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Indonesia Education Sector Survey Report

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East Asia and Pacific Region

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CURRENCY EQUIVALENTS

US\$1.00	=	Rp 415
1 Rupiah	=	US\$0.0024
Rp 1 million	=	US\$2,410
Rp 1 billion	=	US\$2,410,000

FISCAL YEAR

April 1 - March 31

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INDONESIA

EDUCATION SECTOR SURVEY

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BASIC DATA^{1/}
(1971)

Area	1,905,000 km ²	
Population		
Total	119.2 million	
Average Annual Growth Rate (1961-71)	2.0% p.a.	
Density - National Average	63 per km ²	
Density - Java Average	565 per km ²	
Labor Force		
Total	40.1 million	
Average Annual Growth Rate (1961-71)	1.6% p.a.	
Literacy (Population Age 10+)		
National Average	60%	
Urban Areas	79%	
Rural Areas	55%	
Males	71%	
Females	49%	
Enrollment Rates ^{2/}	<u>Net</u>	<u>Gross</u>
Primary Level (Ages 7-12)	68%	80%
Lower Secondary Level (Ages 13-15)	14%	22%
Upper Secondary Level (Ages 16-18)	9%	13%
Expenditures		
Public Education Expenditure per Capita	US\$1.5	
Percent of Central Government Expenditure		
Devoted to Education:		
Total	13.5%	
Capital	4.6%	
Recurrent	18.4%	
Education Expenditures as a Percent of GDP:		
Total	2.6%	
Public	1.9%	
Private	0.7%	

1/ See Annex 1 for comparative educational data.

2/ Net excludes overage students; gross includes overage students.

GLOSSARY

Types of Schools

Aliah	Islamic senior general secondary school (Gr. 10-12)
FKIT	Technical faculty of IKIP
IAIN	Islamic institute of higher education
Ibtidaiyah	Islamic primary school (Gr. P-6)
IKIP	Secondary teacher training institute
KP	Vocational class attached to primary school
PGA	Islamic teacher training institute (Gr. 7-12)
PGSLP	Temporary course to train lower secondary teachers
PLK	Vocational training center
PLPM	Community education training center
Pondok Pesantran	Islamic boarding school
PT	Higher education
SD	Primary school (Gr. 1-6)
SKKA	Senior school for home economics (Gr. 10-12)
SKKP	Junior secondary school for home economics (Gr. 7-9)
SLTA	Upper secondary education (all types)
SLTP	Lower secondary education (all types)
SMA	Senior general secondary school (Gr. 10-12)
SMEA	Senior commercial school (Gr. 10-12)
SMEP	Junior commercial school (Gr. 7-9)
SMOA	Senior physical education school (Gr. 10-12)
SMP	Junior general secondary school (Gr. 7-9)
SM(P)	Development general secondary school
SPG	Primary teacher training institution (Gr. 10-12)

SPIK	Industrial arts school (Gr. 7-10)
SPMA	Senior agricultural school (Gr. 10-12)
SPMP	Junior agricultural school (Gr. 7-9)
SPSA	Senior school for social workers (Gr. 10-13)
ST	Junior technical school (Gr. 7-9)
STM	Senior technical school (Gr. 10-12)
STM(P)	Senior agricultural technology school (Gr. 10-12)
STM(I)	Senior technical school for instructors (Gr. 10-12)
ST(P)	Junior agricultural technology school (Gr. 7-9)
STM(P emb.)	Development technical secondary school
TK	Pre-school education
Tsanawiyah	Islamic junior general secondary school (Gr. 7-9)
TTC	Technical training center (centralized work-shops for STM)

Institutions

GMU	Gajah Mada University at Yogyakarta
IPB	Agricultural University at Bogor
ITB	Institute of Technology at Bandung
ITS	Institute of Technology at Surabaya
SESPA	Graduate School for Public Administration
STIA	Administrative Staff College of LAN
USU	University of North Sumatera

Other

Bappenas	The National Planning Agency
BIMAS	Integrated program for improved productivity in rice growing and other crops

BPMP	Curriculum and planning offices under the provincial Perwakilan for education
BPP	Office of Educational Development, Ministry of Education
BPPLP	Agency for Agricultural Education and Training
Butsi	Indonesian Volunteer Service Program
Desa Program	Public works program financed on a per capita basis by the central government through <u>desas</u>
Dinas P dan P	Provincial Office of Education under the Governor and Ministry of Interior
DIP	Project plan
DUP	Project proposal prepared within the government
Fakultas Pembina	Faculty which gives technical assistance to faculties in the same discipline at other universities ("Feeder")
INMAS	Mass intensification scheme to increase agricultural productivity
Kabin	Office of school supervisor/inspector
Kabupaten Program	Public works program (INPRES) financed on a per capita basis by the central government through <u>Kabupaten</u>
KKN	University study service scheme
Koperti	Coordinating boards for private higher education in the provinces
LAN	Institute of Public Administration
Padat Karja	(Food for Work) An unemployment relief program
Penmas	Community Education
Perwakilan Departemen	Representative of a central ministry at the provincial level
POM, POMG	Parental organization at schools, Parent-Teachers Organization

Repelita	Government five-year development plan: <u>Repelita I</u> covered 1969-73 and <u>Repelita II</u> covers 1974-78
SPP	School fees
Yayasan	Foundations which give financial support to private schools

Government Administrative Units

Propinsi	Province (26)
Kabupaten	District (320)
Kotamadya	Urban District (53)
Kecamatan	Sub-District (3,119)
Desa	Village (60,000)

INDONESIA

EDUCATION SECTOR SURVEY

SUMMARY AND CONCLUSIONS

i. This report presents the findings of an education sector survey mission which visited Indonesia in November/December 1973 in order to evaluate the education and training system and outline an education investment program for 1974-1979.

ii. The central question of economic policy for the next decade is to what extent development should be growth-oriented, equity-oriented or a simultaneous emphasis on both. Growth orientation is important, especially in Java, where capital intensification is required to sustain expected future population increases. Equity considerations are equally pressing because of marked differences in incomes and access to public services, e.g., education. Disparities are particularly acute between urban and rural areas, the latter accounting for more than 80% of the population. Mounting unemployment and the plight of impoverished areas have been important factors in the marked inclination of the Second Five-Year Development Plan (1974-79) towards the social sector. Massive increases in government revenues, resulting from the new petroleum prices, will make possible substantial increases in development expenditure. These, in turn, will place important new demands on the government's administrative capacity for planning and execution.

iii. Three alternative patterns of development have been postulated and evaluated based on different GDP and employment growth rates. These alternatives reveal potential deficits for technicians and skilled workers, and potentially serious problems of unemployed secondary and certain categories of university graduates. By contrast, unskilled workers, including subsistence farmers, and groups such as women or unemployed youth, constitute important groups which are not being adequately reached with education and training services at present. These factors suggest the need for a deliberate policy of selective strengthening of technical and vocational education, restraint in the expansion of secondary and higher education and major reallocation of resources toward out-of-school education.

iv. In spite of financial and physical constraints, the numbers of students accommodated by the education and training system have risen substantially over the last decade. Gross enrollment rates are comparatively high at 80% primary, 18% secondary and higher education, 3%. Nevertheless, the sector has many basic weaknesses. Perhaps the chief problem has been the limited public financial allocation to education which, at 1.9% of GNP, is one of the lowest in the world. In addition, the system has not been in close rapport with the requirements of the labor market. The structure of education is overly specialized and fragmented at the secondary level. Vocational and technical education do not produce graduates either in sufficient quantity or quality; the provision for technician training is particularly weak. Moreover, the education system tends to perpetuate existing socio-economic inequalities. Dropout cuts deeply into enrollments

so that only a small proportion of the initial entrants complete their cycle (25% primary, 35% university). This attrition is heaviest among low income families which cannot afford the direct or indirect costs of schooling.

v. Educational quality problems arise in five key areas: agriculture extension, community education, agricultural higher education, technical secondary education and secondary science and mathematics. Weaknesses in organization, curricula and teacher training contribute to low quality but the key factors appear to be inadequate expenditure per student, insufficient teachers' salaries which require them to hold two and three jobs concurrently and lack of educational materials in the schools. Any serious attempt to improve quality will require greater resource allocation to education.

vi. Some of the additional resources needed to improve quality could be found by making the existing system more efficient, particularly by reducing repetition and by improving the administration of primary and higher education. The capacity of the government to overcome these weaknesses is limited in several ways, the most important of which may be administrative capacity. In particular, the planning and programming process needs to be enlarged in scope and streamlined to avoid placing undue constraints on future development.

vii. The government has identified and is dealing with many of the basic educational policy issues. During the First Five-Year Development Plan (1969-73) an Office of Educational Development (BPP) was created, experiments were commenced to rationalize the sprawling structure of secondary education and a comprehensive program was started to distribute textbooks to all primary students.

viii. The Second Five-Year Plan (1974-78) gives prominent place to the expansion and improvement of education and training and increases the allocation to the Ministry of Education twelve fold over the first plan period. About half the development funds will be devoted to a more than 50% expansion in primary education which by 1978 will have become almost universal. The plan also shows a strong awareness for improvement of educational quality, including various inputs such as curricula development, teacher training, expanded textbook production, and better physical facilities. An education system thus expanded and improved would require a tripling of recurrent expenditure by the Ministry of Education but this ought to be feasible, given the government's increased financial resources.

ix. The individual measures envisaged in the plan are likely to contribute to the betterment of education and training in Indonesia but they appear to lack long-term strategy and practical detail for large-scale implementation. The sector report recommends that these weaknesses be corrected by (a) strengthening the coordinating functions of Bappenas for all aspects of the education sector, (b) developing a capability for long-term planning within BPP and (c) creating education planning units at the provincial level. The plan gives only scant attention to basic issues of educational structure, especially the integration of the secondary school system, and the need for institutions for technician training. This

sector report recommends that (a) a study be undertaken to determine ways to unify secondary schools, (b) existing policies on technician training be reviewed and (c) experiments with comprehensive schools be established on an austere basis to ensure results applicable on a wide scale.

x. The plan does not deal with the economic causes of massive dropout in the existing system. Major recommendations of the sector report regarding educational opportunity include: (a) the elimination of school fees in primary schools, (b) the channelling of new government resources into a nation-wide scholarship program for able but poor students, and (c) studies on ways to make the extensive infrastructure for non-formal education (Penmas) more effective. Much of the plan pursues the objective of improvements in educational quality but desirable additions would be policies to (a) eliminate part-time teaching during the plan period, (b) establish a permanent office for continuous curriculum development, (c) strengthen school supervision and (d) provide simple teaching materials and equipment on a large scale. Finally, the following measures recommended in the sector report could help make the system more efficient: (a) adopting a policy on minimum school size, (b) establishing and monitoring targets for student progress, (c) eliminating duplication through common university administrative services and (d) increasing teacher productivity.

xi. In view of the growing capacity of the government to finance its own development projects independently, the approach of the World Bank Group should be to assist new ventures aimed at four interrelated objectives, namely: (a) to reinforce administrative capability, (b) to meet specific manpower needs, (c) to create new educational opportunities and (d) to strengthen the educational process. Within this context the following possible project items appear to warrant further consideration:

Reinforcing Administrative Capability

Strengthening the National Institute of Administration (LAN)

Strengthening the Office of Educational Development (BPP)

Studies on Educational Administration and Financing

Meeting Specific Manpower Needs

Establishment of Industrial Technician Training

Creation of an Institute of Accountancy

Expansion of Technical Training Centers

Expansion of Urban Vocational Training

Creating New Educational Opportunities

Establishing Rural Extension Centers

Expanding Rural Mobile Vocational Training Units

Broadening Community Education

Establishing a National Scholarship Scheme

Strengthening the Educational Process

Production of Teaching Equipment and Learning Materials

Introducing Educational Radio

Strengthening Regional University Faculties of Agriculture

Rationalizing Technical Teacher Training

Regionalizing Primary Teacher Training

Improving Secondary Science and Mathematics

The above items have been grouped to form a phased investment program which would start with improvements in administrative capability and educational support for industrial development, for which a long lead time is required.

INDONESIA

EDUCATION SECTOR SURVEY REPORT

I. INTRODUCTION

1.01 This report presents the findings of an education 1/ sector survey mission which conducted field investigations in Indonesia from October 31 to December 5, 1973. The purpose of the mission was to:

- (a) review plans and prospects for socio-economic development, especially in rural areas, and explore their implications for education and training;
- (b) analyze the existing education system and identify problems;
- (c) evaluate plans for education in relation to priority needs and possible constraints; and
- (d) propose a phased education investment program suitable for external financing over the period 1974-79.

1.02 The scope of the sector mission was comprehensive, encompassing to the extent possible all levels and types of education and training, both public and private, formal and non-formal. However, the size and complexity of the country and the limited time available restricted the survey to the main population areas and to major types of education and training. The mission therefore did not (a) visit the eastern one-third of the country with five percent of its total population, (b) investigate middle level health training since this has been covered by the Population and Nutrition Projects Department of the Bank Group 2/ or (c) concern itself with dispersed staff training given by various government agencies. A reconnaissance mission in September, 1974 discussed the report with government authorities.

1.03 Until the results of a comprehensive National Assessment Study of Education 3/ (1969-1973) were known, the approach of the Bank Group in regard to support for education had been to assist Indonesia in easing identifiable manpower shortages and in improving the quality of education. Three IDA credits, totalling \$23.9 million, have been extended to assist

1/ Throughout this report, the use of the word "education" should be understood to mean "education and training."

2/ Bank Group includes IDA, IBRD and IFC.

3/ National Assessment Study on Education carried out by the Office of Educational Development (BPP) with Ford Foundation assistance between 1969 and 1973. See Appendix A, para 19; and Appendix F for list of principal works consulted in preparing this sector survey.

Indonesian education and training. The first credit of US\$4.6 million was made in 1970 to develop five technical training centers (TTC) and provide centralized workshops for satellite upper secondary technical schools (STMs). A second IDA credit for US\$6.3 million was approved in 1972 to improve the pre-service and in-service training of middle-level agricultural workers. A third credit of US\$13.0 million in 1973 will finance textbook production and related teacher training for primary schools. Appendix D gives a summary of the content and present status of these projects.

1.04 The outline of this report closely parallels the functions of the mission. Chapter Two summarizes those issues in socio-economic development that have a bearing on education and training. Chapter Three analyzes present educational problems on the basis of four criteria: (a) external productivity, (b) educational opportunity, (c) educational quality, and (d) internal efficiency 1/. Chapter Four discusses educational plans and policy issues and recommends possible action. The final chapter presents an education investment program including four sets of project items which might be eligible for external financing. Only the relevant detail required to support major points is presented in the main report. A more complete description of the education and training system appears in Appendix A which benefitted in particular from the work of the National Assessment Study. The other appendices contain detailed background material on manpower and education (Appendix B), the education section of the Second Five Year Development Plan (Appendix C), summary of Bank Group projects under implementation (Appendix D), possible project items (Appendix E) and bibliography (Appendix F).

1/ These criteria can be understood best in terms of relationships between the components of the education system and outside needs. External productivity is relevant insofar as outputs and objectives satisfy external needs, e.g., the match between the content of curricula and skills required in the labor market. Educational opportunity, the relationship between inputs and national needs for social equity, has two dimensions: (i) equal access to education by various population groups (access equality) and (ii) access to education of similar standard (input quality). Educational quality, a criterion of effectiveness, refers to the relationship between outputs and objectives, e.g., the degree to which students effectively learn the prescribed curriculum, regardless of its content. Efficiency is the relationship between inputs and outputs, usually capable of being expressed in terms of costs. None of the criteria is meaningful in an absolute sense but only when considered in the specific setting of a given country.

II. PATTERN AND POLICIES OF DEVELOPMENT

Socio-Economic Background

2.01 Indonesia, the world's largest archipelago with over 3,000 islands, stretches more than 5,000 km. from Aceh, North Sumatera, in the west to Irian Jaya, West New Guinea, in the east. The population, which grew by 2.0% p.a. between 1961-71 to reach about 120 million, is unevenly distributed among the 26 provinces. Population density ranges from 2 persons per km² in Irian Jaya to almost 800 in Yogyakarta 1/. Java and Madura, while covering less than 7% of the country's land surface, account for about 65% of its population and are among the most densely populated areas in the world at 565 persons per km². Expansion of cultivated areas in Java has been driven beyond its sustainable maximum in some cases, as evidenced by serious erosion problems in Central Java. Non-agricultural growth must inevitably be the main long term solution to the problems of Java with its overtaxed land resources. 2/ By contrast, cultivable agricultural reserves reach an estimated 15-20 million ha outside Java.

2.02 The population is mostly young and rural. In 1971 more than two out of three persons were under thirty years of age and more than four out of five persons were living in rural areas. The literacy rate, 60 percent for the country as a whole, showed marked differences between males and females (71% vs. 49%) and between urban and rural areas (79% vs. 55%) (Annex 2). The distribution of persons between urban and rural areas revealed still wider discrepancies with regard to higher educational attainments. The rural population (83% of the total) has 90 percent of those who never attended school, 75 percent of primary school completers, half of those who finished upper secondary schools and only 12% of the nation's university graduates.

Recent Economic Growth

2.03 Economic development in the 1960s went through two distinct phases: a period of stagnation and general capital stock depletion (1960-65), followed by a period of recovery and more vigorous growth during the latter half of the decade. GDP at constant 1960 prices grew by 1.4% p.a. from 1961-66 and at 6.6% p.a. between 1966-71. Over the ten year period 1961-71 the labor force grew at 1.5% p.a. to reach 40.1 million and employment increased by 1.8% p.a. to a total of 39.2 million in 1971.

2.04 The growth of national income between 1961-71, adjusted for population growth at 2.3% p.a., raised the average per capita GDP by more

1/ Excluding the capital district of Jakarta with almost 8,000 persons per km².

2/ Transmigration to the outer islands cannot be more than a partial solution to Java's overcrowding.

than 20% at constant prices. However, wide disparities existed in these incomes. Central and Southeast Sulawesi and the two provinces of Nusatenggara, predominantly rural provinces, have per capita incomes of Rps 11,000-15,000, only one-half the national average and less than one-fourth that of Jakarta (Rps 56,000). 1/

2.05 Growth during the 1960s resulted in shifts in the sectoral composition of GDP and employment, as follows:

Selected Sectors	(Percentage of Total)			
	1961	/a	1971	/a
	Output	Employment	Output	Employment
Agriculture	47.9	71.9	43.6	63.2
Mining	3.0	0.3	6.6	0.2
Manufacturing	9.9	6.0	8.9	7.5
Trade	17.4	6.7	18.8	10.7
Services	6.8	9.5	4.8	10.0

1/a GDP at current market prices.

Sources: IBRD Reports.

2.06 Unemployment, particularly of school leavers, has become a growing concern in recent years. While the 1971 Census listed 2.2% of the economically active population over 10 years as workseekers (4.8% in urban and 1.8% in rural areas), the 1972 Urban Unemployment Survey suggests unemployment of more serious proportions, reaching almost 8% in the city of Surabaya and surpassing 10 percent in Jakarta and Bandung. Significantly, almost two-thirds of the unemployed were under 25 years of age and two-thirds have pursued their education beyond primary school. As the recent expansion at the post-primary education levels has not yet reached the labor market, the problem of educated unemployment could become larger and more pressing in the next few years.

Development Policies and Issues

2.07 The overriding question for the Second Five Year Development Plan (Repelita II, 1974/5-1978/9) and beyond is the proper balance between growth and equity considerations in economic development. A growth-oriented development policy would tend to concentrate resources in areas

1/ IBRD report, "A Framework for Regional Planning in Indonesia," (February, 1974), para 45.

promising rapid and substantial growth. In agriculture, it might result in some degree of consolidation of land holdings in Java into more economical units for commercial production, thereby creating larger numbers of redundant labor and transmigration and extension of cultivation outside Java. Outside agriculture capital intensive production would be emphasized, tending toward larger units of production concentrated in major urban areas.

2.08 An equity-oriented development policy might sacrifice higher growth rates in favor of distributing benefits more evenly among the population. It would probably stress improvement in rural living conditions through better social services and employment creation through subsidy schemes. Development outside agriculture would tend to favor smaller-scale units in labor-intensive branches.

2.09 Towards the end of the First Five Year Development Plan (Repelita I, 1969-73), mounting unemployment, particularly among young school leavers (para 2.06), and the plight of impoverished rural areas, started to direct public discussion towards equity considerations. Even the first tentative thoughts about Repelita II showed this concern. As early as 1971, it had become clear that the social sector (education, health, community services) would play a much greater role in future government investment.

2.10 Recent price increases for petroleum 1/ have presented Indonesia with a novel set of problems. Instead of determining how to allocate limited development funds, Indonesia's new problem is how to maintain stringent criteria for project selection on a much larger scale. An important issue for future development, therefore, is whether the government can increase its administrative capacity for planning and executing development projects commensurate with its revenues.

Alternative Patterns of Development

2.11 Three alternative patterns of development will be postulated which differ markedly in their global targets, in choice of means and in implications for education and training. The three alternatives 2/ are characterized by the following annual GDP and employment growth rates for the period 1971-81: 3/

1/ In 1974 Indonesia expected to earn over US\$3 billion in net oil revenues, compared with US\$0.5 billion in 1972.

2/ All three alternatives share the following two assumptions: (i) that international trade will be spared major disruptions and (ii) that the Indonesian Government will be able to control inflationary pressures inherent in the monetary flows which will accrue from recent changes in oil prices.

3/ 1971 has been used as the base year for the projection due to the lack of requisite data for more recent years.

	<u>"Moderate"</u> <u>Assumption</u>	<u>"High"</u> <u>Assumption</u>	<u>"Very High"</u> <u>Assumption</u>
Real Annual GDP Growth	7.0%	9.0%	11.0%
Annual Employment Growth	2.7%	2.9%	3.0%
Incremental Employment/Output Ratio	0.4	0.3	0.3

2.12 The 11% growth assumption would tend to emphasize capital intensive schemes. This 11% target seems difficult to achieve because of the limited growth potential of agriculture relative to other sectors. For instance, if agriculture, which accounts for about 40% of GDP, were to grow by 4.5% p.a.1/, annual growth outside agriculture would have to average 17.5% in order to achieve an overall 11% p.a. GDP increase. Moreover, increased investments would take about two years to show up in output and employment figures, thus requiring even larger rates during the second half of the projection period.

Implications for Education and Training

2.13 These growth patterns imply different requirements for broad skill categories (professional workers, technicians, and skilled workers). 2/ The estimated average annual manpower requirements (including replacements) for each of the three GDP growth paths are as follows:

Projected Average Annual Manpower Needs Between
1971 and 1981, by Skill Level
(in 1,000s, Rounded)

	<u>Assumed Annual GDP Growth of</u>		
	<u>7%</u>	<u>9%</u>	<u>11%</u>
Level A (Professionals)	15	20	23
Level B (Technicians)	49	64	73
Level C (Skilled Workers)	165	185	205

2.14 To translate these figures into average annual education/training requirements is a hazardous undertaking, given the complete absence of information on the composition of the workforce by skill level, educational attainment and work experience. Two broad assumptions appear to be justified: (a) the possibilities of vertical substitution between neighboring skill categories are already largely utilized; (b) the scope for

1/ The Agricultural Sector Survey report (June, 1973) projected future increases in rice output in the range of 3%-4% p.a., and considered an average growth rate of 5% in the non-rice segment (estate crops, livestock, forestry, fishing) as feasible.

2/ See Appendix B for details.

vertical substitution will decrease with an increasing pace of GDP growth, given the underlying technological complexity. Consequently, the proportions of the skill requirements that are covered solely by on-the-job training have been assumed to decrease and the institutional training requirements proportionally to increase. 1/ These institutional requirements are assumed to be as follows: for the professional category, a university degree or its equivalent in practical experience; for technicians, complete secondary education and some amount of post-secondary training; and for skilled workers, lower secondary (vocational) education. The resulting annual education/training requirements are as follows:

Projected Average Annual Education/Training Requirements Between 1971 and 1981, by Skill Level (in 1,000s, Rounded)

	Assumed Annual GDP Growth of		
	<u>7%</u>	<u>9%</u>	<u>11%</u>
Level A (Professionals, university education)	8	11	14
Level B (Technicians, post-secondary training)	20	29	37
Level C (Skilled Workers, vocational training)	41	56	72

2.15 A comparison of these estimates with the present size of the relevant segments of the education system reveals potential deficits at the intermediate skill levels (B and C) which may turn out to be effective impediments (not necessarily the only ones) to attaining the two more ambitious GDP growth targets. While at the higher education level the main problem appears to be that of a proper balance between the various fields of study, it is clearly one of limited capacity at the level of technicians and skilled workers. The tasks of properly defining and locating technician training and that of devising ways of accelerating the output of skilled workers assume additional urgency in the light of these estimates. By contrast to these deficits, potentially serious surpluses of unemployed secondary and university graduates may emerge.

Complementary Education and Training

2.16 Consideration thus far has been limited to skilled occupations which make up only a small fraction (less than 10%) of the labor force. Unskilled and semi-skilled occupations, including subsistence farmers and groups such as rural women or unemployed youth, constitute important target groups (about 33 million persons 2/) which are not being adequately

1/ For details see App. B, para 45.

2/ The population in the 16-34 age group less students and those in skilled occupations.

reached with education and training services at present (App. A, paras 175-209). In contrast with higher skill categories, where education and training is directed at preparation for particular occupations, education for these groups should add to their knowledge and skills so as to enable them to work more productively, tap additional sources of income or improve their lives (e.g., through better knowledge of health care and nutrition).

2.17 The factors referred to in the foregoing paragraphs (paras 2.13-2.16) suggest the need for a deliberate policy of (a) selective expansion in technical and vocational education, (b) restraint in expansion of secondary and higher education, and (c) major reallocation of resources toward out-of-school education.

III. ASSESSMENT OF THE EDUCATION AND TRAINING SYSTEM

External Productivity

3.01 Structure. The education system comprises six years of primary education, six years of secondary education divided into a lower and upper cycle and three to five years of higher education (Chart 8385, and App. A, para 1). Its salient characteristic is complexity. Lower secondary education (SLTP, Gr. 7-9) consists of nine different types of specialized schools and upper secondary (SLTA, Gr. 10-12) includes twelve types. 1/

3.02 The present specialized structure seems inappropriate in the following respects: first, it presumes a highly structured labor market whereas this applies only to a small segment of the Indonesian economy. Moreover, the underlying rationale is that most students will terminate their studies and join the labor market after each cycle but in practice about 80% of the grade 9 graduates in specialized schools went on to further education in 1971 (App. A, para 101). Second, Indonesian general schools, as in many countries, have tended to concentrate on those students who continue their studies rather than the many who terminate. Upper secondary general schools (SMA) educate students almost exclusively for university entrance, yet about half the students terminate. Third, the education structure tends to restrict the choice of graduates for further education according to the specialization they have received and allows little opportunity for entering new fields or for study across faculty lines within universities.

3.03 Terminating students, particularly from the general secondary schools (SMP and SMA) who account for half the secondary students, usually enter the labor market with little relevant preparation for work or adult life in general. The content of teaching programs tends to be heavily

1/ In practice there are few major differences among the various types because (i) the purposes of each type of school have not been clearly defined and may in fact be overlapping and (ii) specialized facilities and equipment are lacking.

academic, devoid of practical courses, 1/ and lacking in emphasis on solving real problems. Teaching is often irrelevant at higher levels because staff do not engage in research and employers do not participate in drafting curricula (e.g., in liaison committees). Because of marked centralization, curricula have tended to be unrelated to local environments.

3.04 The education and training system has been out of balance with the present and probable future needs of the labor market. Major shortages have occurred in technical fields where outputs 2/ from vocational, technical secondary and technician courses have been inferior to demand (para 2.15). Outputs from vocational training centers (PLK) have been only 4,300 p.a. (App. A, para 185) and about 700 engineers were graduated in 1972 compared with less than 200 technicians (App. A, para 130). By contrast, significant surpluses have emerged among graduates of general secondary schools as evidenced by unemployment among school leavers (para 2.06). A reserve of about 75,000 primary teachers occurred over the period 1968-73 because of an embargo on hiring new civil servants without a parallel curtailment of enrollments in teacher training institutions (SPGs, App. A, paras 7 and 87).

Educational Opportunity

3.05 In 1971 enrollments reached 15.7 million at the primary level, 2.6 million at the secondary level and roughly 300,000 in higher education 3/ (Annex 3). Even so, 6.2 million eligible children did not attend primary school in 1971 because they either dropped out or never enrolled. As a proportion of the respective age groups, enrollment rates 4/ were 80% for primary, 18% for secondary and about 3% for higher education (Annex 4). These rates are comparatively high but they conceal disparities by sex, region, urban/rural location and social background. According to the 1971 Census, age-specific enrollment rates were consistently low for females and rural areas (App. A, para 9). Provincial differences increase with each successive cycle, ranging from 52% to 84% at the primary levels and from 3% to 24% at upper secondary level (Annex 4 and App. A, para 10). Major differences also exist between districts (Kabupaten) within provinces. In West Sumatera, for example, the rural district of Agam has 13% of the provincial population, 14% of the primary enrollment but only 2% of upper secondary enrollments compared with the urban district of Padang which has 7% of the population, 8% of primary enrollments and 41% of upper secondary

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- 1/ Such as, industrial arts, home economics or even laboratory work in science, due in part to the lack of facilities and equipment.
 - 2/ Little information is available on outputs (i.e., graduates) from the education system at the various levels, particularly from higher education; however, outputs from vocational and technician courses, which can be determined, are extremely limited in numbers (App. A, paras 134, 136, 185).
 - 3/ Such as, industrial arts, home economics or even laboratory work in science, due in part to the lack of facilities and equipment.
 - 4/ Including overage students.

enrollments (App. A, para 11). These inter and intra-provincial imbalances will be perpetuated unless a concerted effort, including financial measures, is made to overcome them.

3.06 The proportion of children from low-income families decreases rapidly as one moves up the educational ladder. Dropouts at each level tend to come mostly from families with a comparatively low socio-economic profile. While this can be observed in many other countries, in Indonesia the process seems pronounced in the early years of primary education (Chart 8477). A comparison between the adult population and parental background of university students reveals a disproportionate participation of relatively wealthier families (App. A, para 146). Children of professional workers, who account for about 2% of the labor force, made up 20% of the enrollment in higher education in 1971. On the other hand, farmers constituted almost two-thirds of the employed labor force in 1971 but their children accounted for only a fourth of the students in higher education (Annex 5).

3.07 The reasons for this disproportionate attrition are mainly financial. Parents often cannot afford the direct (tuition) or indirect (loss of labor) costs of sending their children to, or keeping them in, school. Although a new proportionate fee structure based on family income was introduced in 1971, absolute fee levels remain high and effectively bar children from rural or urban poor backgrounds (App. A, para 70). Other than occasional remission of fees on an individual basis, there is no program of scholarships or bursaries to assist the education of talented but poor students. 1/

3.08 Dropouts and school leavers form a large majority (85% of the 13-15 age group) which has little chance for further education or training. Out-of-school education has been considered important but the Ministry of Education spends less than two percent of its budget on non-formal education through Penmas and reaches only 1.7% of the age group 16-34 (Annex 6, community education, App. A, para 179). Efforts by other government departments are scattered and uncoordinated. The agriculture extension service provides few farmers with technical advice (App. A, para 200). Between 1965 and 1970 the effective Bimas program covered only about 10% of the farm population (App. A, para 199).

Educational Quality

3.09 The effectiveness with which students learn depends upon many interrelated variables, including previous educational experiences and various school factors, such as physical facilities, equipment and teaching materials, curricula, methods of teaching, examinations, supervision and, perhaps most importantly, on teachers. Most existing teaching programs have weaknesses in one or more of these factors, as reflected in poor examination results. In 1970 only 65% of the primary grade 6 enrollment passed the final examination. Between 1966 and 1970 pass rates (percentage of students in final year who graduated) at IKIPs were only about a third and a fourth, respectively,

1/ Scholarships for study abroad are no exception to this statement because they serve objectives other than equal educational opportunity.

of terminal enrollments at the intermediate and first degree level. Not only were some of the inputs insufficient but they were unequally distributed by province. Per student recurrent expenditures (App. A, para 59) and teacher qualifications (Annex 7) ranged widely by province, indicating sharp differences in the quality of instruction.

3.10 The National Assessment Study found about 20% of primary schools in serious need of repair and half of the secondary school building requiring attention. It was also found that only about 15% of secondary schools had libraries and fewer still laboratories and workshops. Population growth, public demand for schooling and postponement of capital expenditures have led to overcrowded facilities, exemplified by an average grade 1 class size of 55. Schools have tended to compensate for lack of space by operating multiple shifts.

3.11 The lack of equipment, textbooks and teaching materials is even more serious than inadequate space. Textbooks, everywhere in short supply, are particularly lacking in the national language for technical/vocational subjects, science and mathematics. The widespread lack of textbooks dictates that much classroom time be spent by students in taking notes during lectures or from the blackboard. The few laboratories and workshops which exist suffer from lack of funds for consumable supplies. Many simple classroom aids, such as charts and models, could either be made by teachers from local materials or be mass produced and distributed locally but this has rarely been done.

3.12 Curricula at the secondary level entail an excessive number of weekly subjects (15-24) and class sessions (40-46) which militates against learning any subject well. Teacher qualifications have been inadequate, particularly in technical and vocational schools where between one and two thirds of all teachers were considered unqualified in 1971 (Annex 7). Less than half the qualified secondary teachers are quoted by the National Assessment Study as adequately prepared in the specializations they taught. Nor can most teachers expect professional help from supervisors who have often too large a number of schools to cover without adequate transport or travel allowance (App. A, para 40).

3.13 Four key education and training programs have been ineffective because of the above-mentioned weaknesses. The agricultural extension service, divided among five directorates 1/, employs 30,000 technical personnel, but they are poorly organized, inadequately trained for their work 2/, and engage mostly in administrative tasks rather than in advising farmers (App. A, para 200). The extensive infrastructure of Penmas has, in many cases, enabled people in remote areas to be reached and taught relevant basic courses but its coverage is limited (para 3.08), staff are poorly trained and funding has been too stringent. Within the formal system, the teaching of secondary science and mathematics is weak and contributes to

1/ The extension service was integrated into one bureau in late 1974.

2/ Annex 8 gives the educational background of public technical personnel in the agricultural sector.

high dropout in technical faculties at the university level. Rapid expansion of higher education in the early 1960s stretched the limited number of qualified staff and budgets and led to sub-standard instruction. These weaknesses continue to plague agriculture faculties, among others, especially outside Java 1/. Moreover, the quality of instruction is usually poorer in religious and private schools at all levels than in those fully financed by the Ministry of Education.

3.14 The root cause of poor quality is inadequate expenditure. Recurrent expenditures per student in Indonesia are among the lowest in the world at all levels (Annex 1 and App. A, para 59). Total education budgets also rank low as a percentage of national aggregates 2/ (Annex 10). Low salaries force teachers and administrators to hold two or three jobs concurrently which dissipates their efforts (App. A, para 65). Any serious attempt to improve educational quality will require greater expenditures per student and, consequently, greater resource allocation to education.

Efficiency

3.15 Underfinancing of education, which contributes to poor quality, may paradoxically result in expensive education. Low expenditure per student in secondary technical schools (STMs) on salaries, equipment and supplies means that graduates receive inadequate training and must be retrained later in vocational training institutions (PLKs, App. A, paras 108 and 186). Consequently, their earlier training is largely wasted. By the same token, many students who drop out before completing their studies embody educational investment which comes only to partial fruition at best. Overall dropout rates of 63%, 20% and 70% at the first, second, and third levels, respectively, meant that roughly half of total public recurrent expenditure, or Rps 25 billion, was spent in 1971 on those who failed to complete their present level. Not all of this expenditure was lost because dropouts will gain something from their studies but expenditures on the 42% of primary entrants who drop out before grade four (Chart 8477), usually regarded as the minimum for establishing permanent literacy, probably were largely wasted. Heavy dropout rates have contributed to under-utilization of available space, showing in small class sizes in the terminal year at each cycle (Annex 11) e.g., 19 in rural primary.

3.16 High repetition rates (12% p.a. at primary level) meant that many students stay in school longer than the normal duration, thereby depriving other children access to education. Roughly 2.4 million primary places, 640,000 lower secondary places and 260,000 upper secondary places were thus taken up by laggard students 3/. In other words, primary schools

1/ Annex 9 lists agricultural faculties by university.

2/ Central government expenditure on education amounts to less than 15% of combined routine/development budgets and less than 2.0% of GDP.

3/ Annex 12 gives the age-grade distribution of enrollments for Ministry of Education schools.

had the physical capacity to enroll 80% of the age group 7-12; lower secondary 22% of the 13-15 age group; and upper secondary 13% of the 16-18 age group (compared with actual rates of 68%, 14% and 9%, respectively, Annex 4) if it were not for shortcomings in internal efficiency of the system. Repetition is also acute in higher education, particularly in the examination years (three and five), thereby bunching enrollments in those years (Annexes 13 and 14).

3.17 Repetition and dropout increase the cost per graduate, particularly in primary and higher education. Between 1965 and 1970 it took 11.6 student/years of instruction and Rps 23,000 to produce one primary graduate (compared with six years and Rps 12,000 with perfect efficiency). Between 1968-70 it took 5.8 student/years of instruction at IKIPs and roughly Rps 175,000 to produce one intermediate (sarjana muda) graduate (compared with three years and Rps 90,000 as a theoretical minimum). Moreover, the fragmentation of secondary education into many single-purpose institutions (para 3.01) has resulted in a proliferation of small institutions which operate on an inefficient scale (Annex 3).

3.18 Some inefficiency can also be traced to existing administrative patterns. Primary schools in most provinces are administered by both the Ministries of Education and Interior which entails an unnecessary duplication of supervisory staff (App. A, para 31). The allocation of primary teaching staff has also been uneconomical. In North Sumatera, for example, some six-class schools have ten teachers while other six-class schools have only two. Patterns of administration and university management are among the causes of low internal efficiency in higher education. Duplication of courses (resulting in small class sizes) and administrative services, e.g., fee collection and distribution, are prevalent. Better management of available resources is clearly necessary, especially through reduced repetition and dropout, consolidation of small schools and elimination of duplications.

Constraints

3.19 The capacity of the government to overcome these problems is limited in several ways. Solutions will need to take into account the constraints imposed by the size and dispersion of the existing system. Geography also limits the speed and effectiveness of possible change. Schools are scattered throughout 3,000 islands covering an area of nearly two million km². Communications are frequently difficult in the outer islands where populations are thinly distributed, transport is difficult and the Indonesian language is sometimes not widely spoken. A conservative projection of 1.6% annual growth of primary school population, which is likely to add about 3.7 million children in the age group 7-12 between 1974-84 (Annex 15), already has limited future options. Merely to maintain the same primary enrollment rate (80%) would require 2.9 million additional places by 1984; to prevent an increase in the present number of primary age children out of school would require 3.7 million more places over the same period (Chart 8568).

3.20 Shortage of finance has limited educational improvement in the past but substantial increases in oil revenues have eased this constraint for the immediate future (para 2.10). Nevertheless, financial constraints still exist because of the magnitude of accumulated demands in all government sectors and the likelihood that much of the budget increases will be eroded by inflation. Barring further increases in petroleum prices or major new discoveries of petroleum reserves, the overall resource constraint may be re-established within a few years. Thus, the present budget surplus may be a unique opportunity to correct many of the weaknesses inherent in the education system.

3.21 In the short term, the principal constraint on educational development is not likely to be financial but rather administrative capacity. The existing administrative system and shortages of well trained administrators make it difficult to effect educational improvements. The government exercises little control over private schools which accounted for 31%, 58% and 55% of the total institutions at the three levels respectively (Annex 3). Marked centralization of most functions in Jakarta has produced a time-consuming administrative system. In the provinces, the coexistence of several separate authorities performing similar functions without adequate coordination (App. A, para 31) has led to duplication of efforts and has prevented the application of consistent national policies. In particular, the planning process has been cumbersome, slow and it lacks comprehensive scope and a long term perspective (App. A, paras 19-23). The planning process needs to be extended and streamlined to avoid placing undue constraints on future expenditures. Finally, rapid educational expansion would be limited by the extent to which the existing construction industry could absorb the workload implied by such expansion.

IV. GOVERNMENT POLICIES AND PLANS

4.01 The First Five Year Development Plan. The government has identified and is dealing with many of the basic educational policy issues. During the First Five Year Development Plan (Repelita I, 1969-73), several steps were undertaken to improve educational administration and planning, e.g., the creation of the Office of Educational Development (BPP) (App. A, para 19) and the issuing of Presidential Decree No. 34, 1972 which distributed responsibility for education and training mainly among three government departments (App. A, para 15). Examinations were decentralized and a regional planning experiment was put into operation with Ford Foundation assistance. At the primary level, a comprehensive program was started to produce and distribute textbooks to all primary students accompanied by an in-service teacher training scheme (App. D, para 16). In November, 1973 the government announced the construction of 6,000 new primary schools and the hiring of 59,000 teachers ^{1/} according to an allocation which would tend to reduce existing regional disparities. Improvements in the quality and

^{1/} 18,000 new teachers and 41,000 presently employed as temporary or part-time teachers.

relevance of secondary technical education are being made by adding centralized workshops (para 1.03). Experiments were launched with comprehensive secondary schools 1/ which will eventually produce a simplified model to replace the present sprawling system of secondary schools (para 3.01). Improvements in higher education were continued through five Consortia in various disciplines, through five Centers of Excellence and through a system of assistance to junior (muda) faculties by senior (pembina) faculties. Student service schemes (Bipemas/KKN; and Butsi, App. A, para 170) were started to provide students with practical experience and to instill them with a sense of obligation towards the community. These programs provide a valuable base on which to build during Repelita II.

4.02 The Second Five Year Development Plan, 1974/75 - 1978/79 (Repelita II), attaches great importance to equity considerations and emphasizes the "social sector" (para 2.09). The Repelita II gives prominent place to further expansion and improvement of education and training and its integration with economic development. The tentative allocation of development funds to the Ministry of Education includes Rps 436 billion, 9.0% of the total and an increase of nearly twelvefold compared with the Repelita I allocation of Rps 36.6 billion (3.4% of the total), for the same purpose.

4.03 The contents of the Second Five Year Plan reflect concern for structural reform and other measures to improve the relevance of education. At the lower secondary level the present unnecessary diversity will be replaced gradually by uniform curricula. In higher education the creation of a sub-professional certificate program is intended to contribute to a solution of the dropout problem and provide a greater supply of technicians. Close links will be established between schools (especially STMs) and the principal consumers of their output, i.e., government and private enterprise. The plan alludes to the need to regulate enrollment and avoid the development of major surpluses of graduates in certain fields of study but stops short of suggesting specific policies to attain this end. In higher education, fields of study singled out for support are agriculture, geology, civil engineering and accountancy.

4.04 The greatest absolute and relative increase in enrollments is planned for the primary level to compensate for slow growth in the previous five years. Targeted enrollments for Repelita II compare with actual achievements under Repelita I as follows:

1/ Development Secondary and Development Technical Schools; see App. A, paras 4 and 124.

Actual and Targeted Enrollments, /a 1969-78

	millions of students						Annual Enrollment Increase (%)	
	FFYP		SFYP		Additional Enrollments		FFYP	SFYP
	Actual	1969	Target	1978	FFYP	SFYP		
Primary	12.8	13.6	20.9	0.8	7.3	1.2	9.0	
Lower Secondary	1.2	1.5	2.0	0.3	0.5	4.6	6.0	
Upper Secondary	0.7	0.9	1.2	0.2	0.3	5.1	4.7	
Higher Education	0.2	0.3	0.4	0.1	0.1	4.9	4.0	

FFYP = First Five Year Plan (Repelita I)

SFYP = Second Five Year Plan (Repelita II)

/a Excluding public and private religious enrollments.

Source: Bappenas

By 1978 the gross primary enrollment rate would reach 91% of the 7-12 age group compared with 66% in 1973 1/. The capacity of lower secondary education would be expanded to permit an intake of 85% of primary school graduates by 1978 compared with 80% at present (Annex 16).

4.05 The Second Five Year Plan shows a strong awareness for improvement of educational quality. Steps will be taken to integrate curricula between religious and secular schools. Curricula improvement will be stressed at all levels. Existing programs for textbook production and in-service teacher training at the primary level would be extended to lower and upper secondary schools. Physical targets include the rehabilitation of all government school buildings, the introduction of school libraries, and the provision of fully equipped laboratories at all lower and upper secondary schools, respectively, which presently lack them. Although not mentioned explicitly, plans exist to increase teacher salaries by at least twice as much as those of other civil servants in 1974, and to reorganize the Ministry of Agriculture by integrating presently dispersed research and extension functions.

4.06 The financial efforts envisaged in the education sector during the period of the Second Plan appear great when compared with the physical size of the education system and with comparable figures for the Repelita I period.

1/ These rates include overage students and exclude enrollments in religious schools.

Comparison of Ministry of Education
Development Budgets, by Level of Education,
during Repelita I and Repelita II
(in Rps. billion)

<u>Area of Investment</u>	1973/ 74	1974/ 75	Increase (1973/ 74=100)	Repelita I 1969/70 1973/74	Repelita II 1974/75- 1978/79	Increase (1969/70- 1973/74=100)
Primary Education	0.5 /a	24.4	5,295	2.1 /a	202.0	9,551
Secondary Education	4.4	16.0	362	17.0	155.0	910
Higher Education	3.1	5.4	172	12.1	65.0	538
Non-Formal Education	0.3	0.3	85	1.0	3.0	309
Other Areas	1.6 /b	1.1 /b	-	4.4 /b	11.4 /b	224
Totals	9.8 /a/b	47.0 /b	477	36.6 /a/b	436.4 /b	1,192

/a Excluding extraordinary allocation of Rps 15.8 billion not included in Repelita I but added in 1973 (para 4.01); including this amount would reduce in the index figures from 5,295 to 149.8, and from 9,551 to 1,128, respectively.

