PROBLEMS AND PROGRESS OF HIGHER EDUCATION IN INDONESIA

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Overview

At, the time of its independence in 1945, Indonesia had very little in the way of highly educated and skilled manpower to deal with development problems. The country had fewer than 1000 university-trained leaders to confront the massive problems of uniting the hundreds of inhabited islands into a cohesive political structure, formulating a national language and developing the institutions crucial to development. All of these graduates had received their academic degrees abroad. There was no local source of supply to meet the great demand. Although a handful of post-secondary institutes or academies had been organized by the Dutch prior to 1940, the first full-fledge university, Gadjah Mada, was founded only in 1949.

Recognizing the great obstacle to development caused by lack of higher education institutions, the government set about the task of establishing universities and intitutes to provide the knowledge, skills and research bases essential for developing Indonesia's high level manpower. Thirty-seven years later there are 43 public and about 325 private Indonesia institutions striving to meet a continuously increasing demand.

The following table shows the public universities, technical institutes and teaching institutes (IKIPs) by location, date founded and approximate enrollments in 1975 and 1979. These institutions were already operating at the time of their founding. Some were faculties attached to other public universities or private institutions which wished to become public.

University development was sporadic during the first fifteen years of independence because the government devoted much of its effort to quelling rebellions and uniting the far-flung cultural groups under a central rule. However, by the end of 1959 seven national universities and the first Technological Engineering Institute were created. During the next four years (1960-63), 18 universities and two technical institutes were added. 1964 saw ten special Teacher Training Institutes (IKIPs) established.

The GOI realizes that supply must meet demand at the geographic location where it is needed. It has developed a policy of creating and supporting at least one major public university in each province so that the Governors and Provincial Planning Agencies (BAPPEDA) may have an intellectual/technical resource that is part of the cultural and physical environment. "Unity through Diversity" is one of the five principles of Pancasila, the Indonesian ideology. It means that one nation will grow from many roots, drawing upon human, natural and institutional resources of different types. Local indigenous universities have an important role and responsibility in implementing this philosophy.

Public Universities by Location, Date of Founding, and Enrollment Growth From 1975 to 1979

No.	Universities/Institutes	Location	Year Founded	Enrollment 1975	Enrollment 1979
1.	Universitas Gajah Mada (GAMA)	Yogjakarta, Central Java	1949	14,313	17,276
2.	Universitas Indonesia (UI)	Jakarta	1950	6,611	11,732
3.	Universitas Sumatra Utara (USU)	Medan, North Sumatra	1952	6,896	9,175
4.	Universitas Airlangga (UNAIR)	Surabaya, East Java	1954	4,171	4,758
5.	Universitas Andalas (UNAND)	Padang, West Sumatra	1956	3,073	3,748
6.	Universitas Hasanuddin (UNHAS)	U. Pandang, South Sulawesi	1956	6,090	8,502
7.	Universitas Pajajaran (UNPAD)	Bandung, East Java	1957	8,107	10,681
8.	Institut Teknologi Bandung (ITB)	Bandung, East Java	1959	6,866	6,263
9.	Institut Teknologi Surabaya (ITS)	Surabaya, East Java	1960	3,250	3,455
10.	Universitas Diponegoro (UNDIP)	Semarang, Central Java	1960	5,871	6,610
11.	Universitas Lambung Mangkurat (UNLAM)	Banjarmasin, South Kalimantan	1960	1,670	4,996
12.	Universitas Sriwijaya (UNSRI)	Palembang, South Sumatra	1960	3,506	7,423
13.	Universitas Sam Ratulangi (UNSRAT)	Manado, North Sulawesi	1961	2,805	5,346
14.	Universitas Syiah Kuala (UNSYIAH)	Banda Aceh, North Sumatra	1961	2,459	5,564
15.	Universitas Mataram (UNRAM)	Ampenan, Lombok	1962	636	1,972
16.	Universitas Mulawarman (UNMUL)	Samarinda, East Kalimantan	1962	748	3,008
17.	Universitas Nusa Cendana (UNDANA)	Kupang, Timor, NTT	1962	1,759	2,358
18.	Universitas Pattimura (UNPATTI)	Ambon, Maluku	1962	1,330	2,707
19.	Universitas Riau (UNRI)	Pakanbaru, South Sumatra	1962	1,116	2,656
20.	Universitas Udayana (UNUD)	Denpasar, Bali	1962	3,107	6,945
21.	Institut Pertanian Bogor (IPB)	Bogor, West Java	1963	2,974	3,369
22.	Universitas Brawijaya (UNBRAW)	Malang, East Java	1963	4,569	5,288
23.	Universitas Cenderawasih (UNCEN)	Jayapura, Irian Jaya	1963	559	1,556
24.	Universitas Jambi (UNJAM)	Jambi, South Sumatra	1963	338	1,483
25.	Universitas Jember (UNEJ)	Jember, East Java	1963	2,635	5,549
26.	Universitas Jend. Sudirman (UNSUD)	Purwokerto, West Central Java	1963	1,033	1,945
27.	Universitas Palangka Raya (UNPAR)	Palangkaraya, Central Kalimantan	1963	644	835
28.	Universitas Tanjungpura (UNTAN)	Pontianak, West Kalimantan	1963	1,860	3,694
29.	IKIP Bandung	Bandung, West Java	1964	4,471	8,503
30.	IKIP Jakarta	Jakarta	1964	1,756	4,654
31.	IKIP Malang	Malang, East Java	1964	2,092	3,245
32.	IKIP Manado	Manado, North Sulawesi	1964	1,630	3,220
33.	IKIP Medan	Medan, North Sumatra	1964	3,289	5,107
34.	IKIP Padang	Padang, West Sumatra	1964	1,549	1,811
35.	IKIP Semarang	Semarang, Central Java	1964	2,065	3,500
36.	IKIP Surabaya	Surabaya, East Java	1964	3,433	3,273
37.	IKIP Yogjakarta	Yogjakarta, Central Java	1964	4,414	4,938
38.	IKIP Ujung Pandang	Ujung Pandang, South Sulawesi	1964	3,045	3,738
39.	Universitas Lampung (UNILA)	Telukbetung, South Sumatra	1965	1,111	2,850
40.	Universitas Sebelas Maret (UNSEMAR)	Surakarta, Central Java	1977	-	7,989
41.	Universitas Halu Oleo (UNHOL)	Kendari, South East Sulawesi	1981	-	
42.	Universitas Tadulako (UNTAD)	Palu, Central Sulawesi	1981	-	
43.	Universitas Bengkulu	Bengkulu, South Sumatra	1982	-	
			Totals 1975:		127,851
			1979:		201,922

