parsimonious in order to keep costs low, save time, and avoid collecting data for which there is little or no use or purpose.

Implementation Alternatives

1. The baseline studies should continue to enlist the help of collaborating researchers in the various institutions and in the remote regions so that they become and remain regular partners in the continuous research program and not just data gatherers for the central authority. A system should be established to ensure that representatives of institutions on the outer islands are brought in from time to time to participate in the design and planning of particular studies, so the benefit of their experience and perspective may be utilized.

2. Where possible, baseline studies should be applied to the private as well as the public sector.

3. Attention should be given to the secondary system in terms of its symbiotic relationship as a feeder level into the tertiary system.

4. Appropriate research on high school seniors -- insofar as it affects the university -- should be carried out. For example, studies of the educational aspirations of boys and girls in high school can provide valuable information for university level planners.

Recommendation 9. Set up an integrated management information system that will bring together and coordinate the efforts and skills of planners and researchers in the planning section of the Directorate General of Higher Education and Balitbang Dikbud.

#### Discussion

Each of these elements is functional, but together they achieve a synergy that exceeds their individual potential. The planning office of the Directorate General of Higher Education not only has its own specific data needs, but also can serve as a research stimulus to the various institutions in their research. Balitbang serves not only the Directorate General of Higher Education but also is able to bring in pertinent and broader perspectives because its work cuts across the entire system of the Ministry of Education and Culture , as well as aspects of other governmental units such as Bappenas, Ministry of Labor, etc. Coordination is vital to create a high powered system that provides information and data quickly and continuously for decision making and policy formation.

The information management system is first a concept. It is then a set of techniques with a cadre of primary and secondary personnel trained in these techniques. Finally, it is the hardware and

instrumentation that serve the concept and the personnel.

The foregoing recommendations may be considered separately, but in reality they are also mutually supportive and aimed at improving the quality and management of higher education, as it expands to meet enrollment pressures. The information management system serves as a nerve center, providing the feedback and early alert mechanisms that permit higher education and the entire ministry to monitor itself and foresee approaching problems or crises.

Recommendation 10. Consider the long-range strategy of higher education in terms of role and function of this level within the total educational enterprise.

#### Discussion

Such a consideration should be informed by appropriate analyses of population growth, rates of return at each level, and other benchmarks. This consideration should take into account the following questions:

1. Should there be a limit to the expansion of higher education?
2. What criteria should be used to determine such a limit, if any?
3. What priority should higher education have in human resource development compared with other levels of education, e.g., secondary or primary education?
4. Should higher education become more directly oriented to the market place, or should it strive for a more "generalist" posture?

#### 9.5.2 Recommendations for Future Research

Recommendation 11. Study of the Budgetary Process.

There is a need to study in depth the budget process for higher education. Such a study should be designed by a financial budget expert

to determine whether the present budget format is adequate for Indonesian higher education as presently constituted. This specialist should also examine the cases for the SIAP, or budget surplus, particularly the SIAP in the development budget.

Such a study would be one approach to ascertaining if additional monies should be allocated to higher education or if present funds could be allocated more flexibly and creatively to meet rising enrollments without necessarily increasing cost per student. At present there is insufficient information on this complex theme to make a recommendation one way or another.

ANNEX A  
LIST OF INTERVIEWEES

Abdulah Syihab, Director Planning, Directorate General Higher Education,  
MOEC  
Bachtiar, Harsya, Chairman Balitbang Dikbud, MOEC  
Boediono, Head, Center for Information, Balitbang Dikbud, MOEC  
Bonner, Cameron, Acting Chief, USAID/EHR, Jakarta  
Foster-Gross, Donald, Head USAID/Training, Jakarta  
George Waldrum, George, Consultant CIDA, Financial Management  
Harbison, Ralph, World Bank  
Hartanto, Director Student Affairs, Higher Education Department, MOEC  
Hartanto, Djoko, Director of Student Affairs, D>G> of Higher Education,  
MOEC  
Indro Suwandi, Indro, Pusat Komputer, Universitas Indonesia  
Ing. K.T. Sirait, Ing., K.T., Institute Teknologi Bandung  
Departement Head  
Moegiadi, Secretary Balitbang Dikbud, MOEC  
Morfit, Michael, USAID/EHR, Project Officer, Jakarta  
Muliadi Ridwan, Muliadi, Computer Science Centre, University of  
Indonesia  
Notodihardjo, Hardjono, Senior Researcher, Balitbang Dikbud, MOEC  
Pramoetadi, Director of Academic Affairs, Directorate General of  
Higher Education  
Ranumihardja, Sukadji, Director General of Higher Education  
Sembiring, R., Head Sub Directorate for Academic Manpower Development  
Directorate General of Higher Education, MOEC  
Semiawan, Conny, Rector IKIP Jakarta  
Setijadi, Rector Open University  
Simanjuntak, Wesley, Staff Puslit, Balitbang Dikbud, MOEC  
Simbolon, O., World Bank Education IX Project, MOEC  
Soekisno, Director of Private Higher Education  
Sunarto, MOEC  
Suparman, Romli, Staff Puslit, Balitbang Dikbud, MOEC  
Suryabrata, Sumadi, Faculty of Psychology, Universitas Gajah Mada  
and Senior Researcher, D.G. Higher Educ.  
Valdivieso, Cecilia, World Bank, Jakarta  
W.A.F.J. Tumbelaka, W.A.F.J., Rector Universitas Indonesia  
Yohara, See, Director of Research and Affair, Directorate General of  
Higher Education, MOEC