/b Items "Other Areas" and "Totals" may not be strictly comparable in Repelita I and II.

4.07 A comparison of the Repelita I and II figures suggests that the Central Government is about to assume a much larger role in financing primary school buildings. Other noteworthy facts are the strong increase in allocations for secondary education and the apparently minor importance of investment in non-formal education. An education system thus expanded and improved would require an increase in recurrent expenditures by the Ministry of Education from Rps 75 billion in 1973/74 to about Rps 200-220 billion in 1978/79 1/. This ought to be within the government's financial capabilities.

4.08 The enrollment targets also imply a need to increase the output of teachers, as follows:

1/ Both figures include payments for primary teacher salaries; the distribution of financing between the various government levels and between the public and private sectors has been assumed not to change.

<u>Type of Teacher</u>	<u>Second Five Year Plan Teacher Requirements</u>			<u>1973-78 Annual Requirements /a</u>
	<u>1973 Output</u>	<u>1973 Teacher Stock</u>	<u>1978 Teacher Stock</u>	
Primary	25,000	425,000	525,000	39,000
Lower Secondary	1,300 ^{/b}	90,000	105,000	7,000
Upper Secondary ^{/c}	900 ^{/b}	52,000	59,000	3,500

/a Including attrition of present stock at 4% p.a.

/b Estimates available only for 1970 corresponding to sarjana muda and sarjana levels, respectively.

/c Ministry of Education schools only.

However, it is unlikely that any major increases would need to be made in enrollments at either primary (SPG) or secondary (IKIP) teacher training institutions for two reasons. First, there is a considerable backlog of unemployed teacher training graduates, particularly at the primary level, resulting from the embargo on hiring full time civil servants between 1968-73 (para 3.04). Second, present outputs are exceptionally low in relation to enrollments at secondary teacher training institutions (IKIPs, App. A, para 150); output could be increased substantially by reducing dropout and repeater rates.

Issues and Policy Recommendations

4.09 The plan is mostly a collection of statements about short term intentions, many of which are too general at this stage to serve as a basis for implementation. These statements of intention, while appropriate, are unsupported by suggestions for concrete policies and programs and are not guided by a long term strategy. Moreover, the draft plan gives inadequate treatment to important horizontal links between the various ministries engaged in education and training. The following steps would tend to improve planning (App. A, para 23):

- (a) strengthen the capacity of Bappenas to coordinate and review plans for the whole education sector including non-formal, agricultural and vocational education;
- (b) establish and adequately staff a long range planning unit within BPP and vest it with sufficient authority to review policies of other offices in terms of its plans;
- (c) develop through BPP, as a matter of priority, a comprehensive long range plan to guide short term programs;

- (d) establish planning units and coordinating committees in the provinces answerable to the governors to ensure that provincial education and economic plans are properly coordinated (App. A, para 35).

4.10 The biggest question about the plan is whether the Central Government has the capacity to implement or supervise effectively a twelve-fold increase in its educational investment. Effective implementation of the plan would require an increased number and quality of educational administrators, inspectors and specialist subject teachers, but their supply is uncertain.

4.11 External Productivity. Many of the plan's proposals (4.03) would tend to improve the relevance of education but apparently they have not yet been developed in such detail as to permit immediate large-scale implementation. The important Development School experiment, which is hardly mentioned in the plan, may provide a long range model but more thought should be given to means of unifying the existing small, single purpose schools. Basic structural questions still need to be decided, e.g., whether secondary education should be six, or three plus three, or four years in duration (App A, para 122). The draft plan does not indicate whether schools to be built during Repelita II will be sufficiently flexible in design to be converted within a short time to a four-year comprehensive school. At the higher education level, the need for greater flexibility among university studies (App. A, para 171) to allow studies across faculties and to defer specialization deserve attention.

4.12 Another issue of structure is how to provide sub-professional training for engineering technicians. Government policy is to phase out the few existing industrial academies and introduce diploma courses within university engineering faculties (App. A, para 135). Experience in other countries suggests that in the long run this pattern leads to a neglect of technician training. Finally, while the plan expresses concern about creating surpluses in the labor market, its projection of an expansion in higher education of 22% over the five year period takes an optimistic view of future employment prospects.

4.13 The following measures would bring education into better congruence with economic development:

- (a) study the educational, physical and financial implications of consolidating the structure of secondary schools and prepare a detailed plan for implementation;
- (b) reconsider the policy of giving technician training within engineering faculties in favor of separate post-secondary technician institutions in order to emphasize their distinct occupational identity;
- (c) establish a more flexible program of university studies which allows study across faculty lines and defers specialization until the second or third year;

- (d) vary fees and, if necessary, provide financial incentives in higher education in accordance with anticipated employment levels of new graduates (App A, para 74);
- (e) introduce greater employer participation in curriculum development; in particular, establish closer links between higher agricultural education and research and extension;
- (f) operate the Development School experiment under more realistic conditions by giving it a more austere basis so that the results could be applied throughout the country (App. A, para 125); and
- (g) establish a system to collect information on graduates by level, particularly higher education, and their subsequent activity in the labor market.

4.14 Educational Opportunity. The proposed addition of 7.3 million students at primary level could greatly enhance the chances of most Indonesian children to receive primary education. The plan states the objective of launching 2,000 non-formal educational programs to reach one million youths but, lacking implementation plans, these targets are unlikely to be met. However, while announcing repeatedly the policy objective of equal educational opportunity, the draft plan gives only scant attention to a number of questions which are central to that objective, namely: (a) how can the existing (mainly economic) causes of high dropout be dealt with? (b) how can the present heavy reliance on revenues from fees be better reconciled with the ideal of equal educational opportunities? (c) how can the reduction of regional and urban/rural disparities be made to coincide with the reduction of social disparities? And (d) how can out-of-school education be used as a corrective for educational inequalities in formal education?

4.15 The following measures would tend to make access to education less unequal:

- (a) shorten the length of primary education to four years 1/ for a basic certificate and place emphasis on providing basic literacy and numeracy for all children in school during the four year cycle;
- (b) eliminate fees at the primary level (increasing by a similar amount direct central government subsidies to schools);

1/ Grades five and six could be essentially for preparation for secondary schools with possible emphasis on correcting the effect of quality differentials in the preceding cycle.

- (c) limit the escalation of regular university fees while discouraging the use of "hidden" fees;
- (d) establish a nationwide system of scholarships/bursaries for poor but talented students; such a scheme could use geographical quotas and might include a subsidy to parents for loss of labor;
- (e) adopt an explicit policy of equalizing regional educational disparities (para 3.09); and
- (f) study appropriate ways and means (such as Penmas) to cover a greater proportion of the out-of-school population.

4.16 Educational Quality. The plan includes numerous measures to improve educational quality throughout the educational system (para 4.05). Nevertheless, it does not treat adequately several vital issues: (a) whether the salary increase will be sufficient 1/ to induce teachers to teach full time; (b) whether the government intends to make the necessary complementary step of eliminating part-time teaching by creating a sufficient number of new posts; (c) which office or agency would undertake curricula development stressed throughout the draft plan; at present the necessary institutional arrangements are lacking; (d) whether it is the intention of the government to equalize educational inputs (e.g., trained teachers, equipment, or in short, costs per student) among provinces; (e) what concrete steps will be taken to improve educational supervision; and (f) whether it is contemplated to reduce the heavy student workload (number of weekly class subjects and periods) which is detrimental to educational quality.

4.17 The following steps to improve educational quality should be considered:

- (a) establish sufficient full-time posts during Repelita II so as to eliminate part-time teaching;
- (b) augment the basic teacher salary for one full-time job to a sufficient level that would eliminate the dependence of teachers on additional sources of income 2/;
- (c) establish a permanent curriculum development office within BPP and staff it with trained professionals;

1/ A doubling of the basic salary converts only into a 30% increase in take-home pay; see App. A, para 65.

2/ The estimate of recurrent expenditure for 1978/79 (para 4.07) assumes a 50 percent increase above the 1973 levels in net pay for teachers.

one of its first tasks would be to explore ways to reduce student workloads while minimizing sacrifices in essential educational content;

- (d) adopt a policy of equalizing educational inputs among provinces;
- (e) recruit additional supervisors, train them and provide them with transport to allow frequent visits to schools;
- (f) adopt standard aptitude and achievement tests for university admission; and
- (g) produce and distribute in large quantities simple teaching materials and equipment to schools; establish a development office in BPP to prepare equipment prototypes.

4.18 Educational Efficiency. The plan says little about improvements in educational efficiency. Although dropout is a major problem in the existing system (para 3.15), targets are not given for increasing completion rates. Another desirable addition would be recommendations to rationalize university management and eliminate overlapping services. Finally, the proposal to build laboratories at all secondary schools does not seem to be an economical proposition owing to small average school sizes.

4.19 The government could realize considerable benefits by concentrating on ways to make the present system more efficient, including:

- (a) adopting a policy on minimum school sizes 1/. Those below the minimum would be ineligible for renovation or laboratories at government expense; funds saved by this measure could be devoted to constructing new schools of sufficient size;
- (b) establishing targets for internal efficiency and monitoring their achievement;
- (c) establishing common administrative services for university faculties, permitting registration for courses across faculties and insisting on a minimum number of students before a course is given;
- (d) increasing productivity requirements (e.g., number of class hours taught per teacher per week) at the same time as increasing teacher salaries; and

1/ Providing sufficient flexibility to allow for regional variations in population density.

- (e) establish a school building unit within the Ministry of Education to develop standard plans for school buildings.

V. OUTLINE OF AN INVESTMENT PROGRAM

5.01 **Priorities.** The growing capacity of the government to finance its own development projects independently, and the expertise gained as a result of ongoing projects, suggest that assistance by the World Bank Group in educational development should become increasingly selective. Rather than a repetition of projects that have already been fully tested, 1/ the assistance of the World Bank Group should be directed towards well-justified ventures with innovative aspects. It is in this area where the Bank's international experience in project design and execution could be used effectively. Within this context, future Bank Group investments in Indonesian education should be guided by the following framework of four interrelated objectives, namely: (a) to reinforce administrative capability, (b) to meet specific manpower needs, (c) to create new educational opportunities and (d) to strengthen the educational process.

5.02 First, weaknesses in the capacity of the government to plan and implement development projects partly reflect inadequate expertise and training of government staff. These shortcomings will have to be overcome if the government is to invest and manage its oil revenues productively. Consequently, investments in staff training and development planning would have high priority (para 2.10). In this connection, Bank Group projects in all sectors will usually have specific training components. Investments to improve the capacity of the government in public service training would be particularly important. Second, specific shortages of trained manpower may constrain development. Such shortages at present include industrial technicians, accountants, managers and craftsmen (para 2.14). Projects to overcome these shortages would be well-justified. Third, investments to improve the coverage of educational services for disadvantaged groups should also be accorded priority (para 3.08). Included in this area would be the educational component of a rural development strategy aimed at improving agricultural extension, community education and the provision of vocational skills to out-of-school youth. The establishment of a scholarship scheme to keep poor children in school would be vitally important. Finally, investments would be well justified to provide better inputs into the educational system. Educational radio and the development and distribution of inexpensive teaching aids would contribute to improving educational quality. Projects to strengthen educational quality would be particularly important in four areas: agricultural higher education, technical teacher training, primary teacher training and secondary science and mathematics (para 3.13). These

1/ See Annex 17 for overview of ongoing foreign aid projects in education and training.

possible project areas are described briefly in the following paragraphs and in greater detail in Appendix E.

Reinforcing Administrative Capability

5.03 Strengthening the National Institute of Administration (LAN). LAN in the past has been unable to exercise adequately its important training and coordinating functions (App. A, para 28) because of limited training capacity and insufficient staff. Investment in facilities and technical assistance would enable LAN to prepare a national plan for training public administrators at all levels, improve its control over training in other departments, accelerate its direct training and introduce new courses important to development, such as procurement training (App. E, para 1).

5.04 Strengthening the Office of Educational Development (BPP). The BPP has produced important results since its inception in 1969 (App. A, para 20). Now it needs to broaden its scope to include long range planning, curricula development and the development of inexpensive textbooks and teaching equipment (para 4.09). Investment in facilities and technical assistance would enable BPP to assume these new functions (App. E, para 7).

5.05 Studies on Educational Administration and Finance. Any changes in the structure, content and coverage of education in Indonesia would be impaired by inefficient educational administration and finance. Studies on important issues in administration and finance (e.g., decentralization, simplification, unifying primary administration, teacher salaries and part-time teachers) could assist the government in its efforts at streamlining administrative patterns (App. E, paras 12 and 15).

Meeting Specific Manpower Demands

5.06 Industrial Technician Training (Polytechnics). The growing imbalance between the graduation of technicians and engineers, accentuated by the government's policy to replace academies with sub-professional training within universities (para 4.12), is creating a pressing manpower shortage. Should the government agree to reconsider its present policies, the creation of one or more three-year polytechnic institutes would be an area of high priority for external assistance. Studies should include civil, electrical and mechanical engineering and building construction. The supply of qualified staff, rather than the demand for graduates, would determine the initial size of investment. About 7,000 students and 2,000 graduates annually would seem to be reasonable targets for enrollment and output respectively, in 1985 (App. E, para 18).

5.07 Institute of Accountancy. The existing supply of qualified accountants, about 750, of whom less than one-fifth work in private enterprise, impedes the growth of business and makes it difficult for the government to implement revisions in its legal and regulatory systems. 1/

1/ For example, revisions of the Companies Act and the proposed decree on securities regulations.

A new accounting institute needs to be established, to enroll 1,000 and graduate 200 accountants p.a. for work in the public accounting profession, industry and commerce. Present training methods and curricula would need to be reviewed and upgraded (App. E, para 25).

5.08 Technical Training Centers. Centralized workshops (TTCs) for upper secondary technical schools (STMs) were initiated in five areas in 1969 with IDA assistance (para 1.03) but this number is deemed insufficient for the growing demand projected for craftsmen. Investment in an additional four TTCs for 2,500 places would seem to be justified (App. E para 29).

5.09 Urban Vocational Training. Vocational training centers (PLK) operated by the Ministry of Manpower have the potential to give flexible skill training to adults and out-of-school youth but the present capacity is limited (7,000 trainees in 8 centers on double shifts) and is taken up mostly by inadequately trained STM graduates (para 3.15). Bilateral assistance is being used to create three additional centers but investment in an additional 18 PLKs would be required to ensure sufficient expansion (App. E, para 33).

Creating New Educational Opportunities

5.10 Rural Extension Centers. The establishment of a network of rural extension centers would facilitate the unification of the presently divided extension service and would improve technical services to the farmer (App. A, paras 200-209). Each extension center would consist of extension offices, training facilities, storage facilities, a small demonstration plot and staff housing. Chart 8476 locates the rural extension centers within the proposed reorganization of the Ministry of Agriculture. About 1,000 of these centers would be required to cover Indonesia's present farm population. The first phase, limited by the number of qualified and experienced extension workers, would include about 150 centers. They would provide a nucleus around which to develop a multi-purpose rural education service (App. E, para 38).

5.11 Rural Mobile Vocational Training Units. Skill requirements in rural areas are not only agricultural but include such areas as mechanical repairs, woodwork, masonry, welding and simple bookkeeping. Sufficient vocational institutions cannot be constructed to satisfy the vast need for basic skill training. The approach by the Ministry of Manpower to the use of mobile units offers the potential for greater coverage and versatility than stationary institutions. An important project for rural areas would include the experimental use of 36 mobile training vans to teach mainly out-of-school youth in 18 provinces. Wherever feasible, rural extension centers would be used as a base for coordination and operations (App. E, para 44).

5.12 Community Education. Penmas has an extensive infrastructure and has demonstrated its capacity to adapt basic education courses to the needs of people in rural communities, a target group of high priority, but it has extensive weaknesses (para 3.13, and App. A, para 179) which prevent the realization of its full potential. A thorough review needs to be made of

Penmas and a plan prepared for its improvement (para 4.15). Such a study could provide the basis for subsequent external investment in the expansion and strengthening of Penmas (App. E, para 48).

5.13 Establishing a National Scholarship Scheme. Greater upward social mobility and better use of available human resources could be achieved by a scholarship scheme designed to eliminate the economic causes of dropout among talented but poor students (para 4.15). Such a scheme might feature a subsidy to parents for a loss of labor, geographical quotas, eligibility from grade five of primary education through university and criteria for selection based on ability and parental income. The establishment of a nation-wide scholarship program would require thorough investigation, the external costs of which could be an important application of external assistance (App. E, para 52).

Strengthening the Educational Process

5.14 Production of Teaching Equipment and Learning Materials. The lack of educational materials in the schools is one of the major factors responsible for poor quality of instruction (para 3.11). Local development and mass production of science equipment and simple teaching aids could take advantage of Indonesia's potential economies of scale and solve this problem. The BPP would be an appropriate agency to carry out market research, design and testing of new equipment. Whether mass production and distribution would best be handled by private firms or a government agency would need to be investigated (App. E, para 56).

5.15 Educational Radio. Educational radio could be a particularly effective educational device in Indonesia where geographic conditions make surface communication difficult. A capacity to prepare "software", e. g., programs, for educational radio needs to be developed urgently because current experiments with educational radio may justify large scale expansion and because the government will soon obtain a satellite (1975) which would make large scale educational radio technically feasible. Capital investments in two central production studios and three regional studios would help establish this programming capacity. In addition, investment in 15,000 receivers would enable a major expansion in the use of radio for agricultural extension (App. A, paras 215-218 and App. E, para 60).

5.16 Regional University Faculties of Agriculture. Shortcomings in agricultural higher education (para 3.13) are particularly acute in the universities outside Java which have been unable to supply the quantity or quality of graduates required for agricultural development in their respective regions. 1/ External assistance for facilities, equipment and technical assistance through the Consortium of Agricultural Faculties could help institute basic reforms and overcome these weaknesses (App. E, para 65).

1/ See Annex 18 for projections of agricultural professional personnel, 1974-78.

5.17 Technical Teacher Training. The present pattern of technical teacher training in the eight FKITs gives unsatisfactory results due to lack of equipment, shortage of well trained staff and dispersion of resources (App. A, para 167). A marked improvement could be effected in technical teacher training, a pre-requisite for needed strengthening of secondary technical education, by consolidating the present eight FKITs into two national institutions, sufficient to graduate about 200 teachers p. a., and by phasing out the rest (App. E, para 74).

5.18 Rationalizing Primary Teacher Training. The consolidation of the present 300 SPGs into about 60 regional institutions of larger size (average 600 enrollment) could accomplish four important objectives, namely (a) economy, (b) a better balance between supply and demand of teachers by region, (c) introduce in-service training at pre-service institutions, and (d) improve the content of teacher training including the preparation of simple teaching aids and orientation toward teaching in rural areas (App. A, para 118). A project in this regard could finance specialized and residential facilities and technical assistance (App. E, para 78).

5.19 Improving Secondary Teaching in Science and Mathematics. The low quality of secondary science and mathematics, which has contributed to dropouts in technical faculties in higher education (para 3.13), could be improved substantially by an investment program in six interrelated areas: (a) curricula revision, (b) distribution of textbooks and simple science equipment, (c) provision of laboratory facilities, (d) in-service training for teachers and administrators, (e) provision of transport for supervisors and (f) strengthening of pre-service teacher training in IKIPs (App. E, para 83).

Phasing

5.20 Discussions were held between the Government and Bank Group in September, 1974 to discuss (a) the issues raised in paras. 4.09-4.19 and (b) the possible content and scope of further Bank Group investment in the education sector. The following principal points emerged from those discussions. The Government intends to:

- (i) adopt a policy of establishing separate polytechnic institutes for training industrial technicians (paras 4.12 and 5.06);
- (ii) integrate the separated extension services under the BPPLP (para 5.10);
- (iii) assign priority to the need for quality improvement in agricultural higher education (para 5.16);
- (iv) consolidate the existing eight FKITs into one or two national institutions and phase out the rest (para 5.17); and

(v) consolidate existing SPGs into a smaller number (about 60) regional institutions (para 5.18).

5.21 Following discussions of the foregoing with the Indonesian authorities tentative contents of future projects were agreed upon for further development, as follows:

Possible Fourth Education Project

LAN
Industrial Technician Training (Polytechnics)
STM - Strengthening Secondary Technical Institutions
Technical Training Centers
Urban Vocational Training Centers (PLKs)
Rural Mobile Training Units
Technical Teacher Training
Study on Community Education (Penmas)

Possible Fifth Education Project

Rural Extension Centers
Regional Agricultural Faculties
Educational Mass Media
Community Education (Penmas)
Primary Teacher Training
Secondary Science and Mathematics
BPP
Studies on Educational Administration

5.22 In accordance with the priority of lending educational support to rural areas both phases of investment would include rural skill formation. In view of the urgency of improving the capability of the government to plan and implement development projects, the first phase would help to reinforce the government's administrative capacity. The first phase would also concentrate on establishing a training infrastructure to support industrial development, for which a long lead time is required, and would include studies as a basis for the second phase. The second phase would focus on rural and agricultural education and on strengthening the educational process.

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INDONESIA

EDUCATION SECTOR SURVEY

A. Structure and Enrollments

1. The Indonesian education system comprises a six-year primary cycle, six years of secondary and five years of higher education. Secondary education is divided into two cycles of three years each; the five years of higher education are broken by an intermediate degree, sarjana muda, after three years. The most notable characteristics of the structure are its fragmentation into many types of schools at the secondary level and a parallel system of religious schools (Chart 8385).

2. Types of Schools. The types of schools included in the major levels of education are as follows:

- (a) Primary (SD) (grades 1-6). The official starting age is six but most children enter at age seven. Most schools are co-educational and graded. Schools with less than six grades are uncommon.
- (b) Lower Secondary (SLTP) (grades 7-9) consists of the following types of schools (excluding religious schools):
 - (i) Junior General Secondary School (SMP): schools with an academic orientation to prepare students for further education;
 - (ii) Junior Commercial Schools (SMEP): pre-vocational schools with commercial bias;
 - (iii) Junior Home Economics Schools (SKKP): schools with a pre-vocational bias to prepare students for tailoring and catering employment or for home life;
 - (iv) Vocational Classes (Kelas Pembangunan): extensions of primary schools which give courses of six months to two years duration in crafts, farming or services. Established in the early 1960s, they operate at 450 locations and enrolled 11,500 in 1972, mostly in Java;

- (v) Junior Technical Schools (ST): schools with pre-vocational technical bias to prepare students for industrial on-the-job training;
- (vi) Industrial Arts Schools (SPIK) (grades 7-10): four vocational schools specializing in printing and handicrafts in 4-year courses;
- (vii) Junior Agricultural Schools (SPMP): these give practical training in farming to rural youth. They are being phased out and the buildings converted to young farmer training centers.
- (c) Upper Secondary Education (SLTA) (grades 10-12, 13), excluding religious schools, consists of at least ten distinct types of schools, as follows:
 - (i) Senior General Secondary Schools (SMA): university-oriented schools which enroll the majority of their students at upper secondary level;
 - (ii) Senior Commercial Schools (SMEA) prepare students for clerical and business occupations;
 - (iii) Senior Home Economics Schools (SKKA) serve a similar purpose to the SKKPs;
 - (iv) Senior Physical Education Schools (SMOA) train students to become instructors of physical education;
 - (v) Senior Schools for Social Workers (SPSA) (grades 10-13): vocational schools to prepare students as youth leaders and social workers;
 - (vi) Senior Technical Schools (STM): vocational schools to train craftsmen for industry;
 - (vii) Senior Agriculture and Technology Schools (STMP): The Ministry of Education operates 23 of these, mainly to prepare students as agricultural mechanics;
 - (viii) Senior Agricultural Secondary Schools (SPMA): controlled by the Ministry of Agriculture, they prepare students for middle-level careers in agriculture;
 - (ix) Senior Technical Schools for Instructors (STMI) train technical teachers for work in STs;

- (x) Primary Teacher Training Institutions (SPC) prepare students to enter the teaching profession at primary level.
- (d) Higher Education (grades 13-17) consists of three types of institutions:
 - (i) Academies (grades 13-15): post-secondary instruction to qualify students for middle-level employment: most give courses in commercial subjects;
 - (ii) Institutes (IKIP) (grades 13-17): mainly secondary teacher training institutes;
 - (iii) Universities (grades 13-17): a federation of faculties sponsoring instruction in different academic disciplines. Two degrees are given to those who qualify:
 - (a) after three years a sarjana muda degree and (b) a sarjana degree after five years.

3. Religious Schools. A system of instruction in religious schools operates in parallel with the schools giving general education as follows:

- (a) Madrasah Ibtidaiyah grades 1- 6 Primary Schools
- (b) Madrasah Tsanawiyah " 7- 9 Lower Secondary Schools
- (c) Madrasah Aliyah " 10-12 Upper Secondary Schools
- (d) PGA " 7-10 and
 7-12 Islamic Primary Teacher Training
- (e) IAIN " 13-17 State Institute of Islamic Studies
- (f) Pondok Pesantren Non-graded Islamic boarding schools
- (g) Diniyah (paralleling grades 1-6) Religious classes (for students enrolled in secular schools)

Most religious schools are private; state religious schools account for only 2% of the total religious schools at the primary level, 10% at lower secondary, 8% at upper secondary and 13% of primary teacher training schools (PGAs), as follows:

Table 1: THE SIZE OF RELIGIOUS EDUCATION (1971)

<u>Formal</u>	<u>Grades</u>	<u>Schools</u>		<u>Students</u>	<u>Teachers</u>
		<u>Total</u>	<u>% Public</u>		
Madrasah Ibtidaiyah	1-6	20,500	2	2,500,000	120,000
Madrasah Tsanawiyah	7-9	1,850	10	196,000	11,800
Madrasah Aliyah	10-12	550	8	46,000	3,500
PGA (4 years)	7-10	1,600	9	125,000	16,100
(6 years)	7-12	380	30	95,000	7,600
IAIN	13-17	13	100	18,400	700
<u>Non-Formal</u>					
Diniyah		23,400	0	3,520,000	n.a.
Pondok Pesantren		11,000	0	2,240,000	n.a.

4. Recent Experiments with Educational Structure. In 1971, the Ministry of Education established eight experimental "development schools", organized in a sequence of eight years of basic education followed by four years of secondary education of two types, general (i.e., comprehensive) or technical (see Chart 8385). The initial plan envisaged a nationwide establishment of these schools between 1974-84 after two years of experimentation but this proposal has now been deferred to allow the government to undertake a more thorough study of the system. The development schools are discussed in a subsequent section.

5. Other structural revisions are also being considered by the government. Academies are to be integrated into existing universities, a proposal which has met with considerable resistance from academy staffs. Several leading universities are experimenting with the introduction of a four-year degree program (without thesis) to replace the existing research-oriented sarjana degree awarded after five years. Plans to merge the IINPs with the universities have once again been abandoned.

6. Growth in Enrollments. The following table outlines the trend of enrollments in public schools during the period 1967-71:

Table 2: DEVELOPMENT OF THE PUBLIC FORMAL EDUCATION SYSTEM^{/a},
1967-71
(Thousands of Students)

	<u>1967</u>	<u>1969</u>	<u>1971</u>	<u>Annual Increase 1967-71</u> <u>% p.a.</u>
Primary (Gr. 1-6)	10,420	11,115	11,452	2.4
Lower Secondary (Gr. 7-9)	(628)	(715)	(792)	(6.0)
General (SMP)	454	499	541	4.5
Commercial (SMEP)	52	65	83	12.3
Home Economics (SKKP)	16	20	25	11.8
Technical (ST)	106	131	143	7.8
Upper Secondary (Gr. 10-12)	(235)	(300)	(376)	(12.5)
General (SMA)	126	130	168	7.5
Commercial (SMEA)	30	48	78	27.0
Home Economics (SKKA)	3	6	9	31.0
Technical (STM)	37	54	65	15.1
Teacher Training (SPG)	39	62	56	9.4

/a State schools only (excludes subsidized, private and religious).

Source: Office of Educational Development, Ministry of Education.

7. The growth of public primary enrollments between 1967-71 at 2.4% p.a. did not keep pace with population growth at 2.9% p.a. for the 7-12 age group. The embargo on hiring more civil servants, which affected the recruitment of new full-time teachers, and the shortage of capital from local and provincial authorities for school buildings, were factors inhibiting the growth of public primary education during this period. The growth of secondary education was not limited by these constraints. Part-time staff were hired to teach additional students and capital for secondary school building was financed by Repelita I — through the Ministry of Education.^{2/} The most impressive growth was achieved by the expansion of upper secondary education by 12.5% p.a. to enroll 376,000 students in 1971. The greatest relative increases were experienced in pre-vocational and vocational schools, i.e., in SMEP and SMEA, SKKP and SKKA and ST and STM, reflecting government policy of giving greater emphasis to practical training and less to academic education during this period. The effects of the embargo on recruiting new full-time teachers are evident in the decrease in enrollments at primary teacher training institutions (SPG) by 10% between 1969 and 1971.

1/ Repelita I is the First Five Year Development Plan, 1968-73; see Glossary.

2/ This does not mean that overall enrollment rates declined. Although statistical data are not available, enrollments in religious schools reportedly grew at rates well above 2.9% p.a., absorbing many students from the public system.

3/ See Glossary.

8. Enrollment Rates. At all levels Indonesia has comparatively high enrollment rates in relation to other countries at a similar stage of development (Annex 1). This is an impressive achievement given the low level of financial resources which have been available for education. A comparison between gross and net enrollment ratios (Table 3) shows that the primary system had the capacity to enroll 80% of the relevant age group but, because of overage students, in fact enrolled only 68% of the eligible children. Over 6 million eligible children were not enrolled in primary schools in 1971.

Table 3: ENROLLMENT RATES^{/a} (1971)

	<u>Grade</u>	<u>Population in Age Group</u>	<u>/b Gross Enrollment (millions)</u>	<u>/c Net Enrollment (millions)</u>	<u>Gross Enroll- ment Rate</u>	<u>Net Enroll- ment Rate</u>
	<u>Age</u>	<u>(millions)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>
Primary Education	1- 6 7-12	19.5	15.7	13.2	80%	68%
Secondary Education	7- 9 13-18	14.6	2.6	1.7	18%	11%
a. Lower Sec- ondary	7- 9 13-15	8.0	1.8	1.1	22%	14%
b. Upper Secondary	10-12 16-18	6.6	0.8	0.6	13%	9%
Higher Education	13-17 19-23	9.7	0.3	0.2	3%	2%

/a See Chart 8386 for educational pyramid in 1971.

/b Gross enrollment is total enrollment in level, including state, subsidized, private and religious schools, regardless of age.

/c Net enrollment is enrollment in level of relevant age group, i.e., excluding overage students.

9. Enrollment rates varied considerably by sex and location of schools. Table 4 indicates that enrollment rates are consistently low for rural areas and for females. Not only do smaller proportions of rural dwellers and females attend school but dropouts from these groups are also comparatively greater. The percentage of age 15 enrollment to age 10 enrollment in 1971 was as follows:

urban /a	56%	male /b	40%
rural /a	31%	female /b	31%

/a Male and female.

/b Urban and rural.

Table 4: PERCENTAGE OF AGE GROUP ATTENDING SCHOOL^{/a}
URBAN/RURAL AND SEX (1971)

<u>Age</u>	Urban		Rural		Total	
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
7	54.2	54.1	36.6	37.4	39.3	40.0
8	70.7	70.3	54.9	51.5	57.2	54.3
9	79.5	79.3	65.7	63.2	67.9	65.6
10	82.1	79.1	67.8	60.8	70.0	63.8
11	85.0	83.2	71.7	66.1	74.4	69.6
12	78.8	74.1	61.7	52.6	64.5	56.2
13	78.0	67.1	56.6	50.0	60.7	53.4
14	71.9	56.6	44.2	33.2	49.2	38.1
15	60.5	47.1	31.5	21.1	36.3	26.0
16	57.0	42.0	31.1	18.0	36.9	23.3
17	50.8	32.8	20.9	10.2	27.7	14.9
18	41.9	26.3	17.7	7.5	22.9	11.2

/a Regardless of type, e.g., those at age 14 could be either in primary or lower secondary.

Source: 1971 Population Census, Central Bureau of Statistics.

10. Provincial Differences in Educational Development. The overall enrollment rates conceal regional and differences which increase at higher levels of education. Net enrollment rates range as follows: (a) in primary education from 52% (West Kalimantan) to 84% (Jambi and Lampung); (b) in lower secondary education from 5% (Irian Jaya) to 25% (Riau and Yogyakarta); and (c) in upper secondary education from 3% (Irian Jaya) to 24% (Yogyakarta) (Annex 4). In higher education the differences appear even more pronounced but in Indonesia, as elsewhere, universities have catchment areas that exceed provincial or regional boundaries. These differences in enrollment rates follow a fairly regular pattern. Provinces that are more densely populated or have a higher share of their population living in urban areas enjoy economies of scale, providing an advantage over other provinces. This group includes Jakarta, Yogyakarta, North and West Sumatera and North and South Sulawesi. Regional per capita income seems to play a secondary role in determining enrollment rates but influences the quality of local education systems. The policy of the central government in allocating funds also

follows, in general, the existing pupil concentrations. In terms of development expenditure, the government endeavors to redress regional imbalances as illustrated by the recent release of Rp 15.8 billion for primary school construction. Although the program covered each of the 26 provinces and the more populous ones received the largest allocations, a special effort was made to relieve the situation in those nine provinces where lack of facilities excluded sizeable numbers of children from primary education. However, no explicit policy has been announced to equalize educational opportunities among the provinces.

11. However, the aggregation of statistics at the provincial level conceals even larger intra-provincial differences. Table 5 shows strikingly the widening divergence in educational opportunities between rural and urban districts as one moves from the primary to the secondary level.

Table 5: DISTRIBUTION
OF POPULATION AND ENROLLMENTS BY DISTRICT
AND LEVEL OF EDUCATION IN WEST SUMATERA 1971 (IN PER CENT)

District	Population	Lower Secondary Education		Upper Secondary Education Enrollments
		Primary Education Enrollments	Enrollments	
Agam	12.5	13.7	7.6	1.5
Pasaman	9.8	9.9	4.9	2.6
Lp. Kota	10.3	9.6	9.3	8.0
Tanak Datar	11.5	12.6	11.2	7.7
Solok	11.5	11.3	9.2	8.2
Pd. Pariaman	19.8	18.6	9.6	6.7
Pes. Selatan	9.1	8.5	6.6	4.7
Swl. Sidjundi	6.2	5.9	3.9	3.2
Padang	7.0	7.5	27.4	40.7
Bukittinggi	<u>2.3</u>	<u>2.6</u>	<u>10.3</u>	<u>16.7</u>
Total	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: J. Fritz, "Infrastruktur des Bildungswesens in der Provinz West-Sumatera," Draft, 1973.

B. Organization and Administration

12. Summary:

- (a) Private schools, which may be one of three types according to the amount of public funds they receive, account for 20% of primary enrollments, 43% of secondary enrollment and 35% of enrollments in higher education. The government does not exercise much control over private schools;
- (b) Some education and training is provided by virtually all government departments, but seven departments account for most of it, including the Ministries of Education, Manpower, Religious Affairs, Home Affairs, Agriculture, Defense and the Institute of Public Administration (LAN). Lack of coordination among the government departments providing education has been a major source of duplication of efforts and has prevented the adoption of consistent national policies on education. A recent Presidential Decree (No. 34, 1972) gave the Ministry of Education legal authority over all education and training and divided operational responsibility for educational administration among three main organizations (Ministries of Education and Manpower and LAN) but it has not yet rationalized the system as evidenced by confusion over responsibility for vocational and non-formal education;
- (c) Central education planning is carried out by Bappenas and the Office of Educational Development (BPP). The BPP has carried out an extensive National Assessment of Education, has streamlined data collection and is conducting an experiment with comprehensive schools. BPP, however, has been isolated from policymaking and has not had the staff resources to prepare a long term education plan. Bappenas has been unable to integrate the education plans of various government departments; and
- (d) At the provincial level there are three channels of public administration for primary schools, two for secondary and, except for private institutions, none for higher education. As a result of this pattern, (a) primary administration entails a duplication of staff resources and sometimes conflict, (b) integrated

educational planning is difficult because different departments control the various levels and types of schools and (c) there is little possibility of harmonizing educational plans with broader socio-economic plans for the province.

13. **Private Schools.** Schools in Indonesia may be public or private. Private schools are classified as subsidized private (subsidi), partly subsidized (bantuan) or entirely private (swasta), according to the amount of public support they receive. The distribution of schools among these categories was as follows in 1971:

Table 6: PERCENTAGE OF SCHOOLS^{/a} BY DENOMINATION (1971)

	<u>/b</u> <u>Public</u>	<u>Subsidized</u> <u>Private</u>	<u>Partly</u> <u>Subsidized</u>	<u>/c</u> <u>Private</u> <u>Percentage</u>	<u>Not</u> <u>Known</u>	<u>Total</u>	<u>Number</u> <u>(Thousands)</u>
Primary (SD)	64	4	1	25	6	100	66.0
Lower Secondary	(29)	(4)	(6)	(60)	(1)	(100)	(7.3)
Gen. (SMP & Tsanawiyah)	25	4	6	64	1	100	5.3
Commercial (SMEP)	54	4	2	41	0	100	0.8
Home Econ. (SKKP)	56	12	9	21	2	100	0.4
Technical (ST)	67	2	2	27	2	100	0.8
Upper Secondary	(32)	(5)	(4)	(57)	(2)	(100)	(2.8)
Gen. (SMA & Aliyah)	33	7	5	54	1	100	1.2
Commercial (SMEA)	39	3	3	55	0	100	0.6
Home Econ. (SKKA)	38	7	7	48	0	100	0.1
Technical (STM)	35	7	4	34	20	100	0.4
Teacher Trg. (SPG & PGA)	28	4	1	67	0	100	0.5

/a School buildings are often shared by one or more "schools" by means of attendance in shifts. The use of the term "school" in Indonesian, therefore, does not necessarily mean separate buildings.

/b Including public religious schools.

/c Including private religious schools.

Source: Office of Educational Development, Ministry of Education, and Directorate of Education, Ministry of Religious Affairs.

Since growth in public primary enrollments has slowed recently (para 7), the relative importance of private institutions has been increasing. A school which seeks financial assistance from the government must fulfill the following

conditions: An "aided" school must have functioned for at least two years as a fully private school, have at least two qualified teachers, be operated by a recognized body and three-fourths of its students must meet public school entrance requirements. "Aided" schools receive assistance from the government for teacher salaries but fees are not regulated. After three years an aided school may become a "subsidized" school if it meets more stringent requirements, e. g., all students meet public entrance requirements, it must use the national curricula and have at least three qualified teachers. The subsidy consists of either reimbursement of all teacher salaries or the employment of public teachers in the school. Finally, the school may become a state school.

14. While the above-mentioned conditions are necessary for a change in the status of a school, they are not always sufficient. The actual decision will depend on whether financial means are available. Other planning criteria, e.g., coverage of school age population and type of school in relation to local labor market, are not usually taken into account. As a result, the school system has tended to develop haphazardly, without reference to any long term plan for the efficient use of resources. Indonesian educational development, as in many other countries, has been characterized by unplanned growth of sub-standard institutions. With few exceptions, private schools are generally lower in quality than public schools. The government should exercise greater control over private schools in terms of staffing, curricula, physical standards, student fees, and should provide regular inspections in order to control their profits and maintain the quality of the education they supply. The only requirement at present appears to be that the medium of instruction is the national language.

15. Public Education. Some education or training is provided by virtually all government departments. — Lack of coordination among them has been a major source of duplication of effort and has prevented the adoption of consistent national policies on education and training. Presidential Decree No. 34 of 1972 sought to reduce the complexity of educational administration by allocating responsibility for various types of education and training among three government departments. According to this Decree, the Ministry of Education has overall authority for education and training in both public and private schools. Within this overall authority, the Decree divides responsibility for various types of education as follows:

- (a) Ministry of Education: General and vocational education;
- (b) Ministry of Manpower: Skill and vocational training, except for civil servants; and

1/ In fact, seven departments account for most of the education and training financed from public funds: mainly the Ministry of Education and Culture; but also Ministry of Manpower, Transmigration and Cooperatives; Institute of Public Administration, Ministry of Agriculture; Ministry of Religious Affairs; Ministry of Home Affairs; and Ministry of Defence.

(c) Institute of Public Administration (LAN): Education and training for civil servants.

Education and training given by other government agencies at the time of the Decree would continue to be operated by those agencies until further notice. However, by implication, any new institutions would conform to the above-mentioned distribution of responsibilities.

16. The Decree is an important first step towards dividing responsibility for educational administration among existing organizations but it has not yet rationalized the system of administration. First, many questions of responsibility have been left unanswered, e.g., the difference in operational terms between vocational education and vocational training; where control of non-formal education on agricultural skills (extension) would be vested; and which agency would regulate vocational training within the government (e.g., that of the Ministry of Public Works and Electric Power). Second, the government has taken little action toward integrating existing courses under one authority. This is particularly crucial for LAN. In 1973,^{1/} an inter-ministerial coordinating committee was established for INPRES^{2/} training, apparently without reference to LAN. Third, mechanisms of coordination are required to coordinate non-formal rural training, particularly at the local level.

17. The following additional steps would assist in rationalizing the system of educational administration:

- (a) a program of measures by which Decree No. 34 will be implemented, e.g., steps to integrate related courses under one authority;
- (b) a national coordinating board for non-formal education to plan and control all education outside the formal school system (except training for civil servants), both public and private. Such a board would include representatives of the Ministries of Agriculture, Education and Manpower, and Bappenas. Similar coordinating boards would avoid overlap at the local level;
- (c) increased capacity in LAN to plan and supervise training given by other Ministries for their staffs, including review of their training budgets.

18. Ministry of Education^{2/}. Although Decree No. 34 gives it overall authority over all schools, the Ministry of Education and Culture does not directly control the majority of schools at any level except higher education. Control over primary schools is shared between the Ministries of Education and Home Affairs; only about one-fourth of the schools at lower and upper secondary level are operated directly by the Ministry of Education

^{1/} INPRES, (one of a number of Instructions of the President), is a program of rural capital works financed through Kabupaten (district governments).

^{2/} The Ministry of Education and Culture is referred to simply as the "Ministry of Education."

(70% are private and 5% are operated by the Ministry of Religion). Nevertheless, the Ministry of Education establishes educational objectives, policies, standards, prepares curricula, prescribes methods of teaching, inspects schools, organizes examinations, trains teachers and accredits schools, budgets or subsidises their operation. In carrying out these functions the Ministry, with 6,000 non-teaching employees, is divided into six major divisions (Chart 8384) the Secretary-General's office, which deals with administration; the office of the Director General for Education, created in 1969 by merging similar offices for basic and higher education, is charged with carrying out the technical functions of curriculum development, teacher training, and establishing and maintaining standards, e.g., by examinations. Two other Directorates General deal with Culture, and Youth and Sports, respectively. The Office of Educational Development (BPP) established in 1969, collects statistical data on the system, conducts long term planning and carries out research and development and evaluation. The Inspectorate General audits the accounts and performance of the rest of the Ministry by confirming that the instructions of the Minister are implemented.

19. Central Educational Planning. Educational planning has been the responsibility of the Office of Educational Development (Badan Pengembangan Pendidikan or BPP) and Bappenas, the central planning agency. The BPP, established by Decree No. 84 in 1969, is responsible for (a) co-ordinating and conducting research on education, including data collection and analysis of the sector; (b) carrying out experiments and pilot projects; (c) preparing annual plans and (iv) preparing medium term plans (e.g., Repelita II).^{1/} Prior to a reorganization late in 1973, BPP consisted of seven divisions ^{2/} and employed about 50 professional staff. The BPP is receiving considerable assistance from UNESCO. A recent agreement calls for about 65 man-years of expert assistance (between 1973-79), mainly in the fields of curriculum development, teacher training and educational planning.

20. BPP plays a key role in central educational planning but has produced mixed results thus far, largely because its responsibilities have exceeded its resources. The principal achievements of the BPP to date have been related to sector analysis, data collection and an experiment with secondary schools. Its first major task was to carry out an ambitious comprehensive analysis of the education system. The work of this National Assessment of Education Project, ^{3/} assisted by the Ford Foundation and UNESCO, spanned four years from 1969-1973, produced several valuable volumes and led to the development of a rational system of data collection which should provide a wider base of information for planning and control. Its principal task at present is managing the Development School Pilot Project (paras 4 and 122) which it has reorganized along the lines of an experiment.

^{1/} Repelita II is the second development plan, 1974-78; see Glossary.

^{2/} General planning; special planning; evaluation; development information (statistics); research coordination; implementation assessment; and administration.

^{3/} Referred to in this report as the National Assessment, or Assessment. See Appendix F for list of works from the Assessment consulted in preparing this report.

21. The results of the National Assessment have not been translated adequately into policies and plans because of the isolation of BPP from the center of educational policy-making. BPP has not been able to carry out its responsibility for annual planning partly because of lack of staff and an exceptionally complicated and time-consuming annual planning process. ^{1/} The annual planning function and part of BPP's planning section is to be transferred to the office of the Secretary General. Moreover, BPP's Evaluation Unit, with five professional staff, has been attempting to evaluate nearly all aspects of the educational system, educational projects and foreign assistance. In addition to its major responsibilities, BPP frequently is called upon to investigate ad hoc problems which draw staff resources away from their central tasks.

22. Another problem is one of scope. The BPP lacks authority for education and training outside the Ministry of Education, e.g., in agriculture or non-formal vocational training. Bappenas, the National Planning Agency, is the coordinating agency, but it also lacks sufficient staff to carry out an integration of educational plans among the various agencies (para 15) involved. Hence, the draft education and training section of Repelita II does not link the proposals from the various agencies, lacks a long-term perspective and does not include a sufficiently detailed set of policies or programs to ensure implementation of its main targets.