All but one of the 27 Indonesian provinces now have a nationally-organized university to backstop their development efforts. The new province of Timor-Timur (1976), which still has no secondary school graduates, is expected to join the national university system as soon as the source of student supply is established. The foregoing table shows how the GOI has stressed the importance of spreading university development throughout the country even though most (65 per cent) of the population is located on the island of Java.

In addition to these forty-three public institutions, the private, religious (and quasi-government) sector has developed more than 325 entities which grant post-secondary diplomas and university level degrees. This group includes 62 universities, 69 higher schools and 194 institutes and academies.

All are literally bursting at the seams. Recent GOI figures show a total enrollment of over one-half million students: 321,000 in public and 183,000 in private institutions.

Ultimate responsibility for post-secondary education lies with the Directorate General for Higher Education (DGHE) of the Ministry of Education and Culture (MOE). Prior to 1970 most line ministries developed their own post secondary-institutes and academies to provide training and skills relevant to their functional responsibilities. These ministries usually financed and supervised their own programs; the MOE had no special role. In the early 1970's, however, the MOE began to exert its influence and regulatory power over the curriculum, length of study, admissions requirements, degrees conferred and the quality of the teaching staff. By Presidential Decree in 1974, the MOE was instructed to assist in determining the need for the numerous ministerial institutions, and to begin to close those deemed unnecessary. Those ministerial academies and institutes which remain today are managed by their own ministry under the guidelines of MOE.

Through the DGHE, the government of Indonesia also is rapidly expanding the diverse, non-academic certificate or diploma programs at the post-secondary level. These "junior college"-type courses last from one to three years and provide mid-level technical instruction. In 1980-81 about 20 per cent of total public and private enrollments were at the S-0 (diploma) level.

Despite very rapid growth from a meagre base, the higher educational system has not been able to keep up with Indonesia's increasng demands for high-level manpower. A recent World Bank appraisal (August 1980) predicted that each year from 1978 to 1990 Indonesia will require an additional 5,500 engineers, 1,900 scientists, 2,200 agriculturalists, 900 accountants and 1,300 economists. These requirements exceed present university output by 73 per cent in engineering, 74 per cent in sciences, 61 per cent in agriculture, 78 per cent in accountancy and 77 per cent in economics.

The number of institutions is no longer a major constraint. Improved and expanded physical facilities of existing institutions are still of major importance. As a greater percentage of the 19-24 age group seek

admission in future, the GOI will be hard pressed not to sacrifice quality for quantity goals.

Problems of access, productivity, and administration and staffing are the major constraints facing both public and private higher education. These will be examined below.

The Problem of Access

Two major economic and social forces are exerting strong pressures on higher education to educate more people more quickly:

1. More advanced levels of technical skills are required by the new technologies. An examination of the 1976 educational skill structure of several ASEAN counries shows that Indonesia's lags behind.

SKILL STRUCTURE OF THE LABOR FORCE, 1976
(Percent)

	Higher education	Secondary education	Primary education
Indonesia	0.7	9.3	90.0
Malaysia	1.8	25.8	72.4
Thailand	2.2	5.8	92.0
Korea	10.4	60.6	29.0
Philippines	12.0	18.0	70.0

Workers with primary education or less are abundant in Indonesia however, only 9.3 per cent of the labor force have achieved secondary education, and an even smaller 0.7 per cent of the total labor force have attained higher education.

The comparatively slow formation of high-level manpower in technical, scientific and managerial fields, in particular, has become a severe constraint on Indonesia's development activities. The acute shortage of manpower in these fields has hampered the efforts to staff government agencies and educational institutions. For example, in 1979, about one-third of the technical positions in the Department of Public Works had to be filled by underqualified technicians.

2. The rapidly growing numbers of graduates from the secondary schools are clamouring for further education and training, yet at present, the higher education system can accomodate only about two per cent of the 19-25 year age group. Focusing on this problem the GOI plans to increase the student population until 5 per cent of the 19-24 age group are enrolled by the year 2000. (This is a full 7 per cent below the target set in the UNESCO projections, reported in Part II, Secondary Education.) This expansion implies that the student population will increase at an average rate of 5 per cent to 6 per cent annually, with priority being given to development of the fields in which high-level

manpower is needed. This enrollment increase will be related to plans to improve productivity.

Each year the demand for entrance grows faster than available capacity and the access problem appears to be more acute. Figures for the private sector are not readily available but, in 1976, public universities could enroll only 35.7 per cent (35,875) of the 99,342 academic degree applicants. By 1980-81, the number of applicants nearly tripled to 290,004. Although 50,902 were admitted (an increase of 15,023 over 1974) the percentage of applicants enrolled dropped from 35.7 to 17.6 per cent.