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ANNEX C  
TERMS AND ACRONYMS

	<u>ENGLISH</u>	<u>INDONESIAN</u>
ADB	Asian Development Bank	Bank Pembangunan Asia
AKTA I	Tertiary Level Teacher Training Certification: Primary	Program AKTA I
AKTA II	" " Jr. Sec.	Program AKTA II
AKTA III	" " Sr. Sec.	" AKTA III
AKTA IV	" " University	" AKTA IV
AKTA V	" " University	" AKTA V
APBN	Gov.t Expenditure & Revenue Budget	Anggaran Belanja Negara
APDB I & II	Local Gov.'t Budgets	Anggaran Pembangunan Daerah I & II
BAKN	National Personnel Office	Badan Administrasi Kepegawaian Negeri
Balitbang Dikbud	Office of Education and Culture Research and Development	Badan Penelitian dan Pengembangan Pendidikan & Kebudayaan
Bappega	Regional Planning Office	Badan Perencanaan Pembangunan Daerah
Bappenas	National Development Planning Board	Badan Perencanaan Pembangunan Nasional
Biro Perencanaan	Bureau of Planning	Biro Perencanaan
PLKI	Vocational Training Center	Pusat Latihan Kejuruan Indonesia
BP3	Parent Teacher Assoc. Fee	Beaya Pungutan Persatuan Orang Tua dan Guru
BPM	Regional Training and Material Center	Badan Pembangunan Masyarakat

BPG	Teacher Education Center	Badan Pendidikan Guru
BPKB	National Training and Activity Center	Badan Pusat Kegiatan Belajar
BPS	Office of Statistics	Biro Pusat Statistik
Bupati	Head of District	Kepala Kabupaten
BUTSI	Indonesian Volunteer Service Corporation	Badan Tenaga Sukarela Indonesia
Camat	Head of Sub-District	Kepala Kecamatan
Dalam Negeri	Ministry of Home Affairs	Departemen Dalam Negeri
Dati I and II	Local Gov.'t levels	Daerah Tingkat I & II
DepKeu	Ministry of Finance	Departemen Keuangan
Dept. Agama	Ministry of Religion	Departemen Agama
DGB	Directorate General of the Budget	Direktorat General Anggaran
Dharma Pertiwi	National Org. of Wives of Army Officers	Persatuan Istri ABRI
Dharma Wanita	National Org. of Wives of Civil Servants	Persatuan Istri Pegawai Negeri
DIK	Budget Document	Daftar Isian Kegiatan
Dikdas	Direktorate of Primary Educ.	Kantor Pendidikan Dasar
Dinas	Regional Office	Dinas
DIP	Project Document	Daftar Isian Proyek
Ditjen PDM (Dikdasmen)	Dir. Gen. of Primary & Secondary Educ.	Direktorat Jendral Pendidikan Dasar & Menengah
Ditjen PT (Dikti)	Dir. Gen. of Higher Education	Dir. Jendral Pendidikan Tinggi

Ditjen PLSP0	Dir. Gen. of Out-of-School Education Youth & Sport	Dir. Jen. Pendidikan Luar Sekolah, Pemuda, dan Olah Raga
Ditjen Kebudayaan	Dir. Gen. of Culture	Dir. Jen. Kebudayaan
Dosen	Lecturer	Pengajar
DUP	Project Proposal Document	Daftar Usulan Proyek
D1	Teacher training Certificate: Primary	Program Diploma 1
D2	" " Jun. Sec.	" " 2
D3	" " Sen. Sec.	" " 3
EBTANAS	Primary School Finishing Examination	Evaluasi Belajar Tingkat Nasional
FKIP	Faculty of Education in University	Fakultas Keguruan Ilmu Pendidikan
GBHN	Guidelines for State Policy	Garis-Garis Besar Haluan Negara
GDP	Gross Domestic Product	Pendapatan Dalam Negeri
GOI	Government of Indonesia	Pemerintah Indonesia
IAIN	State Institute of Islamic Religions	Institut Agama Islam Negeri
IBM	International Business Machines	International Business Machines
IBRD	International Bank for Reconstruction and Development	Bank International Pembangunan & Rekonstruksi
IGGI	Inter-Governmental Group on Indonesia	Group Antar Negara untuk Indonesia
IIEP	International Institute for Education Planning	International Inst. for Educ. Planning
IKIP's	Teacher Training Colleges	Institut Keguruan Ilmu Pendidikan