23. Educational planning needs coordinating and strengthening by:

- (a) establishing a board, or expanding the role of Bappenas, to review plans for the whole education sector, including non-formal, agricultural and vocational training;
- (b) developing, as a matter of priority, a comprehensive long range educational plan and strategy to guide short term programs;
- (c) strengthening the planning unit in BPP to carry out long term planning;
- (d) consolidating the presently ad hoc curricula development in a BPP office staffed by specialists in this field; curricula development could still be carried out by committees as at present but the office in charge of it could ensure a more systematic, thorough and continuous review of curricula; and
- (e) making the evaluation unit more effective through scaling down its tasks and by introducing "formative" evaluation while projects are in the process of implementation.

^{1/} Each project proposal must go through at least seven stages before final approval including (i) origination within a directorate, (ii) initial clearance by BPP, (iii) initial clearance by Bappenas, (iv) detailed project preparation by directorate, (v) final clearance by BPP, (vi) final clearance by Bappenas, (vii) clearance by Ministry of Finance. BPP must participate in all steps except (i), (v) and (vii).

(f) collecting new kinds of data to permit better monitoring of the performance of the education system, e. g., dropouts, outputs such as number of graduates annually, especially in higher education, and examination results by province and district.

24. The Ministry of Education endeavors to control the operation of its schools from Jakarta. Curricula are uniform throughout the country. Appointment, promotion, transfer and dismissal of teachers (except in primary schools) must be approved in Jakarta. The creation, expansion or improvement of schools (other than primary) must also be approved by the Ministry in Jakarta. This centralization, while conceivably promoting uniformity, does not assist the adaptation of educational patterns to the needs of the local environment.

25. The Ministry of Home Affairs, through its provincial governors, finances and administers primary school buildings and equipment and also the salaries for the 350,000 public primary teachers from its own budget. The Ministry maintains an extensive staff of inspectors in the provinces to the Kecamatan level to assist in implementing these functions (Chart 8384).

26. The Ministry of Religious Affairs exercises administrative and budgetary control over the parallel religious school system (para 3) through its Directorates of Education and Higher Education at the national level. These Directorates establish curricula, determine teacher qualifications, prepare national terminal examinations for students and finance the expenditures of state religious schools. The Ministry also provides teachers in religious subjects for the schools run by the Ministry of Education. Chart 8382 describes the organizational structure of the Ministry of Religious Affairs at the various levels of government. Before Decree No. 34 was issued in 1972 (para 15) there was little uniformity between instruction in religious schools and that in other state schools but since Decree No. 34, steps towards concurrence have been taken, including, (a) an increase (from about 60% to 70%) in the time devoted to general subjects in religious schools; (b) a joint effort between the two ministries in upgrading teachers; and (c) a program to use the same textbooks on general subjects.

27. The Ministry of Manpower, Transmigration and Cooperatives. ^{1/} The Ministry of Manpower, Transmigration and Cooperatives is responsible for all activities related to human resource development except in formal education. By Decree No. 34, 1972 (para 15), this Ministry is in charge of all in-service training and vocational training of non-government employees in Indonesia. It has two Directorates-General dealing with manpower, one for labor protection and work conditions and the other for development and utilization of manpower (Chart 8383). The Ministry also appoints coordinators at the provincial level who report to the Provincial Governors and administer the business of the Ministry in each province within the general policy of

1/ Referred to in this report as the Ministry of Manpower.

the Ministry. The Ministry presently operates eight vocational training centers (PLK), three agricultural training centers, 19 mobile training units including five for agricultural training and a Productivity Center. The Ministry also has its own staff college to train employees of the Ministry, mainly in administration.

28. Institute of Public Administration (LAN). This institute undertakes the training of civil servants. It also assists the President in improving and developing the efficiency and productivity of public administration: the Chairman of LAN is directly responsible to the President. One Deputy Chairman supervises the Central Unit for Education and Training, the Graduate School of Public Administration (SESPA) and the Administrative Staff College (STIA). These institutions give appreciation, upgrading and preparatory courses in the following areas: management, administrative techniques, development administration, and other aspects of administration such as budgeting and personnel. The other Deputy Chairman, responsible for training regulations, supervises: (a) planning the types of training needed and the budget; (b) regulating standardization of training programs; (c) regulating accreditations; and (d) regulating control and approval of training programs. LAN employs staff experts for functional purposes and controls activities in the 26 provinces in Indonesia through regional offices and representatives. Although the responsibility and authority of LAN were substantially increased in 1972, it has not been sufficiently strengthened in staffing and budget to supervise the training of civil servants in other government departments or to carry out overall planning for the training of government workers.

29. The Ministry of Agriculture is divided into five Directorates-General, viz., Agricultural Services, Animal Husbandry, Forestry, Fisheries and Estates. Planning is the responsibility of the Secretary-General, assisted by a Planning Bureau which coordinates the plans prepared by Planning Units of the Director-General. A General Inspector controls the financial aspects of the Ministry's programs. Executive functions are the direct responsibility of the Directors-General. The Directorate-General of Agricultural Services has five Directorates: Food Crops Production, Techniques, Economy, Planning and Extension. In addition, an Agency for Agricultural Education and Training (BPPLP) was established in 1972 under the Director-General of Agricultural Services to coordinate education and training programs in the field of agriculture. The Government now plans to consolidate all extension work within the BPPLP. Provincial Agricultural Information Centers would also be administered by this enlarged Agency. An Agency for Agricultural Research and Development is proposed to coordinate research work. BIMAS — forms part of the Directorate of Agriculture. Government plans to install coordinators of Agricultural Services at the provincial, district and sub-district levels. Chart 8476 illustrates the proposed organization of the Ministry of Agriculture for Education and Training.

1/ BIMAS, an acronym for "Bimbingan Massal Sewa Semboda Behan Makanon," or "mass guidance for self-sufficiency in foodstuffs," is a national program to improve rice production; recently the scope of the program has expanded to include other crops.

30. Agricultural education programs are provided by the Ministries of Education and Agriculture. The former is responsible for post-secondary and higher agricultural education; agricultural education and training at secondary levels fall under the purview of the Ministry of Agriculture as does non-formal agricultural education. The Ministry of Education has set up the "Consortium of Agricultural Sciences"^{1/} to advise it on matters relating to coordination, promotion and evaluation of higher agricultural education. Within the Ministry of Agriculture, BPPLP is to play a similar role as far as secondary agricultural education is concerned. However, neither the Consortium nor the BPPLP has been successful in controlling the growth of new faculties of agriculture and SPMAs^{2/} respectively because they do not have the statutory powers to accredit. Also, there is need for promoting better collaboration between BPPLP, the proposed Agency for Agricultural Research and Development and the agriculture faculties of the universities.

Provincial Educational Administration

31. This reflects the same kind of fragmentation as at the national level (See Charts 8384 and 8382). There are four offices at the provincial level dealing with education and training. First, the Minister of Education is represented in each province by the Perwakilan for Education and Culture, appointed by the Minister to oversee the pedagogical aspects of primary education and all aspects of secondary education. He controls the schools under his jurisdiction by means of supervisors or Kabins (Kantor Pembinaan) at the provincial, district and sub-district levels (Chart 8384). Second, public institutes of higher education in principle report directly to the Minister and in practice to the Director for Higher Education. Private higher education institutions are coordinated at the regional level by the office of the Koperti.^{3/} Third, the Ministry of Religious Affairs administers its parallel system of general education (para 3) through a Perwakilan for Religion and subordinate supervisors for various levels and types of schools (Chart 8382). Fourth, since 1951, the Ministry of Home Affairs has been responsible for teachers, buildings and equipment in primary schools through the provincial governors. An Office for Education (Dinas) within the governor's staff administers these aspects of primary education by means of a system of supervisors parallel to that of the Perwakilans. Thus, at the provincial level there are three channels of administration for primary schools, two for secondary schools and, except for the private institutions, none for higher education.

32. This administrative structure has serious implications for the planning and operation of the education system. First, the multiple control over primary schools has led to a duplication of staff resources and administrative conflicts. The location of new primary schools has not

1/ An advisory body to the Director of Higher Education in the Ministry of Education.

2/ See Glossary.

3/ The Koperti maintains a register of private institutions, administers the examination of students in private institutions according to their status and surveys the enrollments and basic facilities of the institutions; the Koperti is independent of the Perwakilan and the Dinas.

been planned to achieve maximum coverage of the relevant age groups. Religious and general schools, both underutilized, often exist in the same localities while other locations are not adequately served. The dual control of Perwakilan and Dinas works well so long as there is co-operation but, where differences arise, they can escalate into conflict; in some provinces an administrative impasse has occurred which impedes attempts at quality improvement.

33. Second, the fragmentation of educational administration has made impossible integrated planning for all levels of education. In the absence of any overall coordinating agency, plans for each level are made without reference to their effects on other levels. For example, when the rate of expansion of primary education was decreased in 1968 through an embargo on hiring new teachers, no adjustment was made in enrollments in primary teacher training institutions. There is at present no mechanism to coordinate the plans of the many agencies involved in educational administration.

34. Third, there has been little possibility to integrate educational plans with broader socio-economic needs at the provincial level. Project proposals (DUPs) are sent to Jakarta generally without an assessment of their importance to overall provincial needs. In short, provincial educational administration has been wasteful and has lacked a comprehensive approach and integrated planning.

35. The BPP has recently begun the training of planning officers within the office of the provincial Perwakilan for Education and, as a result, several embryo planning offices have been established. With the assistance of the Ford Foundation, the government is experimenting with provincial educational planning in West Sumatera and East Java. These are good efforts but they apply only to the existing organizational structure. To help solve the entrenched problems of duplication, comprehensiveness and integration outlined above, the authorities should consider:

- (a) assigning the responsibility for overall coordination of educational activities (by the Perwakilans for education, for religion, and the Dinas and individual higher education institutions) to provincial BAPEMDAS;
- (b) establishing Kopertis^{2/} to coordinate all private and public higher education institutes in the province; the Koperti would need to report all plans and budgets through the BAPEMDA; and

1/ Provincial planning agencies similar in function to Bappenas, the national planning agency.

2/ See Glossary.

(c) eliminating the dual responsibility for primary schools by making the Provincial government wholly responsible for their operation within national guidelines, e.g., on curricula.

36. The National Assessment outlined three alternatives for a solution to the problem of dual control over primary education, including unifying control under (a) the Ministry of Education, (b) the Governor's Office for Education and the Ministry of Interior or (c), a new decentralized education office to be established under the Governor.

37. The unification of control under the Ministry of Education would preserve the unity of the system and improve the liaison between the schools and teacher training. However, it has disadvantages: it would (a) put primary education entirely in the hands of professional educators; (b) probably mean less contact with local organizations and communities; (c) make more difficult the coordination of education plans with provincial development plans; (d) lengthen the line of communication between the school and the controlling agency; and (e) would make more difficult the adaptation of education to local needs.

38. A unification of control of primary education under the Governor, who reports to the Ministry of Interior, would place all primary personnel (teachers, administrative staff and inspectors) under the same person and would enhance the integration of education into overall provincial development plans. It would promote efficiency by shortening lines of communication; lesser centralization presumably would promote responsiveness to change. The weaknesses in this alternative include: (a) difficulty in maintaining a uniform national system (e.g., uniform curricula) equitable among the provinces because the Ministry of Education would have no inspection staff in the provinces; (b) the need to duplicate services within the Governor's office now provided by the Ministry of Education; and (c) a gap might be created between primary school policy and policies for secondary and higher education and, in particular, primary teacher training.

39. The third alternative avoids many of the weaknesses of the first two possibilities and yet avoids the dilemmas of the present dual system. It would entail the establishment of a provincial education office under the Governor which would exercise a decentralized professional and administrative control of primary education within national guidelines established by the Ministry of Education. Provincial, district and sub-district boards of education with community participation could also be created to help coordinate policies for primary and secondary schools. Under such a scheme, the Ministry of the Interior would continue to provide teachers' salaries but would have no professional staff. The Ministry of Education would establish professional guidelines, e.g., curricula, and would define the limits within which the provinces could vary educational practice. Based on provincial

educational plans, the Ministry would prepare national plans to ensure national unity and equalize educational opportunity among the regions. The new education office would carry out all the present duties of the Dinas and the primary Kabin. The feasibility of implementing a decentralized, unified provincial education service along the above lines should be tested.

40. Supervision. Control of educational quality at various levels is intended to be achieved through the inspectorate. In practice, supervision has been ineffective, mainly because of lack of budget and expertise. At the primary level, school district supervisors (Kabin Wilayah) and district supervisors (Kabin Kabupaten) under the Perwakilan for Education are supposed to ensure proper implementation of educational aspects of primary education, curricula, examinations and books but each school district supervisor has about 30 schools to cover and typically is without office, transport or sufficient travel allowance. Most supervisors are recruited from among the ranks of headmasters and about 90% have had at least ten years of teaching experience. Few, if any, have received any pre-service or in-service training in school administration or supervision. At the secondary level there are six Kabins^{1/} — who function from the provincial level. As for the primary level, they are typically drawn from among the ranks of headmasters, although one-fourth had no experience in school administration. Only about half of the secondary school supervisors had appropriate educational qualifications for their duties when surveyed by the National Assessment in 1971. Few were qualified to advise on instruction in the wide range of subjects taught in secondary schools. Mobility is an even more serious problem with secondary school supervisors. Inadequate travel budgets make it impossible for most supervisors to cover adequately the schools assigned to them. On average, each secondary school inspector has 34 schools and over 500 teachers, to supervise, although in 1969 a ministerial decree laid down a ratio of 1 inspector per 20 schools. An inspector makes only about two school visits per month, not always to a different school. In 1970 only 30% of the secondary schools were visited at all by an inspector. As the National Assessment concluded, "usually there is no one in a position of authority ... to give professional advice and technical assistance to specialist teachers or to stimulate them to improve their teaching methods."^{2/} Under these conditions, the inspectorate can only carry out rudimentary administrative control and cannot possibly function to improve professional teaching. Improved professional advice will require more supervisors, better transport facilities and more specific preparation for Kabins.

1/ One each for SMP; SMA; SPG; ST and STM; SMEP and SMEA; and SKKP and SKKA.

2/ Level III Trial Report: Secondary Education, 1972, p. 36-37. There are some encouraging exceptions to these general statements. In East Java, for example, where each Kabin for SMP covers about 170 schools, the Kabins visit the SMP in Malang two or three times p.a., publish a professional newsletter for all SMP principals in the province, and frequently organize courses for headmasters and staff.

C. Educational Cost and Finance

41. Summary. Four major issues in the field of education finance are likely to become more acute during the next few years, requiring policy responses such as those outlined below:

- (a) Inadequacy of Financial Basis: The lack of sufficient funds is at present the most important obstacle to a narrowing of the "non-schooling gap" as well as to improvements in the quality and internal efficiency of the education system. Since both the resources of most provincial and local governments and of students' families are already strained, most of the required additional funds will have to come from the budget of the Central Government. It is now conceivable that, as a result of the recent substantial increase in Government resources, this broadening of the financial basis could be achieved without shifting funds away from other government activities.
- (b) Insufficiency of Teacher Salaries: This issue is closely related to the foregoing but has a number of additional dimensions which justify separate treatment. The low teacher salaries are at the root of the widespread fragmentation of teaching efforts, as well as of the relative neglect of non-teacher recurrent expenditure. A substantial salary increase for teachers combined with the creation of new full-time teaching jobs proportionate to the present extent of part-time teaching, is seen as the appropriate policy response.
- (c) Equality of Educational Opportunity: Economic factors are the main force behind the inequalities in the access to and progress through the education system. The present fee system could well be supplemented by a scholarship/loan program. To check the early emergence of irreversible inequalities, the abolition of fees in primary education might be considered.
- (d) Lack of External Efficiency: Present financing arrangements do not attempt to improve the linkage between the education system and the labor market. Any future fee/scholarship/loan system should be given sufficient flexibility to create financial incentives and disincentives for specific categories of students as required by employment prospects.

42. Introduction. One of the peculiar traits of Indonesia's system of education finance has been its complexity, both with regard to how funds are raised and how they are used. This has its explanation in the

development of the country's education system after independence, with its rapid expansion under economically adverse conditions. Inflation and a narrow budgetary base called for flexible and often improvised modes of financing. As a result, it is difficult to ascertain the financial effort required to support the present education system. The existence of intermediate fiscal agents and of lump-sum subsidies makes it impossible to provide reliable estimates of the volume and composition of education expenditure by source. A more promising way is to begin on the users' side, i.e., with a sample of schools, and to follow the various flows of finance to their sources. The most thorough work along these lines, part of the National Assessment Study ^{1/}, is based on 1970 data. Its results, modified in the light of more recent information concerning the development budgets, are summarized in the following table:

Table 7: SOURCES OF EDUCATION FINANCE BY TYPE, 1970
(in Rps billion)

	<u>Recurrent Budgets</u>	<u>Development Budgets</u>
Central Government	27.1	8.5
Provincial and Local Governments	27.8 <u>/a</u>	3.7
Private Sector	<u>16.3</u>	<u>6.5</u>
 Totals	 <u>65.8</u>	 <u>18.7</u>

/a Includes Rps 21.0 billion from Ministry of Home Affairs (primary education subsidies for provinces).

Sources of Educational Finance

43. Public Funds. Most of the expenditure at state schools is financed from the central government budget, in the range between 60% and 90% of recurrent expenditure, depending on the level and branch of education. The same pattern appears to apply to the development budget although the volume of provincial, local and private contributions is difficult to determine. There is likely to be more variation among regions as shown by the support which some universities enjoy from their provincial governments. ^{2/}

1/ BPP: "Sources and Uses of Educational Finance in Indonesia," by R. Daroesman (1972), published earlier in Bulletin of Indonesian Economic Studies. Vol. VII/3 and VIII/1.

2/ The University of North Sumatera, for example, received Rps 500 million from the Provincial Government in 1973 in support of its building program.

44. The channelling of funds differs among the various levels of education and from one type of expenditure to another. Teachers and non-teaching personnel in state primary schools are paid by the Ministry of Home Affairs, with the provincial governments as intermediaries. At the secondary as well as tertiary levels, salaries derive from the budget of the Ministry of Education, and are channelled through its provincial offices. Similarly, the Ministry of Religion pays its teachers from its budget through the provincial administrations.

45. Development expenditures are normally financed from the development budget of the responsible Ministry with the exception of secular primary schools which depend more on assistance from provincial and local governments, on community self-help and on revenues from fees. However, the recent allocation by the Central Government of Rps 15.8 billion for the construction of primary schools may indicate a change in the basic pattern of financing.

46. Provincial and local governments with few exceptions play a lesser role in the financing of education but provincial authorities serve an important function as fiscal agents for the central government and as distributor of proceeds from fees. Provincial and local contributions are more likely to be developmental than routine. Local communities sometimes provide school buildings in a self-help effort. In such cases, this may be matched by contributions in kind (building materials) from local governments.

47. Private Funds: Student Fees. Next in importance to funding by the Central Government are fee revenues. Their contributions to school budgets varies from not less than 10 to over 30 percent. Until 1971 the State schools had (and private schools still have) a variety of fees and several voluntary or compulsory contributions for specific purposes. This system has been replaced through two ministerial decrees by a single fee (SPP) which is uniformly applied and varies according to level and branch of education, parental income, number of children and location of school. The fee is expressed as a percentage of the parent's income. Ten income classes are distinguished ranging from Rps 5,000 or less per month to more than Rps 100,000. The percentages which refer to the upper end of each income class are shown below:

Table 8: SCHOOL FEES (SPP) AS PERCENTAGE OF PARENT'S INCOME, BY LOCATION OF SCHOOL AND LEVEL OF EDUCATION /a

	<u>Low-Cost Area</u>	<u>Medium-Cost Area</u>	<u>High-Cost Area</u>
Primary Education	1	1.5	2
Lower Secondary Education	2	3	4
Upper Secondary Education	4	6	8

/a Decrees No. 132/1971 (Ministry of Home Affairs) and No. 0192/1971 (Ministry of Education).

Note: The above percentages refer to families with one eligible child, i.e., not older than 21 years, neither married nor receiving an income; for each additional child, the fee is reduced by 10% until the fifth child, i.e., to 60% of the original fee level per child. For some non-general types of secondary education (ST, SKKP, STM, SKKA), the fees are 25% higher. The high-cost areas include the major cities, the medium-cost group the other urban areas and the low-cost category the rest of the country.

48. The proceeds from fees are distributed as follows:

- (a) at the primary level 10% are transferred to the provincial headquarters. The remaining 90% are used for (i) staff remuneration (40%), (ii) the provision, maintenance and repair of facilities and equipment (40%) and (iii) administrative expenses, health and library services and other outlays (10%); and
- (b) in the secondary schools 35% are returned to the Perwakilan (who spends 5% on supervision and redistributes 30% to the secondary schools - 10% to supplement routine budgets and 20% to finance development expenditure); the other 65% are used by the schools themselves, 40% to improve the salaries of the regular staff and to pay part-time teachers and 25% for materials and other recurrent expenditure.

49. Table 9 attempts to compare the previous with the present fee burden using the Rps 5,0001-10,000 income bracket as a reference group. The present minima appear to be well below the former fee levels and the maxima well above. It is yet too early to say whether the introduction of the SPP system has markedly altered average fee levels and

hence the balance between public and private sources of finance but they point towards some reduction in the private sector's share - .

Table 9: COMPARISON OF FEE LEVELS IN MINISTRY OF EDUCATION SCHOOLS UNDER OLD AND NEW FEE SYSTEMS
(in Rps per Complete Course)

Level and Type of Education	Old Fee System /a	New SPP System	
		Minimum /b	Maximum /c
SD	8,664	3,600	12,000
SMP	8,265	3,600	12,000
ST	11,100	5,250	15,000
SMEP	7,855	3,600	12,000
SKKP	9,705	5,250	15,000
SMA	12,610	7,200	24,000
STM	17,020	9,000	30,000
SMEA	11,510	7,200	24,000
SKKA	11,455	9,000	30,000

/a Examination fees excluded.

/b Parent in second lowest income bracket (Rps. 5,001-10,000), low-cost area, four or more eligible children.

/c Parent in second lowest income bracket (Rps. 5,001-10,000), high-cost area, only eligible child.

Sources: BPP: Social Demand for Education (old fee structure); Decrees No. 132/1971 (Ministry of Home Affairs) and No. 0192/1971 (Ministry of Education) (new fee structure).

50. Other Private Contributions: For the various categories of private schools, the Yayasan - a foundation acting as the school's financial agent - derives funds from fees and contributions. It also is the recipient of any Central Government grants for which the school may qualify. By contrast, the POM/POMG (Parents' or Parents'-Teachers' Associations) appear to have lost their former influence in the financial management of the state schools due to the fact that under the new SPP system the schools themselves are vested with the authority to collect and within limits determine the use of their fees. Finally, among the minor sources of finance are revenues from the sale of the school's own produce. While they lack general importance, they show how resourceful school administrations have tried to supplement the meagre regular sources of finance.

1/ This is a tentative conclusion based on a comparison of expected and actual SPP revenues for the various types of lower and upper secondary education in East Java province for 1972 (the first year in which the new system was in full operation). The shortfalls in SPP revenues ranged from 4% to 50%. While part of these deficits are explained by erroneous estimates of enrolments, over-estimates of average fee levels appear to have played a greater role.

51. External Assistance. The average annual amount of foreign assistance to education and training is difficult to estimate because, firstly, the donor's local representatives are not always involved in the disbursement process; secondly, some projects extend over several years and are then concluded whereas others are recurrent in nature; thirdly, definitions of what activities fall in the category of education/training projects differ among donors. A very gross estimate of the percent annual volume of foreign assistance would be Rps 5 billion - Rp 6 billion, most of which is for development. This may appear an insignificant figure in comparison to the total national effort but it should be realized that most of the foreign assistance is likely to be in key areas. Annex 17 provides a simplified tabulation of ongoing foreign assistance by donor, recipient sector of the education/training system and type of assistance. This list is incomplete with regard to the donors and quite possibly has errors and omissions as to the recipient sector and type of assistance. It should therefore only be taken as an indication, both of the variety of projects and of individual donor's assistance patterns.

Aggregate Expenditures

52. Expenditure by Ministry (Table 10). The distinction between development and routine expenditure corresponds roughly to the customary division between development (or capital) and recurrent expenditure with the important exception that experimental programs are financed from the development budget.

Table 10: CENTRAL GOVERNMENT EXPENDITURE ON EDUCATION AND TRAINING, 1970/71 AND BUDGET FOR 1973/74,
BY TYPE OF EXPENDITURE AND DEPARTMENT
(In Rps billion and percent)

Ministries	Expenditure in 1970/71				Budget for 1973/74			
	Routine	%	Development	%	Routine	%	Development	%
Education and								
Culture	16.7	34	5.3	62	25.0	27	8.6	29
Religion	8.2	17	0.6	7	11.3	12	0.6	2
Defense	2.0	4	-	-	3.5	4	-	-
All others	1.1	2	2.6	31	4.0	4	4.6/b	16
Transfers /a	21.0	43	-	-	49.6	53	15.8/b	53
Totals	49.0	100	8.5	100	93.4	100	29.6	100

/a Primary education subsidies from Ministry of Home Affairs to the Provinces.

/b Extraordinary allocation for primary school buildings.

Source: Ministry of Finance.

Table 11: CENTRAL GOVERNMENT BUDGETS FOR EDUCATION,
BY LEVEL OF EDUCATION, 1973/74 /a

<u>Level of Education</u>	<u>Routine Budget</u>		<u>Development Budget</u>	
	<u>in Rps Billion</u>	<u>in percent</u>	<u>in Rps Billion</u>	<u>in percent</u>
Primary	49.6	71	16.3 /b	68
Secondary	13.7	20	4.4	19
Higher	6.4	9	3.1	13
Totals	69.8	100	23.8	100

/a Figures refer to Ministry of Education schools only.

/b Including extraordinary allocation of Rps 15.8 billion.

Source: Ministry of Finance and Ministry of Education.

53. Expenditure by Level of Education (Table 11). The distribution by education level of the routine budget, roughly in the proportion 7:2:1, is in line with the respective numbers of students, the student: teacher ratios, and teacher salary levels. The composition of the development budget is somewhat distorted by the inclusion of the extraordinary allocation for primary school buildings. Without it, the percentages for primary, secondary and higher education would be 6, 55 and 39 respectively, which would be more in keeping with the engagement of the Central Government at the three main levels of education.

54. Relation to National Totals. The share of education and training expenditure for all Ministries in the total Central Government Budget has been 13.5%, including slightly under 20% for the routine budget and almost 5% for the development budget, without any discernible trend. The share of the recurrent education budget as a proportion of GDP has been slightly increasing and stands now just under 2% whereas the corresponding figure for the development budget has fluctuated around 0.25% (Annex 10). All four figures are below the international average (Annex 1), pointing to the importance of other sources of finance in Indonesia, notably the private sector.

Recurrent Expenditure

55. Expenditure on salaries is the most important single item in the routine budget, comprising about 90% of the total. This pattern varies little among the various levels and branches of education (Table 12), even at the upper secondary technical schools where the share of expenditure on materials would have been expected to be much higher. While these data refer to Ministry of Education schools only, observations from individual schools suggest that this proportion would be similar in the Ministry of Religion and private segments of the education system.

Table 12: COMPOSITION OF ROUTINE BUDGETS OF MINISTRY OF EDUCATION SCHOOLS, BY LEVEL AND TYPE OF EDUCATION, 1971

	Expenditure in percent on		
	Personnel	Materials	Maintenance, etc.
Primary Education	89.7	8.5	1.8
Lower Secondary (General)	89.1	7.7	3.2
(Technical)	91.1	7.5	1.4
(Commercial)	91.8	7.4	0.8
(Domestic)	94.5	4.8	0.7
Upper Secondary (General)	90.8	6.6	2.6
(Technical)	82.2	13.3	4.5
(Commercial)	89.1	8.9	2.0
(Domestic)	88.4	8.6	3.0
(Teacher Training)	92.7	6.0	1.3
Higher Education (1969/70)	81.1	17.2	1.7

Source: BPP, Ministry of Education.

The composition of the routine expenditure, with its heavy preponderance of personnel expenditure, points to a general scarcity of funds and low quality of education. The percentages for maintenance translate into absolute annual expenditures of less than Rps 40 per pupil for primary schools and Rps 200-250 for general secondary schools, a low figure given the often advanced age of the premises. For example, 56% of primary and 66% of secondary school buildings in East Java, the country's most populous province, have an age of 10 years or more.

56. Routine expenditures include one of the main problems of education finance in Indonesia, namely, the low basic salary levels of teachers which have obliged the schools to provide supplementary remuneration, usually at the expense of other inputs into the schools. Teacher salaries are a complicated blend of a basic pay scale, up to eight different types of allowances, and additional payments, such as overtime, honoraria and special supplements. Table 13 gives a rough estimate of these components as at December, 1970; Table 14 gives the salary and allowances figures only as at November 1973:

Table 13: AVERAGE MONTHLY REMUNERATION OF MINISTRY OF EDUCATION TEACHERS, DECEMBER 1970
(in Rps 1,000)

	<u>Salaries/ Allowances</u>	<u>Overtime</u>	<u>Supplements</u>	<u>Total</u>
Primary Education	4.3	0.3	0.4	5.0
Lower Secondary Education	5.9	0.7	0.9	7.5
Upper Secondary Education	6.8	0.9	1.4	9.0

Table 14: AVERAGE MONTHLY SALARIES AND ALLOWANCES OF GOVERNMENT TEACHERS IN ONE DISTRICT OF EAST JAVA, BY LEVEL OF EDUCATION AND RESPONSIBLE MINISTRY, NOVEMBER 1973
(in Rps 1,000)

	<u>Ministry of Education Teachers</u>	<u>Ministry Religion Teachers</u>
Primary Education	12.3 /a	n.a.
Lower Secondary Education	13.7	8.0
Upper Secondary Education	17.5	14.5
University	20.2	19.5

/a The November, 1973, figures refer to one district, and the one for primary education to an urban sub-district. The latter is probably lower for the average of the country, say, Rps 9,000-10,000 per month.

57. A comparison of Tables 13 and 14 seems to show a very marked increase in average teacher salaries between the end of 1970 and the end of 1973, but it is likely that the district which provided the 1973 figures is one with an above-average level of teacher salaries. Furthermore, allowance has to be made for the substantial price increases during this three-year period (the Jakarta cost of living index grew by more than 46% between December, 1970 and August, 1973). Table 11 also reflects the salary differentials between Ministry of Education and Ministry of Religion teachers and their reduction at the upper education levels.

58. The very complexity of teacher remuneration suggests (a) that the basic salaries are low — and therefore have to be supplemented by a variety of allowances and (b) that the structure of basic salaries with only four broad classes and a total of 16 steps does not sufficiently allow

1/ Top salaries for professional and managerial workers may typically reach Rps 100,000, for technicians Rps 50,000, and for highly skilled manual and clerical workers Rps 25,000.

for individual responsibilities, workload, performance, etc., thus requiring a system of additional payments. Any attempt to raise the general quality and efficiency of education should take these two points into account.

59. Recurrent Unit Costs. Average routine expenditures per pupil show wide regional variations (Table 15), reflecting the relative financial strength of provinces. The five main determinants of unit costs are (a) pupil-teacher ratios, (b) share of full-time teachers, (c) share of non-salary expenditures, (d) stratification of full-time staff (by qualification, seniority, and other characteristics which determine the placement on the civil service pay scale); and (e) the absolute level of salaries. Table 15 summarizes the inter-provincial ranges of routine expenditure per pupil. Certain generalizations can be drawn from this table and from the underlying data: (a) unit costs are quite low by international comparison (Annex 1); (b) average teacher salaries are low due to the employment of many part-time teachers at hourly rates well below the equivalent for full-time teachers; (c) non-salary routine expenditures appear to be largely of a residual nature; they depend directly on the amount of fees raised by the individual school, and indirectly--via the redistributive mechanism--on the total provincial fee volume.

Table 15: RANGES OF AVERAGE ROUTINE EXPENDITURE PER STUDENT, BY LEVEL AND TYPE OF EDUCATION,
1971/72
(in Rps 1,000)

	<u>Low</u>	<u>(Location)</u>	<u>Median</u>	<u>High</u>	<u>(Location)</u>
Primary (SD)	1.1	S. Sumatera	2.1	3.5	Jakarta
Lower Secondary					
General (SMP)	4.2	S. Sumatera	7.0	14.6	Irian Jaya
Commercial (SMEP)	3.4	C. Sulawesi	7.5	11.7	Irian Jaya
Home Economics (SKKP)	3.8	S. Kalimantan	8.6	24.0	Yogyakarta
Technical (ST)	2.2	Jambi	8.7	15.8	Yogyakarta
Upper Secondary					
General (SMA)	4.5	C. Kalimantan	9.1	26.8	Irian Jaya
Commercial (SMEA)	2.6	S. E. Sulawesi	6.6	12.4	S. Kalimantan
Home Economics (SKKA)	1.5	Jambi	7.6	25.9	Yogyakarta
Technical (STM)	1.5	N.T.T. /a	8.7	14.2	Jakarta
Teacher Training (SPG)	4.6	Maluku	10.7	27.7	Irian Jaya
Higher Education	6.1	(Academy)		52.3	(University)

/a East Nusatenggara.

Source: BPP, Ministry of Education.

Capital Expenditure

60. Table 16 gives the development budgets of the Ministry of Education by sector of allocation for the years 1969/70-1973/74.

Table 16: DEVELOPMENT BUDGETS OF MINISTRY OF EDUCATION BY MAJOR SECTORS OF ALLOCATION, 1969/70-1973/74
(in Rps million)

	<u>1969/70</u>	<u>1970/71</u>	<u>1971/72</u>	<u>1972/73</u>	<u>1973/74</u>
Improvement of Primary Education	360	423	422	450	460
Improvement of General Secondary Education	300	442	442	1,400	1,800
Improvement of Technical and Vocational Education	2,424	2,173	2,173	2,250	2,207
Improvement of Teacher Training	239	233	233	325	400
Development of Higher Education	1,700	1,739	2,539	3,000	3,106
Community and Adult Education	160	156	156	200	300
Educational Research and Development	-	155	155	230	293
Development of National Culture	196	205	206	300	575
Improvement of Physical Education	91	124	124	145	200
Training of Non-Teaching Personnel	-	-	-	50	50
Improvement of Administration	-	-	-	150	145
Development of Infrastructure	-	200	200	300	304
Totals	<u>5,470</u>	<u>5,850</u>	<u>6,650</u>	<u>8,800</u>	<u>9,840</u>

Source: Ministry of Education.

The budget figures do not permit any conclusion as to the sums that have been allocated to expansion, replacement and quality improvement, respectively. The term "improvement" presumably covers all three types of capital expenditure. In the case of higher education, however, the term "development" appears to relate mainly to the provision of additional facilities. A breakdown by type of capital expenditure, e. g. buildings, equipment, etc. is not available but observations in the schools visited by the mission suggested that the bulk is spent on facilities.

61. Capital Unit Costs. Capital expenditures per student also have a wide range as shown below (Table 17):

Table 17: RANGE OF CAPITAL OUTLAY PER STUDENT, BY
LEVEL OF EDUCATION, 1971
(in Rps 1,000)

<u>Level of Education</u>	<u>In Rps 1,000/a</u>	
	<u>Low</u>	<u>High</u>
Primary	0.3	1.3
Lower Secondary (General)	0.5	1.4
Lower Secondary (Other)	1.6	2.2
Upper Secondary (General)	0.6	2.0
Upper Secondary (Other)	2.2	2.9
Universities (Arts and Related Faculties)	10.0	12.0
Universities (Sciences and Related Faculties)	15.0	20.0

/a Locations unavailable.

Source: BPP, Ministry of Education.

It should be stressed that these figures refer to capital outlay per pupil in a given year. The actual cost per student place depends on the type of construction, whether permanent, semi-permanent or temporary and the space allocation per pupil.

62. According to the School Building Unit in BPP, school construction costs in 1973 were:

- (a) Rps 25,000 per m^2 for permanent structures (useful life 35 years);
- (b) Rps 20,000 per m^2 for semi-permanent structures (20-25 years); and
- (c) Rps 12,000-15,000 per m^2 for temporary structures (10 years).

An average-sized classroom for 35 pupils measures $7m \times 7m = 49m^2$, ($7m \times 8m$ for secondary schools, and $7m \times 6m$ for the lower primary grades). These figures give construction costs of Rp 1,225,000; 980,000; and 588,000-735,000, respectively. Cost of furniture amounts to Rp 120,000 (10 years duration), which increases the total cost for the lifetime of the building to:

- (a) Rps 1,645,000;
- (b) Rps 1,220,000 - 1,280,000; and
- (c) Rps 708,000 - 855,000.

Assuming utilization factors (number of shifts) of 1.5 and 2.0, respectively, for the shorter-lived (20 years) semi-permanent structures, and of 1.0 and 1.5, respectively, for the longer-lived (25 years), the undiscounted imputed charges per pupil-year (in Rps 1,000) are as follows:

Type of Structure	Assumed Lifetime (in years)	Assumed Utilization Factor		
		1.0	1.5	2.0
Permanent	35	1.3	0.9	0.7
Semi-Permanent	25	1.5	1.0	-
Semi-Permanent	20	-	1.2	0.9
Temporary	10	2.0-2.4	1.3-1.6	1.0-1.2

With discounting, the picture changes in favor of the shorter-lived structures.

Social and Economic Consequences of Existing Financing

63. Inadequate Expenditure on Education. There is ample evidence that the present financing arrangements are not supplying the funds necessary for the proper working of the education system. This is no criticism of the impressive achievements of Indonesia's education system over the last quarter of a century and the resilience of its financing mechanism under economic stress. Yet the needed process of consolidation and quality growth entails substantially greater financial resources and hence a different mix of financing modes. Since the fee level already appears too high in the light of equity considerations and insofar as provincial and local governments continue to have a weak tax base, it seems likely that only the Central Government can provide the necessary funds. Its ability to shoulder a greater share of the financial burden has been enhanced by the large revenue increases resulting from the recent changes in world oil prices. Consequently, new models of financing, such as vocational training tax levied on enterprises, may not now have to be considered.

64. The problem of teachers' salaries is central to the question of what is an adequate level of education financing in Indonesia. The total salary bill and individual teachers' salaries are insufficient which has serious consequences for the efficiency of the education system. On the demand side, the Ministry's embargo on recruitment together with rising enrollments has led to an increase in the number of regular teachers who work overtime and the employment of temporary teachers. The latter constitute about 10% of the teaching force in primary education, 15-30% in the various types of lower secondary schools, and 30-50% in upper secondary education (Ministry of Education schools only). This means that, in some provinces, the proportion reaches 70, 80, or even 90%. Since the temporary teachers often hold one or more other teaching jobs, their efforts are fragmented and efficiency suffers.

65. On the supply side, the low salaries oblige the teachers to supplement their salaries through overtime work or in a second teaching job. Table 18 conveys a picture of the pressing need for teachers to add to their regular salaries. Due to more part-time job opportunities, secondary school teachers are generally better off in this respect than those in primary education and urban teachers better than rural.

Table 18: AVERAGE FAMILY INCOME OF PRIMARY SCHOOL TEACHERS, BY SOURCE, 1970

<u>Income Components</u>	<u>Rps 1,000/Month</u>	<u>Percentages (rounded)</u>
Salary (net)	3.1	33
Honorarium (POM/Yayasan)	0.8	8
Honorarium (other sources)	0.2	2
Rice allowance	0.4	4
Overtime payments	0.2	2
Other sources (exam marking, private tuition, etc.)	0.4	5
Second job	0.4	4
(Total own income)	(5.5)	(59)
Spouse's income	1.9	20
Transfers from parents	<u>2.0</u>	<u>21</u>
Total family income	9.4	100

Source: BPP, National Assessment Study.

66. At the level of the school, the low basic teacher salaries lead to a search for additional funds for full-time or temporary teachers. More often than not this is at the expense of other inputs such as equipment, learning materials or maintenance work, which in turn diminishes further the teachers' efficiency. While information on this consequence of low salaries is scarce, Table 19 gives a general impression of existing shortcomings.

Table 19: AVAILABILITY OF LEARNING MATERIALS IN PRIMARY AND SECONDARY SCHOOLS, 1970

<u>Percentage</u> /a <u>Pupils having</u>	Primary Schools in		Secondary Schools in	
	Core Provinces	/b Periphery Provinces	Core Provinces	/b Periphery Provinces
Ruler	44	27	52	39
Compass	3	6	37	33
Triangle	8	10	45	39
Textbooks	66	35	66	54
<u>Percentage</u> /a of Schools having				
Commercial Training Aids	43	34	23	27
Self-Made Teaching Aids	48	55	26	23
Science Equipment and Displays	30	37	16	14

/a rounded to nearest full percentage point.

/b N. Sumatera, S. Sumatera, Jakarta, W. Java, C. Java, E. Java, S. Sulawesi, Bali.

/c S. Kalimantan, N. Sulawesi, E. Nusatenggara, Maluku.

Source: compiled from data in: BPP, National Assessment Study, Parts A/3.0 and B/4.0.

In sum, at the root of the efficiency and quality problems is always the mismatch between the size of the education system's task and the means it is being given to carry it out. Since teachers are the most important input into the education process, any shortcoming there is bound to have far-reaching consequences. An attempt to improve the efficiency and quality of the education system has thus to tackle first the problem of insufficient remuneration.

67. While the case for a reform of teachers' salaries is clear, the ways to achieve it are not. First, if the salaries of teachers are increased beyond those of other civil servants with comparable qualifications, adverse economic, political and administrative implications could arise and so it may not be advisable to deal with teacher salaries outside the context of the whole public salary structure. Second, the habit of holding a second or even third teaching job is deeply ingrained and unlikely to be discarded at short notice even if the condition that once caused it were

lifted. It would therefore be necessary to supplement the salary increases by the creation of a number of full-time teaching posts equal to the full-time equivalent of present part-time teaching, in order to minimize the incentives for continuing the old ways (assuming that teachers would be somewhat more reluctant to take up a second job outside teaching). This may even involve an increased subsidization of private schools or alternatively the introduction of mandatory quality standards in private education which would by necessity lead to a reduction in its size and hence to diminishing secondary job opportunities for government teachers. Thirdly, a major salary revision would be an ideal occasion to start introducing a greater measure of performance orientation into the salary structure. Clearly, the adoption of new criteria for the remuneration of civil servants in general, and teachers in particular, is a course that cannot be embarked upon without a period of study and experimentation preceding it. The study of the education system's administrative structure proposed elsewhere in this report (App E part C) ought to include this possibility in its scope.

68. Inequality of Educational Opportunity. As one moves up the educational ladder, the proportion of children from low-income families decreases rapidly. This can be observed in virtually every country but in the Indonesian case this process seems to be pronounced in the early years of primary education and the direct and indirect costs of education appear to be the main determining factor in dropout rather than attitudes, biases in curricula and other non-economic influences. Unfortunately, data are missing that would explain in detail this process. The one major study in this area provides little pertinent information because it fails to define properly the socio-economic categories used or to give reference data for the whole population. Nevertheless, Table 20 conveys the picture of a strong discrepancy in educational opportunities for children from "high" or "medium" backgrounds on the one hand, and children from a "low" background on the other.

Table 20: EDUCATIONAL ATTAINMENT OF CHILDREN FROM DIFFERENT SOCIAL BACKGROUNDS (IN %), 1970

Father's Occupation	Children's Educational Attainment		
	Attending Primary School	Primary School Dropout	Never Attended Primary School
"High"	34.5	4.7	1.0 (N=192)
"Medium"	39.1	27.3	14.9 (N=266)
"Low"	26.4 (N=537)	68.0 (N=150)	84.2 (N=329)

N = numbers in sub-samples.

Source: BPP, Social Demand for Education.

69. Provincial enrollment statistics indicate that this process of elimination begins quite early. Grade 1 starts out with 85% or 90% of the eligible population which implies a fairly representative enrollment pattern. As one moves up to grade six, however, about two-thirds of the initial cohort drop out (Chart 8477). This process of attrition is much slower in the relatively wealthier and more urbanized provinces. This process continues through secondary education, pupils in upper secondary education (particularly the general schools) having a "higher" socio-economic profile than those in lower secondary schools.

70. The reasons for this attrition are mainly economic. In a survey of 121 parents of drop-outs or non-attenders, 68% blamed the cost of education (including earnings foregone by the child while in school) ^{1/}. While the present fee structure is an improvement over the previous system in that its income-neutral proportional scale is clearly superior to the old fixed-fee scheme, there can be little doubt that the high absolute fee levels are effectively barring children of rural or urban poor background from access to education. For example, median income families in Jakarta spend an average of 2.4% of their total monthly expenditure on education. The corresponding absolute figure of Rps 240 would be just sufficient to send a single child to primary school. ^{2/}

71. By the start of secondary education this negative selection has already become so pronounced that it cannot be reversed by even a very generous fee/scholarship policy at that level. Moreover, it interferes with the process of civic formation that is expected to take place during the primary school years. Since it takes three or four years to become literate and since many schools, particularly in the country's outlying areas, teach in the vernacular in the first two grades, it means that many children from those areas that ought to be more closely integrated into the mainstream of the country's life may never become literate in the national language. Attempts to make educational opportunities more equal will have to start early in primary education. One partial solution, the abolition of primary school fees, would entail considerable revenue losses (in the order of Rp 9 billion), yet might still fail to keep all entrants in school long enough to become literate in the national language because income foregone might continue to exert an overwhelming pull on older pupils.