Ratio of Accepted Students to Applicants
By University Groups (1976-1980)

	1976			1980		
Group	A Apply	B Accepted	Ratio B of A	A Apply	B Accepted	Ratio B of A
I	58,882	12,987	22.0	147,824	13,012	8.8
II	10,981	7,269	66.2	51,293	12,154	23.7
III	9,709	6,603	68.0	25,090	11,459	45.6
IKIPs	19,770	8,647	43.7	67,797	14,295	21.7
Total	99,342	35,506	35.7	290,004	50,902	17.6

The table (above) shows the imbalance of access among four University groups. Major opportunities for access are still found in the relatively younger, smaller universities in groups II and III, most of which are located in the Outer Islands.

Universities within the above group classifications are identified below:

	Group I (Mostly Java)	Group II (Mostly in West)	Group III (Mostly in East)	I K I Ps
1.	Sumatra Utara	Syiah Kuala	Udayana	Jakarta
2.	Indonesia	Sriwijaya	Mataram	Bandung
3.	Padjadjaran	Andalas	Nusa Cendana	Semarang
4.	Diponegoro	Jambi	L. Mangkurat	Yogyakarta
5.	Gadjah Mada	Lampung	Mulawarman	Surabaya
6.	Airlangga	Riau	Sam Ratulangi	Malang
7.	Brawijaya	Jend. Sudirman	Pattimura	Medan
8.	I T B	Sebelas Maret	Hasanuddin	Padang
9.	I T S	Jember	Cendrawasih	Ujung Pandang
10.	I P B	Palangka Raya	Halu Oleo	Manado
11.	-	Tanjung Pura	Tadulako	-
12.	-	Bengkulu	-	-

A system of national entrance examinations is being developed to screen out applicants of lesser academic capability and apply the selection process on a more equitable basis. Previously, an applicant had to take a separate test at each university to which he wanted to

apply. The cost of travel and per diem to the place of examination was often prohibitive. The National examination may now be taken closer to home. Results are sent to the universities to which the person wishes to apply. At present this examination varies somewhat according to regional cultural differences of the groupings shown in the preceding table.

In an effort to ofter high school graduates further training in largely non-academic areas, the Ministry of Education and Culture has asked the Universities to greatly increase their efforts at the Diploma level. Through a crash program begun in 1979, new technical programs lasting from one to three years were organized in the fields of education, medicine, economics and engineering. These programs are largely terminal in nature but in some instances academic credits earned may be applied to a Sarjana 1 (or Bachelors-level) degree. From 1978 to 1980, access to such programs increased significantly. At each diploma level the percentage of students accepted, compared to the number of applicants, rose dramatically from 1978 to 1979 as knowledge of the new programs spread. They have levelled off, but absolute numbers of entrants will probably rise throughout the 1980's.

Ratio of Accepted to Applicants, 1978-1980

	1978			1979			1980		
	D1	D2	D3	D1	D2	D3	D1	D2	D3
Applicants	4,413	2,770	3,337	15,828	3,585	12,440	20,307	11,232	14,320
Accepted	685	872	1,248	8,495	2,203	5,884	8,183	4,963	5,988
% Applicants Accepted	16	32	34	54	61	47	40	44	42

In terms of growth in enrollment and in outut, the following tabulation is of interest.

	Growth in Enrollment				Growth in Output		
	'78	'79	'80	Total	'78	'80	%
D1	-	3,640	7,478	11,118	1,069	10,140	845
D2	-	387	1,325	1,712	1,269	6,169	386
D3	-	1,589	1,814	3,403	2,902	10,987	279

Another very real constraint to improving access to higher education is the inadequacy of existing physical arrangements. Specialized facilities, even when used beyond planned capacity, generally are not sufficient to accommodate all students enrolled in a particular year. Consequently, some students have to wait for another year to be accepted into a course. For lack of facilities, certain faculties are forced to use existing, but inconvenient, facilities elsewhere. For example, civil engineering students at the University of Indonesia have to take practical laboratory work at the Institute of Technology at Bandung, about 190 km from Jakarta. The Science Faculty of the University of Andalas is situated within the campus of IKIP-Padang, occupying temporary buildings with inadequate space for teaching and laboratory work.

Balancing on a political tightrope, the DGHE has taken several steps to keep quantity of access and quality of performance in equilibrium. It has taken courageous stands on a number of issues backed up by the policy principle that increased growth and improved performance must go hand in hand. University leaders are charged with the responsibility of expanding their programs as rapidly as possible and as creatively as possible but not at the expense of quality improvement.

Provincial governments are urged to provide land for campus expansion as well as improved transportation and communication services, faculty housing arrangements and the like to increase access through improved facilities.

The GOI has signed several loans with the World Bank, The Asian Development Bank and USAID to develop campus plans, construct and equip priority buildings, upgrade staff and provide relevant commodities. It has also sought grant financing from other major bilateral donors to expand capacity and improve services.

Development budgets to support construction and infrastructure have been sharply increased. For example, in 1980-81 the GOI provided a special fund of US$158.6 million for university infra-structure improvement as follows: library books and journals, $15.8 million; laboratory and university press construction, $16.6 million; printing equipment, $126.2 million. These commodities are expected to support increased enrollments.

There are also problems of overcrowding and underutilization due to poor campus planning and class scheduling. Facilities have not been laid out according to a campus master plan. Consequently, sharing of facilities between departments is often curtailed. Many rooms and laboratories are built too small to accommodate enough students to allow for an efficient student:teacher ratio. Poor class scheduling has led to underutilization of existing facilities. Lecture rooms may be used only in the morning and laboratories only in the afternoon. Because many teaching staff are part-time and have their regular jobs in the morning, a large proportion of instruction takes place in the afternoon, leaving many facilities idle in the morning. The Faculties of Science and Engineering at the University of Gadjah Mada have reported that more than 55 per cent of the lecture rooms and 70 per cent of the laboratories are used less than half the available time.