Inpres SD	Primary School built under Presidential Decree Funds	Sekolah Dasar Inpres
Inspector Jendral	Inspectorate General	Inspektor Jendral
IPA	Science	Ilmu Pengetahuan Alam
IPB	Institute of Agriculture at Bogor	Institut Pertanian Bogor
IPS	Social Studies	Ilmu Pengetahuan Sosial
ITB	Institute of Technology at Bandung	Institut Teknologi Bandung
Kancam	MOEC Sub-District Office	Kantor Kecamatan P & K
Kandep	MOEC District Office	Kantor Departemen P & K
Kanwil	MOEC Provincial Office	Kantor Perwakilan P & K
Kas Negara	MOF Regional Office	Kas Negara
Kasi Dikmas	Head of Community Education Section	Kepala Seksi Pendidikan Masyarakat
Kasi SD	Head of Prim. School Section	Kepala Seksi SD
KBKM	Vocational Skills Training	Kursus Belajar Kejuruan Masyarakat
Kejar Paket A	Basic Education	Kelompok Belajar Paket A
Kejar PD	Community Education Out-of-School Learning Group	Kelompok Belajar Pendidikan Dasar
Kejar Usaha	Income Generating Learning Group	Kelompok Belajar Usaha
Kewajiban Belajar	Universal Compulsary	Kewajiban Belajar

**Primary Education**

KKG	Teacher Work Group	Kelompok Kerja Guru
LKMD	Village Development Program	Lembaga Ketahanan Masyarakat Desa
KPUA, B, C	Pre-Primary Teacher Training	Kursus Pendidikan Umum A, B, C
LIPI	Research Foundation of Indonesia	Lembaga Ilmu Pengetahuan Indonesia
LNG	Liquefied Natural Gas	Gas Cair Natural
Madrasah Ibtidaiyah	Islamic School (Primary)	Madrasah (Tingkat SD)
MenPan	Ministry of Administrator Reform	Menteri Aparatur Negara
MOEC	Ministry of Education and Culture	Departemen Pendidikan dan Kebudayaan
NFE	Nonformal Education	Pendidikan Luar Sekolah
NTCC	National Technical Coordinating Committee	Koordinator Bantuan Tehnis Luar Negeri
ODA	Overseas Development Assistance	Lembaga Bantuan Luar Negeri
Patjar	SD PAMONG Out-of School site	Tempat Belajar
Pancasila	State Ideology	Pancasila
PEDC	Polytechnic Education Development Center	Pusat Pengembangan Pendidikan Politeknik
Pengawas	Supervisor	Pengawas
PENMAS/Dikmas	Community Education	Pendidikan Masyarakat
Penilik	Education Supervisor in Kancam	Penilik Tingkat Kancam
Penilik TK/SD	Supervisory for Pre-Primary and Primary	Penilik TK/SD
PGA	Religious Teacher Training	Pendidikan Guru Agama

Pimpro	Development Project Leader	Pimpinan Project
Pusinfot	Office of Information (Balitbang)	Pusat Informatik
Puslit	Office of Research (Balitbang)	Pusat Penelitian
Pusisjian	Office of Testing (Balitbang)	Pusat Pengujian
Puskur	Office of Curriculum (Balitbang)	Pusat Kurikulum
PTPG	Higher Education Institute for Teacher Training	Perguruan Tinggi Pendidikan Guru
P3D	Primary School Development Project	Proyek Pengembangan Pendidikan Dasar
P3GTK	Technical Teacher Training Unit Center	Pusat Pengembangan Pendidikan Guru Taman Kanak2
PKK	Family Life Education Program	Pendidikan Kesejahteraan Keluarga
PKG	In-Service/On Service Teacher Training Program	Pusat Kegiatan Guru
PKG	Teacher Activity Office	Pusat Kegiatan Guru
PMP	Civics	Pendidikan Moral Pancasila
Pola Tinggi	Integrated Public /Private Higher Education	Pendidikan Tinggi Terpadu
PPPG	Teacher Education Development Office	Pembinaan & Pengembangan Pendidikan Guru
PPSP	Development School Project	Sekolah Pembangunan