72. A secondary equity issue should be mentioned in passing. Under the present pattern of distribution of the SPP proceeds, the schools retain about two-thirds (one-half in the case of primary schools). This means that a school in a wealthy urban neighborhood would have a greater scope for improving the quality of its teaching than one in a rural location. At first sight this would not seem to amount to a great deal of discrimination. However, this "input inequality" could result in quality differentials which in turn would influence the pattern of admissions to the next higher education level and create (or reinforce) "access inequality".

1/ Source: BPP, Social Demand for Education.

2/ Sources: calculated from data in Survey Biaya Hidup, Jakarta 1968-69, Jakarta 1973 and Urban Unemployment Survey (1972). Jakarta 1973.

73. Internal Inefficiency. Two areas where a link exists between financing arrangements and efficiency have already been dealt with in the previous sections: first, the lack of funds results in an inefficient use of teachers and inferior combinations of teachers and other schooling inputs, and second, the factual inequity of the fee system leads to a serious wastage of pupils before the basic objective of primary education can be achieved. Another example of inefficiency is the double transfer of parts of the 35% branch of SPP (from the schools to the Perwakilan and back again) which would probably involve a greater amount of administration than a straightforward downward transfer from the Central Government. However, the simplification of financing arrangements by the introduction of the SPP system has on balance meant a move towards greater efficiency.

74. Lack of External Relevance. The potential of fees as an instrument of enrollment control has been mentioned above. At present the differing fees within a given education level are largely cost-oriented, high-cost branches being at the same time high-fee branches. It would be possible to modify the fee structure (and also the criteria for scholarships or loans) in a way that would help to alleviate existing or anticipated manpower shortages or, on the contrary, avoid aggravating specific manpower surpluses. Manpower and education planning could be linked through the instrument of flexible fee/scholarship/loan standards. Again, the statement of the principle is simple but its application is not. One possible approach would be to vary the fee level for certain levels and types of education in accordance with variations in the unemployment level of new graduates from these segments of the education system (or, conversely, with the extent of relevant job vacancies). As in the case of the other issues, the creation of a more solid information basis and a careful assessment of the likely effects should precede any major change.

D. Primary Education (Grades 1-6)

75. Summary. Primary education in Indonesia has several weaknesses, namely:

- (a) about one-third of the age group 7-12, 6.3 million children, are not enrolled in school, either because they never entered or because they dropped out;
- (b) access to education varies according to region and population density. Net enrollment ratios range from 52% in West Kalimantan to 84% in Jambi and Lampung;
- (c) repeater rates average 12% p.a. and only about one-fourth of entrants successfully complete primary education in six years;

- (d) teachers are often ill-prepared professionally and teacher qualifications vary considerably among regions;
- (e) curricula have been revised recently but they have not been adapted to local environments and the revisions have not appreciably altered classroom practice;
- (f) overcrowding of schools often requires the excessive use of a shift system to a degree where it significantly reduces the length of daily instruction for students;
- (g) teaching materials, such as textbooks, are thinly distributed (Table 19);
- (h) recurrent costs per student, averaging US\$5 in 1971, are among the lowest in the world (para 59 and Annex 1); and
- (i) the dual administration of primary schools (para 31) leads to confusion and duplication of staff resources.

76. On the other hand, Indonesia has achieved relatively high enrollment ratios at the primary level on a modest budget and has a strong parallel system of religious schools. In 1971, 88,000 Indonesian primary schools enrolled 15.7 million students taught by about 500,000 teachers. Religious schools (Madrasah Ibtidaiyyah) accounted for about 20% of the enrollments. The rate of growth of secular financed primary education was only 2.4% p.a. between 1967-71 (para 7), compared with the population growth of 2.9% for the 7-12 age group and a total projected growth in enrollments of 5.0% for the period of Repelita I (1968-73). Private contributions to recurrent costs amount to one-quarter of the total (Table 7), a comparatively high figure among countries in the world. The government has established a national textbook program which by 1978 will have produced and distributed about 200 million free textbooks to primary schools; this will be accompanied by an ambitious program of in-service teacher training. Recently, a decision has been announced to construct 6,000 new primary schools and hire 57,600 teachers by 1974.

77. Students. Most Indonesian youths receive some primary education but few complete the six-year cycle. About 85% of the primary age group enter primary school. About one-fourth of the entrants to the first grade in urban areas in 1971 had been to pre-school compared with just 6% in rural areas. Approximately a third of the entrants drop out by grade three, 60% by grade six; only about one-fourth of the initial entrants successfully

complete the sixth grade (see cohort analysis in Chart 8477). In primary education there was a yearly dropout rate of 9% in 1970. In absolute terms, 1.2 million students dropped out. The rate of dropout appears to have been markedly different between urban and rural areas. Although Table 21 refers to a single year only (1971), it is unlikely that the differences could be explained by a divergence in urban/rural enrollment growth in the recent past.

Table 21: PRIMARY ENROLLMENTS AND CLASS SIZE IN PUBLIC AND PRIVATE SCHOOLS /a BY GRADE AND URBAN/RURAL AREA, 1971

	I	II	III	IV	V	VI	Total
<u>Urban</u>							
Enrollment (000s)	464	440	426	381	326	242	2,281
As % of Gr. 1 (same year)	100%	95%	92%	82%	70%	52%	-
Class size	39	38	37	36	34	29	36
<u>Rural</u>							
Enrollment (000s)	2,228	1,990	1,845	1,435	1,103	762	9,365
As % of Gr. 1 (same year)	100%	89%	83%	64%	50%	34%	-
Class size	35	32	31	28	24	19	29

/a Excludes religious schools.

Source: "Statistik Persekolahan Seluruh Indonesia Tahun 1971," BPP, Ministry of Education, July 1973.

78. The National Assessment Study found that the principal causes of this dropout were economic. Two separate surveys indicated that virtually all primary school dropouts were from families in the lowest socio-economic category. 1/ A survey on primary education in West Java attributed about 55% of the dropout to poverty of parents, 25% to lack of parental understanding of value of education, 10% to young marriages and only 10% to educational factors, e.g., low level of student achievement and faulty teaching methods.^{2/} The direct costs are high. Parents must bear the cost^{3/} of fees, books, transport, lunches and uniforms, amounting to about half the

1/ National Assessment Study, Social Demand for Education, April 1972.

2/ Study Kasus Penbabulan Tentang Anak-Gagal Sekolah Dasar di Daerah Pedesaan Djawa Barat, 1971, p. 42. The alleged "lack of parental understanding of value of education" may have been quite the contrary. Another National Assessment Report stated that "there is evidence that a K6 dropout does not in general secure any better position than a K4 dropout." Level III Trial Report, Secondary Education, 1972, p. 9.

3/ According to the National Assessment to direct cost to parents for getting a child through six years of primary school averaged about Rp 10,000 in 1970, Social Demand for Education, p. 18.

total recurrent cost per student. The inability of poor parents to sustain these payments has contributed to high dropout rates. The indirect or opportunity cost of keeping a child in school may be even more important factor in dropout. Poor parents often cannot forgo the labor of children after they achieve some physical maturity around age 10-12 years.

79. Schools. Average school sizes are small: 220 students/school among public and 110 students/school among private schools. Virtually all schools have the complete six grades and most are coeducational. About half the schools operate on at least double shifts (one-fifth on three or more shifts), each shift of students being defined as a "school." ^{1/} The effect of the shift system in the extreme is to reduce the time of daily instruction received by each student. In Jakarta, where school space has been particularly scarce, schools have been known to operate on eight shifts daily with daily attendance of 45 minutes for Grades 1-3 and 90 minutes for grades 4-6. The use of the shift system to such an extreme may inflate enrollment statistics but it makes it impossible to ensure satisfactory learning conditions. Even with shared facilities about 30% of the schools cannot accept all applicants.

80. Overcrowding is especially evident in the early years. Although classes average around 40 students, the average class size falls from 55 students in grade 1 to 28 students in grade 6 because of heavy dropouts. Multiple class teaching is frequent. In 1971 about one-fourth of urban teachers and 35% of rural teachers taught simultaneously more than one class.

81. Curricula. Primary education, as with secondary, is intended to serve a dual function of (a) selecting able students and preparing them for further education and (b) preparing the majority for direct entry to the world of work. The effectiveness of the primary school in achieving the above objectives depends in part upon curricula and the methods of teaching and learning. In the first two grades, about 55% of the instructional time is devoted to language and arithmetic with lesser shares in succeeding grades. According to the National Assessment, the schools are generally effective in establishing basic literacy and numeracy. "A large percentage of the pupils do, in fact, become literate enough for simple practical purposes by the time they leave K3 or K4." ^{2/} At grades five and six most teachers tend to be preoccupied with examinations. Little time is spent and few materials are available to develop manual skills or artistic ability or to develop favorable attitudes toward manual work, e.g., through crafts and handicrafts.

82. The curriculum is uniform for the country and was modernized in 1968 by ad hoc subject committees organized under the Director for Primary Education. However, the change in curriculum, until recently, has not significantly altered classroom practice. Many teachers and headmasters still have not received a copy of the curriculum; textbooks and in-service training have been lacking. While the 1968 curriculum is

1/ See footnote a, Table 4.

2/ Level III Report, Primary Education, p. 78, 90-91.

a step forward, more needs to be done to make the content (a) more relevant to local environments and (b) more practical. Much could be done to translate routine arithmetical exercises into problems frequently encountered in adult life.

83. Teaching Methods. The National Assessment described teaching in primary schools as "traditional but competent." This means that emphasis is placed on routine skills in reading, writing and arithmetic and on rote memorization of a limited range of facts. However, within these narrow limits, the job is usually done with acceptable proficiency. Children are not usually encouraged to ask questions and there is little in the average classroom to encourage students to use their imagination, to raise problems of their own, to seek solutions to non-routine problems or to show much initiative.

84. Teaching Materials. Several factors contribute to these traditional teaching patterns. About 20% of the primary schools are in serious disrepair and are so badly overcrowded as to inhibit the use of modern teaching aids ^{1/}. Teaching equipment is usually lacking or inadequate. The National Assessment found in its survey that the average classroom had only five or six items of teaching equipment. Including paper and chalk, schools may have a rudimentary map, black-board, poster and model. Apart from maps and posters, schools usually do not have instructional aids, some of which could be produced locally at low cost and which could make instruction interesting and locally relevant, e.g., an insectarium or herbarium. ^{2/}

85. Textbooks. Shortage of textbooks is a crucial weakness. Until recently teachers and students alike had to buy their own textbooks. The Assessment found an average of only eight textbooks per class including the teacher's copy, compared with an actual need for about 160 textbooks per class ^{3/}. Without textbooks or with obsolete textbooks, classroom teaching can be restricted to a boring repetition of routine facts and cannot establish the skills, habits and attitudes that a changing society and developing economy demand.

86. Teachers. In 1971 Indonesia employed almost 500,000 primary teachers, of whom about 85,000 were in religious schools and 50,000 of the remaining 415,000 were temporary ^{4/} and religious teachers in government primary schools. About 30% of the teachers were female. The full time equivalent teacher:pupil ratio was about 1:37. In-service training and correspondence courses given during the 1960s have made a visible impact on the qualification of the teacher force. About half of the teacher force was fully qualified and 43% were semi-qualified in the same year. However, there were important variations of teacher qualification by region (Table 22), as follows:

1/ Level III Report, Primary Education, p. 84.

2/ Ibid., P. 86.

3/ Table 19 of this report, based on a survey of twelve provinces, shows a higher figure, i. e., that one-third to two-thirds of primary students had textbooks, depending on location.

4/ Temporary teachers are teachers at public and subsidized schools not appointed by the government who receive their salaries from the schools directly.

Table 22: QUALIFIED AND UNQUALIFIED PRIMARY TEACHERS BY REGION 1971
(Percent of Primary Teachers)

	<u>Urban</u>	<u>Rural</u>	<u>Total</u>	<u>Sumatera</u>	<u>Java</u>	<u>Kalimantan</u>	<u>Sulawesi</u>
Fully Qualified	61	44	47	33	44	29	53
Semi-Qualified /a	31	47	43	43	37	42	30
Unqualified	8	9	10	12	8	19	6
Others /b	-	-	--	12	11	10	11

/a Equivalent to 4-6 years training beyond primary school.

/b "Other" includes those with religious certificates and other infrequent certificates.

Source: "Statistik Persekolahan Seluruh Indonesia," 1971, Ministry of Education.

Table 22 illustrates the importance of in-service training for raising the qualifications and capabilities of teachers. However, although the number of semi-qualified teachers has been substantially increased, in general, this additional training has not been enough to enable the teachers to perform adequately.

87. In 1968 the government introduced a nation-wide freeze on the hiring of the new civil servants, including teachers, but no attempt was made by the government to curtail enrollments in primary teacher training institutions (SPGs). As a result, an oversupply of primary teachers has been created. About 30,000 newly qualified primary teachers are graduated annually compared with a demand from attrition (retirement, death, leaving the profession) of about 16,000 p.a. Many of these surplus teachers willingly accept appointment as temporary teachers, paid by the schools or provinces at low rates, in the hope of gaining experience and qualifying for a permanent government appointment. Primary teachers are often poorly distributed according to enrollment patterns. In North Sumatera, for example, some six-class schools have ten teachers while other six-class schools have only two teachers.

88. Examinations. National examinations were abolished in 1970 in favor of tests prepared at each school. Promotion between grades is regulated by evaluation of student performance by teachers throughout the school year. This new method of assessment is expected to reduce considerably the amount of student repetition, measured in 1971 as follows:

Table 23: PRIMARY REPEATERS BY GRADE, 1971
(Percentage of Total Enrollment)

	<u>Grade 1</u>	<u>Grade 2</u>	<u>Grade 3</u>	<u>Grade 4</u>	<u>Grade 5</u>	<u>Grade 6</u>	<u>Average</u>
Urban	17	14	12	11	8	1	11
Rural	19	15	12	10	7	2	12
Total	19	15	12	10	7	1	12

Source: See Table 21.

A final examination is given by the school at the end of the sixth grade with a "certificate of graduation" given to those who pass. In 1970, however, only about 65% of the sixth grade enrollment received these certificates. An entrance examination, developed and administered by provincial governments, governs admission to lower secondary school and serves as a means to allocate scarce available places among applicants. In 1970 about 80% of the graduates (or 50% of grade six enrollments) of primary education enrolled in various lower secondary schools in the following school year.

89. Government Program and Policies. The government intends to assign the highest priority to primary education during the second development plan, including an expansion of enrollments by 9.0% p.a. between 1973-78 to reach 20.9 million students or 91% of the age group (including overage students) in 1978. As evidence of this priority, the government announced in November 1973, a crash program to build 6,000 new schools and appoint 59,000 teachers (including 29,000 teachers already practicing) by March, 1974. In an effort to improve the quality of primary education in Indonesia in the intermediate future, an integrated program of textbooks, teachers' guides, in-service teacher training courses and special courses to upgrade supervisory personnel is in progress. In 1969, the government established a program for the production of primary textbooks, with the aid of UNICEF and the Canadian Government to: (a) improve the quality of textbook content; (b) reduce unit costs through mass production; and (c) ensure that all primary students have access to textbooks. The ten-year program (1969-79) entails the production and distribution of 201 million textbooks, sufficient to provide every primary student with texts in four basic subjects: Bahasa Indonesia (grades 1-6), mathematics (grades 1-6), social studies (grades 3-6) and science (grades 4-6). A total of 27 million books were produced and distributed by May, 1972; Canada and UNICEF have donated the paper required for the production of a further 36 million books during 1972-74. An IDA Credit (IND-387) is assisting the government to (a) produce and distribute the further 138 million textbooks needed during 1974-79 to complete the program, (b) give in-service training to 350,000 teachers in the use of textbooks, and (c) upgrade 2,800 supervisory personnel (Appendix D).

90. Unresolved Issues. Several vital issues remain which require further study and action, including:

- (a) a more appropriate structure for primary education which recognizes that most entrants do not complete the full cycle because six years is longer than the economic condition of most parents will permit; a four-year basic cycle would tend to give more children at least a complete minimum education;
- (b) the need to unify the divided system of primary school administration (paras 36-39);
- (c) ways to raise teacher salaries and productivity (para 67);
- (d) establishing a permanent office for curriculum development which could (a) complement present textbooks with studies of local environments and (b) introduce practical orientation;
- (e) the use of primary schools for broader community activities, e.g. Penmas; and
- (f) the abolition of fees to improve access to primary education.

E. Secondary Education (grades 7-12)

91. Introduction. The major problems of secondary education pertain to structure and quality. The proliferation of many types of secondary schools has not been accompanied by any clear delineation of the objectives and functions for each type of school nor does there appear to be any economic justification for the division in terms of manpower demand. The rapid increase of enrollments during the late 1960s seems to have saturated the labor market and has contributed to increasing unemployment among secondary school graduates (para 2.06). The future demand for graduates is uncertain although there is clear need for a higher quality of secondary graduates. The National Assessment Study ¹⁷ identified five groups of problems associated with low quality at the secondary level, as follows:

- (a) Curricula. Recent attempts at curricula revision have not achieved much change in actual classroom practice because of lack of clear objectives for each type of school, insufficient experimentation prior to adoption

¹⁷ National Assessment Study, Level III Trial Report, Secondary Education, pp. 20-40.

and lack of in-service teacher training. Present curricula are therefore little more than the re-arrangement of old material in which practical subjects occupy less than 10% of the prescribed time and subjects remain unmodified to local conditions, e.g., geographical, economic and social patterns. Curricula entail an excessive number of weekly and subjects (15-24) class periods (40-46) of 45 minutes each which militates against learning any subject well.

- (b) Physical Facilities. Although half the buildings require reconditioning and overcrowding causes inconveniences, the most serious deficit seems to be in specialist accommodation. Only 13% of secondary schools have libraries and fewer still have adequate laboratories and workshops.
- (c) Equipment and Teacher Materials. The lack of equipment and materials is even more serious than inadequate physical facilities. Most classrooms have little more than a blackboard. The few science laboratories which exist are usually so poorly equipped and serviced as to make it difficult for students to perform experiments. Workshops, usually ill-equipped, often lack funds for operating costs and for consumable supplies. The supply of textbooks, though usually better than at primary level, is still seriously inadequate. Half the students in the survey had either no textbooks or no more than three for all purposes. There is a serious shortage of books in Bahasa Indonesia, in technical subjects and in natural science and mathematics.
- (d) Methods of Teaching and Learning. The lack of textbooks requires much classroom time to be spent by pupils in copying notes from the blackboard. Their studies depend excessively on rote memorization. Teachers tend to lecture and devote insufficient time to preparing their lessons, giving and correcting homework and setting and marking examinations.
- (e) Teachers. Teacher qualifications are often inadequate or inappropriate for the subjects taught. In the Assessment only 43% of secondary were found to be adequately prepared in the specializations they taught; adequate preparation was markedly low among teachers of biology (18%) and mathematics and physics (22%). The most serious factor undermining the quality of secondary education has been the pattern of multiple jobs in which teachers scatter their time and energies over a number of often unrelated and fragmented jobs. At the upper secondary level, there are about one fourth more part-time than full-time teachers.

Lower Secondary Education (SLTP, grades 7-9)

92. About 525,000 students were admitted to lower secondary schools in 1971, being 80% of the primary school graduates in 1970. The number of applicants was 30% higher than the number admitted (680,000) but all could not be accommodated owing to lack of space. Enrollments in 1971 were distributed as follows: General (SMP and Madrasah) 75%; Commercial (SMEP), 6%; Home Economics (SKKP), 2%; Technical (ST), 8%; Agricultural (SPMP), 1%; and lower grades of the religious primary teacher training institutions (PGA), 8% (Annex 3). The socio-economic status of parents had a marked influence on the student's choice of school. The SMP has enjoyed the highest status, probably because of its preparatory function; 20% of its entrants come from the highest socio-economic classes. Overall, the average school size was 270 and 165 students in public and private schools respectively, ranging from 60 in private vocational institutions (SMEP and SKKP) to 290 in the public general schools (SMP). Partly because of a lack of practical training facilities, there is in fact little difference between the actual curricula of SMPs, SMEPs and SKKPs. In fact, most graduates of "vocational" schools continue to further studies. Overall, the dropout rate at the lower secondary level is much lower than for primary schools; completion rates over the period 1968-70 were 85% for SMP, 70% for ST and SMEP and 60% for SKKP. Here again the National Assessment found that "the rate at which children drop out from (lower secondary schools) is directly related to the socio-economic class from which they come; inability to meet the high costs, the need to gain immediate employment and the knowledge that they will be unable to go to upper secondary are the main reasons for dropping out". 1/

93. Table 24 shows that the full-time equivalent teacher:student ratio was 1:17 for the lower cycle, a low figure by international standards.

1/ National Assessment Study, Secondary Education, p. 11.

Table 24: LOWER SECONDARY STUDENTS (PUBLIC AND PRIVATE /a)
PER TEACHER, 1971

Type of School	Number of Teachers (Thousands)			Students Per (FTE) Teacher
	Full-Time	Part-Time	Estimated	
			Full-Time /b	
Lower Secondary	(67.1)	(36.9)	(80.7)	(17)
SMP	46.6	26.6	56.7	19
SMEP	7.3	3.9	7.2	15
SKKP	2.7	1.3	3.1	12
ST	10.5	5.1	13.7	12

/a Excluding religious schools.

/b Full-time equivalent is defined as teaching 23 periods/week.

Source: Calculated from "Statistik Persekolahan Seluruh Indonesia Tahun 1971", and draft statistical tables from the BPP, Ministry of Education, July, 1973.

94. General Lower Secondary Schools (SMP, grades 7-9). In 1971, 5,300 SMPs enrolled 1.1 million students. About a third of the schools and half the enrollment were public. Average school sizes were small, uneconomical and in some cases unviable. Two-thirds of all schools enrolled less than 250 students and 30% had fewer than 100 students. Class sizes averaged 36 students, ranging according to population density from 25 in Irian Jaya (grade 9) to 46 in Jakarta (grade 7). Late starts and heavy repetition in earlier education contributed to a wide range of ages among students and associated problems for teachers. In grade nine, ages ranged from 12 to 20 with a median of 14. Repeater rates averaged only 4% p.a. About half the teachers were unqualified; only about 15% had university qualifications (either first or second degree). In science and mathematics, for example, 54% of the teachers had some post-secondary training (e.g., PGSLP), but only 12% had passed three years of university training. The percentages of unqualified teachers (no post-secondary education or training) averaged 35% and ranged from 21% in Yogyakarta to 64% in Central Sulawesi. About two-thirds of the staff taught on a full-time basis with a median of 18 hrs/wk. teaching. About 20% of the full-time teachers taught less than 15 hrs/wk. and a third of the part-time staff taught more than 16 hrs/wk. Students typically take 18 subjects and 42 periods per week (15% in science). Few schools have libraries or science rooms except where provided by parental organizations (POMs). Shortages of teaching materials are general but some schools have begun to prepare simple science apparatus as illustrated in the new physics books distributed by the Ministry of Education.

95. Junior Technical Schools (ST, grades 7-9). These were intended to offer an elementary vocational course with about 25% of weekly class time spent on practical work. Over 30% of the teaching force are part-time; more than half the teachers are unqualified. The average school size is 210 and the average class size is 24. Only 1% of the students are female. The repeater rate is about 4%. There is no laboratory work in science teaching. In reality, these schools offer a sub-standard pre-vocational course with little practical content, mainly due to lack of funds for materials, tools and electricity. More than half of the annual output (about 40,000) continue to further education in STMs; the remainder may join the labor force but are not considered as having acquired basic vocational skills. The government is aware of these problems and is phasing out STs by 1978 and replacing them with SMPs, a satisfactory policy if it includes the introduction of a diversified curriculum in the new junior secondary schools after integration and consolidation.

96. Industrial Arts Schools (SPIK, grades 7-10) provide training in graphics (printing) and handicraft (woodcarving and batik work) in a 4-year course starting from Grade 7. There are only four such schools in Indonesia and the output is under 200 per annum. There is no government plan for the development of these schools but they should be integrated with other vocational institutions to form larger and more viable units.

97. Junior Commercial Schools (SMEP, grades 7-9). The junior commercial schools, which were intended to be vocational and produce junior typists, bookkeepers and clerks for the labor market, are actually pre-vocational. The curriculum is similar to that of the STs but, due to shortages of equipment and teaching materials, the actual practical content is less than stipulated. Almost half the teachers are unqualified and the quality of training is poor. The dropout rate is over 30%, mainly in the second and third years. More than 75% of the output (22,000 in 1971) enter SMEAs. Graduates from SMEPs are normally not accepted by SMAs. The government has decided to phase out all SMEPs and convert them into SMPs.

98. Junior Home Economics Schools (SKKP, grades 7-9) enroll young women in cooking and sewing courses but the vocational content is only one period of theory and one period of practice per week in Grade 7, two periods each in Grade 7 and two periods each in Grade 9. The schools are poorly equipped and cannot meet their vocational objectives. The curriculum includes physics and biology but no chemistry; teaching is without laboratory work and demonstration. About two-thirds of the teachers are unqualified. The dropout rate is high at about 40%, due mainly to early marriage and lack of finance. One half of the graduates continue their studies in SKKAs. According to the present policy these schools will be phased out and integrated into SMPs.

99. Junior Agricultural High Schools (SPMPs, grades 7-9). They were established (mostly from 1960 to 1970) under the jurisdiction of the Ministry of Agriculture to give vocational and practical training in farming to rural youth (age group 13-15). During 1971, 101 SPMPs enrolled 10,000 students and graduated about 2,500. They are administered by provincial governors.

supervised by heads of provincial agricultural services and financed by the Kabupaten. Their operating budgets are limited (about Rps 4000 per student) and physical facilities are poor. Libraries, textbooks, teaching materials and farmland are lacking in most cases. Practical training accounts for only 8 out of 45 periods per week. Graduates from SPMs are unlikely to return to farming. Instead, they enter either government service or join senior agricultural high schools. In view of the low quality of education, the inefficiency of operation and ineffectiveness of the system, the government has decided to phase out most of the SPMs and convert some of them into training centers for young farmers. The government policy to close down these institutions is sound because specialization at the junior secondary school stage is too early, the course does not produce practical farmers and it weakens the education base for students who wish to pursue further studies. Government plans for the proposed training centers for young farmers are unclear.

Upper Secondary Education (SLTA, grades 10-12, 13)

100. The upper cycle of secondary education consists of at least eleven types of schools; however, only five of these branches each account for more than one percent of the total enrollments of 860,000, viz. general schools (SMA and Madrasah Aliyah), 40%; teacher training (SPG and PGA), 20%; commercial (SMEA), 19%; technical (STM and STMI), 14%; and home economics (SKKA), 2%. Whereas at the lower cycle most enrollments are in general schools (75%), at the upper cycle 60% of the enrollments are in schools with a vocational (rather than a preparatory) purpose.

101. About 70% of the graduates from grade 9 in 1970, (a majority from each type of school), continued their studies in the upper cycle during 1971, ranging from 53% for SKKPs to 86% SMEPs. The Assessment found that virtually all grade 9 graduates apply for admission to the upper cycle but shortage of places prevents the admission of 25%-30% of the applicants, with the STMs turning away the most applicants. The following table shows the destination of graduates from the lower cycle according to type of school:

Table 25: DESTINATION OF LOWER CYCLE GRADUATES BY TYPE OF SCHOOL (1970/71)

	SMP	SMEP	SKKP	ST	Total
	Percent				
% of Grade 9 Enrollment Graduating	96	91	77	79	93
% Graduates Continuing to Further Education	74	86	53	54	72
Destination of those continuing in 1971 to:					
SMA	54	3	-	-	44
SMEA	18	91	-	-	22
SKKA	2	1	83	-	3
STM	12	-	-	100	19
SPG	14	5	17	-	12
Total	100	100	100	100	100

Source: National Assessment Study, BPP, Ministry of Education.

102. An analysis of the socio-economic background students carried out by the Assessment found that more upper cycle students come from high socio-economic classes than lower cycle or primary students. 1/ Among the types of schools, students in the general and home economics schools had the highest socio-economic background with primary teacher training ranking lowest.

103. Dropout rates have tended to be highest for the technical/vocational schools. According to the National Assessment the percentage of entrants who graduated on schedule were as follows for 1970: SMA, 71%; STM, 49%; SKKA, 56%; SMEA, 54%, SPG, 66%. Most of the dropouts occurred with pupils from families in the lowest socio-economic class. 2/

104. As at the lower cycle, the average full time equivalent teacher: student ratio was low at 1:17, as indicated in Table 26.

Table 26: UPPER SECONDARY STUDENTS (PUBLIC AND PRIVATE /a) PER TEACHER 1971

Type of School	Number of Teachers (Thousands)			Students Per FTE Teacher
	Full-Time	Part-Time	Full-Time /b Equivalent	
Upper Secondary	(25.0)	(31.5)	(38.8)	(17)
SMA	12.4	12.4	17.3	17
SMEA	4.6	6.2	7.2	18
SKKA	0.9	1.0	1.3	13
STM	3.2	7.1	7.6	16
SPG	3.9	4.8	5.4	18

/a Excluding religious schools.

/b Teaching 23 periods/week.

Source: See Table 24.

105. More than four out of five senior secondary students expect to study further rather than to enter the work force immediately after graduation. In fact, only about half the students are able to continue their studies in some branch of higher education. Table 27 gives data on expectations and reality to type of school:

1/ Social Demand for Education, p. 93.

2/ Ibid., p. 86.

Table 27: PERCENTAGE OF SENIOR SECONDARY STUDENTS EXPECTING,
AND ACTUALLY PROCEEDING TO FURTHER STUDIES
AFTER GRADUATION, 1970

	Expecting to Study Further	Actually Proceed to Further Studies
	Percent	
SMA	91	71
SMEA	81	22
SKKA	88	35
STM	82	25
SPG	<u>76</u>	<u>39</u>
Total	85	47

Source: Social Demand for Education

Although the SMA is a preparatory school, about a quarter of the students drop out before finishing and a quarter terminate because of lack of finance to continue studies or lack of places in higher education. On the other hand, while the STM and SPGs are considered terminal, between 25% and 40% of their students continue their studies.

106. Senior General Secondary Schools (SMA, grades 10-12). In 1971, 1,150 SMAs enrolled nearly 300,000 students. Approximately 40% of the schools and 60% of the enrollments were public. Two-thirds of the enrollments were male. About 94% of the students in SMAs originated from SMPs. Class sizes averaged 32 students, ranging from 41 (grade 10) in Jakarta to 16 (grade 12) in Central Sulawesi. Repeaters made up an average of only 4.4% of enrollments. Only 20% of the teaching staff of 25,000 in 1971 lacked university qualifications (either first or second degree); in science and mathematics, for example, 82% had at least intermediate (sarjana muda) university degrees but only 12% had the complete (sarjana) degree. Regional differences in teacher qualification were important, ranging from 9% unqualified in Yogyakarta to 72% in Southeast Sulawesi. More than half the staff taught on a part-time basis; the median was eight periods per week. Among full time teachers the median number of periods taught was 18.

107. Students take from 15-17 weekly subjects and 42 periods/week. About one-fourth of the available time (11 periods per week) is spent on religion, civics, Indonesian language and physical training. Students in the science stream spend about 60% of their class time on specialized subjects, such as physics, chemistry and biology, each of which is given throughout the cycle. The remaining 10% of the time is spent on art and language. Little practical work is done because laboratories, workshops and equipment are usually lacking. Only 12% of SMAs have biology rooms, 8% physics rooms and 7% chemistry rooms. Science teaching consists mainly of lectures and students copying notes from the blackboard. Textbooks are particularly lacking in science and technical subjects. Although about 90%

of the SMA students surveyed in the National Assessment Study expected to enter higher education, half the entrants either drop out or become terminal graduates. Of the school leavers finding employment half took up unskilled work and half semi-skilled work. 1/

108. Senior Technical Schools (STM, grades 10-12). These schools give instruction in machine shop, auto-repair, electricity, electronics and building construction and are intended to produce an intake for industry with adequate basic skills so that the amount of on-the-job training will be minimal. About 36% of the 123,000 students in 1971 were enrolled in the machine shop course. The estimated annual demand of craftsmen is at least 41,000. The present annual output of about 34,000 from STMs falls short of the demand; the actual shortage is much larger due to the sub-standard training in STMs. Most instructors have qualified at technical teacher training colleges (FKITs) but have not received adequate practical training. About 46% of the teaching staff hold degrees and more than 38% are unqualified. The average school size is 310 and the average class size is 29. Female participation is insignificant. The repeater rate is 4.1%. The progression rate is 77% from Grade 9 to Grade 10 and 88% from Grade 10 to Grade 11. The 3-year curriculum has a content of 25% general subjects, 25% mathematics and science, 42% classroom work in technical subjects and only 8% practical work. The schools are poorly equipped and short of operating funds for materials, tools and maintenance. Science teaching lacks student laboratory work and even demonstrations. The inadequate practical work in the curriculum, the weak material basis and the under-qualified teachers make the training of low quality. As a result, the graduates require additional training before acceptance by industry and enroll for further training at PLKs.

109. Government policy is to improve quality through additional equipment, better-trained teachers and a revised curriculum, in support of which IDA financed an education project in Indonesia (Credit 219-IND) to build five technical training centers (TTCs) at Jakarta, Bandung, Surabaya, Ujung Pandang and Medan to serve 15 STMs and provide, with additional support from the U.K., technical assistance to include the in-service training of technical teachers. The proposed new curriculum will include 36% practical work. This new curriculum has not yet been formally adopted and syllabi sheets for workshop exercises have not been written. The first group of graduates is expected to enter the labor market at the end of 1977. Whether a combination of STMs with technical training centers can meet the industrial requirements will then be evaluated. The present policy is to await this evaluation and then decide as to how the STMs will be developed. Earlier action seems desirable because (a) the result of the experiment with STM(P)s will not be known until the late seventies; (b) PLKs are intended to offer non-formal vocational courses to urban out-of-school youths and adults and not to further

1/ National Assessment Study, Level III Trial Report, Secondary Education, pp. 122-123.

training for STM graduates; and (c) the demands of industry are not being met. It would seem that either more STM(P)s or additional TTCs should be established to the extent permitted by staff and financial constraints. The establishment of more PLKs as an alternative would not affect the problem of low-quality training in STMs but it would provide more skill training capacity for youths and adults.

110. Senior Commercial Schools (SMEA, grades 10-12). Senior commercial schools offer secretarial, bookkeeping and business management courses. Distribution of students among the three courses varies between schools but usually fewer students take the secretarial course due to difficulties with the English language. The curriculum includes 26 periods per week on specialized subjects in grade 10, 20 in grade 11 and 20 in grade 12, out of a total of 44 periods per week. Subjects within the specialized group number from 7 to 10, unnecessarily divided. About 30% of the teachers are unqualified. Class size is about 35 pupils; about three-quarters are girls. One-third of the student enrollment is in private schools. The annual output of SMEA graduates at about 23,000 per annum is inadequate for the labor market and employment prospects of graduates are good, especially for those skilled in foreign languages, but the government has no plan to expand enrollment in SMEAS and increase the output despite of the demand. Private schools are bridging the gap.

111. Senior Home Economics School (SKKA, grades 10-12). The SKKAs prepare students for family work and employment related to catering, tailoring, embroidery and laundry. Almost all students are girls. Class sizes are about 30. Schools are not well equipped and lack operating funds for materials and maintenance. All specialized subject teachers have received some training in secondary teacher training colleges (IKIPs) but 49% of the total are unqualified. Science teaching is ineffective. Employment prospects of students are dubious. There is no government policy at present on the future of SKKAs but it would seem preferable for these schools to be integrated into SMAs as home economics streams in comprehensive schools.

112. Senior Agricultural High Schools (SPMA, grades 10-12). In 1972, there were 98 (17 national, 52 provincial and 29 private) SPMAs which enrolled 11,600 students (with an intake of 5,200) and graduated 1,750. There has been lack of control by the Ministry of Agriculture and uncoordinated growth in the number of these schools, more than two-thirds having been established during the last six years and 11 during the last two. They prepare middle-level technicians for various Ministry of Agriculture posts. Almost all SPMA have faced serious problems since their inception due to lack of operating funds and facilities. Available physical facilities -- equipment, classrooms, laboratories, student and staff housing -- are much less than the educational requirements established by the Agency for Agricultural Education and Training (BPPLP) (para 29). The full-time teacher-student ratio is about 1:30 but only 23% of the 1,600 teachers work on a full-time basis, partly because salaries are low (Rps 10,000 per month). Only 15% of the staff possess a full degree and 30% the intermediate degree. There has been insufficient emphasis on practical training and seven of the seventeen national SPMA do not have sufficient farmland. The new curricula developed recently by the Agency for Agricultural Education and Training

(BPPLP) are satisfactory, providing (a) the introduction of a broader range of subjects (e.g., animal husbandry, fisheries); (b) an allocation of about 50% total class time to practical training, e.g., assisting local farmers or farm demonstrations; (c) increases in the basic sciences and in agricultural economics (40 general: 60 technical); and (d) emphasis on economic assessment and profitability in all practical courses.

113. With IDA assistance, the government has launched, under Credit 288-IND a project to expand and equip twelve existing State SPMAs and establish two new ones. The project aims to increase the output from project schools from 500 at present to about 900 by 1977. However, according to the AAET estimates the demand for well-trained SPMA graduates during next five years is expected to be about 1,200 pa. In order to meet this demand, the government is considering strengthening about a dozen provincial and private SPMAs which have the potential for development.

114. Other Agricultural Secondary Schools. The Ministry of Education operates 11 junior and 23 senior high schools of agricultural technology (STMA) which are similar to the Agricultural High Schools run by the Ministry of Agriculture. These schools purport to train future farmers and agricultural technicians. No detailed data were available on these schools from the Ministry of Education but enrollments range between 100 to 300, and according to the Agency for Agricultural Education and Training, these schools can only be considered as agriculturally-oriented general high schools with virtually no facilities for imparting training in agriculture. The future of these schools is uncertain.

115. There are three senior secondary fisheries schools; providing training in inland fisheries and marine fisheries. The Fisheries Training Center at Tegal has started, in addition to its SPMA program, a 9-month training course for general and technical high school graduates and has a total output of 300 per year. Additional facilities have also been created for training in freshwater fisheries at Sukabumi (West Java) and brackish water fisheries at Jepara (Central Java) where the SPMA students from Bogor also receive their practical training in the final year. Three junior high schools of fisheries have been converted into training centers for fisheries training in new techniques. Technical assistance comes from UNDP, Japan, Netherlands and the Federal Republic of Germany. It is estimated that 3,000 trained personnel will be required by 1975 to meet projected requirements.

116. Primary Teacher Training Schools (SPG, grades 10-12). Despite the freeze on hiring new primary teachers, in effect between 1968 and 1974, teacher training enrollments were not aligned to employment possibilities. As the reduced employment possibilities became known, applications declined and between 1970-73 enrollments declined by 20% from 99,000 to 79,000. The number of schools declined by only 4% over the same period, from 515 to 496. Although the output from SPGs declined from 32,000 in 1970 to an estimated 27,000 in 1973, it still exceeded the number of teaching jobs created through attrition.

117. About 40% of the schools and 60% of enrollments were public in 1971. About 90% of the students came from SMPs and most were from comparatively low socio-economic backgrounds. The average public school size was uneconomical at 190 and 70% of the schools had fewer than 250 students. Average class sizes, 32 overall, ranged from 42 in Nusatenggara Timur to 19 in Southeast Kalimantan. Repeater rates averaged less than 4% p.a. About a third of the 8,700 teachers instructed on a full-time basis. Some 60% of the teaching staff had university degrees (intermediate or full) and 23% were unqualified, ranging from 10% in Lampung to 80% in Jakarta. One-third of the teaching staff had less than four years of teaching experience.

118. The curriculum entails 19 different subjects and 40 weekly class periods in the first year. The academic courses tend to be weak in comparison to those taught in other upper secondary schools (e.g., SMAs) and different textbooks are used. Science laboratories and equipment are lacking. The pattern of practice teaching varies by location, ranging from nil to a maximum of two weekly periods in the second year increasing to four periods in the third year. The courses of professional education tend to be irrelevant in that (a) the curriculum allows no time for prospective teachers to learn how to prepare inexpensive teaching aids from local material. The lack of this in the SPG teaching program undoubtedly contributes to the lack of teaching material in primary schools; (b) the curriculum does not instruct prospective teachers in modern teaching techniques, such as multi-class teaching (para 80) or micro-teaching; and (c) the curriculum is devoid of emphasis on teaching in rural areas, although most graduates must teach there.

119. The SPGs have tended to be isolated institutions. They are isolated from other upper secondary schools in terms of common courses and they have been isolated from in-service teacher training. Its graduates rarely return for advice. Priorities for future action include: (a) curriculum revision to include more practical teaching, (b) staff training, (c) consolidation of small schools into viable units, (d) integration with other secondary schools; and (e) linkage with in-service training.

120. Senior Secondary Technical Teachers Schools (STM(I) grades 10-12). Seven STM(I)s in Indonesia graduate about 1,000 students annually to become technical teachers for the junior secondary schools (ST)s. Since the STs are to be phased out, enrollments in STM(I)s are declining and STM(I)s will be closed or converted to STMs. The well-equipped STM(I) at Bandung where the quality of training has been excellent will be absorbed by the Technical Teacher Training Faculty (FKIT) of the Institute of Education (EKIP). Less than 20% of the graduates enter teaching, the majority joining industry where salaries are substantially higher. A few proceed to FKITs for further training. Since most graduates do not enter teaching, the policy of phasing out the STM(I)s appears to be correct.

121. Other Vocational Schools. The senior social workers school (SPSA, grades 10-13) provide 4-year courses to train youth leaders and social workers in both urban and rural areas. Graduates, although small in number (about 300 per annum) have demonstrated their ability to become good youth

leaders and social workers. In addition about 60 upper secondary sports schools (SMOA) enrolled approximately 9,000 students in 1971. These schools primarily train students to become instructors of physical education.

New Types of Secondary Education

122. Development Secondary Schools (SM(P), grades 9-12). Eight Development Secondary Schools were established in 1971 to bring education closer to development (Chart 8385). These eight schools, each operated by a different IKIP, were to have been the testing ground for a new structure between 1972-74, followed by a ten-year period of nationwide introduction of Development Schools between 1974-84. A further 32 Development Schools were built in 1973, but the overall schedule of implementation was redrawn in May, 1973, to allow for a thorough evaluation of this type of school prior to further expansion.

123. The initial decree establishing Development Schools (Decree No. 172 of 1971) set out their philosophy and methods but did not provide specific guidance on curricula and organization. These were determined by each of the controlling eight IKIPs and, as a consequence, the initial eight Development Schools had little in common. The Office of Educational Development (BPP) has now assumed direction of the pilot project and is establishing common principles and aspects on which local variations may occur as a basis for subsequent evaluation.

124. The essential characteristics of the Development Secondary School are:

- (a) comprehensive education: all students receive both pre-vocational and academic instruction in the same institution. Practical work includes commercial studies, industrial arts and home economics;
- (b) elective subjects: students may choose several courses annually according to their own interests;
- (c) credit system: students are awarded credits for successfully completing courses; 120 credits are required for graduation;
- (d) "continuous progress": students are supposed to be able to proceed at their own pace and may complete a course in less than the usual time;
- (e) guidance counselling: students are to be given vocational information and advice; and
- (f) service to the community: facilities are to be used for late afternoon and evening classes for the out-of-school population. Credits and certificates are to be given.

Flexibility will be allowed so that curricula can be adapted to local conditions. Several basic decisions have not yet been made, e.g., the proportion of the timetable to be devoted to practical courses and whether "streams" will be adopted.

125. It is too early to evaluate the success of the program but it may answer the problem of fragmented structure. If successful, it would provide a more balanced education for students and prepare the majority better for entrance to the labor market. However, the experiment is also complex. Schools will be larger and scheduling will be difficult, particularly with "continuous progress." Headmasters should have special instructions in coping with their new tasks. The schools have so far enjoyed lavish facilities and equipment and generous staffing ratios which, despite increased oil revenues, could probably not be afforded by the country on a large scale. To be practical, the pilot project should be implemented under more austere conditions. Moreover, careful accounts, presently lacking should be kept on expenditures by item, costs per student and costs per graduate. The pilot experiment allows scope for testing several other innovations, e.g., reduction in class periods/week, introduction of all full-time teaching and use of larger than normal class sizes.

126. Development Secondary Technical Schools (STM(P) grades 9-12). These schools, in parallel with the Comprehensive Development Schools, are an integral part of the experiment with education structure. They offer 4-year courses covering grades 9-12 in comparison to the 3-year courses from grade 10-12 in STMs. A pilot group of twelve schools, of which seven are technical and five technical-agricultural, will be established. Three technical schools, already in operation, are well-equipped for seven departments: civil, mechanical, electrical and chemical engineering, geology and mining, textiles and agricultural products processing. The practical content is 60% of instructional time in the first two years of schooling and 40% in the following two years, with an average of 50% over the four years, higher than the 36% practical content in the proposed new curriculum for STMs supported by technical training centers and much higher than the 8% in the existing STMs. Only the curriculum for the textiles course was drafted with industrial advice: linkage with industry appears to be weak and the availability of well-trained technical teachers is uncertain. There is no concrete staff development plan.

127. Students may terminate at grade 10 after two years of training and join industry as craftsmen or continue for another two years to become junior technicians. The first group of students who have completed a 4-year course will enter the labor market in 1976. The government intends to evaluate the scheme at that time and decide whether STM(P)s will be expanded or discontinued. There is also a proposal to extend the 4-year training by two years to enable those successful in mathematics and science to reach senior technician level.

Unresolved Issues

128. The government intends to consolidate the structure of secondary education and the experimental program of comprehensive Development Schools should provide a long range model to achieve this aim. More thought needs to be given to means and timing of rationalizing the existing small, single purpose schools. Basic structural questions e.g., length of secondary education, still have to be decided. Before adding laboratories and workshops to existing secondary schools there needs to be a thorough study of the physical, educational and financial implications of consolidation.