The Problem of Productivity (Efficiency)

Productivity is usually defined as the ratio of actual time necessary to accomplish a task to the time officially designated for its completion. It is also thought of as the ratio of those who complete a task to those who started it. On both counts the productivity of Indonesian higher education is very low. The system is clogged with repeaters and hangers-on. Operational costs per student are exceedingly high. The flow of high level manpower through the higher education system is therefore expensive and inefficient.

In Indonesia educational productivity (efficiency) is roughly measured by the Directorate General of Higher Education (DGHE) as the ratio of graduates to the total enrollment for a specific (diploma) or academic degree. Hence, optimum productivity with no dropouts or repeaters would be:

Post Secondary Course	Length	Ratio	University Course	Length	Ratio
Diploma	1 yr.	100	Sarjana Muda	3 yrs.	33.3
	2 yr.	50	Sarjana (BS)	4 yrs.	25
	3 yr.	33.3	Sarjana 2 (MS)	2.5 yrs.	40
			Sarjana 3 (PhD)	3-4 yrs.	33.3-25

According to the latest information the actual productivity by groups of universities is:

	Sarjana Muda (Optimum 33.3)					Sarjana (Optimum 20)				
	1976	1977	1978	79-80	80-81	1976	1977	1978	79-80	80-81
Group I	18.2	17.8	17.8	19.9	4.8*	7.1	7.3	7.6	8.6	8.3
Group II	14.6	17.6	16.9	29.2	24.3	3.5	3.7	3.7	5.1	4.7
Group III	7.7	8.3	8.1	13.3	18.2	3.3	3.2	2.7	4.4	3.8
IKIP	12.2	9.6	11.6	21.8	19.4	2.0	1.8	2.2	5.0	5.5
Average	13.2	13.3	13.6	21.0	20.6**	4.0	4.0	4.0	5.8	5.6

*Most universities in Group I no longer grant a Sarjana Muda degree.
**Excludes Group I.

The above indicators are very rough since they do not consider the rapid increase in first-year students which would tend to skew the results on the low side. Neither do they show the role played by repeaters and dropouts.

Another productivity indicator based only on graduates is the average number of years it takes to complete a degree in comparison to the time normally required for completion.

	Sarjana Muda (3 yrs)		Sarjana (5 yrs)	
	1976	80-81	1976	80-81
Group I	5.4	5.6	8.8	8.0
Group II	5.1	5.4	8.9	8.7
Group III	5.4	5.1	8.7	8.5
IKIP	4.9	5.2	8.0	7.9

Neither set of indicators shows much progress during the five-year period. Low productivity is also attributed to high rates of failure. It has happened that 50 per cent of first-year students fail the final examination in a course. Until the credit system was introduced, anyone failing a subject could not advance to other courses until the failed subject was re-taken and passed. This forced many students to drop out. For instance, the proportion of the cohort of students that entered the University of Andalas in 1969 and finally graduated by 1979 was only 11

per cent in economics, 17 per cent in science, and 35 per cent in agriculture. Similarly, the proportion of students that entered the University of Gadjah Mada in 1968 and graduated in 1978 was only 18 per cent in biology, 25 per cent in engineering and 21 per cent in geography.

Improvements in productivity ratios have been noted in some areas by most institutions during the past ten years. The Institute of Technology, Bandung, reports that its productivity ratio has risen from 5.6 per cent to 7.1 per cent between 1973 and 1978, and that the average student now takes 5.5 to 6 years to complete the Sarjana program which ideally takes 4.5 to 5 years. The Institute of Technology, Surabaya, has reportedly also reduced its drop out rate from 70 per cent to 30 per cent and its productivity ratio has risen from 1.6 per cent to 8.3 per cent between 1973 and 1978. These improvements were accomplished through a combination of instituting a credit system of course requirements and an intensive staff development and visiting professor program.

Other factors contributing to low productivity and internal efficiency relate to the quality of students and staff.

Because the supply of teachers, textbooks, laboratories and facilities for secondary education has not keep pace with enrollment growth, there has been a general decline in the quality of secondary school graduates. Hence, as more and more demands are put on higher education to absorb greater numbers of these graduates, universities are faced with deteriorating quality of their raw material, particularly with respect to their knowledge of mathematics, the basic sciences, and English. A key factor which greatly influences the low productivity of the university system is the level of training of the trainers (teachers). Although still very low by international academic standards, considerable improvement in staff upgrading is shown from 1976 to 1980-81.

Number of Teaching Staff According to Degree

	1976					
	Diploma	Bachelor	Specialist	Master	PhD	Total
Group I	514	4998	293	655	292	6752
Group II	397	2080	36	31	7	2551
Group III	331	1612	-	48	11	2002
IKIP	395	2216	1	58	31	2701
Total	1637	10906	330	792	341	14006

	1980-81						
	Diploma	Bachelor	Specialist	Master	PhD	Total	% Increase 1976-1980
Group I	169	7060	431	958	554	9172	35.8
Group II	210	3061	60	98	13	3442	35.0
Group III	252	2470	5	133	39	2899	44.8
IP	414	3500	4	122	51	4091	51.4
Total	1045	16091	500	1311	657	19604	40

This increase in teaching qualifications is one factor that may be expected to have a positive influence on productivity.

Two other staff-related causes of failure, drop out and excessive time required for degree completion are worthy of note: insufficient student-contact time and poor quality instruction. Full-time staff often spend very little time teaching or tutoring students. Of the assigned weekly teaching load of 9-12 hours on average, only 3-6 hours may be devoted to actual instruction. This is largely due to inadequate university salaries, compelling most of the faculty members to hold other jobs. Staff sometimes take time off from work, without permission or penalty, to attend to their other jobs, or they neglect the routine teaching duties in favor of "project" duties which attract additional payment. It is therefore not uncommon that when a student is ready to write his thesis, the department chairman will be unable to find a faculty member to supervise him. The faculty member who does supervise a thesis may take 5 to 6 months to finish his reading because of their other commitments. As a result, students take one to two years to complete a thesis requirement that should require only six months.