Pramuka	Scouts	Pramuka
Proyek Buku Terpadu	Integrated Textbook Project	Proyek Buku Terpadu
PSPB	Indonesian Political History	Pendidikan Sejarah Pengembangan Bangsa
PU Wajar	Office of Universal Compulsary Educ.	Pendidikan Umum Wajib Belajar
RADIN	Meeting of Provincial Officials for Budgeting	Rapat Dinas
RAKERNAS	National Working Meeting of Budget	Rapat Kerja Nasional
RARAS	MOEC Echelon I Officials Meeting	Rapat Teras
REPELITA	Five Year Plan	Rencana Pembangunan Lima Tahun
Raudhatul Athfal	Pre-primary Religious (Moslem)	Taman Kanak Kanak Islam
Sakernas	National Labor Force Survey	Survey Tenaga Kerja Nasional
Sanggar	World Bank In Service On Service Teacher Training Center	Sanggar
SBPP	Government Subsidy to Primary School	Subsidi Bantuan Pemerintah untuk Pendidikan
SDLB	Integrated Schools for Handicapped	Sekolah Dasar Luar Biasa
SD-Negeri	Public Primary School	Sekolah Dasar Negeri
SD PAMONG	Primary Education by Parents Teachers, and Community	Pendidikan Dasar oleh oleh Masyarakat, Orangtua dan Guru
SD-Swasta	Private Primary Schools	Sekolah Dasar Swasta
Sekjen	Secretariate General	Sekretaris Jendral

Sekneg	National Secretariat	Sekretariat Negara
SGA	Religion Teacher Training Secondary School	Sekolah Guru Agama
SGB	Teacher Training Primary School	Sekolah Guru Bantuan
SGTK	Pre-Prim Teaching Certificate	Sekolah Guru Taman Kanak Kanak
SGO	Sports Teacher Training Secondary School	Sekolah Guru Olah Raga
SIAP	Unexpended funds	Sisa Anggaran Pemerintah
SIPENMARU	University Selection Examination	Sistim Penyaringan Mahasiswa Baru
SKB	District Training & Material Center	Sanggar Kegiatan Belajar
SKKP	Home Economy Junior Secondary School	Sekolah Kejuruan Kependidikan Putri
Skripsi	Undergraduate thesis	Karangan Ilmiah Mahasiswa
SLB	Schools for the Handicapped	Sekolah Luar Biasa
SLB Terbuka	Open Schools for the Handicapped	Sekolah Luar Biasa Terbuka
SMA	General Senior Secondary School	Sekolah Menengah Atas
SMEA	Commercial Senior Secondary School	Sekolah Menengah Ekonomi Atas
SMKK	Home Economy Senior Secondary School	Sekolah Menengah Kesejahteraan Keluarga
SMP	General Junior Secondary School	Sekolah Menengah Pertama

SMP Terbuka	Open Junior Secondary School	SMP Terbuka
SPG	Teacher Training Senior Secondary School	Sekolah Pendidikan Guru
SPGLB	Teacher Training Senior Secondary School for Special Education	Sekolah Pendidikan Guru Luar Biasa
SPP	Gov.'t Subsidy to Secondary School	Sumbangan Pemerintah untuk Pendidikan
ST	Vocational Junior Secondary School	Sekolah Teknik
STM	Technical Senior Secondary School	Sekolah Teknik Menengah
STTB	Primary School Graduation Certificate	Surat Tanda Tamat Belajar
Subdit Monitor	Sub-directorate for Monitor	Sub-direktorat Monitor
S1	Bachelor's Degree	Sarjana Muda
S2	Master Degree	Sarjana Lengkap (Pasca Sarjana)
S3	Doctoral Degree	Program Doktor
SUPAS	Intercensal Population Survey	Survey Penduduk Antar Sensus
SUSENAS	Economic & Social Survey	Survey Ekonomi dan Sosial
TK (Taman Kanak Kanak)	Pre-Schools	Taman Kanak-kanak
TTUC	Technical Teacher Upgrading Center	Pusat Upgrading Guru Teknik
UDKP	Village Development Unit	Unit Kerja Pembangunan Desa
UGM	University of Gajah Mada	Universitas Gajah Mada

U.I.	University of Indonesia	Universitas Indonesia
Ujian Persamaan	Primary School Equivalence Examination	Ujian Persamaan
UNAIR	University Airlangga at Surabaya	Universitas Airlangga
UNDP	U.N. Development Program	U.N. Development Program
Universitas Terbuka	Open University	Universitas Terbuka
UNPAD	University of Pajajaran at Bandung	Universitas Pajajaran Bandung
USAID	U.S. Agency for International Development	U.S. Agency for International Development
WB	World Bank	Bank Dunia
Yayasan	Private Institutes	Yayasan