129. In addition to structural questions, the following areas require further study and action:

- (a) ways and means to rationalize the size of schools; larger schools would have economy of scale and therefore would make better use of funds;
- (b) means to increase the number of full-time teachers, their salaries and their productivity (para 67);
- (c) ways to develop curricula using a permanent agency staffed by specialists;
- (d) developing, producing and distributing inexpensive teaching materials and aids; and
- (e) a scholarship program to facilitate the education of talented poor children.

F. Higher Education (grades 13-17)

130. Summary. There are four overriding problems 1/ in higher education, namely:

- (a) Relevance. Although there appear to be no major shortages of graduates at the professional level, except in accountancy, the output of sub-professionals falls short of effective demand, particularly in engineering. Only 140 technicians were

1/ The principal source of the following observations is the Level II Report, Higher Education in Indonesia (March, 1973) of the National Assessment Study supplemented by mission observations.

graduated in 1972 compared with about 700 engineers. At the two levels of professionals and technicians there is need for persons with more practical training, with skills better related to manpower needs and with greater ability to analyze problems and apply their skills.

- (b) Lack of Equitable Access. The direct cost of higher education (about \$120 p.a. including fees and living expenses) effectively bars the education of able children from poor families. This contention is supported by comparisons between the adult population and parental background of students. Farmers make up 60% of the employed labor force but their children account for only 26% of the students in higher education. Children from families with professional or managerial employment, 2% of the work force, account for 20% of the enrollment in higher education. There is no program of scholarships or bursaries for able but impecunious students.
- (c) Low Quality. Enrollments more than quadrupled between 1959 and 1965 but this represented an over-expansion in terms of academic resources, inadequate entrance qualifications, and manpower demand. Qualified instructors have been spread thinly. As a result, half the staff in public institutions also teach in private institutions. Overall, about one in six staff has less than a full degree, including a third in recently established universities and more than one fourth in IKIPs. Teaching methods, stressing memorization of lecture notes, are not conducive to effective learning. Greater provision is required for teaching facilities, books and materials.
- (d) Inefficiency. Much of the resources spent on higher education are wasted. About half the secondary school graduates (47%) qualify for entrance to institutions of higher education; however, nearly half of the entrants drop out in the first year and only 10% - 40% (depending on institution and faculty) complete the full five-year course. Cost is the major cause of dropout but inadequate screening of applicants is also responsible. Moreover, duplication is prevalent. Departmental academies often overlap the functions of universities. Self-contained faculties frequently duplicate courses and have duplicate administrative services, e.g., fee collection. IKIPs give identical courses to universities and private institutions often provide the same courses as neighboring institutions.

131. Structure. Higher education is organized on a pattern characteristic of the Dutch colonial period: a five-year degree program culminating in the sarjana (or insingur for engineering students) with an intermediate stage for the sarjana muda awarded after three years. There are three major types of institutions: academies, institutes and universities. Academies, three-year institutions granting the intermediate degree, usually

consist of a single faculty, within which there are possibly individual departments. Institutes usually span the full five years of higher education and consist of a number of faculties within one professional field, e. g., teacher training institutes, or IKIPs or a number of professionally related fields, e. g., agricultural or engineering professions. Universities include different semi-autonomous faculties in the professions, sciences, social sciences and the humanities.

132. Administration. Institutions of higher education are administered by several agencies: the Ministry of Education controls public universities and institutes through its Directorate of Higher Education. Faculties traditionally enjoy a considerable amount of autonomy within universities in terms of admitting students, recruiting staff, determining curricula, charging fees and awarding degrees. Public academies traditionally have been associated with particular government departments by which they have been administered and funded. However, the government now intends to absorb all academies into universities except where the academies give technical courses not provided by any university or play strictly an in-service training function: in the latter case they would be nominally controlled by LAN and directly controlled by the department concerned. Public Institutes of Islamic Religion (IAIN) are controlled by the Ministry of Religious Affairs. The Ministry of Education maintains some control over private institutions through the Coordinator for Private Higher Education. The government recognizes private institutions according to level of quality in three ascending stages, namely: (a) registered (terdaftar), (b) recognized (diakni) and (c) equivalent (disamaken). Private universities may enroll students, collect fees and award diplomas without government supervision.

133. Enrollments. Complete data are unavailable and estimates are unreliable on institutions and enrollments in higher education, particularly the private sector, but about 260,000 students were enrolled in 1972. Public institutions accounted for about 60% of known enrollments. The distribution of enrollments among the three major types of institutions was as follows: universities, 62%; institutes, 18%; and academies, 17% (Table 28).

Table 28: ESTIMATE OF INSTITUTIONS AND ENROLLMENTS
IN HIGHER EDUCATION, 1972

<u>Institutions</u>	<u>/a</u>	<u>Institutes</u>	<u>/b</u>	<u>Academies</u>	<u>Other</u>	<u>/c</u>	<u>Total</u>
<u>Institutions (Total)</u>	(109)		(31)		(197)	(28)	(365)
Public /e	39		14		120/d	7	174
Private	70		17		77	21	191
<u>Enrollment-000s (Total)</u>	(160)		(40)		(45)	(7)	(252)
Public (thousands) /e	106		35		25/d	2	162
Private (thousands)	54		5		20	5	90/f

- /a Including 13 IAIN enrolling 18,000 students (all public). Islamic institutes are considered universities because of the breadth of curricula.
- /b Including IKIPs, IPB, ITS, ITB.
- /c Including colleges and religious schools.
- /d Level II Report, Higher Education in Indonesia (March, 1973) p. 23 estimates 128 government academies enrolling 25-30,000 .
- /e Registered, recognized and equivalent only; fully private are excluded.
- /f The above-mentioned report estimates (p. 24) an enrollment of 138,000 students in all types of institutions. Another National Assessment Report, Education, Manpower Development and Employment in Indonesia (October, 1973) uses an estimate of 100,000. These estimates are the product of crude indicators and may inflate the figures.

Source: See Annex 3.

Data on enrollment increases are also difficult to compile. According to the National Assessment, total enrollments grew from about 60,000 in 1959 to more than 250,000 in 1965, representing over-expansion in terms of pressure on available academic resources, available qualified entrants and manpower needs. Even with this marked increase in enrollments, more than half of the secondary graduates who apply for admission to universities cannot be admitted owing to lack of space.

Academies (grades 13-15)

134. Technical Academies are intended to produce middle-level manpower. In eight government technical academies, three year courses in civil, electrical, mechanical, mining and chemical engineering and architecture, geology and metallurgy are offered to senior secondary school leavers after an entrance examination. In 1971, the enrollment was 6,700 and the output was only 140 at sarjana muda level due to dropouts, low internal efficiency and poor quality entrants who were unselectively admitted. The Technical

Academy at Yogyakarta with over 2,500 students is the largest but enrollment is declining because of the government policy to phase out public academies. Information on the enrollment and courses offered in private academies is unavailable. One private academy (ATMI at Solo) offers good quality courses but is used mainly for retraining STM graduates for employment as craftsmen and therefore is not a true post-secondary, i. e., technician training institution. The public academies have difficulties in recruiting staff because of low salaries paid in relation to private enterprise. About 90% of the teachers are part-time and most courses are given in the evening. Funds are insufficient, equipment is almost non-existent and the quality of training is poor. As a result, graduates find that employment prospects are poor. In short, there seems to be no satisfactory industrial technician training in Indonesia.

135. The government has decided to phase out all public academies by 1975 and delegate the responsibility of training sub-professionals to the engineering faculties of universities. A polytechnic at the Institute of Technology, Bandung, is to be assisted by the Swiss Government but will produce tool and die makers and maintenance mechanics and not train subprofessionals. The Institute of Technology, Surabaya, is to start technician courses for those who have failed in the Common Engineering Year I examination but this is usually an unsatisfactory starting point for technician training because the students should have followed a course considerably different from engineering courses. In any case, the grouping of the two levels of training (professionals and sub-professionals) in a university is rarely satisfactory.

136. The stock of industrial technicians is roughly 100,000. The annual demand for new intake to the labor market is, therefore, about 8,000 (3% per annum for attrition and 5% for expansion) compared with a supply in 1971 of 140: the present output of engineering sub-professionals falls substantially short of demand. Even assuming that only one third of engineering technicians need institutional training, the present output of engineering sub-professional falls substantially short of demand. The gap is now partly filled by using professionally trained engineers, expatriates or by promoting senior craftsmen. New institutional arrangements need to be found to train properly the required technicians.

137. Agricultural Academies: Ten post-secondary agricultural academies were established during the last decade by the Ministry of Agriculture, mainly as "staff training centers". The four academies (two in agriculture and two in fisheries) which still exist enroll about 600 students and graduate about 120 per year (70 in agriculture and 50 in marine fisheries). These academies recently began awarding the intermediate degree at the end of the three-year course but this qualification is now losing popularity in comparison with full degrees awarded by faculties of agriculture. Academy students face strong competition for jobs from full degree holders and so the government has decided to phase them out except the Fisheries Academy, Jakarta, and convert them into National Training Centers for senior staff training. The Fisheries Academy new curriculum lays considerable emphasis (60%) on practical training in both the major fields of fishing techniques and processing of sea products. It has a student enrollment of 150 (output of 50 p.a. with a faculty of 51 and the vast majority of its graduates find employment in private enterprise.

138. Commercial Academies. Ten government academies enrolled 5,000 students in 1971. Courses include accounting, secretarial skills and banking. Teaching of foreign languages, especially English, is emphasized. The total output in 1971 was about 450 and graduates had little difficulty finding employment. The government has decided also to phase out the commercial academies within a uniform policy of phasing out all public academies but, in fact, commercial academies seem to have been successful in meeting their objectives. In the meantime, private academies have been growing rapidly to meet the demand from private enterprise. Rather than closing down the academies, the establishment or expansion of commercial academies should be encouraged provided there is adequate government control.

139. Communications and Hotel Training. The Ministry of Communications operates specialized courses in: the Railway Institute, Navigation Institute (at Semarang and Ujung Pandang), Civil Aviation Institute, Post and Giro Institute, the National Hotel Institute, and three academies, namely the Merchant Marine Academy, Telecommunications Academy and the Academy for Meteorology and Geophysics. Most trainees are civil servants except in the Merchant Marine Academy and the National Hotel Institute. Duration of courses varies from two months to three and a half years.

140. The National Hotel Institute at Bandung has 140 trainees, all from SMAs, 25 staff and is well equipped. It lacks a training hotel but there is a site for it near the Institute. There were 3,000 applicants in 1973. Employment prospects are good, all the trainees being sponsored. House-keeping, reception and catering are taught at middle management level. There were about 300,000 tourist arrivals in 1973, growing at a rate of about 30% per annum. The nights per tourist average about four, based on three for vacationers and five for business visitors. The number of international standard tourist hotel rooms needed is therefore about 4,000 based on an occupancy factor of about 0.85. Staff requirement based on employee/room ratio of 2:1 would be about 8,000 and the annual demand for attrition at 3% and expansion at 15% (a conservative estimate) would be about 1,400. The expansion of the Institute or the establishment of additional institutions is therefore necessary.

141. Industrial Academies. The Ministry of Industry operates academies to train middle level manpower for selected industries, their vocational training and research programs 1/ being coordinated by the Institute for Industrial Research and Training (IPPI). Full-time courses at post-secondary level are offered in nine Higher Technological Schools (STMA) (grades 13-15),

1/ Research programs are carried out in eight institutions, namely Industrial Research Institute, Chemical Research Institute, Materials Testing Institute, Textile Technology Institute, Cellulose Research Institute, Ceramic Research Institute, Leather Research Institute and Batik and Handicrafts Institute.

comprising namely six Industrial Technology programs and three Chemical Engineering programs. Enrollment in 1971 was 1,500 students but other data, such as output and employment figures, are not available. Full-time courses are also given at the five Academies of Industrial Technology, Textile Technology, Chemical Analysis, Leather Technology and Management and the two Institutes of Ceramic and Batik and Handicrafts, with a total enrollment of 2,200 in 1971; the Academy of Management accounted for about 60% of the total enrollment. The schools are well equipped and training standards are generally high with adequate budgetary allocations and good liaison with industry. Overlapping occurs with the Ministry of Education and Culture on technician courses and with the Ministry of Manpower, Transmigration and Cooperatives on management courses. The present capacity and output of this Ministry's institutes must be taken into account when training of sub-professionals is being planned by the Ministry of Education and rationalization of management programs should be considered.

Universities and IKIPs (grades 13-17)

142. Universities range from the large, long established institutions in Java, such as Gajah Mada University (GMU) founded in Yogyakarta in 1949 and which enrolled 16,500 students in 1972, to small, recently founded universities in the outer provinces, e. g., University Mulawarman, East Kalimantan, established in 1962 and enrolling 300 in 1972. Most provinces have a public university. Five universities 1/, all located in Java, are dominant in their influence on, and in the quality of, education provided. These institutions were designated as Centers of Excellence in 1970/71 to assist other universities in quality improvement during Repelita I.

143. IKIPs. In 1972 11 public and 17 private teacher training institutes (IKIPs) enrolled about 30,000 students (5,000 in the private IKIPs). These institutes became autonomous from universities in 1964 and prepare lower secondary teachers (sarjana muda level) and upper secondary teachers (sarjana). In addition, 13 public universities have Faculties of Education and Teacher Training performing essentially the same purpose. IKIPs normally group students in five faculties: science, languages, social science, technology (FKIT) and pedagogy. A consortium, established in 1970, has standardized curricula, trained faculty, written and translated relevant textbooks and has commenced a pilot experiment at the IKIP in Yogyakarta to reduce the length of training for sarjana to four years. The following paragraphs apply equally to IKIPs and universities.

144. Administration. The university and IKIP Rectors are directly responsible to the Directorate of Higher Education (state universities) or to the governing board of the sponsoring foundation (private universities). The university senate, composed of full professors and deans, makes recommendations on matters of faculty promotion. Each faculty has its own administrative apparatus, presided over by a dean elected from within that

1/ ITB, IPB, University of Indonesia, GMU, University Airlangza.

faculty; the high degree of autonomy of the faculty is particularly marked in the senior Indonesian universities. Student activism is generally strong, primarily manifested through elected representatives, by department and faculty, in a university-wide student government structure.

145. Enrollments. Annex 13 presents enrollment by field of study and grade. Teacher training in IKIPs enrolls the highest proportion of students in university-level institutions (26%) followed by social science and humanities (23%), engineering (16%), law (13%), medicine (10%), agriculture (7%), and science (3%). The science share is low compared with other Asian countries. Enrollments tend to be bunched at the stages (Years 3 and 5) in which degrees are awarded, the third and fifth years, as students repeat courses. Annex 14 on IKIPs illustrates the pattern.

146. Unequal Access. One of the major problems of higher education is unequal access, enrollment figures varying with socio-economic status of the family and area of residence (e.g., urban/rural). Table 29 illustrates the unequal access of children whose parents have not received much education.

Table 29: EDUCATIONAL LEVEL OF PARENTS OF STUDENTS
IN SECONDARY AND HIGHER EDUCATION, 1971/a
(percentages)

	<u>None</u>	<u>Completed Primary School</u>	<u>Completed Secondary School</u>	<u>Up to University Graduation</u>	<u>Other</u>
Fathers of University Students	6	41	31	17	5
Fathers of Secondary School Graduates	31	38	25	6	-
Compared with:					
Males over 35 years in General Population (1961)	69	29	2	0	0
Employed Workforce (1965)	79	16	4	0	1

/a Higher Education in Indonesia (March, 1973), p. 70.

Although uneducated males made up about 70% of the population over 35 and 80% of the employed workforce, only 6% of the parents of university students came from this group. Farmers accounted for 60% of the labor force, yet their children made up only a quarter of the students in higher education; children with parents in administrative and managerial occupations represented 20% of the students in higher education but just 2% of the labor force. 1/

1/ Higher Education in Indonesia, p. 78.

147. Staff. In terms of staff at public institutions, the Assessment found that one half of the senior staff and one quarter of the junior staff teach in other public institutions and 60% of the senior staff and 50% of the junior staff teach at other private institutions. 1/ Only a fourth of the staff in public universities and a third of the staff in private institutions hold full-time teaching positions in only one institution. The Assessment stated that this widespread practice of multiple jobs "... casts into serious doubt the ability of the staff to conduct effectively teaching in any one of the institutions in which they teach." 2/

148. Staff members are often called upon to teach a wide range of subject matter. More than half of those interviewed in the Assessment taught three or more subjects. A high proportion reported that they experienced difficulty in teaching the full range of subject matter they instruct, ranging from less than 25% (medicine and economics) to 56% (science), 58% (IKIPs), and 74% (agriculture). Moreover, the Assessment found that "a significant proportion of staff in all institutions except the public leader (pembina) faculties hold a sarjana muda degree - a level which is often regarded as incomplete". 3/ This ranged from 5% among pembina faculties to 28% in IKIPs, 30% in recently established public universities and 37% in registered private universities. The National Assessment also found that about 35% of teaching staff in higher education have not engaged in any research and only 40% have researched two or more problems. These data suggest that there are substantial variations in the quality of teaching among the range of universities in Indonesia.

149. Efficiency. Although a comparatively high percentage of secondary graduates enter higher education (47%, Annex 1), nearly half (45%) drop out during the first year, ranging from 34% of students in agriculture to 70% in science. Cost is one reason; the average cost for a student to attend higher education was approximately Rps 50,000, or \$120 p.a., in 1971, roughly 50% above the per capita income. There is no system of public scholarships. Even though the introduction of SPP may reduce tuition fees for poorer families, tuition

1/ Ibid.

2/ Ibid.

3/ Ibid.

represents only about one-fifth the total cost of a student's maintenance. 1/ Low academic ability and poor selection were other contributing factors to early dropout. Performance on entrance tests administered by each faculty of each university governs the admission of students. High failure rates suggest that these examinations are not good indicators of future success; in some cases standards set for the entrance level may be too low.

150. Progression from one year to the next is based on the requirement that a student passes all basic subjects. A student who fails one or more subjects is required to repeat at least the failed subjects before he can study subjects in which he has passed at the next level. Most faculties allow a student up to three repetitions of each course before he is excluded. Repetition occurs most frequently in the first, third and fifth years of study, the latter caused by the thesis requirement. The cumulative effect of this repetition is to stretch out the number of years it takes to graduate and place additional financial burden upon students. Compared with minima of three and five years for the intermediate and full degrees, respectively, the average intermediate graduate spends five years and the average full graduate from seven to nine years. Average completion rates for sarjana (percentage of initial entrants who graduate) ranged by institution from 13% (private registered universities) to 40% (leading faculties of public universities) between 1967-71. Rates also varied by faculty. Completion rates at full degree level in agriculture have been only 10%. Science and mathematics faculties have graduated a significantly smaller proportion of enrolled students at intermediate degree level than other programs (26% in science compared with 56% for engineering, 67% for agriculture, and 31%-38% for other faculties). In IKIPs between 1966-70 only a third of the third year students and a fourth of the fifth year students received their respective degrees. 2/ From a total enrollment of 28,000 in 1970, the nations 11 public IKIPs produced only 1,100 graduates.

151. Another indication of inefficiency is low faculty productivity. This is primarily a problem at public universities where the full-time faculty teaching load is typically one lecture course per term. This results in low faculty:student ratios yet teaching is done overwhelmingly through the lecture

1/ Some fees are extracted from students by faculties for which no accounting is given. For example, the 225 entering students in the Faculty of Economics at GMU for 1973 contributed "voluntarily" a total sum of Rp 4.5 million (an average of Rps 20,000 per student) which was in addition to the SPP and did not appear on the statement of University income. Moreover, the introduction of the SPP has had two undesirable side effects: (a) university admission has been biased in favor of students whose parents can afford to pay larger amounts of SPP and (b) as university faculties depend increasingly on student fees to supplement teacher salaries the faculties tend to admit more students than are actually qualified.

2/ National Assessment Study, "Quantity and Quality of Teachers in Indonesia," Volume 3, p. 79.

method. From the point of view of the individual faculty member, output is reasonably high because the same individual may hold both full-time (tetap) status, for which he is paid on the civil service scale and part-time (tidak-tetap) at the same institution, drawing extra compensation for teaching courses in other faculties than his own. He may also teach part-time (honorar) at a different institution for which he receives extra compensation at yet a different rate. Although the present system of multiple jobs grew up as a natural response to an earlier emergency situation, that is, the shortage of experienced teaching staff, it now persists because of economic factors. Since it has not proved possible for the government to raise the basic compensation level for full-time status above minimal civil service levels, the multiplicity of jobs enables the teacher to achieve an adequate level of income. From the institution's point of view lowered efficiency and teaching effectiveness results.

152. Patterns of administration and management are among the causes of internal inefficiencies. Faculties at the larger universities tend to offer too many courses with the result that often too few students enroll; better management both by the faculty deans and university rectors could bring this under control. Faculties tend to duplicate resources. Identical under-subscribed courses may be given by two faculties. If students could take courses across faculty lines, one course with larger enrollment would suffice. At Hassanudin University, there are three elementary physics laboratories maintained by the science faculty, the engineering faculty and the medical faculty. Rationalization of a university's financial resources and expenditures will be virtually impossible so long as individual faculties insist on collecting student fees, some of which are "unofficial" and not reported and as long as external funding agencies complete contractual arrangements with individual faculties or with the Directorate of Higher Education and not with the central university administration.

153. Teaching Programs. Students apply for admission to particular faculties. Entrance requirements of individual faculties often conform to the different types of secondary schools, e. g., students from SMEA cannot enter science based faculties, students from SKKA can enter only humanities and education. The effect of this system of entrance requirements is to maintain the streaming imposed on students on entry to secondary schools. As the Assessment stated, "for a large proportion of students in high schools, the opportunity to enter university or a particular discipline is decided at the end of primary school." 1/ Once admitted, a student must follow a fixed program of studies within the faculty designed to provide the specialized knowledge and skills required for subsequent practice of the profession. There is usually no provision for study across faculty lines, i. e., law students do not study economics. This pattern of streaming

1/ Higher Education in Indonesia, p. 122

assumes that there will be a close relationship between a student's discipline of study and the occupation he eventually assumes. However, in Indonesia, as elsewhere, such a relationship is unusual and many students take up work in other occupations. 1/ A greater breadth and flexibility needs to be introduced as well as a delay in the time of specialization.

154. Teaching in Indonesia traditionally involved individual study by students supplemented by lectures from the professor. However, under pressure from student bodies and the lack of written materials, this practice has given way to almost exclusive dependence on the lecture and mastery of lecture notes as the sole media of instruction. The lecture method is most frequently used without giving students any opportunity to question points or to discuss topics. Moreover, attendance is frequently low, averaging about 75% of registered students. Four faculties (science, agriculture, medicine and engineering) give practical work (e. g., laboratory, workshop) to their students, usually 3-4 hrs/week, but about 40% of engineering students reported during the Assessment received no practical work at all. Instructional materials are insufficient.

155. Agricultural Education. Rapid expansion of agricultural faculties during the 1960s has stretched the limited number of qualified staff and restricted budgets and has contributed to poor quality of instruction. Teaching programs have not been well attuned to research, extension and the solution of practical field problems, notably in the provincial universities outside Java. These institutions have been unable to supply the quantity or quality of agricultural graduates at the sarjana level required for regional agricultural development.

156. Twenty-five of the 40 universities in Indonesia have a total of 49 faculties of agriculture and related sciences including: Agriculture, 21; Animal Husbandry, 15; Veterinary Medicine, 3; Forestry, 4; Fisheries/Biology, 4; and Agricultural Technology, 2. All faculties prepare students for the sarjana muda degree but only seven faculties prepare for the sarjana degree. Four of these seven faculties depend on the Institute Pertanian, Bogor, (IPB) and Gajah Mada University (GMU) for part of the sarjana training.

157. All faculties together enroll about 10,500 students with an annual intake of about 3,400 and an annual output of about 1,500 intermediate and about 300 full graduates. Graduates have been generally low in quality (reflecting teacher qualifications and facilities) and have been unevenly distributed geographically. Agricultural faculties in Java produced 1,500 graduates at both levels between 1950-70; the corresponding number for the

1/ Graduates of IKIPs especially tend to take up work in occupations other than teaching. The attrition between graduation and entrance to the teacher force is partly the result of the embargo on hiring new full-time teachers but also reflects the misuse of teacher training as a substitute for university education.

six major provincial (non-Java) faculties was only 200. Faculties of Agriculture and Animal Husbandry account for about 65% of the enrollment. In agriculture, junior 1/ (non-pembina) faculties account for 85%, of the intake but only 21% of the output. The drop-out rate average about 50% from first to second year (5%-10% at IPB and 50%-70% at junior faculties) and about 20% in subsequent years. The repetition rate varies from 20% in the first year to 10% later. University officials have estimated that the average completion rate for the full degree is 10% of intake and the average duration of studies is 6 to 8 years. Some faculties with an annual intake of 50 have produced only 20 intermediate graduates over the last ten years due to (a) high rates of dropouts and repeaters, (b) the time required to make up deficiencies in basic sciences because of a weak secondary school system, and (c) lenient admission policies.

158. At present the majority of professional agriculturists with post-graduate qualifications is employed by universities. These are unevenly distributed among institutions with IPB having about 50 Ph.Ds and 25% foreign trained staff on its faculty. The professional staff of IPB alone exceeds the total professional staff of the 14 agriculture research institutes in Indonesia. Staff salaries are low (ranging from Rps 10 to 30 thousand pm). Most staff, even full-time, have to seek additional jobs to supplement their income. The full-time teacher:student ratio varies from 1:4 at IPB, where research and extension staff also participate in teaching, to 1:15 at other faculties. The ratio full-time:part-time teachers varies from 1:1.5 at IPB to 1:5 at other faculties.

159. Almost all faculties suffer from inadequate funds and are deficient in physical facilities. Budgetary provisions barely cover salaries; investment on educational materials has low priority. Specialized facilities for research work, equipment laboratories and field stations are almost exclusively owned by the agricultural research institutes with which the universities have little contact.

160. Courses are unnecessarily subdivided; curricula lack basic science and practical training. The Consortium of Agricultural Sciences 2/ has now prescribed 'minimum curricula' for the full degree which eliminates many of these weaknesses. Since 1972 IPB has operated a four-year full degree program to be followed by a two-year master's degree course in 1976. However, in the absence of qualified teachers and lack of physical facilities, most other faculties would be unable to implement these curricula effectively. For example, twenty-five faculties do not have sufficient instructional farms on which to provide the prescribed field practice; four faculties have none.

1/ Hereafter 'pembina' faculties will be referred to as leader or senior faculties. Non-pembina faculties will be designated as 'junior' faculties.

2/ An advisory body to the Director of Higher Education in the Ministry of Education.

Staff and student participation in research and extension has been nominal. Most students graduating from these faculties are without experience in practical field work and thus have been unaware of the needs of the farmers whom they are supposed to serve, have been unable to communicate modern techniques to farmers and to solve practical field problems.

161. Faculties of Agriculture carry out little research and tend to be isolated from recent agricultural developments. Only a few have research as a separate item in their budget and, where they have, the average research support does not exceed US\$5,000 per year. All agrocomplex faculties together have much less support than IPB alone (US\$500,000). Less than 5% of the research funds of the Ministry of Agriculture are allocated to universities, with 85% done by research institutes and 10% by other institutions. The research which is conducted by agriculture faculties tends to be elementary, unsystematic and often obscure. Individual faculty members may develop contacts with outside agencies to work on specific research projects but the funds, and consequently the direction, remain with the funding agency. Research collaboration between faculties and research institutes is nominal, partly because most agriculture faculties (except those of IPB) are situated away from research institutes (14 situated at Bogor and 7 at Jakarta).

162 The proposed Agency for Agricultural Research (para. 206) should help Indonesia to achieve a coordinated system of agricultural research featuring more use of agricultural faculties and better cooperation between the universities and research institutes. The faculties of agriculture at IPB and GMU have been designated by the government as leader faculties to help improve other faculties by (a) the affiliation of junior faculties to IPB or GMU, (b) staff exchange, (c) staff upgrading through summer courses, (d) improvement of curriculum and introduction of education reforms, (e) development of collaborative research programs, (f) consultant services, and (g) program evaluation. The pace of the program has been slow and its effectiveness has been limited due to shortage of operating funds, equipment and experimental farms.

163. The program of leader faculties is coordinated by the Consortium of Agricultural Sciences which activities include: helping agro-complex faculties in curriculum planning and development, upgrading of teaching staff, organization of package courses (including staff, equipment and teaching aids) summer schools and seminars, assessment of the needs of developing faculties and evaluation of educational standards. The Consortium has carried out an evaluation of agro-complex faculties and has placed them into four categories: (a) to be developed into graduate faculties, (b) to be developed only as undergraduate faculties, (c) to be merged with other faculties of the university, and (d) to be closed down. Government action to implement these recommendations has been weak.

164. At present eighteen foreign countries and agencies are extending assistance to institutions of higher agricultural education and research. These include USA, Australia, the Federal Republic of Germany, Japan, Netherlands, Ford Foundation and UNDP.

165. Business Administration and Accountancy Education. Twentythree universities have economics faculties, but only two, Brawijaya and Nusa Cendana, give business administration and public administration courses none offers a specialized program to train professionally qualified accountants. Information is not available on the distribution of enrollment and output within the 19,000 total enrollment in Social Science Faculties but both the Employers Association and proprietors of industry voiced acute shortage of qualified accountants and business managers at all levels. Out of 750 qualified accountants in Indonesia, only 130 are working in commerce, industry and private practice. There is urgent need for the immediate establishment of an Institute of Accountancy or accountancy courses in selected existing universities and an expansion of business administration education.

166. Engineering Education. Sixteen public higher education institutions in Indonesia offer engineering courses: total enrollment was 13,800 students in 1972. Private institutions enrolled about 7,500 students in the same year. The two most important public institutions, accounting for two-thirds of the public engineering enrollment, are the Institute of Technology, Bandung (ITB), with 6,000 students and 550 teachers in 1973 in 21 departments, and the Institute of Technology, Surabaya (ITS), with 3,200 students and 230 teachers in 14 departments. The small output of 400 and 40, respectively, in 1972 indicates their low internal efficiency, mainly due to weaknesses in mathematics and especially in science at the secondary level. Graduates however enjoy good employment prospects. Engineering faculties encounter difficulties in recruiting well qualified staff, particularly with industrial experience, and must depend excessively on part-time staff which adversely affects the quality of teaching. Theoretical course content is satisfactory but the quality of practical training is low mainly due to shortage of equipment 1/. Links with industry exist and are satisfactory for the civil engineering faculties, but should be strengthened for other faculties. The total output estimated at about 700 per annum for all public institutions seems inadequate to meet the requirements for skilled manpower at this level. However, the output could be substantially increased without an increase in total enrollment by improving internal efficiency.

167. Technical Teacher Training (FKIT) (Gr. 13-15, 13-17). Of the eleven public Institutes of Education (IKIP), eight operate technical teacher training faculties (FKIT). Six operate three-year courses for the intermediate degree and two, at Yogyakarta and Bundung, operate 5-year courses for the full degree. Total enrollment in 1972 was 3,500 but the output at the intermediate stage was less than 300, indicating a low internal efficiency. About 30% of the graduates became teachers; the majority joined industry. Equipment is negligible but students do a varying amount of practical work

1/ The Asian Development Bank is considering financial assistance for improving the engineering faculties of ITS, the University of North Sumatera and the Hasanuddin University.

in neighboring engineering faculties or STM(I)s and therefore are trained to a varying degree in basic skills. Staff shortage is acute; 90% are part-time and many classes are therefore held in the evenings. The FKITs face the same problem as STMs in regard to the acute shortage of technical teachers and especially those with industrial experience.

168. There is no shortage of applicants; the ratio between applicants and those accepted is about 3:1. About 80% of the 760 new students in 1973 were from STMs, 10% from SMAs and the rest from other sources, such as teachers in STs. No recruits from industry are foreseeable since the salaries offered by private enterprises are high. However, the students recruited from STMs are ill-trained and therefore have an inappropriate background for FKITs. Until there is a substantial improvement in the quality of training in STMs, the quality of FKIT graduates cannot be expected to be high. On the other hand, the quality of training in STMs can hardly be improved without well-trained technical teachers. This problem is now being resolved in part by improving the quality of training in supporting STMs supported by TTCs and by the establishment of STM(P)s but an additional effort is needed by improving existing FKITs or establishing new, well-equipped, technical teacher training institutions. Arranging industrial experience for FKIT students would improve their quality of training but it might also accentuate the already high loss of graduates to industry. The total capacity of technical teacher training needed in Indonesia depends upon the government policy regarding the consolidation of existing STMs, how many new STM(P)s will be established and projections of STM enrollments. Since these are uncertain at present, it is difficult to plan for the future.

169. University Service Schemes. The Study Service Scheme (KKN), is a program which involves fourth year university students who identify, prepare, and evaluate community development projects under the supervision of professors and live for six months in a village to assist the people with implementing the project. Some examples of these projects include irrigation, medical assistance, health education, rat eradication and the introduction of new crops such as cloves and limes. The Directorate of Higher Education allocated Rps 750,000 to each of 13 participating universities in 1973. These funds, used to pay student allowances during their stay in villages, were supplemented by contribution from local governments. In 1973, 430 students participated in the scheme.

170. Butsi, the Indonesian Volunteer Service, is an autonomous government program of volunteer service in which recent university graduates work in villages for two years on a subsistence salary. Started in 1971, this program has been successful in helping to stimulate local development. The success of the scheme can be attributed to the careful initial selection, a two-month initial training program and a mid-service workshop at which common problems are discussed. Volunteers thus far have worked mainly on implementation of the Bimas program, animal husbandry and civil engineering projects, youth groups, tropical hygiene, sanitation and family planning.

Recommendations

171. External Productivity (a) The thesis requirement for the full degree seems archaic and unrealistic for Indonesia. Recent efforts at establishing a four-year degree program (without thesis) should be encouraged; (b) the liaison between university faculties and the world of agriculture, commerce and industry needs improvement as, for instance, by Advisory Committees, adaptive research and consultancy work; and (c) because of uncertainty and changes in the labor market, there is a need to make degree programs more flexible, including the introduction of greater breadth into the pattern of studies and a delay in specialization to produce a more adaptable graduate.

172. Equality of Opportunity. The formation of a national scholarship program is strongly recommended. Such a program, if it is to help accelerate upward social mobility among the poorest socio-economic groups, would need to begin at the upper primary level with a search for bright but poor children and then subsidize their parents for the direct and indirect costs of the child's school attendance. At the tertiary level, scholarships could involve a loan component and be coupled to national manpower needs (para 74).

173. Educational Quality. There is need to increase per student expenditures on the following items in order to improve the quality of instruction: (a) increased number of full-time staff who actually devote full efforts to teaching at a single institution, e. g., at least 30 hours a week spent teaching and advising students; (b) greater supplies of textbooks and reference material, particularly in the Indonesian language; (c) upgrading staff whose qualifications fall below minimal standards; and (d) quality improvement of regional faculties on a selective basis.

174. Efficiency. Several steps could be taken to improve the completion rates of students and allocate resources more economically. These include: (a) adopting a system of standardized aptitude and achievement testing at appropriate levels for university entrance; (b) centralizing common administrative functions, e. g., admissions, fee collection, payroll, registrar operations, and standardizing academic calendars, admission procedures; (c) placing limitations on the escalation of legitimate and hidden fees, both for efficiency and equity considerations; (d) rationalizing the distribution of available finance by offering common basic courses across faculties, thereby contributing to greater economies of scale, and by consolidating basic facilities such as science laboratories; and (e) at the same time as increasing the number of full-time staff and their salaries, raising the minimum output criteria, e. g., number of hours of teaching per week in order to increase productivity. In particular, for agriculture faculties: (f) strengthening the power of the Consortium of Agricultural Sciences by giving it authority to plan, accredit and control the growth of agricultural faculties; (g) establishing a closer relationship between agriculture related faculties and research and extension; ways in which this could be achieved include:

- (i) establishing cooperative research programs between agricultural faculties and research institutes involving an exchange of staff and sharing of facilities;
- (ii) research by agricultural faculties on extension methodology and development by the faculties of prototype courses for extension agents and farmers; and
- (iii) participation by agriculture students in research and extension work for academic credit.

G. Non-formal Education and Training

General: Community Education (PENMAS)

175. Penmas (Pendidikan Masyarakat or mass education) is a program of community education sponsored by the Directorate General of Sports and Youth in the Ministry of Education to give basic education and simple vocational training to the out-of-school population and to train staff for these tasks. At the central and lower levels Penmas is divided into five sections: (a) fundamental education, (b) vocational education, (c) community libraries, (d) community leadership training and (e) women's education. One of the principal characteristics of the Penmas system is its extensive infrastructure. Below the central level, supervisors for Penmas are located in most provinces, districts, and sub-districts. Village committees, which provide valuable guidance in program planning are also widespread.

176. Training takes place as follows:

- (a) At the national level where annually about 300 officials (administrators and instructors) receive in-service training. Officials from other departments such as Sports and Youth, Pramuka 1/ occasionally join this training program. The training institute, located in Lembang, has a training capacity of 200, does a limited amount of research and prints about 30,000 volumes of reading material per month for village use;

1/ Indonesian Boy Scout Organization.

- (b) at the newly established Kebun Jeruk training center in Jakarta, the first provincial training center. Courses will be held five times a year, each for about 40 officials; and
- (c) at Penmas courses conducted at the sub-district level in 110 training institutes (PLPMs). See Annex 6 for details.

177. Since its inception in 1946, Penmas has provided some 48 types of courses to village people in such subjects as literacy, family life education, cooking, sewing, hygiene, first aid and radio repair. It gives support and supervision to village mother-craft clubs which are organized by local women. Although adult education still receives attention, increasing emphasis is being given to youth. One of the major concerns of Penmas at present is dealing with school dropouts for whom village committees are attempting to establish vocational courses, using teachers, high school students and technical officers as instructors. The present program is concentrated primarily in Java and Sumatera and around the major cities of the larger islands. The further one moves from Jakarta, the less activity one finds. Penmas officials have plans for the creation of 190 additional PLPMs, at least one in each Kabupaten and Kotamadya. However, no target date has been set for implementation because Penmas has never had a sufficient budget to realize its objectives. 1/

178. Roughly 600,000 people have attended Penmas courses, the majority in community development techniques and family life. About 4% of the participants took vocational classes and 3% literacy courses (Annex 6). No fees are charged. The teacher/student ratio is 1:8. Each PLPM has an average of six instructors; the permanent instructional staff totals 660. The vast majority of the instructors have been borrowed from other Ministries such as Agriculture and Manpower. In 1972, Rps 594.4 million was spent on staff salaries and an additional Rps 7.5 million on non-salary expenditures. Program evaluation and curricula development have always been handicapped by insufficient budgets, never exceeding Rps 420,000 p.a. Total recurrent expenditures amounted to less than 1% of the Ministry of Education budget. Development expenditures at Rps 207.5 million was 2% of the Ministry of Education capital budget.

179. While the budgets for community education have been weak, Penmas still has several assets. Its extensive administrative infrastructure has, in many cases, been able to reach people in remote areas. Its courses are flexible and adaptable to locally felt needs and conditions. The dropout rate is minimal. Penmas staff try to find out what village people want

1/ In 1972 the budget of Penmas was about 1% of the whole Ministry of Education budget (which excludes primary teacher salaries).

and from what courses they would benefit. Curricula are flexible and adapted to local conditions. Overall, however, the system has failed to realize its objectives and potential. The principal factors responsible include:

- (a) Penmas lost status when its direct line of communication with the Minister was broken in 1964 and Penmas became a directorate under a Director General;
- (b) in 1965 the former President declared the country literate; Penmas operations in functional literacy suffered as a result;
- (c) budget allocations have been insignificant. In some years no money at all was allocated;
- (d) teaching equipment is insufficient and inadequate;
- (e) classroom space is lacking: the average PLPM has three classrooms, each for 25 students. The existing 110 PLPMs cover only 1.7% of the relevant out-of-school population (aged 16-34). 1/ Penmas has often been unable to use other available facilities, e.g., primary schools;
- (f) only people in close proximity to the training centers can benefit from it;
- (g) instructors and administrators are insufficiently trained; although most instructors appear to have had SMA (secondary school) training, most have not received adequate training for their jobs;
- (h) unnecessary administrative complexity: the administration is overloaded with a large number of officials at the top which makes the system cumbersome and inefficient. Offices at all levels employ too many officials and there is insufficient work for the majority of them;
- (i) lack of supervision; although each level has its inspectors, they rarely make visits to the field. Lack of transport is one reason;
- (j) the overall level of poverty: in some poor parts of the country, people must look to their immediate livelihood and cannot afford to spend time in taking Penmas courses.

1/ 611,000 out of 37 million in the 16-34 age group.

Literacy or pre-vocational courses are ineffective if the participants have no access to reading matter or other materials required to make use of the acquired new skills; and

- (k) inadequate integration of Penmas programs with other non-formal training, e.g., by the Ministry of Manpower.

180. Penmas has the potential to become an effective instrument for out-of-school education and training but many fundamental changes are required before this potential can be realized, including the following steps:

- (a) establishing a national agency to oversee all non-formal education and training;
- (b) studying the administrative structure of Penmas with a view to streamlining operations and strengthening the important functions of planning, research, curricula development, and program evaluation at the central level and program planning and supervision at the local level;
- (c) creating a systematic program of in-service staff training;
- (d) providing incentives, e.g., salary increases, by which to attract and retain competent staff;
- (e) introducing mobility to the Penmas program by providing instructors and supervisors with transport and possibly mobile training facilities (e.g., tents);
- (f) expanding the access of Penmas to existing school facilities for giving courses, building more PLPMs only if essential; and
- (g) integrating Penmas work with agricultural extension and manpower training activities.

Non-formal Vocational Training

181. Ministry of Manpower. According to Article 3(b) of Presidential Decree No. 34, 1972, the Ministry of Manpower, Transmigration and Cooperatives is responsible for all in-service training and vocational training outside the government sector. Its present duties cover skill training in Vocational Training Centers (PLK) and 14 mobile training units, agricultural skill training in three Agricultural Vocational Training Centers and five mobile training units, and management training in the head office, the productivity center and six major cities. Despite Decree No. 34, there is still much uncertainty and overlapping with the Ministry of Agriculture and the Ministry of Education.

182. The development plan of the Ministry of Manpower includes the establishment of three additional vocational training centers (PLK): at Medan with Dutch aid, Ujung Pandang with Japanese aid, and Samarinda with Canadian aid, as well as three vocational training and management development centers, three comprehensive rural vocational training centers and two agricultural vocational training centers. The long-term aim is to establish at least one vocational training center in each province and use it as an operational base for mobile training units and management development, especially for small scale industry.

183. Vocational training centers and mobile training units are administered through the provincial offices of the Ministry. Each vocational training center operates under a chief who controls the programs, staff, admission, certification, liaison with industry and finances of the center under the guidance and advice of the Vocational and Management Development Directorate of the Ministry. The mobile training units are directly controlled by the provincial offices. The Ministry has a total of 210 instructors.

184. In-Plant Training. At present, in-plant training is limited only to a few large foreign firms; there is virtually no apprenticeship scheme. However, the government is considering the introduction of an apprenticeship bill in 1974/75 and intends to introduce an industrial training levy to be used for promoting vocational training. A survey is now being conducted by the Ministry of Manpower, Transmigration and Cooperatives on the present status of in-plant training in private enterprises and the results will be used for future planning of industrial training. This form of non-formal vocational training should be encouraged as far as possible due to the effectiveness of the scheme and the low cost to the government. Skill standards have been developed for some trades and should be extended to all trades to lead to the establishment of trade testing machinery in Indonesia and so maintain a more uniform standard of in-plant training.

185. Technical Skills Training. The eight vocational training centers (PLKs) offer technical courses in such subjects as automotive/diesel, electronics/radio, metalwork, welding and building construction; three of the eight also offer business administration courses. The total training capacity is less than 1,000 trainees at one time but PLKs operate on more than one shift if necessary. There were 7,000 trainees (5,900 trainees in 1971/72) and 4,300 completed their training in 1972/73. Courses vary from two weeks to six months, depending on the nature of the subject, are flexible and tailored to meet industrial needs. Trainees from the six-month courses for some skills can find employment or continue training up to two years but the courses do not follow a modular system. These centers are well-equipped and the quality of training is high. There is no difficulty for those who have completed the courses to find employment. The demand for the courses offered is large due mainly to STM graduates and industrial requirements. There are no specific entry qualifications except basic literacy and a minimum age limit of 18. More than half of the trainees are STM graduates seeking further training. Fees vary but average

about Rps 15,000 per trainee per course. The total average unit cost is Rps 35,000 per month per trainee. Industry frequently pays the total cost for sponsored trainees. Some revenue is also generated from the sale of articles manufactured in the PLKs to industry. The government budget is limited to instructors' salaries (which are low) and a small additional routine budget which is inadequate for the operation of PLKs. To retain good instructors, PLKs usually subsidize salaries, partly from fees paid by industry and partly from the revenue generated from production.

186. The target group of PLKs should be urban out-of-school youth and adults and the principal task should be to improve the employability of these youths and adults and to meet local industrial needs. This role is only partly fulfilled because more than half of the capacity of PLKs is occupied by STM graduates requiring further training. This diverted capacity will not be released until the training in STMs has improved and the demand for places from STM graduates has decreased.

187. Mobile Training Units. The Ministry of Manpower, Transmigration and Cooperatives also provides non-formal education to rural out-of-school youth and adults through three types of mobile training units, types A and B for basic industrial skill training and type C for basic agricultural skill training. Type A gives training in woodworking, masonry, blacksmith and radio repair and Type B for electrical work, motor repair, welding and plumbing. Type C covers both subsistence agriculture and cash-crops and the training includes rice growing, commercial farming, animal husbandry and poultry, inland fishery and mixed farming. There are 19 trucks, 14 for types A and B and five for type C. Each stream can take 15 trainees each unit accommodating, 60 with four streams operated under staggered class hours. Duration of training is usually two months. No fees are charged. Technical instructors are STM(I) graduate or equivalent but there are many vacancies due to the low salary scale. The average initial cost per mobile training unit including the trucks is about Rps 8 million.