More meaningful measures of productivity will be possible when the data base capability is strengthened so that the actual progress of individual students through the system may be plotted. Such improved capability is closely tied to the problem of university administration and management which plague both the public and private systems.

GOI Efforts. At the 1980 DGHE National Rectors' Meeting, programs of study were modified significantly in an effort to improve productivity, create a more equitable and common basis for study throughout the system, and bring the system into line with recognized international standards. The following steps were taken:

- The 3 year Sarjana Muda degree was abolished.

- The 5 year Sarjana was reduced to 4 years.

- The skripsi or term paper requirement for the Sarjana degree was made optional.

- Programs of study were re-evaluated by the subject area consortia.

- A system of credit hours was established and credits were asigned to individual course and academic degree offerings.

- Universities were given five years to plan and adopt the credit system and integrate the Sarjana Muda into the new Sarjana program.

- Progress towards a degree was put on an individual course basis. It was agreed that certain diploma-level courses could be accepted as credits in degree-granting programs.

AID Assistance. Technical assistance and training provided through USAID projects have been focused on increasing productivity. Long and short-term technical assistance was supplied for the study of credit

systems and their application to the Indonesian system. A MUCIA advisor served as a resource person to the DGHE during final preparation, presentation, discussion and adoption of the productivity issues addressed at the 1980 Rector's Conference.

In a more general way, AID Projects have made small but effective improvements in the learning environment of many universities through selected commodity procurement, staff upgrading, providing experts for DGHE workshops and almost daily consultation with long-term advisors and members of the USAID Education staff.

The Problem of Administration and Staffing

Administration of the rapidly growing centralized higher education system requires more specialized personnel on a full-time basis than are available. In short supply are individuals who have learned effective planning, budgeting and accounting practices, commodity procurement, laboratory management and maintenance of buildings and grounds.

The DGHE urgently needs a high level "senior staff" type degree granting institution to focus on all aspects of university management and decision making. Such an institution would train administrators in many phases of university policy, planning, management and implementation required by both the public and private systems. Currently, no IKIP or school of public administration focuses on the diverse needs of educational administration, nor does Indonesia have a graduate school of business administration for systematic teaching of management skills and procedures.

Most of the problems discussed in this assessment are management-related, such as the recruitment and deployment of staff, their training and effective supervision, and the efficient use of facilities. The problems of low output and poor quality are further intensified by inadequate management capacity at both the central DGHE level (system management) and local university level (institutional management).

The existing university management structure suffers from three important weaknesses: limited skill and lack of continuity among managers, poor coordination among faculties and subject departments and absence of systems to provide needed performance data. First, the rectors, assistant rectors and deans who administer universities are generally seconded from regular academic staff and hold office for a limited period. They are expected to carry modified teaching loads in addition to their administrative duties. Rectors and deans are changed every four and two years respectively, and the continuity in administration is disrupted. Such staff need training in preparation for their duties and also need full-time, professional assistance in order to function efficiently. This points to the need for a cadre of permanent, professional managers who will provide a means of organizing and managing university resources (e.g., teaching accommodations, examinations, student records, personnel, physical facilities, management information) and provide that element of continuity and consistency in the development and implementation of university policy which is lacking at present.

Second, the excessive autonomy of faculties and subject departments has disadvantages in terms of duplication of services, inconsistencies in academic and administrative standards, and inefficient use of resources. This underscores the need for rationalization of services managed by a professional cadre. Finally, universities lack management information systems to monitor and evaluate the implementation of different policy measures and to feed information into a central system at the DGHE level.

One of the biggest drawbacks to a serious discussion of Indonesian higher education is the virtual absence of consistent, comprehensive and reliable information. No one can say with certainty how many students there are, what sex and age brackets they represent, what fields they study, how many graduate and where they find jobs, how many academic staff there are and what their level of training is, how much research is being undertaken, and so on. There is near total absence of reliable information on university finance.

The Directorate General of Higher Education is responsible for formulating policies, developing plans, coordinating curriculum development and measuring the efficiency of execution of policies and plans. The effectiveness of the DGHE is, however, constrained by two problems: The absence of a permanent cadre of professional "career" staff, and the lack of cohesive fully-developed systems for monitoring, evaluation and management-information data collection. Management positions at DGHE are mainly filled with seconded university staff who are not at the start of their assignments experienced in management and planning on a system level. Moreover, the management information system for the collection, analysis and distribution of comparative indicators (e.g., progression, dropout and repetition rates) for all universities is still in the formative stage. Systems for monitoring and evaluating university operations are also needed to provide basic information concerning how national policies are implemented. Further development of such systems along with the appointment of career personnel, including university rectors, would strengthen the DGHE's capacity to improve and provide leadership to Indonesia's public and private university systems.

GOI Efforts. The Basic Policy for Higher Education was established by decree in 1975. During the next two years the DGHE further defined the policy and began its implementation. In 1977, the newly appointed Director General of Higher Education, Doddy Tisna Amidjaja published a major paper (with S. Sapiie) describing the philosophy underlining the policy. The paper is aptly titled, "From Random Growth to a National System." It stresses the need for systematic planning involving all public and private sector university rectors and leaders towards national goals. Several directions are clearly set forth:

- National control to establish policy.

- Encouragement of private institutions to develop within national policy guidelines.

- Regional access and equity and direct involvement of provincial governments.

- Involvement of foreign donors to support higher educational development.

- Improved funding through increased budgets, justified by the adoption of the Program, Planning, Budgeting System (PPBS) to control budgets and expenditures.

- Utilization of scarce resources through inter-university networks to cooperate on common problems.

- Standardization of basic structure along academic discipline lines which leave options for adjustment to local needs.

- Mobilization of broad public and private resources in support of modernization and effective use of new developments in science and technology.