188. These units are still at the experimental stage. Some encounter difficulties due to lack of funds and shortage of instructors, resulting in idle units. Further, the provincial offices are unable to administer the scheme because of inadequate numbers of staff. The needs of rural out-of-school youth and adults are multi-dimensional. Courses in functional literacy and numeracy, basic science and agriculture, elementary skill training and some knowledge on health, hygiene, family planning, civics and cooperatives are required at different times of the year and in varying durations to match agricultural cycles. Extreme flexibility in the provision of instructors and equipment and in program arrangement is essential. The present system with single purpose units, shortage of staff, lack of operational funds and weak administration structure does not meet the requirements for success.

189. The first pre-requisite to make rural non-formal education successful is to coordinate its development and operation, avoid overlapping efforts and maximize the utilization of resources. The Ministry of Manpower can play an important role in this process. However, for better impact the pattern of mobile training would need to be modified. The major

modification is to change the present setup of the mobile training unit with one truck and one set of equipment, into a new system of perhaps ten sets of equipment with one truck to move the sets from village to village and one jeep to move the instructors. Only a few trucks and jeeps will then be needed for each province. As the major cost of the mobile training unit is for the truck, the modification will considerably reduce the capital investment. In addition, staff development plan is required together with adequate funds and more effective supervision.

190. Public Works and Electric Power. The Ministry of Public Works and Electric Power provides vocational training for its staff under its four Directorates General for (a) highways; (b) water resource development; (c) housing, building sanitary engineering and planning; and (d) electricity, gas, generation and supply. The programs are coordinated by its Institute of Training and advised by a Board of Curriculum. Training is scattered over the country but five regional centers at Bandung, Yogyakarta, Surabaya, Ujung Pandang and Jakarta are the most important. The Center at Bandung will be absorbed into ITB as a Polytechnic Institute for the Ministry of Public Works and Electric Supply and will be responsible for the training of high level staff. The center at Yogyakarta specializes in the training of surveyors and draftsmen. Other fields of training cover irrigation supervisors and technicians, heavy equipment operators and drivers, soil mechanics work, geology technicians, metal workers, welders, electricians, building trades, and inspectors. Courses last from one week to three years. The output in 1972/73 over four months duration was 1,200 and is inadequate for the Ministry, e.g., the demand for assistant surveyors in 1974-78 is 3,000 but the supply is expected to be about 2,000. However, there is at present no plan to expand training capacity.

191. Other Ministries and Institutions. Vocational training is offered by the Ministry of Forestry, Ministry of Land and Ministry of Mining. Some science laboratory technicians are produced as a by-product by the Indonesian Institute of Science (LIPI) which works mainly on research at its five supporting institutions; National Institute of Chemistry (LKN), National Institute of Physics (LFN), National Institute of Metallurgy (LMN), and National Institute for Instrumentation (LIN). Some technical teachers are also trained at LIN.

Non-formal Training in Agriculture

192. In-service Training. The Ministry of Agriculture had about 44,000 employees by 1971 of whom 29,500 were engaged in technical (staff) operations. About 50% of the technical staff have education up to primary level, 46% junior or senior secondary level and 4% post-secondary or university level. It operates an extensive training program to upgrade its staff with each of the five technical Directorates (Agriculture, Animal Husbandry, Forestry, Fisheries and Plantation Crops) controlling its own in-service program. This has resulted in duplication of effort and inefficiency in the use of resources.

193. The Directorate General of Agriculture operates in-service training courses at two levels: (a) those for high level officials of

the central and regional offices (306 months duration) and (b) those for middle and lower level field technicians (1-4 weeks). The former course is offered at the Institute of Training and Upgrading at Bogor. For field technicians, some 17 different courses are offered at locations in the provinces on an ad hoc basis in borrowed premises and without equipment. Few training centers have buildings of their own. The unavailability of teachers and operating funds have generally made it difficult to run these courses regularly and efficiently.

194. Only about 4,000 of the 15,000 professional personnel in plantation and estate enterprises have at least secondary education and of those 4,000 about 75% require in-service training. Training for both the state and private enterprise employees is carried out at the Yogyakarta Plantation Institute, which offers general courses (about one month duration) and special courses in accountancy, laboratory research and enterprise management.

195. The Directorate General of Forestry has two training centers at senior secondary level, one for in-service training and the other for technician training (one year) in forest management, engineering surveying and planning. There are two provincial forestry schools at senior secondary level which offer training for forest rangers. In addition, there are three central and four provincial forest police schools which train forest police and park chiefs. The government is planning to convert these schools into more broadly based training centers to provide specialized technical training for lower level foresters.

196. The Ministry of Agriculture has recently initiated a project with IDA assistance under Cr 288-IND (a) to rehabilitate, expand and equip 13 of its in-service training centers, a training institute and 12 SPMAs; (b) to construct and equip two new SPMAs; (c) to construct one and equip two forestry technician training centres; and (d) to provide specialists' services and fellowships for selected local staff. An Agency for Agricultural Education and Training (BPPLP) has also been established within the Ministry of Agriculture to coordinate Ministry's education and training programs (para 24).

The Agricultural Extension Service

197. BIMAS, mass guidance in agriculture, is a nationwide program to stimulate agricultural production by providing farmers with a complete package of inputs. The program began in the early 1960s as a series of successful experiments by IPB in encouraging farmers to adopt more advanced techniques of rice cultivation and was expanded into a nationwide program in the second half of the decade.

198. The program provides an integrated package of inputs to the farmer, including (a) high-yielding rice seeds (b) fertilizer (c) pesticides and (d) technical advice on their proper application. Credit during the initial year of participation is provided by the Bank Rakjat (Peoples' Bank) with these inputs to be repaid in cash or produce one month after harvest with interest at 1% per month. About Rps 2 billion were lent to farmers in 1970. After one year with Bimas, farmers may avail themselves of subsidized inputs

and credits on a private basis at 2.5% per month guaranteed by the government under an Inmas (mass intensification) scheme. Technical advice is an integral part of the Bimas program. In 1970 Bimas employed 4,000 extension workers, apart from those in the agricultural extension services, on the basis of one extension worker per village unit (four to six villages covering 600-1,000 ha). The proposed reorganization of the Ministry of Agriculture (Chart 8476) includes a closer integration between extension work and the Bimas program.

199. Fields under the Bimas program increased from 172,500 ha in 1965 to 2 million ha in 1970. By 1970 23 of 26 provinces had Bimas programs and about 1.3 million farmers had been reached or 10% of the national total. The Bimas program is largely responsible for the introduction of high yielding rice which contributed to a 29% increase in rice production during the past five years.

200. Extension Services. Indonesia's 12 million farm families, living in about 60,000 villages, have not been receiving the technical advice and support services they require to improve their productivity. The Ministry of Agriculture employs about 45,000 staff for this purpose, including 30,000 technical personnel but they are poorly organized and inadequately trained for their task. Only 7,000 of the staff actually engage in field work; these are organized along five parallel administrative lines and they engage mostly in administrative rather than advisory tasks. About three-fourths of the total agricultural staff are primary or lower secondary graduates; 24% are senior secondary graduates and 3% have intermediate degrees from higher education.

201. Poor organization and management is a major problem. Each of the five Directorates General (agriculture, animal husbandry, fisheries, forestry, plantation crops) has an extension service and there is a National Extension Directorate which coordinates and supports the Provincial Extension Service. In addition, the Bimas mass guidance program provides technical assistance, credit and other inputs (fertilizers, pesticides, tools, small implements, etc.) to the farmers in collaboration with the Directorate of Agriculture, Credit Institute (Bank Rakjat) and other organizations such as the Public Works (Irrigation)- Fertilizer Board, etc. A separate ministry (Manpower, Transmigration and Cooperatives) is promoting cooperatives in parallel to the above-mentioned organizations. As a result, an individual farmer could conceivably be contacted by three or four extension workers from the different programs, each dealing with one facet of the farm business.

202. In practice, however, with the limited transport available, low allowances and other administrative duties (such as crop data collection), field workers spend very little time advising farmers. At the village level all the agricultural services are represented by one or two field assistants. Field assistants mostly have only primary school education with some in-service training. They live in the villages and have monthly meetings with their section heads from whom they receive instructions without adequate supervision. The extension service is weakest where it is most important, i.e., at the farmer level.

203. In addition to problems of organization and training, the extension service is handicapped by the following problems:

- (a) isolation from other inputs needed by farmers, such as credit and marketing, as in the Bimas program;
- (b) lack of adequate supervision on the job by experienced extension workers;
- (c) lack of basic equipment, transport and demonstration materials;
- (d) lack of an adequate base from which to function, e.g., an extension center where the field workers can be grouped for adequate supervision. About 350 centers exist now but most are in poor locations and condition;
- (e) preoccupation of extension agents' time with administration, data-gathering and other duties;
- (f) insufficient subject matter specialists to support field staff, in close liaison with research services;
- (g) a national office with insufficient authority to evaluate and coordinate the several provincial extension services, assisting in their improvement through a long-range program;
- (h) lack of regional agricultural information centers to support the extension workers and to provide the teaching materials, radio programs, publications, etc., based on latest research findings; and
- (i) the promotion of farmers' associations is entrusted mainly to the Ministry of Manpower, Transmigration and Cooperatives.

204. Perhaps the main problem is not lack of personnel but better management of the existing staff which, through selection and upgrading training in an improved organization, could effectively assist farmers. A polyvalent extension worker is required for the field, such as those being produced in the strengthened SPMAs, to work in a unified extension service. The field staff must have an adequate center from which to operate and motorcycles for mobility. In addition, the extension center must have training facilities for agriculture and related skills available for the entire family. By utilizing group methods, working with key farmers and pursuing an integrated program, the extension service could have a significant impact on production in a short period of time. Each center should have a senior field officer in charge of several field extension staff.

205. Government Policies. The government has been aware of these weaknesses and has been following a comprehensive program of reform. The first phase of the reform was to create in 1972 a single Agency for Agricultural Education and Training (BPPLP) to control all formal and in-service training within the Ministry of Agriculture (para 29). The next step dealt with a crucial upgrading of pre-service and in-service training (para 195).

206. The second phase of the reform program includes the establishment of (a) a national research agency at director general level; (b) better research facilities to generate relevant technical information; and (c) provincial information centers at which to translate research findings into teaching programs for farmers. The Agriculture Projects Division of the World Bank Group is considering a request to finance six commodity research centers and ten agricultural information centers.

207. The third phase of the program to make agricultural extension more effective entails the creation of a new regional network for extension focussed on rural extension centers. These proposals, on which approval is pending with the President, include:

- (a) the unification of extension services under an expanded Agency for Agricultural Education, Extension and Training (BPPLP);
- (b) the establishment of a network of about 1,000 strategically located rural extension centers as a base for launching a new extension organization at the sub-district level. Each center would include 15 extension workers, each of whom would assist a village unit (para 197);
- (c) the appointment of additional specialists in supervision, training and subject matter;
- (d) the provision of basic equipment, transport and demonstration material for all field personnel;
- (e) training all the personnel on the new program (which is based on Bimas) and on group extension methods. The extension field worker will work through the key farmers (about 200) in each village unit or 600-1,000 farm families;
- (f) training facilities at the rural extension centers for other programs that are trying to reach the farm families, in addition to agricultural and related skills; and
- (g) cooperation with the Ministry of Manpower, Transmigration and Cooperatives on the promotion of cooperatives in rural areas through the extension program.

208. This program promises to improve dramatically the effectiveness of agricultural extension. However, many difficult steps will have to be taken to implement it. The most important issue is how to bring about the integration of the extension services. The Directors General have no plan to show how this would be achieved, how they would participate, whose personnel would handle what subjects and how their budgets would be affected. Specifically, the phasing of reforms in agricultural extension development has not been planned sufficiently. Under the present planning, 1,000 centers, 15,000 field agents and 2,000 subject matter and supervisory staff would be needed to cover Indonesia. The replacement of some 20,000 unqualified middle-level technicians is another problem. Not only the upgrading training but also the reallocation of personnel will be costly and difficult. A national extension program will have to be planned to incorporate the provincial agricultural services. High-level personnel must be informed about the proposed national changes; regional programs could then follow. Training sessions would have to be held with all the personnel to tell them how they will function under the new system. The revised administrative organization with specific duties and responsibilities for each member will need to be worked out. Provision must be made for the negative reaction that inevitably will arise from certain vested interests. An improvement in the functioning of the proposed extension organization would require strict supervision and training by highly experienced extension specialists not presently available in Indonesia. The organization and management, coupled with an intensive on-the-job training program would be the key to the success of this project.

209. Cooperation with the Ministry of Manpower, Transmigration and Cooperatives is essential. The decision on how best to manage credit and other inputs has to be reached at an early stage so that personnel can be trained early. Ideally, the cooperatives should handle the inputs but training farmers in cooperatives is difficult without giving them responsibility for the money at the same time and a transitional scheme may be necessary to start the new program. The extension agent should not be harnessed with administrative duties, debt collection or direct credit-granting. Integration of extension and research is planned through the information dissemination centers and subject matter specialists. This should be studied in further detail.

Management Training

210. Management training courses of different types have been provided in Management Training Centers in six major cities, the Productivity Center (Jakarta) and the Head Office of the Ministry of Manpower, Transmigration and Cooperatives, usually with emphasis on middle and lower management. Courses on "Supervision and Training Within Industry" accounted for 50% and 20% respectively of the total of 1,468 enrolled in 1972/73 while senior management training was less than 5% of the total. The coverage, both in fields and in numbers, is inadequate for Indonesia with a total labor force

of more than five million ha in the manufacturing and related industries. No consultancy service has been offered. The program has been unable to promote entrepreneurship in the rural areas for small-scale and family-type industries. A private institution, the Institute for Management Development (LPPM), gives ad hoc courses at top and professional level and also offers some consultancy services. The Management Association, formed by a group of employers appears to be dormant.

211. The government considers the establishment of an Institute for Management to be of low priority and intends to expand management training through a mobile team of instructors stationed at each provincial capital with the main objective of promoting entrepreneurship for a large number of small scale enterprises, generate employment in rural areas, and reduce the pressure of migration towards the already overcrowded cities. The policy appears to be correct but high quality instructor training will be a key issue in implementation.

H. Mass Media

212. Major Problems. Indonesia, spreading 3,000 miles from east to west, is comprised of more than 2,500 islands; an effective broadcast system therefore provides many difficulties. Only about 20% of the population has access to radio receivers. Practically all radio broadcasting is via short-wave and sound quality is impaired by interference due to overlapping frequencies, especially on the part of uncontrolled private stations.

213. Both the Ministry of Education (MOE) and the Ministry of Agriculture (MOA) are anxious to use radio, both for classroom instruction and adult non-formal education throughout Indonesia, but their efforts are hampered by incomplete radio transmission linkage. Indonesia so far has had to rely on local stations for program production.

214. The development of Indonesia's TV network is still in an embryonic stage. Reception is confined to the areas in and around major cities, mostly in Java; there are only about 300,000 TV receivers in the country. Limited access to electricity prevents the expansion of TV coverage; in consequence, the use of ETV cannot be envisaged in the foreseeable future.

Radio Broadcasting

215. Existing Programs and Future Plans. The Ministry of Information (MOI) controls Radio Republic Indonesia (RRI) which has 47 stations throughout the country. In addition, most of the 26 provincial governments and some districts operate small radio stations. Every aspect of the RRI operation requires improvement but, for the time being, transmission remains the most serious bottleneck. RRI plans to replace existing shortwave broadcasting with a medium wave system in 56 locales but this

will not completely solve RRI's transmission problems since the plan does not provide for all necessary linkage between stations. There are two possible means of forming a network: microwave links or a communications satellite. If MOI and the Ministry of Communications (MOC) agree to the use of common facilities, the MOC microwave system can also serve the RRI network but this system has limitations, especially for linking islands. MOC and PERTAMINA (the Indonesian Oil Corporation) have been considering the introduction of a domestic communications satellite system in Indonesia; increased oil revenues may cover a portion of the capital cost. MOI is also interested in the idea. RRI's central station signal would be beamed at the satellite. It would then be possible for the satellite to broadcast directly to any point in Indonesia. However, the signal would be weak and each receiver would require an elaborate antenna. The cost would therefore be high. A less expensive alternative would be for strategically located stations equipped with large antennas to relay the signal which listeners could pick up with simple receivers. The use of satellite, however, should not be undertaken without first ascertaining whether the operating costs are acceptable and whether such a system will not result in unnecessary duplication in the field of telecommunications and broadcasting. Unesco, with the government's agreement, will begin a study in March 1974, on the use of educational broadcasting via satellite and RRI now intends to take into consideration the possibility that satellite broadcasting may become a reality by about 1977.

216. RRI's local stations occasionally relay programs within their jurisdictions but otherwise all 46 local stations produce their own programs with limited funds and resources except for newscasts which are fed directly from the Jakarta central station and account for 10%-15% of total broadcast time. If program production could be centralized, it would save time, money and effort. More expertise could be developed to produce programs of superior quality. Forty-six separate operations spread available manpower and financial resources very thin. The present budget for the preparation of one educational program is only Rps 250, even for a sub-central Nusantara station (Indonesia is divided geographically into three Nusantaras--the stations are located in Medan, Yogyakarta and Ujung Pandang). RRI recognizes that a well-organized network would alleviate the duplication in program production. Although RRI has not yet started educational broadcasting on a systematic or continuous basis, MOI has recently concluded agreements with MOE and MOA stipulating that, in the production of educational broadcast programs, MOI will be in sole charge of all necessary technical facilities while MOE and MOA will be responsible for program content. This policy is expected to pave the way for concentrating the nation's available resources on the production of good quality programs.

217. School Radio. The Educational Broadcasting Unit of BPP is planning to start experimental radio broadcasting in Yogyakarta and Semarang in 1974. In Yogyakarta, a series of programs covering Bahasa Indonesia, social studies and music will be produced for elementary students and another series of English lessons for students at the secondary level. In Semarang, a series of programs will be devoted to in-service training on the methodology of teaching such subjects as science and mathematics. All of the

programs, for students and teachers alike, are narrated in Bahasa Indonesia. To implement these experiments, Unicef presented MOE with studio equipment and radio receivers and Unesco has so far trained twelve script writers and seven producers. BPP, assisted by Unesco, will assess all aspects of the experiment by the end of 1975. The government is willing to expand educational radio broadcasting at the primary school level on a national scale if these experiments prove successful. A pilot program is underway and so far teacher-reaction has been favorable. The approach is good but a united effort on the part of all educational forces will be necessary to ensure success. In addition, BPP, in cooperation with the Unesco Advisory Team, has tentatively formulated a plan to upgrade secondary education, stressing the role of radio. It is hoped that they will take full advantage of Yogyakarta and Semarang experiments.

218. Radio for Nonformal Education. MOA's Agriculture Extension Service, in cooperation with RRI, started educational radio broadcasting for rural development in 1971. The programs are aimed primarily at improving rice production but other subjects such as family planning and resettlement are also included. The programs are produced and recorded on cassette tapes in either a small studio of the Extension Service or RRI's Jakarta station. The tapes are then distributed to approximately 90 local stations to be broadcast around eight o'clock in the evening three or four times a week. In addition, RRI's local stations, two existing Agricultural Information Centers and other local radio stations produce and broadcast their own rural Development programs. The Extension Service also produces and distributes support materials for the programs and since 1969 has promoted the organization of Listening Groups throughout the country. It is said that some 12,000 groups have already been organized. A group is composed of 15-20 family heads who meet once or more a month to discuss programs. The principal aim is to promote cooperation among group members who assist each other in sewing, fertilizing, harvesting, etc. The Agriculture Extension Service believes it can be a viable force in community development. The mission is wholeheartedly in favor of the group listening approach but a real effort should be made to generate enthusiasm. Better radio programs, more support materials and closer follow-up through extension workers are essential to success.

APPENDIX B

INDONESIA

EDUCATION SECTOR SURVEY REPORT

MANPOWER AND EDUCATION

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MANPOWER AND EDUCATION

A. Introduction

1. One of the main objectives of educational policy, in Indonesia as elsewhere, is to increase the external productivity of the education and training system. The criteria by which external productivity is usually assessed include the earnings of successive cohorts of school-leavers from the various levels and branches of the system, their unemployment rate or the delay between their leaving school and finding the first job (or conversely the numbers of unfilled vacancies by level and type of education required), the percentage of school-leavers going into occupations unrelated to the education and training they received, etc. Any attempt at quantification requires a minimum of information on the above indicators. Unfortunately, the data are usually sparse and Indonesia is no exception. This Appendix tries to examine the links between the education system and the labor market on the basis of incomplete and loosely connected statistics and to project some broad manpower requirements for the period 1971 to 1981. The estimates should be viewed with these reservations in mind.

B. The Present Situation

2. Labor Force and Employment: Of Indonesia's 1971 census population of 119.2 million, 80.4 million were 10 years or older. Of these, 40.1 million, or just under 50%, were considered economically active, 6.1 million living in urban areas and 34.0 million in rural areas. The census gives employment figures of 5.8 million and 33.4 million, respectively, for urban and rural areas. This would mean nominal unemployment rates of 4.8% and 1.8% for urban and rural areas, respectively, and 2.2% for Indonesia as a whole. However, unemployment data depend largely on the concepts and definitions used. A recent sample survey in three major cities has shown unemployment rates well above those derived from the 1971 census. Both the unemployment rates and the labor force participation rates show variations among age groups and by sex and location (see Tables 1 and 2). A comparison of labor force participation rates for 1961 and 1971 reveals a decrease for the younger age groups, due mainly to educational expansion, and an increase for females owing to greater urbanization and a greater participation of rural areas in the monetary economy. Both trends are common to most developing countries.

Table 1: Unemployment Rates^{1/} of Population
 10 Years and Over, by Age Group, Sex and
 Location, 1971 (in Percent)

Age (Years)	Males			Females			Both Sexes		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
10-14	10.8	2.9	3.5	8.3	2.2	2.8	9.6	2.6	3.2
15-19	13.7	4.4	5.8	11.1	2.4	3.5	12.8	3.7	4.9
20-24	11.9	4.0	5.7	9.6	1.8	3.0	11.3	3.2	4.8
25-29	3.9	1.7	2.1	2.8	1.6	1.8	3.7	1.7	2.0
30-34	2.5	1.2	1.5	1.7	1.0	1.1	2.4	1.1	1.3
35-39	1.4	1.2	1.2	2.0	1.2	1.3	1.6	1.2	1.2
40-44	1.4	1.0	1.1	2.0	0.9	1.0	1.6	1.0	1.1
45-49	2.5	1.0	1.3	1.4	0.5	0.6	2.3	0.9	1.1
50-54	2.3	1.3	1.5	1.7	0.7	0.8	2.1	1.1	1.2
55-59	3.1	0.8	1.1	0.7	0.8	0.8	2.4	0.8	1.0
60-64	3.4	1.2	1.5	3.1	2.2	2.3	3.3	1.6	1.7
65+	3.7	0.8	1.1	1.9	2.0	2.0	3.1	1.1	1.3
Not Stated	5.4	-	5.4	0.0	-	0.0	3.3	-	3.3
Totals	4.9	1.9	2.4	4.5	1.4	1.8	4.8	1.7	2.2

Source: 1971 Population Census, Advance Tables.

^{1/} those seeking work as percentage of economically active population.

Table 2: Labor Force Participation Rates of Population 10 Years of Age and Over, by Age Group, Sex, and Location, 1971,
by Age Group and Sex, 1961 (in Percent)

<u>Age (Years)</u>	Males			Females			Both Sexes				
	<u>Urban</u>	<u>Rural</u>	<u>Total</u>	<u>(1961)</u>	<u>Urban</u>	<u>Rural</u>	<u>Total</u>	<u>(1961)</u>	<u>Urban</u>	<u>Rural</u>	<u>Total</u>
10-14	8.6	20.4	18.3	(22.6)	7.7	15.9	14.4	(15.6)	8.1	18.2	16.4
15-19	32.9	53.4	48.9	(66.7)	17.4	31.6	28.6	(30.6)	25.2	42.3	38.7
20-24	67.0	79.5	76.5	(87.2)	23.6	34.0	31.8	(27.4)	44.4	53.9	51.8
25-29	88.7	90.9	90.5	(94.4)	25.1	35.9	34.1	(27.2)	56.2	59.9	59.3
30-34	94.2	91.8	92.1		28.1	39.7	37.8		61.1	63.5	63.1
35-39	94.9	93.6	93.8	{(96.9)}	30.6	42.3	40.3	{(33.3)}	61.8	67.9	66.9
40-44	93.1	92.9	92.9		34.6	44.1	42.6		64.6	68.3	67.7
45-49	88.9	92.2	91.6	{(95.6)}	32.6	46.4	44.2	{(39.8)}	62.1	69.9	68.7
50-54	83.4	89.0	88.0		31.3	44.5	42.3		57.1	66.3	64.8
55-59	71.0	87.1	84.3	{(89.6)}	30.2	41.8	39.8	{(39.1)}	51.0	64.5	62.2
60-64	58.2	81.0	77.8	{(89.6)}	23.8	34.6	33.1	{(39.1)}	39.5	56.2	53.9
65+	41.0	63.9	60.5	(75.3)	14.5	24.4	22.8	(28.0)	26.5	43.4	40.8
Not Stated	82.6	-	82.6	(-)	53.6	-	53.6	(-)	68.3	-	68.3
<u>Totals</u>	<u>61.2</u>	<u>70.4</u>	<u>68.7</u>	<u>(79.8)</u>	<u>22.5</u>	<u>34.2</u>	<u>32.1</u>	<u>(29.3)</u>	<u>41.7</u>	<u>51.7</u>	<u>49.9</u>

Source: 1971 Population Census, Advance Tables and 1961 Population Census (Series SP-1)

Table 3: GDP at Current and Constant 1960 Market Prices,
by Industry of Origin, 1961 and 1971
(in Rps. Billion)

	In Current Market Prices		<u>Average Annual Growth Rate (Percent)</u>	In Constant 1960 Market Prices		<u>Average Annual Growth Rate (Percent)</u>
	<u>1961</u>	<u>1971</u>		<u>1961</u>	<u>1971</u>	
Agriculture, Forestry, and Fisheries	225.3	1,654.6	22.1	213.9	280.5	2.7
Mining and Quarrying	14.0	248.7	33.3	14.6	34.0	8.8
Manufacturing	46.7	337.9	21.9	36.6	56.7	4.5
Construction	10.6	127.9	28.3	10.2	17.1	5.3
Electricity, Gas and Water Supply	1.2	17.7	30.9	1.2	3.3	10.7
Transport and Communications	17.2	161.9	25.1	14.5	22.1	4.3
Wholesale and Retail Trade	81.6	712.5	24.2	64.7	108.5	5.3
Banking and Other Financial Institutions	6.1	45.3	22.2	4.9	11.3	8.7
Ownership of Dwellings	9.2	74.4	23.3	8.1	11.9	3.9
Public Administration and Defense	26.4	214.4	23.3	19.2	31.8	5.2
Services	31.8	180.6	19.0	24.7	31.7	2.5
<u>Total GDP</u>	<u>170.1</u>	<u>3,794.3</u>	<u>23.2</u>	<u>112.6</u>	<u>608.9</u>	<u>4.0</u>

Source: Central Bureau of Statistics.

3. Sectoral Growth: Agriculture, which accounted for roughly 40 percent of GDP in 1972, is the country's main employer, containing about 60 percent of the total work force (see Tables 3 and 4). About one fourth of the sectoral product is accounted for by rice production, slightly under one fifth by forestry and fisheries and by export crops, each, and the rest, about two fifths, by other agriculture. The dominant problem is the concentration of the population, and hence of agricultural employment, on Java and Bali, resulting in extreme fragmentation of holdings averaging under 0.5 ha. The near-stagnation of agricultural employment over the last decade, an average annual growth of 0.5 percent, is an indication that agriculture in the country's core area is reaching the limits of its capacity to absorb more manpower and that further labor force increases will have to be channelled into non-agricultural employment or diverted (though in smaller numbers than inter-sectoral transfers) through transmigration to the country's less populated islands.

4. The secondary sector (mining, manufacturing, construction and public utilities) experienced an average annual employment growth of 4.1 percent during the 1961-71 decade. The direct employment effects of mining and public utilities are limited due to the strong capital intensity of both 1/.

1/ Mining even experienced a decrease in employment between 1961 and 1971.

Table 4: EMPLOYMENT, BY SECTOR, 1961 AND 1971, AND BY LOCATION, 1971
(in 1,000, Rounded)

	<u>1961</u>	<u>1971</u>	<u>Average Annual Growth (Percent)</u>	<u>Urban Employment 1971</u>	<u>Rural Employment 1971</u>
Agriculture, Hunting, Forestry and Fishing	23,516	24,772	0.5	600	24,172
Mining and Quarrying	87	90	0.3	44	46
Manufacturing	1,856	2,932	4.7	661	2,270
Electricity, Gas and Water	51	38	-2.9	27	11
Construction	582	737	2.4	289	448
Trade, Restaurants and Hotels	2,194	4,113	6.5 /a	1,453	2,660
Transport, Storage and Communications	691	916	2.9	514	402
Financing, Insurance, Real Estate and Business Services	/b	95	/b	86	10
Community, Social and Personal Services	3,095	3,923	2.4	1,856	2,067
Activities Not Adequately Defined	635	1,573	9.6	266	1,327
Total Employment	<u>32,709</u>	<u>39,210</u>	<u>1.8</u>	<u>5,796</u>	<u>33,414</u>

/a Including employment growth in Financing, etc.

/b Included in Trade, etc.

Source: Central Bureau of Statistics.

5. Manufacturing activities are concentrated in four branches, both with regard to output and employment: food manufacturing, tobacco, textiles and rubber and rubber products. Future diversification can be expected to be either based on local raw materials or have a supporting character, e.g., chemical products, paper and paper products, printing and publishing and various repair activities.

6. The regional distribution of manufacturing, its size structure and technological profile show considerable variation (see Tables 5 and 6), Java having a distinct lead in the relative level of manufacturing activities and the average size of production units. Similar differences are revealed with regard to average technological profiles (see Table 6). If the large - and medium-firm profiles indicate future developments for manufacturing as a whole, the manpower and related education/training requirements may resemble the present pattern in urban areas where most of the large and medium production units are located.

7. The tertiary sector - commerce and banking, transport and communications, services - contributes about one-third to GDP and accounts for more than one quarter of total employment. The two branches in which employment has grown fastest are trade (6.5 percent annually between 1961 and 1971) and other activities (i.e., all those that are not adequately defined). In both the proportion of rural employment is high (65 percent and 83 percent, respectively, against an average for non-agricultural activities of 39 percent). Since the sector with the third best record of employment growth - manufacturing - is also one with a rural share far above average (77 percent), a possible conclusion is that the search for additional sources of income in rural areas has concentrated on those activities where small units of production working with little fixed capital are economically feasible. Employment in these activities will tend towards self-employment and unpaid family help 1/. Educational policies, particularly in the field of non-formal education, should be mindful of this potential.

1/ The relevant census tabulations, not reproduced here, confirm this argument. Apart from agriculture, manufacturing and trade are the two sectors where own account workers and unpaid family members are most prevalent, both in rural and in urban areas.

Table 5: Employment in Large and Medium Manufacturing Establishments,
1970, and Total Employment in Manufacturing, 1971, and Population,
1971, by Major Regions (in 1,000)

Province/Region	Manufacturing Employment in 1970				Manufacturing Total Employment, 1971	In Percent	Population, 1971 (in Millions)	In Percent
	Large Firms	In Percent	Medium Firms	In Percent				
Java and Madura	520.9	87.3	209.4	83.0	2,285.9	78.0	76.1	63.8
(D.C.I. Jakarta)	(31.3)	(5.2)	(22.5)	(8.9)	(117.5)	(4.0)	(4.6)	(3.8)
(West Java)	(152.6)	(25.6)	(32.9)	(13.0)	(415.4)	(14.2)	(21.6)	(18.1)
(Central Java)	(127.2)	(21.3)	(74.7)	(29.6)	(1,072.2)	(36.6)	(21.9)	(18.3)
(D.I. Yogyakarta)	(9.4)	(1.6)	(9.4)	(3.7)	(158.0)	(5.4)	(2.5)	(2.1)
(East Java)	(200.4)	(33.6)	(69.8)	(27.7)	(522.8)	(17.8)	(25.5)	(21.4)
Sumatera	58.5	9.8	22.0	8.7	179.9	6.1	20.8	17.5
Kalimantan	5.6	0.9	6.2	2.5	40.8	1.4	5.2	4.3
Sulawesi	4.5	0.8	10.6	4.2	235.6	8.0	8.5	7.2
Other Islands	7.0	1.2	4.1	1.6	189.4	6.5	8.6	7.2
Indonesia	596.6	100.0	252.4	100.0	2,931.7	100.0	119.2	100.0

Source: 1971 Population Census, Advance Tables, and 1970 Manufacturing Survey.

Table 6: REGIONAL DIFFERENCES IN TECHNOLOGICAL CHARACTERISTICS OF LARGE AND MEDIUM MANUFACTURING ESTABLISHMENTS, 1970

<u>Region/Province</u>	<u>Average Number of Workers per Power Equipment</u>		<u>Average Capacity of Power Equipment (HP)</u>		<u>Average Capacity Installed Per Person Employed (HP)</u>	
	<u>LE*</u>	<u>ME*</u>	<u>LE</u>	<u>ME</u>	<u>LE</u>	<u>ME</u>
Java and Madura	14.4	11.5	26.4	8.8	1.8	0.8
(D.C.I. Jakarta)	(12.7)	(8.2)	(57.6)	(12.8)	(12.4)	(1.6)
(West Java)	(8.7)	(5.0)	(9.9)	(5.8)	(1.1)	(1.2)
(Central Java)	(5.0)	(32.9)	(11.4)	(6.6)	(2.3)	(0.2)
(D.I. Yogyakarta)	(22.4)	(31.0)	(10.8)	(10.1)	(0.5)	(0.3)
(East Java)	(23.5)	(11.3)	(36.2)	(9.8)	(1.5)	(0.9)
Sumatera	33.3	7.1	54.4	19.8	1.6	2.8
Kalimantan	24.7	13.6	42.6	49.7	1.7	3.7
Sulawesi	7.3	7.2	38.9	13.4	5.3	1.8
Other Islands ^{/a}	53.8	15.2	53.1	15.2	1.0	1.0
Indonesia ^{/a}	15.3	10.8	28.0	11.4	1.8	1.1

* LE = Large, ME = Medium Establishments.

^{/a} except Irian Jaya.

Source: derived from data in 1970 Manufacturing Survey.

8. Salary Levels by Occupation and Education: Little information is available on salary levels by occupation or educational attainment. The Jakarta Cost of Living Survey 1968/69 showed the following salary ranges for some major occupation groups:

**Table 7: LOWER QUARTILES, MEDIAN, AND UPPER QUARTILES OF WEEKLY WAGES AND SALARIES, BY MAJOR OCCUPATIONS, JAKARTA 1968/69
(in Rps 1,000)**

	<u>Lower Quartile</u>	<u>Median</u>	<u>Upper Quartile</u>
Professional & Technical Workers	0.8	2.3	5.3
Administrative & Clerical Workers	1.6	3.0	6.5
Government Employees	1.0	2.1	4.1
Miners & Quarrymen	1.8	2.6	4.9
Textile Workers	0.5	1.0	3.7
Sugar Mill & Rice Mill Workers	1.1	1.4	2.6
Other Production Process Workers	0.7	1.8	3.9
Workers in Transport and Communication	0.4	0.9	2.6
Service Workers	0.6	1.3	3.7
Others	0.3	0.6	0.9
<u>Average</u>	0.5	1.0	2.9

9. The average salary paid to persons with a given level of education is a major determinant of the private demand for education and of external productivity. The relationship between educational attainment and salary is even less amenable to analysis due to an almost complete lack of data. The 1968/69 Cost of Living Survey for Jakarta provides some data which are summarized in the following table:

Table 8: LOWER QUARTILES, MEDIAN, AND UPPER QUARTILES OF
WEEKLY WAGES AND SALARIES, BY EDUCATIONAL ATTAINMENT,
JAKARTA 1968/69
(in Rps. 1,000)

<u>Educational Attainment</u>	<u>Lower Quartile</u>	<u>Median</u>	<u>Upper Quartile</u>
No Schooling	0.5	1.0	3.3
Incomplete Primary Education	0.4	0.7	1.7
Complete Primary Education	0.5	1.2	3.0
Lower Secondary Education			
General	0.7	1.8	3.9
Other	0.7	1.9	4.0
Upper Secondary Education			
General	1.0	2.7	5.1
Other	1.0	2.7	5.4
<u>Academy/Sarjana Muda</u>	2.3	7.8	9.4
University	5.0	8.0	12.3
<u>Average</u>	<u>0.5</u>	<u>1.0</u>	<u>2.9</u>

10. Except for the relatively high renumeration of those workers who never went to school (which might be explained by their higher average age and hence longer experience), average salaries and inter-quartile ranges increase consistently with educational attainment. It is worthwhile noting that graduates from the vocational/technical branches of secondary education seemed to enjoy a slight advantage over those from general secondary schools.

11. In recent years the salary differentials due to education appear to have narrowed. This might be a reflection of the increasing supply of educated manpower and of a deliberate policy by the Government to bring about a gradual reduction in salary ranges. A recent example is a set of guidelines given by one provincial government to a local authority setting minimum and maximum daily wages to be paid for temporarily employed personnel according to their level of education. While the maximum range of 1:4 is certainly not indicative for the labor market as a whole, it points to a possible future development.

Table 9: MINIMUM AND MAXIMUM DAILY WAGES FOR TEMPORARY PUBLIC EMPLOYEES, BY LEVEL OF EDUCATION, JUNE 1973 (Rps.)

<u>Level of Education</u>	<u>Minimum</u>	<u>Maximum</u>
Primary	91	182
Lower Secondary	105	210
Upper Secondary	119	238
Academy/ <u>Sarjana Muda</u>	133	266
Sarjana	168	364

Source: Communication of Provincial Government of East Java.

12. A case study of wage differentials in the electricity industry between 1960 and 1968 points in a similar direction.^{1/} The study distinguishes three main determinants of wage differentials: skill (including education), family size, and seniority. Whereas the range of the latter two has tended to widen slightly during the review period, the skill differential (and the total range) has narrowed markedly.

Table 10: APPROXIMATE GROSS CASH WAGE DIFFERENTIALS AND THEIR MAJOR COMPONENTS IN THE ELECTRICITY INDUSTRY, JAKARTA, 1960 and 1968

<u>Component</u>	<u>1960 Range</u>	<u>1968 Range</u>
Skill	10:1	4.5 to 2.0:1
Family Composition	1.5:1	2.0 to 1.5:1
Seniority	2:1	4.0 to 1.2:1
<u>All Three</u>	<u>30:1</u>	<u>11:1</u>

Source: See footnote.

13. Employment Differentials Among Education Levels: The differences in employment prospects between school-leavers from various education levels are the second main factor, besides salaries, that determine the private demand for and external productivity of, education. Since enrollments,

^{1/} P. McCawley, A Case Study of Wages: The Electricity Industry in the 60s, Bulletin of Indonesian Economic Studies, Vol. VII, No. 3, November 1971.

particularly at the post-primary levels, have grown much faster than employment, decreasing employment probabilities characterize the labor markets for educated manpower. Data from four independent sources reflect this trend. The 1972 Urban Unemployment Survey gives unemployed rates by education level. The unemployment problem is at present most serious at the lower secondary level, but is already reaching similar proportions in upper secondary education, and with the exception of one city, has passed already the 10% mark even in higher education.

Table 11: UNEMPLOYMENT RATES IN THE CITIES OF JAKARTA, SURABAYA, AND BANDUNG, BY LEVEL OF EDUCATION AND SEX, 1972 (in Percent)

<u>Level of Education</u>	<u>Males</u>			<u>Females</u>		
	<u>Jakarta</u>	<u>Surabaya</u>	<u>Bandung</u>	<u>Jakarta</u>	<u>Surabaya</u>	<u>Bandung</u>
No Schooling	7.9	2.9	8.4	4.4	3.0	3.0
Primary Education	6.1	3.7	5.5	7.3	5.7	7.7
Lower Secondary Education	27.3	17.0	23.9	38.7	34.7	46.3
Upper Secondary Education	14.9	17.3	19.6	21.0	27.6	30.6
Higher Education	11.9	8.2	12.8	12.0	9.9	16.9
<hr/>						
Lower and Upper Secondary Education						
General	20.5	16.7	27.1	31.9	35.5	26.4
Vocational/ Technical	25.5	18.1	21.7	28.6	22.5	16.7
<hr/>						
Averages	11.2	7.6	11.6	31.9	35.5	26.4

Source: Urban Unemployment Survey 1972, Jakarta, 1973.

14. Another feature of this unemployment is its concentration in the younger age groups (see Table 12). In all three cities, the proportion of unemployed in the age groups under 25 was just under two-thirds of total unemployment (63.3% to 65.3%). On the basis of the available evidence, it is not possible to determine to what extent this unemployment is aggravated and prolonged because of unrealistic expectations on the part of school leavers and to what extent it reflects an absolute shortage of jobs. The much lower unemployment rates at the primary education level and among the uneducated appear to give some credence to the first explanation.

Table 12: Distribution of Unemployed Population, Age 10 and Over,
by Age Group and Education, Jakarta, 1972

Age (Years)	No Schooling 1/	Primary Education	Education Level									(Age Distribution)
			Lower Secondary		Upper Secondary		University					
		General Education	Voc./Tech. Education	General Education	Voc./Tech. Education	Academy	Dropout	Graduate				
10-14	31.6	49.4	19.5	2.3	-	-	-	-	-	100.0	(5.0)	
15-19	6.9	33.5	34.5	14.9	4.5	3.1	-	-	-	100.0	(29.5)	
20-24	2.4	15.9	20.2	15.4	23.6	5.2	14.8	2.1	0.6	100.0	(30.8)	
25-29	4.5	18.7	18.7	13.1	23.2	3.0	8.1	9.1	3.5	100.0	(11.4)	
30-34	6.2	20.7	28.1	13.2	14.9	2.5	3.3	0.8	0.8	100.0	(7.0)	
35-39	29.4	27.1	20.8	5.2	10.4	2.1	2.1	2.1	-	100.0	(5.5)	
40-44	26.2	33.3	22.7	6.7	5.3	1.3	1.3	1.3	1.3	100.0	(4.3)	
45-64	30.8	28.0	20.6	12.2	1.9	1.9	1.9	0.9	-	100.0	(6.2)	
65+	-	(33.3)	-	-	-	-	(33.3)	(33.3)	-	100.0	(0.2)	
<u>Averages</u>	<u>11.1</u>	<u>25.7</u>	<u>24.9</u>	<u>13.0</u>	<u>13.2</u>	<u>3.4</u>	<u>6.1</u>	<u>2.0</u>	<u>0.7</u>	<u>100.0</u>	<u>(100.0)</u>	

Source: Urban Unemployment Survey, 1972, Jakarta 1973.

1/ including those not having stated education

Table 13: Distribution of Sample of Jakarta Educated Youth by Level of Education, Age, and Employment Status, 1972 (in Percent)

Age (in Years)	Lower Secondary Education			Upper Secondary Education			High Education					
	Enrolled	Working	Unemployed	N	Enrolled	Working	Unemployed	N	Enrolled	Working	Unemployed	N
17	69.0	1.9	29.1	(361)	-	-	-	1/				
)												
18												
19	63.6	7.0	29.4	(143)	77.9	9.5	12.6	(95)				
20	53.9	14.8	31.3	(128)	46.1	21.1	32.8	(128)				
21					40.0	15.0	45.0	(140)				
)												
22	22.6	22.6	54.7	(106)	43.2	16.2	40.5	(111)	100.0	-	-	(3)
)												
23				)	27.9	25.4	46.7	(122)	69.2	19.2	11.5	(26)
))								
24				)					51.2	19.8	29.1	(86)

N = Size of sub-samples

1/ One observation included in next higher age group.

Source: Lamporan Hasil Penelitian Tentang Pengangguran Dikalangan Tenaga 2 Muda Terdidik Di DKI Jakarta, 1972, Jakarta, 1973.

15. The second source of information is the Educated Youth Survey undertaken in Jakarta in 1972. It is based on a sample of about 1,450 males and females, age 17 to 24, who were either still in school, working, or looking for work. Table 13 shows, for each of the three educational levels concerned (lower secondary, upper secondary and higher education), a decrease in the proportions enrolled with increasing age, which would be obvious, and increases in the proportions of employed and unemployed, which appears to be contradictory. Apart from purely statistical explanations, such as sampling biases, the reason may be that in any given age group, the employed persons might be those who left school earlier, either because they were brighter pupils and finished the course without repeating grades, or because they dropped out of school when they found a job while the labor market was still less restricted whereas their peers in age completed their education only to find employment prospects much diminished.