- Direct involvement with affairs of society as an agent of development.

- Adoption of teaching, research and public service as the three major responsibilities of higher education.

Special task forces met for several years to give further substance to the Basic Policy for Higher Education. Results of their deliberations were published in 1980 as Indonesian Government Regulation Number 5 entitled, "Principles On the Organization of State-Run Universities and Institutes." This is a very thorough document which clearly defines the structure of universities at every organizational level. Combined with previous decrees and regulations it clearly establishes the base for development of both public and private universities and sets targets to be met by 1985.

Teacher work load is set at nine to twelve credit hours per week of direct teaching, and 3 credit hours are to be devoted to research and public service activities. Administration and management activities are limited to only 4 or 5 per cent of the full-time faculty load. Staff are to be evaluated each year. Student study load is set at 18 credit hours per week per 16 week semester. Class size is set at 22 persons for laboratory study and 30 for academics. Student evaluation must be based on at least mid-term and final examinations. Students may repeat courses only twice. The student is put on probation if he fails 2/3 of his credits in any single semester. Suspension is automatic if he fails 50 per cent of his credit load while under probation. Financial aid will be given to 10 per cent of the students to improve access. Instructional improvements include the requirement that detailed course outlines must be prepared and approved and that textbooks and reference materials will be assigned in every course.

Decrees and regulations are essential to establish bases and set targets. However, they do not teach the thousands of administrators and teachers how to comply with the requirements. For example, as already noted, Government regulations provide that GOI budgets and disbursements are to be based on the PPBS. While the officials charged with allocation

and disbursement of funds know and understand this system, hardly anyone else with leadership responsibilities in the ministries and at provincial levels does. One result of this lack of understanding is that seven years after the PPBS policy was established, funds trickle rather than flow to intended recipients. Planning and accounting procedures simply are not yet in place to permit the system to work as it should.

Realizing the need for a systematic approach to interpret and implement Government policies and regulations, the DGHE intends that all public institutions of higher education improve and expand their programs in a sequence of steps: planning, preparation, implementation and evaluation. The whole sequence will take about ten years. The planning stage, lasting one to two years, will prepare academic and physical master plans; the preparatory stage, lasting one to two years, will develop management and organization frameworks, staff development programs and architectural planning. The implementation stage and the evaluation stage will last five years and two years, respectively.

The DGHE has also given much thought to the establishment of a "Senior Staff" college along the lines mentioned earlier in this paper. Bandung has been mentioned as a permanent site. A real constraint to this project seems to revolve around debate as to whether an American or European philosophy should predominate. Top leadership has converts to each system since most are "overseas" graduates. As the Doddy-Sapiie report outlined, the GOI has adopted the tri-partite philosophy of teaching, research and public service as a framework by which Government universities shall organize their total program. Adoption of this philosophy is due in large part to the influence of the U.S. Land-Grant Colleges, on whose campuses many Indonesian educators have studied. The GOI has also adopted the U.S. credit system and the concept of postgraduate degrees based on research and study under the guidance of major professors, rather than the European and Australian system of independent research. However, the Indonesian leadership wants to avoid any implication that the higher education system, and hence the training of high-level manpower, is unduly dependent on, or placed too heavily under, the influence of any single foreign country.

Foreign assistance has been requested by the GOI to help with the further development of its universities. The Asian Development Bank has a project with Hasanuddin University (UNHAS) in Sulawesi and the Univerity of Northern Sumatra (USU). The thrust of these programs is in campus and staff development. Australia is helping with the experimental farm and animal science research at IPB. Japan is involved with fisheries and with food processing at IPB, and has constructed and equipped a major forestry research center at Mulawarman University (UNMUL) in Kalimantan.

The World Bank (IBRD) is funding two major university projects. One focuses on secondary teacher training and is administered through the IKIPs. The second is concerned with university system management through the DGHE, and with increased input/output in the priority fields of engineering, science, agriculture and economics at the Universities of Indonesia, Gadjah Mada, and Andalas. The latter, funded with a $45 million loan, covers ten years of assistance beginning in 1980. It is

divided into two sequential phases. In the first phase (1980 to 1984) the Universties of Indonesia, Gadjah Mada and Andalas will develop complete academic, organizational and physical master plans for their expansion. The DGHE will also be strengthened in its capacity to collect data and manage universities as a system.

In the second phase of the program, (1984 to 1990), policy and staff development measures prepared in the three universities will be adopted on a sequential schedule throughout the university system. Also in the second phase, the physical facilities for the selected faculties will be constructed and equipped for the Universities of Indonesia and Andalas at their new campus sites and for Gadjah Mada at the present campus site.

Specific IBRD targets which will directly assist system management of the DGHE are to:

- Introduce policies to improve student flow and output over the short and medium terms.
- Develop monitoring, evaluation and management information systems.
- Establish a development office in the DGHE.
- Introduce a university management training program.
- Rationalize university administrative organization and staffing.

AID Assistance. AID currently has five projects in higher education: Agriculture Education for Development (AED) - (1971 to 1983); Higher Education for Development Training (HEDT) - (1976 to 1984); Eastern Islands Agriculture Education (EIAE) - (1979 to 1984); Graduate Agricultural School (GAS) - (1979 to 1984) and Western Universties Agricultural Education (WUAE) - (1980 to 1986). All give some attention to staff and curriculum development, institution-building and management improvement. The AED project was largely responsible for the Land Grant College philosophy of teaching, research and public service being adopted. Both the AED and HEDT projects supported adoption of the credit system. All projects have added some form of administrative and practical experience to the MS and PhD training of over 400 participants.

The Graduate Agriculture School project with IPB stresses the development of a university management-information system. The use of both small and large computers is being tested. Procedures for the application of data required for academic planning are being utilized by each dean and department head in determining short and long range plans.

The Problem of Private Institutions of Higher Education

Three hundred twenty-five privately owned and operated higher educational institutions enroll over one-third (36 per cent) of all tertiary-level students. The large numbers of schools, diversity of programs and different demands of interest groups served by the private sector greatly affect efforts to achieve quality and meet government standards. The private institutions include 62 universities, 69 higher schools and 194 institutes and academies. Many are supported by religious groups, others by various government agencies.

Private sector schools are constrained by the same problems of access, productivity, administration and staffing which plague the public sector. They have to meet not only DGHE operational standards but also serve the widely divergent purposes of their various sponsors.

However, these schools play an important and very necessary role in Indonesia's development, because the demand for high level manpower cannot be met by government resources alone. Costs are too high to be totally supported by national and provincial governments. As the GOI is nearing its political goal of providing each province with a government instituion of higher learning, its financial and manpower resources are being stretched tightly. The private sector offers additional sources of revenue and greater administrative flexibility in meeting educational needs at the tertiary level.

The GOI's "Basic Policy on Higher Learning Development" clearly recognizes the important role of private institutions and provides a basis for stimulating their growth. In 1974, a Directorate for Private Universities was added to the DGHE. The director named to head this organization has rank and responsibility equal to the other three directors for academic affairs, research and public services, and student affairs. Work of all four directorates is closely coordinated.

The first meeting between government and leaders of private university foundations from all over Indonesia was held during July, 1975 at Cibogo, Bogor. At this meeting it was established that graduates of the academic programs must pass the national examination administered to all public and private students. Supervision of private universities was made the responsibility of seven geographic "Kopertis" (offices) under the DGHE director.

The officially-listed 325 private institutions run the range from large and prestigious Islamic universities and the Banking Institute (LPPI, operated by the Indonesian Banking Association) to little more than store-front operations. New institutions keep cropping up as a particular group feels the need. Often such entities are formed without the knowledge of the Directorate and without adhering to the requisites for registration. Because of the variety and geographic spread of private institutions, planning and evaluation are even more difficult than in the public sector.

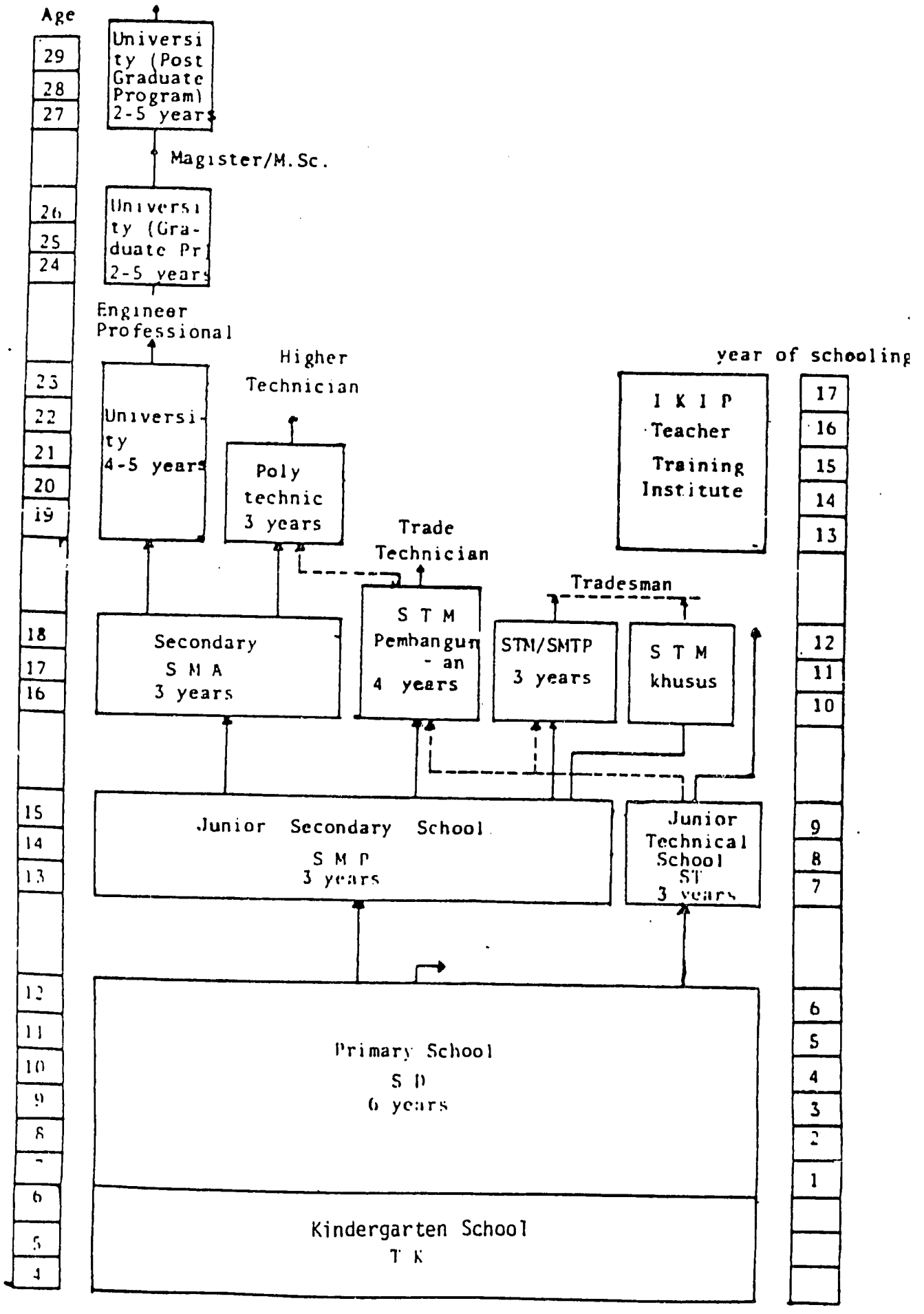
The Director of Private Universities estimates that productivity in 1978 was 2 per cent, based on 2,800 graduates. The goal for 1983 is 3.5 per cent, with about 6,700 students passing their national examinations and graduating.