16. The third source is a follow-up study of school-leavers in Malang (East Java) that was undertaken in 1970 as part of the National Assessment Study. It is of particular interest since it throws lights on the different employment prospects of school leavers from upper secondary general and technical schools, and of graduates and dropouts, respectively. Of the 760 persons selected who had either graduated or dropped out in the two years 1966 and 1968, 377 continued their studies (about 65% of the SMA sample and 25% of the STM sample). Of the rest, 306 could be located. They were distributed as follows:

Table 14: SAMPLE OF GRADUATES BY TYPE OF SCHOOL, YEAR OF GRADUATION, AND EMPLOYMENT STATUS, 1970

	Graduated 1966		Graduated 1968	
	<u>Employed</u>	<u>Unemployed</u>	<u>Employed</u>	<u>Unemployed</u>
SMA	15	22	9	47
STM	43	8	51	70

The table shows clearly superior employment prospects for STM graduates, even for the 1968 cohort, who found already a much tighter labor market. By contrast, the figures for the 1966/68 dropouts do not reveal significant employment differentials by type of school:

Table 15: SAMPLE OF DROPOUTS BY TYPE OF SCHOOL AND EMPLOYMENT STATUS, 1970

	Dropouts 1966-1968	
	<u>Employed</u>	<u>Unemployed</u>
SMA	13	15
STM	7	6

17. These results seem to be at variance with the conclusions from the 1972 Urban Unemployment Survey drawn from Table 11. It is not possible to determine whether this reflects changes in the labor market that have occurred since 1970 or whether it is due to the cities selected: a more comprehensive follow-up study of school leavers would be required to isolate the factors that underlie the employment prospects of school-leavers from different types of school and to determine changes in the structure and content of education that might enhance the employment prospects of school-leavers.

18. The last source of information is the unemployment register of the Ministry of Manpower. Since the regional employment offices are limited to the major urban centers, their coverage cannot be complete, nor can the results be considered representative. Furthermore, the voluntary character of registration can lead to rather irregular fluctuations in the volume of registrations, reflecting more a response to recent changes in the availability of jobs than to changes in the actual numbers of jobless persons. Nevertheless, Table 16, which gives numbers of registered unemployed, job openings, and placements for higher education graduates (sarjana level) during the month of September 1973, should provide a broad picture of relative scarcities or abundance in specific fields of study.

C. GLOBAL EMPLOYMENT PROSPECTS AND MANPOWER NEEDS

Issues for Development

19. Indonesia's development policy is confronted with five closely related and often overlapping issues which for the sake of convenience are discussed here one by one.

20. Development on Java vs. development elsewhere: The geographic mismatch of two of the three traditional factors of production (namely, land and people) is the one fact that dominates Indonesia's development planning and policies. Java and Bali cover less than 7% of the country's land surface but account for more than 65% of its population. Expansion of cultivated areas has been driven to its sustainable maximum and in some cases beyond, as witnessed by the serious erosion problems in parts of Central Java. Since income levels in rural Java are already well below the national average, it is obvious that the land will not be able to support the expected population increase (2.1% per year until 1981) and will not better the livelihood of the population.

21. Until the point is reached where population growth is zero - which still appears to be far away - there are only two possible approaches to this problem, and the government has been using both of them: firstly, to move people from Java to the other islands and secondly, to bring more of the third factor of production, physical capital, combined with improved technologies and organization, to Java.

Table 16: Labor Market for University Graduates (Sarjana Level):
 Summary of Registrations, Vacancies and Placements,
 by Field of Specialization, September 1973

Specialization	Registered Unemployed at beginning of Month	New Registrations During Sept., 1973	New Vacancies During Sept., 1973	Placements During Sept., 1973	Deleted Registration During Sept., 1973	Registered Unemployed at end of Month	Unfilled Vacancies at end of Month
Sciences	33	3	5	-	2	34	5
Technology	19	10	25	7	-	22	42
Agriculture	84	13	12	7	3	87	26
Medicine	-	8	6	8	-	-	25
Arts and Social Sciences	1,017	47	38	8	33	1,023	95
Education	78	2	16	-	-	80	16
Totals	1,231	83	102	30	38	1,246	209

Source: Department of Manpower, Transmigration and Cooperatives.

22. Transmigration seemingly recommends itself as the ideal solution: there is an estimated agricultural reserve of 15-20 million ha. outside Java, and its settlement with transmigrants would go a long way towards solving the country's population problem. However, there are economic and other considerations which impose severe limits on this policy. The economic constraints - relatively high costs - are obvious; the non-economic obstacles, such as the administration's capability to deal with much larger flows of transmigrants, or the potential of the other islands for absorbing them while avoiding major social stress, are no less real. It has been argued in a recent Bank report 1/ that, for the immediate future, an annual outmigration from Java of 50,000 families would be the upper limit which means about 10% of the expected natural population increase. It is therefore not surprising that in the last few years transmigration has been discussed less from the point of view of easing the population pressure on Java, and more under the aspect of developing the other islands and thus creating an economic impetus which would also benefit Java.

23. Development of agriculture vs. development of other sectors: The Bank's recent agricultural sector survey 2/ concluded that future increases in rice output would fall in the range of 3-4% annually, and that about 40% of this growth would result from an expansion of the area under cultivation and the remainder from improvements in yields. Since rice accounts for roughly one quarter of the gross sectoral product (a higher share on Java), it would mean that in order to achieve a sectoral growth above 4% per year, the non-rice segment, including forestry and fishing, would have to grow proportionately faster. The same report considers an average growth rate in those sub-sectors of 5% as feasible, again through a combination of area increases (mainly outside Java) and intensification (mainly on Java). This means that over the next few years the agricultural sector as a whole would grow at a rate neither much below 4% nor much above 4.5%. Since agriculture in turn provides for almost one half of the country's GDP, the same reasoning can be used with regard to the non-agricultural expansion necessary to attain a given growth rate for total GDP. It seems inevitable that if Indonesia is to realize an overall growth rate in excess of the 7% or thereabouts achieved during the first four years of Repelita I, and if Java is not to fall further behind, the latter will have to move at an increasing pace towards non-agricultural activities.

24. Urban vs. rural growth 3/: In the past, industrial and tertiary sector growth has been concentrated in the major cities, particularly in

1/ I.B.R.D. Report No. 183-IND, June 1973.

2/ Ibid.

3/ In the context of this Section "rural" is meant to include the numerous small and middle-sized towns that lie outside the 54 kotamadyas (urban districts).

Jakarta. While this has already put considerable strain on some urban infrastructures, most observers seem to agree that rural - urban migration has not yet reached the uncontrollable proportions some other developing countries are facing, although it may be about to reach that stage. A deliberate choice as to the location, urban or rural, of non-agricultural growth, is therefore both possible and necessary. Although the locational advantages for individual firms may clearly be with the large cities, the advantages for the community could be less so. The massive investments in infrastructure and the possible disuse or insufficient use of existing infrastructure in the areas of out-migration are powerful counter-arguments. So are urban-rural income disparities which despite increases in agricultural productivity that can be expected to take place would no doubt widen, requiring in turn larger revenue transfers from the central to local governments. Finally, the measure of social disruption and alienation that is the companion of unchecked urban growth, would be a charge that ought to be weighed very heavily. The creation of industrial estates which is now underway in a number of urban centers with the aim of spreading more widely the country's economic growth, could be repeated on a more modest scale in numerous minor centers, thus offsetting to some extent the metropolitan pull.

25. Large-scale vs. small-scale production: As in the urban/rural case, recent development has been in favor of larger establishments. As has been pointed out in a previous Bank report 1/, this development was by no means inescapable but rather the outcome of a set of Government regulations that directly or indirectly benefit the larger firms. While it seems doubtful that rapid industrial expansion could be based solely on the small firm sector (the process of industrialization will be rather at its expense), a vigorous growth of the medium-sized firms, accompanied by a consolidation of the small-firm sector, would be a viable alternative to the large-scale variant of growth, provided the necessary policy adjustments are made.

26. Capital-intensive vs. labor-intensive growth: The fifth, and last issue has again much in common with its forerunner, the main difference being the narrower range of choices, due mainly to technological exigencies. Furthermore, this is an area with hardly any factual knowledge. Past development in Indonesia seems to have led to marked regional differences in factor combinations. Existing regional wage differentials and diverse observations by the mission members outside Jakarta would also point in the direction of comparative advantages for labor-intensive industries on Java. As in the case of firm size, existing regulations are thought to give an advantage to capital-intensive ventures.

27. Maximization and equalization: The common denominator for the five issues listed above is a question of the proper balance between growth and equity considerations. During the phase of economic recovery (1966-71) these two big objectives were reconciled reasonably well. However, towards the end of that period, mounting unemployment, particularly of young school leavers, and the plight of impoverished rural areas, started to direct public discussion towards equality considerations. As early as 1971 it had become clear that the social sector (education, health, community services) would be playing a much greater role in future government investment. By that time various subsidy efforts, such as the Kabupaten and Desa programs and the Padat Karja scheme, had already achieved some notable success. It might be added that these programs, by their simultaneous emphasis of growth and equality aspects, show that growth and equality objectives are mutually consistent over a fairly wide range. The following attempt to sketch three alternative development patterns, and to assess their implications for the education system, should be seen in this light.

Alternative patterns of Development

28. The three development plots dealt with in the remainder of the Appendix have one thing in common: they are subject to two conditions which are trite but by no means certain of fulfillment; firstly, that in the years to come international trade will be spared major disruptions, and secondly, that the inflationary pressures accompanying monetary flows of the size and suddenness as the ones that will result from the recent changes in the world's oil markets will be kept under control.

29. The three alternatives differ markedly in their global targets, in the path that is thought to lead there, and in the conclusions to be drawn with regard to education and training. They postulate annual real GDP growth rates of 7%, 9% and 11%, respectively, for the years 1971 to 1981 (in the following they will be called Patterns 7, 9 and 11 for short) 1/. Pattern 7 would be more equality-oriented than the others. In terms of the five broad issues discussed before, it would stress the improvement of conditions in rural Java. Subsidy schemes would focus on the employment side and try to reach as large a number of people as possible, which might compromise the strict adherence to the principle of maximum developmental impact in the choice of individual projects which appears to have been a mark of the Kabupaten and Desa programs so far. Development outside agriculture would tend to favor small-scale units and concentrate on those branches that have the greatest potential for absorbing labor, thus possibly foregoing faster economic growth elsewhere.

1/ The backdating to 1971 has been done because the requisite detailed employment and manpower data exist only for the census year 1971, and secondly, because GDP figures for 1973 are not yet known and those for 1972 are still preliminary estimates.

30. Pattern 11 on the contrary would tend to concentrate resources in areas and sectors that would promise substantial and rapid economic growth. There would be a greater emphasis on transmigration and extension of cultivation outside Java. Agriculture on Java would move more rapidly than in the first case towards greater capital intensity, perhaps leading to larger numbers of redundant labor. Relief schemes would aim at developing infrastructure of a type and in places where it would contribute most to economic development, which would tend to be in the more prosperous rather than the depressed rural areas. Non-agricultural development would result on the average in larger units of production becoming increasingly capital-intensive while the present trend of industrial location towards urban areas (with the obvious important exception of mining) would continue.

31. The intermediate pattern would obviously aim at striking a balance between the two previously discussed, although investment decisions may more often than not be governed by output growth rather than employment considerations.

32. While Pattern 7, which in terms of annual GDP growth rates would be more or less a continuation of recent trends, does not seem to face major difficulties, the other two alternatives certainly do. As has been said in the beginning of this Section, Pattern 11 seems very difficult to realize, if only because even a massive investment boom now would take, say, two years to show up in output and employment figures, thus requiring even larger growth rates towards the end of the projection period in order to arrive at an average GDP growth rate of 11%.

Table 17: ALTERNATIVE PATTERNS OF AGRICULTURAL AND NON-AGRICULTURAL GROWTH, 1971-1981
(in Rps. Billion at 1971 Market Prices)

		Pattern 7		Pattern 9		Pattern 11	
Base Year	Annual Growth Rates (%)	1971	1981	Annual Growth Rates (%)	1981	Annual Growth Rates (%)	1981
Agriculture	1,654.6	4.0	2,449.2	4.5	2,569.5	5.0	2,695.2
Non-Agricultural Sectors	<u>2,139.7</u>	8.9	<u>5,014.7</u>	11.6	<u>5,413.0</u>	14.2	<u>8,078.4</u>
Total GDP	3,794.3	7.0	7,463.9	9.0	8,982.5	11.0	10,773.6

33. The employment growth assumed to be associated with these GDP patterns is as follows: for the 7% alternative, a 2.7% annual growth rate of total employment is estimated, for the 9% pattern, one of 2.9% and for the 11% pattern, one of 3.0%. This means incremental employment/output

ratios of 0.39, 0.32 and 0.27, respectively (as compared to 0.25 for the period 1965-71 and 0.50 for the decade 1961-71). In agriculture, employment growth is expected to decrease as output growth increases, from 1.50% over 1.25% to 1.00% annually for patterns 7, 9 and 11, respectively. For the non-agricultural sector, employment is assumed to increase at a decreasing rate, namely by 4.5%, 5.2% and 5.7%, implying incremental employment/output ratios of 0.50, 0.45, and 0.40.

Table 18: ALTERNATIVE PATTERNS OF EMPLOYMENT GROWTH IN AGRICULTURE AND NON-AGRICULTURAL SECTORS, 1971-1981 (in Million Persons)

Base Year Employment 1971	<u>Assumed Annual GDP Growth Rate of</u>					
	7%		9%		11%	
	Ann. Empl. (%)	Employment 1981	Ann. Empl. (%)	Employment 1981	Ann. Empl. (%)	Employment 1981
Agriculture	24.8	1.5	28.8	1.3	28.1	1.0
Non-Agricultural Sectors	<u>14.4</u>	4.5	<u>22.4</u>	5.2	<u>23.9</u>	5.7
Total Economy	39.2	2.7	51.2	2.9	52.0	3.0
						52.5

34. Future unemployment levels are subject to much greater uncertainties. This is partly due to divergent definitions which cause even estimates of present unemployment to vary by a factor of two to three. The most crucial link in the chain of assumptions leading to unemployment projections, however, is the expected labor force participation rate. With an estimated population of age 10 and over of 106.0 million in 1981, a seemingly minor shift in the participation rate, say, by one percentage point, means a difference of one million people. In the case of Indonesia, neither the irregular development of the decade 1961-71 nor the example of other countries seem to be reliable indicators of future developments. If labor force participation rates remained unchanged, the 1981 labor force would number 52.9 million persons, resulting in nominal unemployment figures of 1.7 million, 0.9 million and 0.4 million, respectively under the 7%, 9% and 11% growth assumptions as compared to 0.9 million in 1971.

Implications for Education and Training

35. In order to provide a framework for a more general discussion, the projections in this Appendix will concentrate on large blocks in the labor

force, rather than dealing with a variety of diverse occupations and the corresponding educational equivalents one by one. Four broad types and levels of skills will be distinguished namely "professionals" (or level A), "technicians" (or level B), "skilled workers" (or level C), and "bulk occupations" (or level D). The "ideal" education/training requirements for these groups are a university degree in the case of level A, full secondary education followed by some post-secondary education or training for level B, not less than nine years, i.e., complete lower secondary education and instruction in a trade for level C, and an unspecified amount of education and training below that level for the last group D. "Bulk occupations" comprise the dominant occupations - all at a semi-skilled and unskilled level - in a given sector, e.g., farmers and farm workers in agriculture, the mass of production and sales workers in manufacturing and commerce, respectively, or domestic personnel in the services sector. The specific vocational preparation for the bulk occupations, typically through "on-the-job" training, would be in most cases up to one month for unskilled workers, as compared to, say, two to four years of formal vocational training for the majority of the skilled workers.

36. A second comment relates to the use of the terms "manpower needs" or "requirements". They mean numbers of persons with given characteristics, e.g., education, skills, etc. necessary to produce an output of a certain size and composition (given the present or assumed future capital stock and technology). The effective manpower demand may very well differ from them, either in an upward or downward direction, the prime example for the latter being continuing vacancies in the government sector due to budget constraints and, for the former, featherbedding. Throughout this Appendix, the subject is manpower requirements.

37. There are four possible ways to overcome skill shortages that do not involve a country's formal education and training system, namely:

- (a) providing incentives for skilled personnel not in the labor force to enter it (e.g., retired persons, housewives, etc.); in the case of Indonesia, this skill reserve seems to be of little numerical importance;
- (b) hiring foreign manpower: on August 1, 1973, almost 14,000 foreigners were holding valid work permits. An occupational breakdown of 15,465 foreigners on January 1, 1973, showed that 523 were professionals, 1,412 technicians, and 3,016 skilled workers. 1/ It is quite possible that accelerated economic development

1/ The majority of the semi-skilled and unskilled foreign workers in Indonesia are employed in the forestry and plantations sectors. They come mostly from neighboring Malaysia.

(particularly Patterns 11 and 9) would require a temporary increase in the numbers of foreign personnel, particularly at the technician level;

- (c) vertical substitution: this can both be upward and downward. Typical for the former is the promotion of experienced personnel from the bulk occupations into skilled worker positions, or of skilled workers to technician's jobs. Downward substitution is often resorted to in cases of technician deficits; the recruits are either university dropouts or less qualified graduates and in general this variant of vertical substitution is less successful (mainly because the compensatory experience is usually lacking). On the grounds of the available evidence, which is admittedly scant, one has to conclude that vertical substitution has already reached considerable proportions in Indonesia and that it may not be possible to continue with it much further;
- (d) accelerated training: this expedient is used very often together with vertical substitution and is most frequent at the skilled worker level. There is very little information available, and it seems that, for cost reasons, it is used almost exclusively by large firms. Its drawbacks are high unit costs and diversion of scarce personnel and equipment from production tasks (if carried out in the firms during working hours). Its advantages are both speed and flexibility which would appear to recommend it for a more widespread use in a country such as Indonesia.

D. AN OUTLINE OF FUTURE MANPOWER REQUIREMENTS
AND RELATED EDUCATION/TRAINING NEEDS

38. The 1971 stocks of persons in the four broad occupational categories have been estimated from the census tabulations of the occupational and the educational structure of the labor force, with additional information provided by a number of other sources, notably data from several regional Manpower Resort Offices. The estimated stocks are about 180,000 for Category A, 540,000 for category B, 1,450,000 for category C, and 36.9 million in category D, implying an overall ratio of 1:3 between professionals and technicians, and of 1:10 between skilled workers and total employment outside agriculture.

39. The education/skill composition of these alternative future work forces given in Table 11 and the corresponding education and training needs will not be estimated by the customary manpower requirements method, which follows the sequence: estimation of GDP and total employment--estimation of sectoral employment--occupational composition of sectoral employment--educational profiles of occupation--education and training needs. The projections rather proceed directly to an estimate of broad education/skill requirements for the whole economy and derive the education/training needs from these global figures.

40. There are three reasons for this simplification: Firstly, earlier experience with manpower planning has shown that the final results are rather insensitive to the intermediate steps in this chain of projections, i.e., the sectoral breakdown of global employment estimates and the establishment of occupation/sector matrices. The initial assumptions about GDP and employment growth and the final step of determining the future educational profile have a much greater influence on the educational requirements projections. Secondly, since the occupation/education tabulations of the 1971 census are not yet available, it would be necessary to replace them with estimates based on earlier data that differ both in coverage and definitions, thus introducing a source of considerable potential error in return for some possible refinements in the projections. Thirdly, the occupational tabulations for the 1971 census are open to some doubt. For instance, the fact that 3.5% of all employed are classified as administrative and managerial workers (a percentage which is far above those observed in most other countries), and their concentration in rural areas (over 85% of the total) suggest that proprietors of small businesses may have been included in this category. This would make the use of the tables for projection purposes difficult since it rules out checking procedures such as international comparisons.

41. Between 1971 and 1981, the proportion of Category A workers in total employment is assumed to stay at its present level of about 0.6%, with the 7% GDP growth pattern and rise to 0.7% and 0.75%, respectively, under the 9% and 11% pattern. The level A/level B ratio is left unchanged at 1:3 for all three growth alternatives. The proportion of level C workers to the total volume of non-agricultural employment is assumed to rise from

10% to 12% under the 7% and 9% GDP growth patterns, and to 12.5% with the assumption of an annual GDP growth rate of 11%. This set of assumptions appears justified in view of the more complex production processes implied by steeper GDP growth paths; it is also consistent with the experience of other countries. Omitting, for the sake of simplicity, the residual level D category, this set of hypotheses would result in the following alternative education/skill patterns in 1981.

Table 19: PROJECTED EMPLOYMENT IN MAJOR SKILL CATEGORIES IN 1981, UNDER ALTERNATIVE GDP GROWTH ASSUMPTIONS
(in 1,000, Rounded)

	Assumed Annual GDP Growth of		
	<u>7%</u>	<u>9%</u>	<u>11%</u>
Level A (Professionals)	310	360	390
Level B (Technicians)	930	1,080	1,170
Level C (Skilled Workers)	2,700	2,900	3,100

42. The average annual requirements (in 1,000) for the period 1971-81 would thus amount to 13.0, 18.0, and 21.0 for professional personnel, to 39.0, 54.0 and 63.0 for technicians, and to 125.0, 145.0 and 165.0 for skilled workers. Allowance has also to be made for the gradual depletion of the initial stocks due to invalidity, retirement, or death. The annual attrition is assumed to be 1.2% for level A personnel keeping in mind that the great majority of the present stock has started their working life only recently, 2.0% for level B (where the stock is probably a mixture of young entrants into the group and of older people who have qualified for this level through an extended work experience rather than formal education), and 3.3% for level C (where the extent of the on-the-job qualification and hence average age is probably even higher). The assumptions would result in annual replacement needs (in 1,000) of 2.0, 10.0, and 40.0, respectively, bringing the average annual manpower needs to the following totals:

Table 20: PROJECTED AVERAGE ANNUAL MANPOWER NEEDS
BETWEEN 1971 AND 1981, BY MAJOR SKILL
CATEGORIES
(in 1,000, Rounded)

	Average Annual GDP Growth of		
	<u>7%</u>	<u>9%</u>	<u>11%</u>
Level A (Professionals)	15.0	20.0	23.0
Level B (Technicians)	49.0	64.0	73.0
Level C (Skilled Workers)	165.0	185.0	205.0

43. The translation of these manpower needs into education and training requirements is burdened with many uncertainties, given the scarcity of information on the relevant characteristics of Indonesia's workforce, particularly on educational attainment, skills, and work experience. Two broad assumptions seem to be safe: (i) vertical substitution between neighboring skill categories is already widely applied; and (ii) the possibilities of continuing with it will decrease the faster the rate of GDP growth, in view of the required change to more complex technologies. With these two reservations in mind, the following specific assumptions, which are arbitrary but consistent with the scant information available, have been made: (i) the proportion of the addition of workers to be given formal institutional training is in the case of Pattern 7, 50, 40, and 25 percent, respectively, for professionals, technicians, and skilled workers; (ii) increases in all these proportions of 5 and 10 percentage points, respectively, are considered necessary in order to achieve the two higher GDP growth rates (i.e., 9 and 11 percent annually). This would mean percentages of 55, 45, and 30, respectively, for skill levels A, B and C in the case of Pattern 9, and of 60, 50, and 35 in the case of Pattern 11.

44. The annual education and training requirements resulting from these assumptions are as follows:

Table 21: PROJECTED AVERAGE ANNUAL EDUCATION/TRAINING NEEDS
BETWEEN 1971 AND 1981, BY SKILL LEVEL
(in 1,000, Rounded)

Skill Level	Education/Training Required	Assumed Average Annual GDP Growth Rate		
		7 Percent	9 Percent	11 Percent
A (Professionals)	University	8	11	14
B (Technicians)	Post-Secondary	20	29	37
C (Skilled Workers)	Vocational	41	56	72

45. A comparison of these alternative projected education and training requirements with the present capacity of Indonesia's education and training system leads to the following tentative conclusions:

- (a) Level A: The size of the country's higher education system should be sufficient to meet the needs even under the maximum GDP growth assumption. Problems might arise with regard to the quality of part of the higher education institutions, their ability to retain students (which in turn is related to the quality of the preceding education cycles, in particular, the upper secondary schools), and the proper quantitative balance between the various fields of study;

- (b) Level B: The system is presently unable to train the numbers required nor have the proper education/training paths have been established. The present academies, after due restructuring, might provide a suitable basis for imparting the skills required at this level. For the immediate future, however, the system will not be able to train the necessary numbers (even under the assumption of moderate GDP growth), so that on-the-job training and both upward and downward substitution, i.e., transfers from levels A and C will have to make up for the training deficit;
- (c) Level C: The quantitative shortfalls of the education and training system are even more obvious at this level. While the general education system should be able to provide non-vocational education to this extent, the necessary complement of vocational training does not exist. Again the short-term solution will be substitution (upwards from the level D bulk occupations), and the provision of a variety of accelerated vocational training schemes, the common denominators of which will be short duration, acceptability to the trainees (convenience of the specific work/training combination) and employers (minimal interference with the production process), and economy of resource use.

46. Complementary Education and Training: The review has so far been limited to the education and training requirements of a very small fraction of the total labor force. The unskilled and semi-skilled occupations, including farmers and groups such as rural women or unemployed youth, have been omitted from the above projections. However, they too constitute potential target groups for the education and training system. The main difference between them and the higher skill categories is that education and training efforts in their case would not be directed at imparting specific vocational knowledge and skills but rather give them general knowhow so that they would either be able to work more productively or to tap additional sources of income, or else improve their lives in a more general way, i.e., through better knowledge of health care and nutrition.

47. For these groups, there is no meaningful way of estimating training requirements that are in relation to certain economic growth targets. The volume of training activities would rather depend on the size of the training system, the availability of funds and the effective demand of the target groups. Under the assumptions used here, however, it would be desirable if this compensatory training effort would increase with the rate of GDP growth since it has been implied that the incremental employment/output ratio would fall; hence a greater need to impart a variety of marketable skills for those left outside employment.

THE EDUCATION AND TRAINING SECTOR IN THE SECOND
FIVE-YEAR DEVELOPMENT PLAN (1974-79) 1/

A. Summary of Planned Measures

1. This Appendix is limited in two respects: first, it refers only to that part of Indonesia's education and training system for which the Ministry of Education has responsibility, as dealt with in Chapter 22 of the draft of the Second Five-Year Development Plan: Education and Development of the Young Generation. The chapters concerning the activities of other Ministries such as Agriculture, Manpower or Religion have not yet become available to the mission, hence a review of the envisaged education/training efforts of those Ministries has to be postponed until the relevant information has been received.

2. Second, it appears that Chapter 22 had to be prepared under considerable time pressure resulting in a general lack of details necessary for a proper evaluation, and in a somewhat isolated treatment of the various components of the education system.

3. This first part of this Appendix includes an enumeration of the measures envisaged by the Government as outlined in Chapter 22 of the Second Five-Year Plan, and in roughly the same order. The second part tries to evaluate them and to single out some problems that demand further attention.

4. As outlined in the President's Address of State of August 16, 1973, development policies during Repelita II emphasize the role of the social sector and aim at bringing about a more equal participation of all population groups in the process of economic and social development.

5. In accordance with this principle, the January, 1974 version of the Second Five-Year Development Plan gives a prominent place to the further expansion and improvement of education and training and its integration with economic development in general. This Appendix contains a brief summary of the planned development for each level and type of education, discussing separately enrollment targets and other--quantitative and qualitative--goals.

6. Primary Education. It is expected that the recent provision of additional facilities will permit an additional first grade intake of 720,000 pupils. By 1978, the primary school system will be able to enroll 20.9 million pupils (compared with 13.6 million in 1973), of whom 19.6 million will be in the 7-12 years age group, which means a net enrollment rate of 85.2 percent.

1/ This evaluation is based on the January 1974 version of the Second Five-Year Development Plan.

7. The need for additional teachers deriving from this expansion is 100,000 (assuming a pupil:teacher ratio of 40:1); another 89,000 teachers will be needed to make up for the depletion of the present stock which is estimated to occur at a rate of 4 percent annually. The total average primary teacher needs during the period 1974-79 will thus be 39,000 per year--a figure about 50 percent above the present output level. Qualitative improvements will center around the production of 179 million textbooks to support the teaching of Bahasa Indonesia, mathematics, social science, and natural science. The establishment of school libraries starting with a first stock of 100 books for each school, or a total of 7.5 million books, is envisaged as a supplementary step. Finally, the efforts to improve primary education will be supported by a more intensive supervision and guidance of primary schools. To this end the staff of 2,800 inspectors will be maintained and its quality continuously upgraded.

8. Lower Secondary Education (SLTP). The capacity of lower secondary education will be expanded to permit the intake of 85 percent of primary education graduates by 1978, as compared to 80 percent at present. In absolute numbers, this will mean an increase in lower secondary enrollments from 1,536,000 in 1973 to 2,056,000 in 1978. The intake into the first grade of lower secondary education will grow from 642,000 to 799,000 during this period. Assuming a pupil:teacher ratio of 18, the related teacher requirements, including an allowance for replacement needs, will be 35,000 or 7,000 p.a. During the plan period, 15,000 lower secondary school teachers will undergo upgrading courses.

9. The present diversity of lower secondary schools will be gradually replaced by a unified lower secondary school. This development will be accompanied by quality improvements in five curriculum areas (Bahasa Indonesia, mathematics, social science, physics, and English) and the introduction of vocational/technical skill development elements into the curriculum.

10. During 1974 and 1975, a special effort will be made to rehabilitate all government school buildings, a total of 1,500. This process of upgrading the lower secondary education facilities includes the provision of one fully equipped natural science/physics laboratory in all schools that presently lack one. By the same token, the schools will be given equipment for physical education, art classes, and the vocational/technical curriculum elements referred to in the previous paragraph.

11. To support the above-mentioned efforts to improve teaching in five curriculum areas, an average of 20 textbooks per student will be provided, totalling over 40 million copies.

12. Upper Secondary Education (SLTA). Upper secondary enrollments are expected to increase from 925,000 in 1973 to 1,164,000 in 1978 (including 239,000 and 278,000 respectively, outside the jurisdiction of the Ministry of Education). The increase in enrollments in schools controlled by the Ministry of Education over these five years will be 200,000, or 29.2 percent. In the various types of upper secondary education, the following developments are envisaged:

13. General Education (SMA). Additional enrollments will number 117,200 students by 1978; 11,000 additional teachers will be required, as well as an upgrading effort similar to that in lower secondary education. To facilitate and support the task of the teachers, the supervisory and technical services structure will be strengthened. All government schools, a total of more than 500, will be rehabilitated in 1974 and 1975. The pattern would be the same as for lower secondary schools, except that the norm for laboratories would be two for each school (one for natural science/physics and one for chemistry). The provision of library books is also planned.

14. Senior Technical Schools (STM): During the period of the Second Five-Year Plan, there will be a particular stress on quality improvements. The five Technical Training Centers provided under the first World Bank Education Project in Indonesia (App. D, para 1) are expected to play a key role in this process.

15. Technical teacher training and upgrading will be improved and concentrated in a smaller number of training institutions. As in general education, supervisory and technical services will be intensified. Finally, five million copies of textbooks in five subject areas will be made available, and draft textbooks for seven technical/vocational courses will be developed.

16. A new and very important development during the next plan period will be the establishment of close links between the Government and the business world as the main users of technical school leavers with a view to improve the quantitative and qualitative fit between the output of the education system and the requirements of the labor market.

17. Senior Commercial and Home Economics Schools (SMEA and SKKA): The intention to provide a closer link between the education system and the man-power needs of the economy will also guide the development of these two types of upper secondary education. There is a particularly urgent need for more and better equipment as well as for textbooks, the latter being estimated at 6 million copies. Provision of additional teachers will be based on a pupil/teacher ratio of 15:1 and annual replacement needs of 4 percent. At the same time, the teachers already in service will undergo additional training and the quality of their work enhanced by better support services.

18. Primary Teacher Training (SPG). The present annual output is about 25,000, which would not be sufficient to meet the requirements of 189,000 primary school teachers for the period 1974-79 stated in para 7 above. However, since the past recruitment stop for civil servants has resulted in a considerable backlog of unemployed SPG graduates, this type of education will have to be expanded to a lesser extent than would appear from the above-mentioned figures. The training of new teachers as well as refresher courses will include as an important element guidance for the creation and use of simple teaching equipment from locally available materials.

19. A more balanced regional distribution of facilities is deemed desirable, as well as qualitative improvements in facilities and equipment. Among the latter, the provision of all textbooks to be used in the primary schools, as well as of the accompanying teacher's manuals, to each SPG student, will have high priority.

20. A system of scholarships and an appointment guarantee for the teacher trainees upon graduation are further measures which are thought desirable in order to obtain a sufficient absolute level, as well as a representative composition, of applicants for the teaching profession.

21. Higher Education: The three functions of Indonesian higher education: teaching, research and community services, will be developed simultaneously during the plan period. The present level of enrollments, about 330,000, will be increased by about 22 percent over the next five years; this is an expansion almost matching the growth attained during the first plan period. The draft plan, however, shows an awareness of the need to regulate enrollment and to avoid the development of major surpluses or shortages of graduates in certain fields of study. It appears that the main emphasis in higher education will be on quality improvements, one of the major problem areas being the high rate of dropouts. Fields of study which are singled out for special attention and support are agriculture, geology, civil engineering and accountancy training.

22. Qualitative improvements will encompass the areas of curriculum, teachers and other personnel, library services, and infrastructure for research. A continuation and strengthening of the cooperation between pembina and non-pembina institutions 1/ is envisaged. Modification of the certification system aiming at a dual structure of "degree" (Ph.D./master's) and "non-degree" (diploma/certificate) programs is hoped to provide the necessary manpower at professional and sub-professional levels and contribute to a solution of the dropout problem.

23. The community service role of higher education will be enhanced through an expansion and intensification of community support work by students and university staff through schemes such as BUTSI. Research efforts will be aiming in the same direction.

24. Non-Formal Education. Although activities in this field will be expanded and improved upon over the next years, no special investment efforts are envisaged as this work is to be carried out in existing facilities such as schools, community centers, etc.

B. Evaluation of Education Investment Plans

25. In order to assess the appropriateness and adequacy of development budgets for the education and training system, it is necessary to know both

1/ See Glossary and Appendix A, Ch. F.

the objectives of educational policies and to have a precise idea of the quantitative basis of the plans. The available information is insufficient on both counts.

26. As regards the ranking of educational objectives, it appears that educational quality ranks foremost at practically every level of education. Equality of educational opportunity seems to come second, external productivity third, and internal efficiency last. The apparent neglect of internal efficiency aspects in the draft plan is somewhat surprising, given that most measures suggested have a bearing on that objective. 1/ An evaluation of the individual policy measures in terms of the underlying objectives seems to indicate a concern for educational quality over-riding every other objective. The implicit assumption may be that quality improvements would also provide a solution in terms of internal efficiency and external productivity whereas educational expansion would tend to enhance equality of educational opportunity. This is not necessarily always the case.

27. With respect to the relationship between the quantitative basis of educational development (number of students, size and composition of teaching force, facilities and equipment), the plan lacks the necessary details, which makes any assessment difficult. The enrollment structure in upper secondary and higher education is left an open question, which in turn gives a considerable margin of uncertainty to the estimated development expenditure.

28. On the whole, the planned level of development expenditure appears to be very high and suggests an enormous strain on the implementation and supervision mechanism of the Government, as well as on the production capacity of the economy, particularly the construction sector. This concern is heightened by the fact that similar investment efforts are contemplated in other fields of government activity.

29. Furthermore, the plan appears to neglect possible economies of scale which educational expansion would often entail, as well as economy of resource use in general. Cases in point are the continued existence of three parallel school systems (secular, religious and private), to name a more general example, and the planned provision of one (two) laboratories for each lower (upper) secondary school, to quote a specific one.

30. Insufficient attention appears to have been given to the links between ends and means. This shortcoming is partly explained by the failure to quantify the planned development of the education system in terms of its four main objectives (with the exception of educational quality). No indication is given as to the target levels for repetitions and dropouts,

1/ It is possible that the plan used the term "quality of education" synonymously for quality and efficiency. The almost complete omission of the problems of repeaters and dropouts from the discussion seems to contradict this.

or the extent to which regional or urban/rural inequalities will be reduced. However, as can be inferred from Table 1, this open-endedness about the desired future characteristics of the education system is matched by a general uncertainty about the effects of the suggested policy measures.

31. This points to one of the major difficulties with which education policy making, despite five years of strenuous efforts, is still faced, namely the lack of relevant information about the education system and its workings. This is a recurrent theme both of the National Assessment Study and of this Survey. It would appear precipitate to commit investment funds in the order of magnitude envisaged in the plan without an approximate knowledge at least of how this investment would affect the performance of the education system. Increased efforts at both fact-finding and analysis should accompany budgetary expansion of this order if serious misallocation of resources is to be avoided.

Table 1: Education Chapter of Draft Second
Development Plan: Relationships Between
Ends and Means (Summary)

Proposed Policy Measure	Relevance for Specific Policy Objectives			
	Quality of Education	Equality of Opportunity	Internal Efficiency	External Productivity
A. Primary Education				
(1) Enrollment Increase	x	x	(x)	
(2) Improvement of Supervision	x		(x)	
(3) Libraries	x			
(4) Curriculum Development	x			(x)
(5) Double Scheduling, Consolidation of Classes			(x)	
(6) Upgrading of Teachers	x		(x)	
(7) Development of Simple Teaching Equipment	x		(x)	
B. Junior Secondary Education				
(1) Enrollment Increase		x	(x)	
(2) Rehabilitation of School Buildings	x			
(3) Provision of Equipment	x			
(4) Distribution of Textbooks	x		(x)	
(5) Libraries	x			
(6) Improvement of Supervision	x		(x)	
(7) Upgrading of Teachers	x		(x)	
(8) Strengthening of ITTP ^{a/}	x			

a/ Institute of Teachers Training and Pedagogy

Table 1: Education Chapter of Draft Second
Development Plan: Relationships Between
Ends and Means (Summary) - (Cont'd)

<u>Proposed Policy Measure</u>	<u>Relevance for Specific Policy Objectives</u>			
	<u>Quality Education</u>	<u>Equality of Opportunity</u>	<u>Internal Efficiency</u>	<u>External Productivity</u>
C. Senior Secondary Education				
(a) SMA				
(1) Enrollment Increase			(x)	
(2) Rehabilitation of School Buildings	x			
(3) Upgrading of Teachers	x			(x)
(4) Improvement of Supervision	x			(x)
(b) STM				
(1) Strengthening TTCs ^{b/}	x			
(2) Expansion of TEIs ^{c/}				(x)
(3) Distribution of Textbooks	x	(x)		
(4) Improvement of Supervision	x			(x)
(5) Consolidation of Technical Teacher's Training	x			x
(6) Cooperation with Enterprises	(x)			x
(c) SMEA/SKKA				
(1) Enrollment Increase		x		
(2) Libraries	x			
(3) Distribution of Textbooks	x			
(4) Upgrading of Teachers	x			(x)
(5) Improvement of Supervision	x			(x)
(d) SPG				
(1) Enrollment Increases	(x) ^{d/}	x	(x) ^{d/}	
(2) Provision of Equipment	x		(x)	
(3) Boarding Facilities		(x)	(x)	
(4) Libraries	x		(x)	
(5) Distribution of Textbooks and Manuals	x			
(6) Scholarship System		x		
(7) Employment Guarantee for Graduates		x		(x)
(8) Improvement of Supervision	x			(x)

b/ Technical Training Centers
c/ Technical Education Institutions
d/ Refers to primary education

Table 1 : Education Chapter of Draft Second Development Plan: Relationships Between Ends and Means (Summary) - (Cont'd)

<u>Proposed Policy Measure</u>	<u>Relevance for Specific Policy Objectives</u>			
	<u>Quality of Education</u>	<u>Equality of Opportunity</u>	<u>Internal Efficiency</u>	<u>External Relevance</u>
D. <u>Higher Education</u>				
(1) Enrollment Increase		(x)		(x)
(2) Cooperation between Universities	x			
(3) Curriculum Development	x			x
(4) Integration of Higher Education Service Schemes	x			
(5) Modification of Certificate System	(x)		x	x
(6) Strengthening of Community Service Schemes	(x)			x
E. <u>Non-Formal Education</u>				
(1) Expansion of Activities		x		x
(2) Program Development		x		x
F. <u>Other Areas</u>				
(1) Talent Development Program		x		
(2) Government Personnel Training	x			x
(3) Improvement of Information System	(x)	(x)	(x)	(x)
(4) Educational Experimentation, Pilot Programs	(x)			(x)

Note: x = explicit link (mentioned in Draft Plan)
(x) = implicit link

Source: Second Five-Year Development Plan, Chapter 22: Education and the Development of the Young Generation (January, 1974). Page numbers refer to Unofficial English Translation prepared in the Bank.

SUMMARY OF BANK GROUP PROJECTS UNDER IMPLEMENTATION

A. First Education Project - Credit 219-IND
Secondary Technical Education Project

Amount of Credit	US\$4.6 million
Amount Disbursed (6/30/73)	US\$0.05 million
Date of Credit Agreement	November 6, 1970
Effective Date	January 29, 1971
Closing Date	December 31, 1976

1. The objective of the first education project is to improve the quality of education and training given in upper secondary technical schools (STMs) and to help in meeting requirements for industrial craftsmen. The implementation of externally financed projects approved in 1967-69 in the field of manufacturing and processing will alone create about 7,500 new jobs for technicians and craftsmen. In addition, an increasing demand for middle-level manpower is being generated as a result of the public sector development programs. Additional jobs will open as the economy gathers momentum.

2. The project is designed to improve practical training in selected senior technical secondary schools in major areas of industrial employment. It consists of:

- (a) construction of, and equipment for, five new technical training centers (TTCs);
- (b) training of 330 senior technical secondary school staff; and
- (c) 12 man-years of technical assistance to help the Indonesian counterparts in the initial operation and supervision of the centers.

The project cost is estimated at US\$7.6 million equivalent with a foreign exchange component of US\$4.6 million.

3. The capacity, number of STM students served and the estimated annual output of graduates from STMs which benefit from the project are as follows:

<u>Location</u>	<u>Capacity</u>	<u>No. of STM students served</u>	<u>Estimated Annual Output</u>
Jakarta	740	3,700	1,110
Bandung	720	3,600	1,080
Surabaya	640	3,200	960
Medan	480	2,400	720
Ujung Pandang	<u>380</u>	<u>1,900</u>	<u>570</u>
Total	<u>2,960</u>	<u>14,800</u>	<u>4,440</u>

Each technical training center (TTC) is a centralized workshop which provides practical facilities for an average of three satellite STMs. In other words, each place in a TTC will be used by five STM students. With the centralized workshop, the practical content of the STM course will be increased from 8% of the student's weekly timetable to about 40%. The TTCs will provide about 80 periods of practical training per week and be used about 90% of the available time on a doubleshift basis.

4. The workshops provided in the TTCs cover five fields: mechanical/machining and fitting, automotive, electrical, electronics, and building construction. The staff requirement was originally estimated at 330 but has been revised upwards to 560 to allow for two teachers per shop. Technical assistance to the project has been provided by U.K. government under a bilateral aid program.

5. Project implementation has generally been satisfactory, although initial delays in contracting consulting architects have put the project 12 months behind schedule. This delay is being reduced as all five civil works contracts have been awarded and construction is expected to be completed by early 1975 as originally planned. About half of the equipment will be installed by the end of April, 1975 when the first group of students will start using the facilities. Staff training, the key issue in the project, has been progressing satisfactorily under the U.K. bilateral aid program and will be completed in 1975.

6. According to the latest estimates (September 30, 1974), the total project cost is expected to exceed the original appraisal estimate plus contingencies by almost 30 percent (US\$9.8 million vs. US\$7.6 million) due to cost overruns in civil works and equipment. The likely final cost per training place could be about US\$2,850, still not excessive for vocational training facilities. Even with five TTCs, the output of well-qualified STM graduates will be well below the effective market demand for persons with such skills. Three additional TTCs (to be located in Palambang, Semarang and Yogyakarta) have therefore been suggested for appraisal as part of the forthcoming fourth education project.

B. Second Education Project - Credit 288-IND
Agricultural Education and Training Project

Amount of Credit	US\$6.3 million
Amount Disbursed (2/28/74)	US\$0.120 million
Date of Credit Agreement	March 9, 1972
Effective Date	June 7, 1972
Closing Date	June 30, 1976

7. Indonesia's economy is mainly rural with a substantial element of subsistence agriculture. In support of the First Five-Year Plan (1969-73), which accords high priority to the achievement of self-sufficiency in food, the project is designed to improve the currently inadequate education and training for middle-level agricultural workers. Development of this second education project was somewhat delayed because of the inadequate organization for training within the Ministry of Agriculture and the lack of information on agricultural training programs and institutions. However, an FAO mission completed an agricultural training study in 1971. It concluded that the government should above all (a) upgrade its in-service training programs (ISTCs) for the technical and administrative staff of the Ministry of Agriculture and (b) upgrade and expand selected institutions such as Senior Agricultural High Schools (SPMAs) which provide middle level technicians and extension workers. Since the majority of the state SPMAs and ISTCs did not have enough qualified staff, laboratories, workshops, equipment and farm facilities for practical training, a credit of US\$6.3 million was made in 1972 to overcome these weaknesses.

8. The two objectives of the project are:

- (a) to reorganize the administration of agricultural training within the Ministry of Agriculture and to improve its efficiency and effectiveness; and
- (b) to upgrade and expand selected middle-level agricultural training institutions.

More specifically, the project provides financial assistance for

- (a) the establishment in the Ministry of Agriculture of an Agency for Agricultural Education and Training and a Project Implementation Unit;
- (b) the rehabilitation, expansion and equipping of thirteen In-Service Training Centers and a Training Institute for extension workers;
- (c) the construction and equipping of two new agricultural senior secondary schools (SPMAs) and the rehabilitation, expansion and equipping of twelve agricultural senior secondary schools;

- (d) the construction of one and the equipping of two forestry technician training centers; and
- (e) technical assistance comprising 24 man-years of specialist services and 28 man-years of fellowships for training of local staff.

9. The project cost was initially estimated at US\$12.3 million equivalent with a foreign exchange component of US\$6.0 million; the amount of the Credit is US\$6.3 million. The latest revision of the project cost by the Project Implementation Unit to US\$21.9 million (as of June 30, 1974) reflects recent inflation.