Personnel needs are expected to increase from 3,000 to 5,000 full-time permanent staff and from 10,000 to 14,700 part-time instructors by 1983.

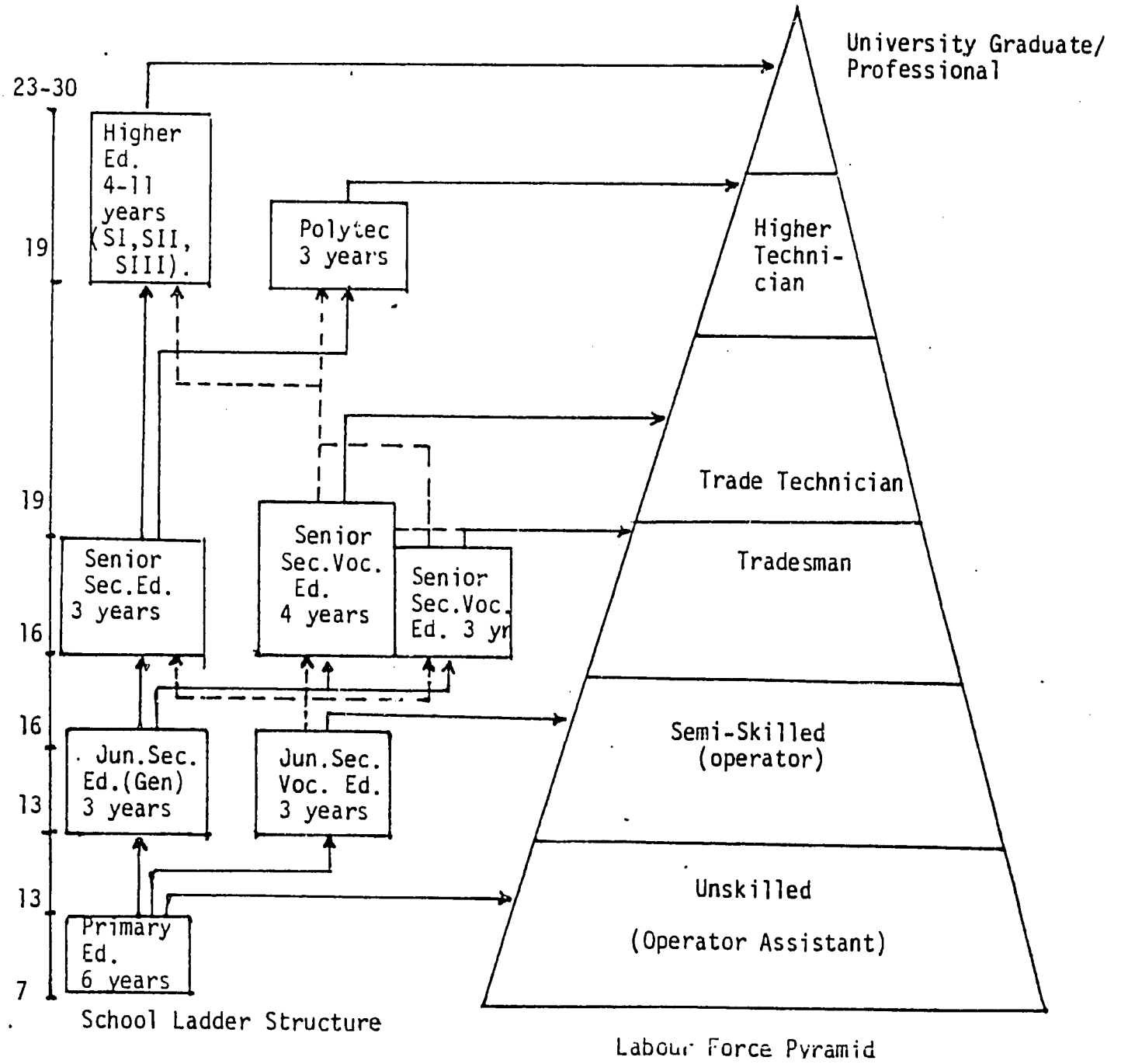
Application for admission increases at about 6 per cent annually. There were 68,900 applications in 1978. By the end of Pelita III in 1983, it is estimated that applications will increase to about 90,000. Given present capacity constraints, the DGHE estimates that total enrollments may increase by about 7 per cent annually, reaching a capacity of 192,000 by 1983. Some 60 per cent of those enrolled are expected to be in academic programs.

Administratively, there is a strong effort to merge many smaller schools to increase cost efficiency.

Indonesian Educational Structure



Ladder Structure of School Types and the Labor Force Pyramid



Post-Secondary/Tertiary Educational Institutions in Departments Other than MOE

Department	Institutions	Year of study
1. Trade	1. Academy of Trade	3 years
	2. Academy of Metrology	3 "
2. Industry	1. Academy of Business Management	3 "
	2. Academy of Chemical Analyses	3 "
	3. Academy of Leather Industry	3 "
	4. Academy of Technical Industry	3 "
	5. College of Industrial Management	2 "
	6. Institute of Textile Industry	5 "
3. Communication	1. Academy of Meteorology and Geophysic	3 "
4. Health	1. Academy of Health Supervision	3 "
	2. Academy of Anaesthetics	3 "
	3. Academy of Rontgen Technology	3 "
	4. Academy of Nursery	3 "
	5. Academy of Physiotherapy	3 "
5. Social Affairs	1. College of Social Welfare	3 "
6. Justice	1. Academy of Imigration	3 years (pending)
	2. Academy of Socialization (of Prisoners).	3 years (pending)