10. The Agency for Agricultural Education and Training (BPPLP) will take over the responsibility for agricultural training from the five Directorates General which presently administer independent training programs and become responsible for the unified management of agricultural education and training in Indonesia, including the administration of project institutions and all other agricultural and related training institutions, and the rationalization of all training programs.

11. The thirteen Agricultural In-service Training Centers included in the project will give middle level in-service upgrading and refresher courses in Agricultural Services, Animal Husbandry, Plantations (smallholders) and Fisheries (inland) to Ministry of Agriculture staff. This quality improvement should lay the foundation for the strategy of reorganizing extension into an integrated service and for increasing agricultural productivity through an improved extension service. The dual purpose of the Agricultural Training Institute is to provide annually one to three-month training courses to about 400 Ministry of Agriculture senior staff and to train about 40 staff of Agricultural In-service training centers and about 170 Agricultural Senior Secondary teachers for the project school.

12. The 12 existing and two relocated Agricultural Senior Secondary Schools, while not adding to the student places, would introduce a new practice-oriented curriculum. They will produce about 900 graduates per year who would be better qualified for work with the extension services, development projects, other agencies and the private sector.

13. The two Industry Technician Training Centers will produce about 200 technicians annually with a new curriculum oriented for specific jobs in the public and private sectors.

14. Implementation of the project is about six months behind schedule due to delays in concluding a contract with consultant architects and in recruiting technical assistance. However, progress has now been made in the engagement of consulting architects, satisfactory current teacher training programs, the introduction of a "transition curriculum" at eleven project schools and the compilation of equipment inventories as a basis for determining the additional equipment needed. Initial delay in the implementation

of the technical assistance program has been overcome with the conclusion of an agreement with FAO. The BPPLP has had satisfactory staff.

C. Third Education Project - Credit 387-IND
Primary Textbook and Teacher Training Project

Amount of Credit	US\$13.5 million
Amount Disbursed	Nil
Date of Credit Agreement	June 1, 1973
Effective Date	August 29, 1973
Closing Date	December 31, 1981

15. The third education project seeks to improve the quality of primary education through assistance in three key areas: provision of textbooks, upgrading of teacher qualifications and strengthening of the primary school inspectorate. The project, which is estimated to cost US\$39.24 million equivalent, is aided jointly by the Government of Canada in the amount of Can \$ 13.0 million under an interest-free loan and by the Association with a credit of US\$13.5 million.

16. The project includes the testing, production and distribution of an additional 1/ 138 million primary school textbooks in four subjects (Bahasa Indonesia, Mathematics, Social Studies and Science) for grades 1-6 to enable every primary school pupil to have an appropriate set of books by 1980. Paper for all the books will be provided by the Canadian Government.

17. The project will also include (a) the preparation and testing of related prototype teaching aids, (b) the in-service training of 350,000 primary school teachers in modern teaching methods, including the use of textbooks and teaching aids over a six-year period, and (c) the upgrading of 2,800 supervisory personnel. This in-service training will be carried out at 2,160 central primary schools and be assisted by 105 mobile teacher training teams, the vehicles for which will be financed out of the Credit.

18. Technical assistance includes 16-man-years of specialists services. Unesco has undertaken to provide these experts from ongoing UNDP projects (INS/71/537 and INS/72/023). In addition about 8 man-years of fellowships of 6 months duration each are foreseen.

19. Implementation of the project is still at an early stage (the Credit became effective on August 29, 1973). Manuscript writing is proceeding ahead of schedule and extensive testing of manuscripts is underway. Three

1/ By May 1972 the government, with aid from UNICEF and the Canadian Government, had produced and distributed 27 million textbooks and will produce an additional 36 million by the end of 1974.

National In-Service Teacher Training Centers are being established to train the 26 Provincial Representatives of the Minister of Education, 52 Regional Supervisors and 420 mobile team tutors. Nine regional centers will be established to provide training for the 570 District Inspectors. The twelve centers may become part of the 60 Pre-Service Primary Teacher Training Institutes selected as home bases for the mobile team tutors. A considerable amount of work remains to be done in preparing the content of the in-service training courses which will determine to a great extent overall project effectiveness.

20. Disbursements had not yet commenced as of June 30, 1974. It is expected that project costs will exceed the appraisal estimates by about 50% on account of 300% increases in paper prices. Except for the procurement of vehicles and equipment, which was nine months behind schedule, no changes of project implementation dates were yet envisaged.

21. Potential problems include: (a) delays in recruiting a Financial Officer in PIU, and (b) inefficiency in the distribution of textbooks to remote primary schools.

22. Primary education has been given great importance in the government's Second Five Year Plan (1974-78). The relevance and urgency of the third education project has therefore been enhanced. Accordingly, the government announced on November 20, 1973 a program to construct 6,000 new primary schools and engage 59,000 primary school teachers by March, 1974. In the light of the revised primary enrollment projections for 1980, the 201 million textbooks, will be inadequate. The Government will therefore produce additional books from its own resources to cover the projected shortage of 20 million textbooks.

INDONESIA

EDUCATION SECTOR SURVEY

APPENDIX E

POSSIBLE PROJECT AREAS

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POSSIBLE PROJECT ITEMS

Item A. The National Institute of Administration (LAN)

1. Background. The capacity of the government to use its growing oil revenues effectively depends to a great extent on the expertise of government staff. The training of government staff is the responsibility of LAN which (a) directly trains senior government officials in various areas of management and (b) coordinates the in-service training of staff by other government departments (App. A paras. 15 and 28). Its capacity to carry out these functions has been limited due to inadequate staff and facilities.
2. There are 1.2 million civil servants in 1973, of whom 543,000 are in the central government and 657,000 are in the provinces and autonomous regions. At the highest level, 3,700 senior staff who should have received advanced training on administration have not attended courses yet and annually about 1,000 Grade IIId staff need training to be qualified for promotion into Grade IVa. Further, the coordination of planning, implementing and controlling of training at all levels and for all the Ministries needs a central unit with adequate facilities and office space for a staff of about 100.
3. The objectives of this project item would be: (a) to expand the capacity of LAN to offer pre-service (6 SESPA 1/ classes and 4 STIA 1/ classes) and in-service training to senior officials in the government; (b) to improve the capacity of LAN to supervise training given by other government departments; (c) to enable LAN to prepare a national plan for training public administrators at all levels of government; (d) to introduce new courses relevant to development, such as regional development planning (through Bappenas), and procurement training; and (e) to enable LAN to carry out an extensive review of staffing requirements in major government departments as a prelude to rationalization 2/.
4. Project Content. The proposed project item would consist of the expansion of LAN through the provision of (a) office space, teaching and boarding facilities of about 5,000 m²; (b) furniture and equipment; and (c) technical assistance of 20 man-years of specialists' services and 50 man-years of fellowships. These specialists are needed to assist LAN in preparing the national training scheme, in establishing mechanisms for national coordination and supervision of training programs conducted by other departments and in developing SESPA, STIA and the in-service training center. Fellowships would be used for staff development in the field of management training.

1/ See Glossary.

2/ See para 392, World Bank Group Technical Assistance Report, "A Framework for Regional Planning in Indonesia," Vol. II, Main Report, February, 1974.

5. Estimated Costs. The estimated costs for the above project include about US\$0.8 million for construction, furnishing and equipment; and US\$1.2 million for technical assistance.

6. Preparatory Works Required for Issues. Assuming the government intends to implement the provisions of Decree No. 34 of 1972 in terms of integrating training of civil servants under one authority, the following steps would need to be carried out during preparation:

- (a) survey of major training activities by departments other than LAN;
- (b) development of an administrative plan by which mechanisms could be established for national coordination and supervision of training programs;
- (c) estimate of training requirements (pre-service and in-service) for Repelita II and Repelita III;
- (d) review of LAN's organization in terms of its proposed expanded responsibilities;
- (e) review of present training programs and outline of new courses; and
- (f) evaluation of the qualifications of LAN staff to implement the proposed training program and outline of a staff development plan.

Item B: Strengthening the Office of Educational Development (BPP)

7. Background: The BPP was established in 1969 with the purpose of conducting research on education, carrying out experiments and preparing medium term plans (App. A, paras 19-22). Its successes have been notable, but have been limited largely because the responsibilities of BPP have exceeded its resources; however, it has demonstrated its capacity to achieve worthwhile results in the National Assessment Study, the establishment of effective data collection and the introduction of experimental control over the Development Schools experiment. Curricula development has been carried out by ad hoc committees arranged by the various directorates under the Director General for Education. In 1973 the official responsibility for curricula development was transferred from a Committee of Eleven to the BPP. BPP, however, has no specialists in curricula development on its staff and no office specifically charged with this purpose. Moreover, there is no office in the Ministry of Education for the development of teaching equipment and materials. No office is engaged in systematic long term planning although BPP did prepare a draft contribution for Repelita II.

8. Objectives: An investment in facilities and technical assistance for BPP would permit it to expand its scope into the following critical areas: (a) long term planning, to provide a perspective in which to evaluate and fit short term policies, (b) curricula development, to establish a permanent office, staffed by trained professionals, for continuous and systematic evaluation of curricula at all levels, (c) teaching equipment development, for the design and testing of prototype teaching equipment which could be mass produced by private industry for distribution to schools at low cost.

9. Project Content. The proposal would involve the construction, furnishing and equipping of new facilities for BPP to enable it to carry out these expanded responsibilities. A component of technical assistance (expert services and fellowships), which possibly could be provided by Unesco, should also be included.

10. Costs. Estimated costs are roughly \$1.3 million, including 3,500 m² of physical facilities for seven units 1/ and 18 man/years of technical assistance.

11. Preparatory Work Required: Assuming the government agrees to the proposed expansion of responsibilities for BPP, the following tasks would be carried out during preparation:

- (a) preparation of an organizational plan including principal objectives of each unit and proposed staffing pattern;
- (b) description of physical facilities required by unit with cost estimates for construction, furniture and equipment;
- (c) estimate of recurrent costs for the BPP,
- (d) assignment of legal responsibility to BPP to carry out the additional responsibilities; and
- (e) preparation of outline work plans for each unit, showing scope and sequence of activities.

Item C: (1) Proposal for a Study on Education Administration

12. Background. Marked centralization of the educational administration in Jakarta has several adverse consequences. There is a substantial time lag between a request being made by the local (i.e. school) level and a response by the Ministry. Local innovation and change tend to be discouraged. Massive amounts of paper (requests, information, forms) accumulate

1/ Administrative - Advisory Unit, Planning Unit, Development Information Unit, Curricula Development Unit, Equipment Development Unit, Research Unit, and Evaluation Unit, plus general staff and common areas.

in the Ministry and affect the efficiency of its operation. Local needs, aspiration and capabilities are often not taken into account in the national plans. Moreover, the duplication of primary administration (App. A, paras 31-39) requires an early solution.

13. Purpose and Content of a Study. It is suggested that a study of educational administration should be conducted (a) to learn what portion of the functions now performed at the national level could be delegated to the provinces and how the delegation should be implemented, and (b) to test and evaluate proposals made by the National Assessment Study (Level III, Trial Report, Primary Education, pp. 138-153) on ways to overcome the present problems of primary administration.

14. Estimated Costs. Refined costs would need to be based on a more extensive set of terms of reference and an implementation schedule. Roughly estimated, the study would cost approximately US\$100,000 including (a) three external specialists for six months to assist a team of about eight Indonesian specialists, (b) travel costs and (c) miscellaneous office expenses.

Item C: (2) Proposal for a Study on Education Cost and Finance

15. Background: Any change in the structure, content and coverage of education in Indonesia has to be viewed within the particular framework of prevailing education financing. The great complexity and lack of uniformity of the existing education financing arrangements in Indonesia, both with regard to the origin and destination of resources, suggests shortcomings in the provision of "normal" (i.e., Central and Provincial Government budget) sources of finance. As regards the expenditure side, the one dominating problem, adequate appropriations for teacher salaries, should not obscure the problems of allocations for other recurrent expenditures. Finally, the area of capital expenditure for education is virtually unknown.

16. Purpose of Study: It is suggested that the study should concentrate on the central problem i.e., teacher salaries. It should in particular:

- (a) explore the educational, financial, organizational and employment consequences of a gradual phasing out of part-time teaching;
- (b) examine the possibilities for introducing performance criteria into the remuneration of teachers; this would include an evaluation of existing upgrading and promotion procedures; and
- (c) study the question of whether the special treatment of the country's teaching force as implied by the above would be compatible with the principle of equal status and comparable remuneration standards for the whole civil service.

As for other problem areas, the study should aim at:

- (a) developing criteria for an equitable and adequate provision of funds to schools for the maintenance, repair and replacement of equipment and the supply of teaching materials;
- (b) suggesting cost norms for school buildings and equipment of certain broad types.

With regard to the mobilization of financial resources, the study would:

- (a) examine the consequences of the present tuition fee structure on the equality, efficiency, and quality of education and make recommendations for change;
- (b) discuss the advantages and drawbacks of other potential sources of finance, e.g., an industrial levy for training; and
- (c) examine the implications of a change in the composition of the various government budgets in favor of the education sector.

17. Implementation and Costs of Study: The study may either be undertaken in the framework of the suggested major study of the administration and organization of education in Indonesia or independently. It could be carried out by two or more consultants, the actual duration being between 6 and 12 months. The cost would be roughly \$50,000 for 12 man-months of consultants, plus \$10,000 for travelling in the country, data collection, and auxiliary personnel, i.e., a total of \$60,000.

Item D: Industrial Technician Training (Polytechnics)

18. Background: The labor force in the manufacturing industry is estimated at 3 million and is expected to grow at about 5% per annum. The demand for technicians is roughly 8,000 per annum with attrition at 3% and new intake at 5% per annum. The supply does not exceed 200 p.a. Consequently, there is an urgent need to establish technician training institutions. The present policy of the Government in this regard is to phase out the existing technical academies and introduce technician training within the universities. A more promising approach would be to establish independent institutions of high quality explicitly for the purpose of training industrial technicians (Vol. I, para 4.12).

19. The objective of the project would be (i) to establish an appropriate structure for training technicians and (ii) to meet the requirements of the manufacturing, construction and transportation industry for sub-professionals who have undergone a technician training program.

20. Project Description: The proposed project item would establish a new polytechnic institution with the following departments: civil engineering covering irrigation, roadwork and bridge construction; mechanical and production engineering; electrical and electronic engineering; chemical

engineering, geology; mining engineering; surveying and building construction. The enrollment should reach about 7,000 in 1985 with an annual output of about 2,000. The polytechnic should be developed in about three stages, first an initial enrollment of about 1,500; 3,000 students by 1980 and finally 7,000 in 1985. The staff requirements would be about 120, 240 and 560 respectively. As an alternative to one large institution, two or three smaller polytechnics could be established. The duration of the course could be two or three years; the choice would depend upon advice by industrial employees.

21. Admission should be open to both STM and SMA graduates with strength in mathematics and science. The curriculum should emphasize practical work, but be sufficiently flexible to permit more practical training for the SMA graduates and additional mathematics and science for the STM graduates. Practical training in the industry would be included. Diplomas would be awarded to students who have successfully completed the courses and the practical training.

22. The polytechnic should be located in an industrialized area with a large population so that part-time evening, part-time day release and sandwich courses would also be given. Linkage with industry would be essential. Technical assistance should be included in the project for both specialists to provide in-service training of staff, and fellowships to train local staff in overseas institutions.

23. Estimated Costs. The cost of developing the first phase (1,500 places) would be roughly US\$6.0 million, including (i) US\$4.3 million for civil works, furniture and equipment and (ii) US\$1.7 million for technical assistance (40 man-years of specialist services and 28 man-years of fellowships).

24. The main issue on this project item is whether the government will reconsider its present policy and permit the establishment of a separate technician training institution.

Item E: Establishment of an Institute of Accountancy 1/

25. Background. Within the manufacturing industry there are 2,000 large and 16,000 medium-sized establishments in 1970 and the industry has been growing at a rate of about 10% p.a. Yet there are less than 400 professionally qualified accountants and auditors in the private sector as of January, 1973 and two thirds of them are expatriates 2/. The total number

1/ See also Report by Mr. Douglas J. A. DuPre, Accounting Adviser, World Bank Group (IFC) to Minister of Finance, Indonesia, dated March 1973.

2/ Statistics of Employment of Expatriates as of January 1, 1973, Ministry of Manpower.

of national qualified accountants was only 750 in 1973 and 600 of them work in the government. The shortage is acute. There is at present no specialized course in accountancy at any university.

26. The objective of the project item is to produce about 200 accountants annually to meet manpower requirements. The development of university courses in accountancy in parallel to this project item should also be encouraged.

27. Project Description. The proposed project item includes civil works, furniture, equipment and technical assistance for an Institute of Accountancy with a capacity of about 1,000 and an annual output of about 200 graduates from a 4-year course leading to a Bachelor's Degree. The number of staff required is about 80. Estimated costs are about US\$1.5 million for the Institute (about US\$1,500 per place) and US\$0.8 million for technical assistance (16 man-years of specialists services and 40 man-years of fellowships) giving a total cost of about US\$2.3 million.

28. Issues. The principal issue is whether the institute should be a separate institution or part of a university.

Item F: Technical Training Centers (TTCs)
(Vol. I, para 1.03; Appendix D, para 1)

29. Background. The annual demand for craftsmen is projected to be from 41,000 - 72,000 (App. B, para. 44). The existing STMs cannot be regarded as a source of craftsmen. The capacity of the STMs with TTCs is about 14,000 and the capacity of the seven technical STM(P)s is roughly estimated at 5,000. After allowing for wastage, the total capacity required to produce annually 41,000 graduates is about 150,000 places. The gap between existing and required capacity is therefore about 130,000 places. The present government policy is to await the evaluation of studies on TTCs and STM(P)s, and these studies will not be ready until 1978 and 1976, respectively. More immediate action is required, perhaps as set out below as a project item.

30. Project Content. As an interim measure, considering the constraint on staff development, the proposed project item includes the establishment of four additional TTCs as follows:

Semarang, Central Java (North)	750 places
Yogyakarta, Central Java (South)	750 "
Padang, West Sumatera	500 "
Palembang, South Sumatera	<u>500</u> "
Total	2,500 "

With four TTCs, about 12,000 places and about 4,000 graduates in STMs could be upgraded to an acceptable level.

31. Costs. The estimated cost would be about US\$8.0 million for laboratories, workshops, equipment and technical assistance.

32. Issues for Project Development. The government should provide assurances that the practical content in the curriculum would be further increased from the already revised figure of 36% to about 50%.

Item G: Urban Vocational Training (PLKs)

33. Background. The existing eight PLKs, all located in industrial areas, have a total capacity of about 1,000 places and are operated on two shifts. Three additional PLKs are being established with Dutch, Canadian and Japanese assistance and will commence operations in 1974-75. Eight more have been planned in Repelita II. Courses given include automotive/diesel, electronics/radio, metalwork, welding, building construction and irrigation construction work. About 80% of the timetable is given to practical work. The quality of training is generally high but there is an acute shortage of experienced instructors due to low salaries and strong competition from industry. At the moment, teacher salaries are subsidized by a portion of fees from students and from income generated by production of articles at the PLKs for industry. Trainees are recruited from urban unemployed adults and youths (31%), workers of public and private enterprises (9%), the army (7%) and STM graduates (53%). More than half of the PLK's capacity is used inappropriately for further training for STM graduates. The size of the potential clientele is large because the number of the urban unemployed between ages 15 to 34 is about a quarter of a million people. Only about 4,300 have completed courses in PLKs in 1972/73, and a total of about 10,000 will complete courses annually when the eleven new PLKs are in full operation.

34. Project Objectives. Objectives of the proposal would be to: (a) support the government's industrialization policy by supplying a part of the trained manpower requirements; (b) offer training opportunities to urban out-of-school youths and unemployed adults; (c) offer specialized courses to public and private enterprises to supplement their effort in the training of their workers; and (d) supplement ministerial training schemes within the government.

35. Project Content. Due to staff constraints, the proposed project item includes only 18 PLKs, each with a capacity of 200, to increase the total number of PLKs to 37. Operated on double shift, the additional annual output would be about 16,000 based on two 6-month courses. The provision will include civil works, furniture and equipment and technical assistance for staff development.

36. Estimated Costs. The additional 18 PLKs are estimated to cost about US\$7.0 million at a unit cost of about US\$1,900 per place. Technical assistance for about 20 man-years of specialists services and 18 man-years

of fellowships will cost approximately US\$1.0 million. Total estimated cost for this item is US\$8.0 million.

37. Issues and Preparatory Work. The government should be requested to survey (a) the number of unemployed adults and youths in the largest 40 cities in Indonesia, and (b) the number of factories, public and private in these 40 cities, by category of industry and number of persons employed as unskilled, semi-skilled, skilled workers, and technicians and engineers. A staff development plan together with salary improvement schemes is particularly important. The use of a modular system for training should be investigated.

Item H: Rural Extension Centers

38. Background: Indonesia's 12 million farm families, living in about 60,000 villages, have not been receiving the technical advice and support services they require to improve their productivity. At present, the ratio of extension workers to farm families is 1:2,000. The major problems are: a poor organization and fragmentation of extension services, inadequately trained field and supervisory extension staff, their preoccupation with administrative duties, lack of qualified extension workers, poorly located extension centers, lack of transport, and absence of contact with research stations and supply agencies (e.g., credit and fertilizer). At present 335 rural extension centers exist, but most are inadequate, poorly located and inoperative (only 86 are in good condition but even they are understaffed). About 1,000 rural extension centers would be required to cover Indonesia's farm population but non-availability of qualified and experienced staff would limit the number to about 150 in the first phase.

39. Objective: The objectives of the proposals are to:

- (a) improve the effectiveness of extension by unifying the extension services of the five directorates of the Ministry of Agriculture;
- (b) improve the quality of advice and services given to farmers by improving the supervision of field workers;
- (c) expand coverage of the farm population by making agents mobile; and
- (d) establish institutional coordination at the sub-district level between non-formal education in agriculture, vocational training (Ministry of Manpower) and community education (Penmas).

40. Project Description: The project proposal, an integral part of the government's strategy for rural improvement (App. A, para 205) would involve the (a) construction, furnishing and equipping of 150 rural extension centers, (b) transport for extension agents (c) technical assistance. Each rural extension center located at the Kecamatan level

would be the base for 15 extension agents and would cover about 15 village units and 9,000-15,000 farm families. The staff of the extension center would receive guidance from agricultural subject matter specialists at the Kabupaten level and the nearest agricultural information center (see organizational chart 8476). At the farmer level, most technical advice would be imparted by extension agents using the Bimas package of inputs, i.e., seeds, fertilizers, pesticides, small implements. Extension agents would work through leading farmers and transport would be provided to make the agents mobile. An experienced extension supervisor would be based at the extension center to train field staff and assist them in their duties. The centers would consist of functional buildings to house the extension staff, training facilities (workshops) storage facilities, a small demonstration plot, and staff housing for agricultural and related workers. Training facilities would be made available to other departments giving training in the area. Motorcycles would be required for field agents along with basic audiovisual demonstration materials and equipment.

41. Technical Assistance: Technical assistance would be required for the training of subject matter specialists, supervisors and extension field workers, possibly supplied by multilateral and bilateral agencies. In view of the importance of agricultural extension, technical assistance for training all the extension personnel on the job will also be needed. At least three coordinators will be required to assist in the implementation of this project on a long term basis, perhaps three to four years.

42. <u>Cost Estimates</u>	(\$ Million)
Construction and remodelling and equipping 150 rural extension centers at an average cost of US\$50,000	7.5
Transport and equipment for 150 rural extension centers at \$7,000 each	1.1
Equipment and transport for 2,250 field extension agents at \$400 each	0.9
Equipment and transport for 100 subject matter specialists and supervisors at \$5,000 each	0.5
Technical Assistant (15 man-years)	<u>0.6</u>
Total	\$10.6 million

43. Issues for Project Preparation: The following points (App A, para 203) would need adequate treatment during project preparation:

- (a) a decision by government to integrate the agricultural extension services;
- (b) the preparation of national and provincial plans for such integration; including institutional

arrangements; relocation of staff and their retraining;

- (c) a decision by government to integrate Bimas with the agricultural extension service; and the preparation of a detailed operational plan for such integration;
- (d) the establishment of organizational links to ensure mutual cooperation between the Ministry of Manpower (Cooperatives) with the Agriculture Extension Service;
- (e) the establishment of productive links between the extension service and agricultural research; and
- (f) criteria for placing extension centers in the most productive locations.

Item J: Mobile Training Units

44. Background: The size of the clientele for rural non-formal education is estimated at 30 to 40 million people among out-of-school youths and adults. Agricultural training will be provided by the Ministry of Agriculture through its extension services. Literacy, numeracy and basic science elements are to be provided by schemes under the Ministry of Education and Culture, e.g., Penmas. Vocational training will be provided by the Ministry of Manpower, Transmigration and Cooperatives through mobile training units. About 19 of these units operate at present (App. A, para 187). These units are preferable to institutions because they can cover a larger number of people.

45. Project Content. The proposed project item consists of mobile equipment sets (for simple fitting and repair work on diesel and petrol engines, pumps and motors, simple woodwork, masonry, plumbing, roadwork, bridge construction, welding, blacksmith and radio repairs), together with trucks and jeeps to be administered by the district offices of the Ministry of Manpower, Transmigration and Cooperatives. Instructors will include bookkeeping and managerial staff besides technical staff. Courses would be flexible with no fixed duration, tailored to meet the needs of local people. An effective communication in the form of feed-back from villages to the district office would be an important feature. At the initial stage, 360 equipment sets, 36 trucks and 36 jeeps would be provided for the 18 provinces in Java (5 provinces) Sumatera (8 provinces), Sulawesi (4 provinces) and Bali (one province). About 540 instructors would be needed, including 360 for technical subjects and 180 for book-keeping and managerial subjects, averaging about 30 staff per province. Later, after the usefulness of the 360 sets has been demonstrated, additional modified equipment sets could be provided to the other provinces.

46. Estimated Cost. The total equipment cost is estimated at US\$2.7 million. An additional US\$300,000 in technical assistance would be provided for staff training, curricula development and the establishment of effective feedback and control procedures.

47. Project Development. Some means of coordination would need to be established at the national level, such as a coordinating body between the Ministry of Agriculture, the Ministry of Education and Culture and the Ministry of Manpower, Transmigration and Cooperatives. At the sub-district level, a local coordinating committee would be needed to plan an integrated training schedule. The success of the scheme would depend on the recruitment of an adequate supply of qualified staff. The salary scale should be increased to induce graduates from STM and SMEA to apply as instructors, and a suitable in-service training course should be planned.

Item J. Community Education (Penmas)

48. Background (App. A, paras. 175-180). Penmas has been unable to realize its promise despite an extensive infrastructure. Several factors contribute to the weakness of Penmas, such as:

- (a) insufficient budget allocations;
- (b) inadequately trained staff;
- (c) lack of classroom space;
- (d) lack of supervision; and
- (e) unnecessary administrative complexity.

Penmas has the potential to become an effective instrument for out-of-school education but many fundamental changes would be required before this potential could be realized. A study is proposed to investigate Penmas thoroughly.

49. Objectives. The objective of the study would be to prepare a plan for strengthening and expanding the operations of Penmas. This operational plan would serve as a basis for expanded investment in basic non-formal education.

50. Content of the Study. The study would investigate such topics as the following:

- (a) Administration: organization of administration and number of staff at each level; links with other departments; evaluation of administrative effectiveness and recommendations for improvement;
- (b) Program development: procedures for preparing new courses, their testing and implementation; evaluation and feedback; appraisal of existing courses;
- (c) Staffing: numbers, qualifications, training, salaries; working conditions; supply and projected requirements;

- (d) Clientele: profile of participants, geographical distribution, completion rates; follow-up study on usefulness of courses;
- (e) Facilities: number, size, conditions; capacity; usage; projected requirements;
- (f) Teaching materials and equipment: type employed and effectiveness; and
- (g) Budget and finances: sources of finance; allocation policies; object of expenditures; costs per participant and per graduate by type of course; capital expenditures.

The result of the study would be a set of well reasoned recommendations on required reforms, e.g., administrative structure, programming capacity, staff training, giving mobile courses, for improving the effectiveness and coverage of Penmas.

51. Staffing, Timing and Costs. Three specialists (one each on administration, finance and non-formal education) would be required for about four months to assist a counterpart team of Indonesians in carrying out the study. Estimated costs would be roughly US\$100,000.

Item K. Establishment of a National Scholarship System

52. Background. The National Assessment Study found serious inequalities in access to education at all levels (App. A, paras 41, 68, 92, 102, 130), mainly due to economic factors. Although this unequal access obtains in many countries, in Indonesia it operates early in the primary cycle. Other than infrequent remission of fees, there is no systematic program of public scholarships.

53. Objectives. The objective of this proposal would be to establish an efficient and equitable scholarship system which would serve primarily children of poor parents to keep them in school. In this way it would contribute to upward social mobility and a better use of available talent.

54. Project Content. Financial support would be provided for the planning and development of a national scholarship system, e.g., consultants, travel and subsistence and office expenses. The operation of the scholarship system would be financed by the government. The following would seem to be desirable characteristics of a scholarship system:

- (a) it would benefit primarily children of the lowest income groups;
- (b) it would compensate parents for the value of the loss of labor while their children attend school (subsidy);
- (c) it would start during primary school, perhaps at grade 4 or 5;

- (d) it would be based upon family income and on aptitude because achievement tests reflect previous educational experiences and implicitly discriminate against low income groups;
- (e) it would involve regional quotas (e.g., 100 scholarships per Kecamatan);
- (f) it would assure continuous support for the student throughout the cycle (e.g., grades 4-6, 7-9 or 10-12);
- (g) it could be coupled with a loan scheme at the higher education level.

55. Implementation. The study would review scholarship schemes in other developing countries, such as India, and design a system for trial in Indonesia. An important task of the scheme would be to determine the feasibility (financial and administrative) of any scheme it would propose. A team of three to five consultants would be required to assist a larger Indonesian team in carrying out the study. About 12 months and US\$200,000 would be required.

Item L. Production of Teaching Equipment and Learning Materials

56. Background. Science teaching in Indonesia is of low quality. Very few students perform experiments; and even science demonstrations are rare mainly because of lack of science laboratories and equipment in schools. Teachers usually do not produce any simple aids for teaching. Even if a teacher wanted to produce his own teaching materials, he lacks training, tools and materials. The most damaging effect of this shortage of teaching equipment and learning materials is that the low quality is cumulative from one level to another, leading to high dropout and repeater rates.

57. Objectives. The objectives of this project item are to:
(a) improve science teaching at primary, junior secondary and senior secondary levels; (b) increase the interest of students in science subjects and develop the potential of students with aptitudes for science and technology; (c) gradually change the teaching methods for all subjects through the use of simple aids and audio-visual equipment, thus making teaching more effective; and (d) remove one cause for the high dropout and repeater rates, ineffective teaching and ineffective learning. These objectives, of course, cannot be achieved only with adequate teaching equipment and learning materials. Amendments in teacher training would also be required.

58. Project Content. The proposed project item would include an equipment development unit (App. E, para 7) within the Office of Educational Development (BPP) for the design, production and testing of prototype science equipment; simple aids such as charts, diagrams, film strips, slides, loops and films; demonstration equipment such as models, specimens and samples; and learning materials such as programmed learning manuals and simple case studies. Equipment for the above would be included.

59. Preparatory Work Required and Issues. As a pre-requisite for relating the teaching equipment and learning materials to the new curriculum, the establishment of the curriculum development unit (App. E, para 7) is essential and should precede the work of the equipment development unit. To link and closely coordinate teacher training with the work of the equipment development unit, a working committee should be formed with representatives of IKIPs and SPGs. A survey of the capacities of the related private industry for the mass production of developed equipment and learning materials should be carried out. If the capacities are found to be inadequate, consideration should be given for the establishment of a government enterprise for the production of science equipment and learning materials since economy of scale for a country like Indonesia may justify its establishment.

Item M. Mass Media: Radio for Formal and Non-Formal Education

60. Background. The educational use of radio would provide better daily lessons based on a uniform curriculum at primary and second school levels with instruction in Bahasa Indonesia; upgrading of under-qualified teachers; and access to widespread audiences. It would support BPP's plan to improve secondary education by the use of school radio, particularly in science and mathematics. In addition, if BPP's current experiments on the use of radio for primary school pupils and teachers prove viable toward 1975, this trial can be efficiently expanded all over Indonesia through improved radio transmission facilities. If supported by suitable printed materials, radio broadcasting could also make a valuable contribution to rural development in such practical subjects as farming, marketing, health, family planning, child care, home economics and improvement of family life. In general the practice of Radio Republic Indonesia (RRI) in producing programs at 46 local stations has been wasteful. Neither the Ministry of Education (MOE) nor the Ministry of Agriculture (MOA) has appropriate facilities in the Jakarta headquarters for centralized production of good educational radio programs.

Project Content

61. Program Production. As a first priority MOE and MOA each should have at their disposal in Jakarta one fully-equipped studio with RRI in charge of technical operations for all educational broadcasting. RRI now plans to build a new radio program production facility in Jakarta, which will be completed toward late 1975. The General Directorate of the Ministry of Information (MOI) is prepared to reserve two medium-sized studios (one for MOE, the other for MOA) in this complex specifically for educational purposes. It is anticipated that in the course of the next education project it may be feasible to install two sets of equipment (at \$70,000 each) in these new studios. In addition, it would be preferable to replace the common master control equipment, which would cost around \$200,000. A print shop adjacent to the studios (\$20,000) is also essential for continuously producing support materials for both schools and Listening Groups. MOE can use its new studio for upgrading primary and/or secondary education as required. Furthermore, since some rural development programs should be produced locally, the project is to include, at the outset, studio equipment to be

installed in each of RRI's three Nusantara stations. Each of these stations should also have printing facilities for quick delivery of support materials (at \$10,000 each).

62. Transmission. RRI cannot depend on the present shortwave network, but it will take at least ten years to replace it with a nationwide medium wave network. If a satellite were introduced, the medium wave stations could be more speedily and economically linked, but the cost and relative benefits should be carefully weighed by the government. In light of the above, the project excludes any transmission items. In lieu of direct transmission via on-the-air shortwave links, taped educational programs can be delivered to local stations on a monthly or school-term basis. Therefore, tape recording facilities (at \$10,000 per facility) are included in the proposed studio equipment to be installed in the Jakarta and Nusantara stations.

63. Reception.

- (a) Listening Groups - The Agriculture Extension Service Directorate estimates the number of Listening Groups in 1975 at 15,000. Each will require a newly-installed or replacement receiver (most receivers will be more than five years old by 1975 and the tropical climate is not conducive to long life).
- (b) Maintenance Equipment - All 56 RRI stations would be provided with maintenance equipment (at \$5,000 each, including a car) as follows:

Two sets - 25 major stations (medium wave - 10-300 kw)
One set - 31 local stations (medium wave - 0.5-5 kw)

Also, spare receivers and recorders (10% of the total) should be set aside.

64. Summary of Costs.

An Initial Investment

(a) Program Production

(1) <u>Jakarta Central Station</u>	\$360,000
(2) <u>Three Nusantara Stations</u>	\$240,000

(b) Reception

(1) <u>Listening Groups</u>	\$900,000
(2) <u>Receiver Maintenance Equipment</u>	\$500,000

<u>TOTAL FOR INITIAL INVESTMENT</u>	\$2,000,000
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Future Investments

(a) <u>Reception (Schools)</u>	\$1,400,000
(b) <u>Transmission</u>	\$18,000,000

Item N. Development of Regional Faculties of Agriculture

65. Background. (App. A, paras 155-164). Agricultural higher education in Indonesia suffers from the following weaknesses:

- (a) the quality of instruction is poor, especially at universities outside Java because of lack of (i) well-qualified staff (junior faculties have less than 1% PhDs); (ii) full time teaching staff; and (iii) basic facilities (laboratories, equipment, libraries and experimental farms);
- (b) the relevance of instruction is weak because of (i) inadequate links between teaching and research and extension; (ii) lack of practical orientation in curricula; and (iii) unrealistic thesis requirement for full degree;
- (c) the output from agricultural faculties has been inferior to the demand. At present there are only 2,800 agricultural professionals, mostly in Java (Annex 18); and
- (d) efficiency of agricultural faculties is low in terms of the proportion of entering students who complete their studies (10%-25%).

As a result of these problems, regional faculties of agriculture have been able to contribute little to accelerate agricultural development outside Java.

66. Objectives. The principal objectives of the project would be:
(a) to improve the relevance of instruction to regional agricultural problems by (i) reorienting curricula to practical extension work in the regions, employing a problem-solving approach so that graduates would be capable of identifying and solving real problems in the field; and (ii) by developing competence amongst staff and students for applied research; (b) to improve the quality of instruction through staff training and better facilities; and (c) to improve the completion rate of students, thereby contributing to the solutions of pressing manpower needs and improving internal efficiency.

67. Project Content. The project would provide assistance for the following items: (a) Buildings (both new and renovations)--laboratories, classrooms, library, seminar rooms, student and staff housing, workshops, greenhouses, farm buildings, administrative buildings and communal facilities and related architectural services; (b) furniture; (c) equipment; (d) books and teaching aids; and (e) transport and audio-visual aids and (f) fellowships for staff training.

68. Intake would be adjusted according to improvement in efficiency and the regional requirement for output but initially each faculty might have one section of 40 students each, except the two agricultural faculties of Hasanuddin and the Sumatera Utara Universities, which will have two sections each. Assuming that by means of improved selection, better instruction and financial assistance to needy students, completion rates could be increased from 10%-25% at present to about 60%-75%, the total output in 1980 from six faculties of agriculture, three of animal husbandry and one of forestry would be about 240, 90 and 30, respectively.

69. A farm for instruction and research and, wherever possible, an experimental station would be developed at each project institution. One of the objectives in creating this facility would be to attract a maximum number of national research projects. Eventually, it should develop into a strong research base in the region. A long-term (10 years) staff upgrading and development program would be initiated along the lines of the consortium plan for training within and outside the country. The project would include technical assistance, short- and long-term consultants from outside Indonesia to help plan, administer and execute the project, particularly the teaching, research and extension programs.

70. Considering the need of regional agricultural development, the available resources, potentialities for future development and the evaluation made by the Consortium of Agricultural Sciences, the following ten faculties (six agriculture, three animal husbandry and one forestry) at six regional universities seem to be most appropriate for inclusion in the proposed project:

<u>Location</u>	<u>Name of University</u>	<u>Faculties</u> (and number of sections)
1. Ujung Pandang, South Sulawesi	Hasanuddin	(a) Agriculture (2 sections) (b) Animal Husbandry (1 section)
2. Denpasar, Bali	Udayana	(a) Agriculture (1 section) (b) Animal Husbandry (1 section)
3. Banjarmasin, South Kalimantan	Lambungmangkurat	(a) Agriculture (1 section) (b) Forestry (1 section)
4. Padang, West Sumatera	Andalas	(a) Agriculture (1 section) (b) Animal Husbandry (1 section)
5. Medan, North Sumatera	Sumatera Utara	(a) Agriculture (2 sections) (Plantation Crops)
6. Palembang, South Sumatera	Sriwijaya	(a) Agriculture (1 section)

71. Project Costs. Faculties vary widely in their building requirements both new and renovated. Requirements for equipment, books, technical assistance and experimental farm facilities are, however, less variable. A broad estimate of the project cost would be about US\$13.0 million including US\$6.0 million for civil works, US\$4.5 million for equipment and US\$2.5 million for technical assistance.

72. Project Development. The following points would need to be reviewed during project preparation: (a) the acceptability of the basic concept of integration of teaching, research and extension at faculty level; (b) availability of suitable land for the campus and instructional farms; (c) counterpart financial support; and (d) introduction of administrative and organizational reforms that may be necessary for the implementation of the project and effective functioning of the institution subsequently.

73. Issues for Project Preparation. (a) whether it is possible to single out and develop agricultural and animal husbandry faculties in a multi-faculty university; (b) ways to maintain the education and training operation at an efficient level; (c) ways to get the employers of graduates involved in curricula development; and (d) ways to ensure that students will have financial means to complete their studies.

Item 0. Technical Teacher Training Institution

74. Background. The estimated annual demand for craftsmen in the manufacturing industry, arising from attrition at 3% per annum and new intake for a moderate industrial expansion at 5% per annum, would be a minimum of 41,000 and higher if other growth assumptions are used (para 2.14). Enrollments in craftsman training institutions should be about 150,000 and the stock of technical teachers needed for the technical subjects and workshops would be about 6,000. Annual requirements for technical teachers would be about 200 to meet replacement needs (assuming a 3% attrition) and to sustain a very moderate expansion of enrollments. Eight FKITs now give technical teacher training courses, but the quality of training is poor due to lack of equipment and shortage of well-trained staff, and the resources are too dispersed (App. A, paras 167-168).

75. Project Content. The proposed project items would consist of: either (a) two consolidated, integrated and well-equipped FKITs selected from among the eight existing FKITs with a total capacity of about 1,000 students in 4-year courses instead of the present 5-year courses (suitable locations would be Bandung and Yogyakarta);

or (b) technical teacher training department(s) to be established within the new polytechnic(s) with a total capacity of about 1,000 students in 4-year courses.

Each alternative has its advantages and drawbacks. The FKITs which are located within IKIPs can use teachers for pedagogy but there would be duplication of these in the case of (b). Alternative (b) would probably provide students with better skills. The lead time towards full implementation would be much shorter for (a), because the polytechnics would have to be established first before technical teacher training departments could be started. The courses given would include mechanical engineering, auto repairs, electrical engineering, electronics and building construction. The intake would be from STMs or STM(P)s to minimize additional practical training. Average class size would be about 25, and the teaching staff required about 80.

76. Costs. The estimated cost for (a) is roughly \$4.0 million, with \$2.8 million for civil works, furniture and equipment at a unit cost of \$2,800 per place and \$1.2 million for technical assistance of 24 man-years of specialists services and 36 man-years of fellowships. The estimated cost for (b) would only be about \$3.0 million due to the sharing of facilities.

77. Issues. The following points would need to be investigated during preparation:

- (a) whether six FKITs could be phased out;
- (b) whether the output of technical teachers training institutions will continue to be absorbed by industry; and
- (c) whether it would be possible to raise technical teachers salaries to become comparable to those in industry at the same skill level.

Item P. Primary Teacher Training (SPGs and PGAs)

78. Background. Existing SPGs are small, with an average enrollment of about 240 students, and are not well placed geographically to meet regional demands for new primary teachers (App. A, paras 116-119). Curricula entail an excessive number of subjects (19) and periods (40) per week which is detrimental to effective learning. The general subjects (science, mathematics, and language) are usually lower in quality compared with similar instruction at SMAs. Professional subjects do not prepare teachers effectively for teaching in rural environments, for teaching multiple classes or for preparing inexpensive teaching aids from locally available supplies. Sixty SPGs have been selected as home bases for mobile teacher training units in the third IDA project (see Appendix D) and provide a basis for consolidation and rationalization. PGAs are also important institutions for primary teacher training because their students tend to return to the rural villages from which they came.

79. Objectives of the Proposal. The objectives of the proposal would be to (a) consolidate and reduce the number of SPGs into about 60, each with a viable enrollment size of about 600 students; (b) regionalize primary teacher training so that supply and demand would be balanced in each region; (c) to introduce in-service training at SPGs; and (d) to improve the ways by which teachers are trained, including (i) reorienting curricula towards teaching in a rural environment; and (ii) introducing a broader range of techniques, such as multi-class teaching, micro-teaching and preparation of simple teaching aids.

80. Project Content. To achieve the above-mentioned objectives, the proposal includes provision of the following items: (a) specialized facilities (e.g., construction, furnishing and equipping of one science room, one library, one audio-visual room and one large lecture hall per institution); (b) residential facilities (300 places per institution) which would enable students from distant parts of the region to attend and would permit in-service courses; (c) technical assistance for curricula development and staff upgrading; and (d) laboratory school.

81. Costs. Cost estimates are about \$16 million for civil works, furniture and equipment ($\$450/\text{place} \times 36,000$) and \$0.5 million for technical assistance (12.5 man/years at \$40,000), of which half could be considered for the next phase.

82. Preparatory Work Required. Appraisal of this item would require considerable preparatory work, including: (a) projections of supply and demand for primary teachers by region for the periods of Repelita II and III (1974-84), taking into account the output of private SPGs; (b) a revision of students' weekly class schedule to include more practical teaching and reduce the number of class hours per week; (c) an inventory of sites of the 60 SPGs and available facilities; (d) a detailed statement for each SPG of additional facilities required by types of space and estimate of their costs; (e) outline of a staff development plan; (f) outline of a scheme for converting other existing SPGs to other teaching purposes including phasing of the consolidation; and (g) comparisons of recurrent cost per graduate under the existing and proposed patterns. Particular issues to be examined during preparation include: (a) long term structure for primary teacher training; (b) ways for the government to control the proliferation and expansion of private SPGs; and (c) the feasibility of converting non-project public SPGs to other purposes.

Item Q. Improving the Quality of Secondary Science and Mathematics

83. Background. The relevance of the science and mathematics being taught in secondary schools is deficient in several respects: (a) an up-to-date and modern teaching program is lacking; (b) the content of courses is often unrelated to the students' local environment; (c) there is a lack of problem solving and experimentation. The quality of teaching in these subjects is often weak owing to (a) inadequately qualified teachers (only

12% have the required pre-service qualifications in biology); (b) fragmented curricula which entail an excessive number of courses; (c) lack of textbooks and (d) teaching methods which stress notetaking and memorization.

84. Objectives: (a) to improve the relevance and quality of teaching in science and mathematics in secondary schools; and (b) to unify science and mathematics courses among all types of schools at lower and upper secondary levels.

85. Project Content. The project would include the following components: an integrated program of curricula revision; development and production of textbooks and supplementary booklets; in-service training for teachers and administrators; provision of simple science equipment, library materials and teaching aids; provision of transport for supervisors and strengthening of selected IKIPs.

86. The scope of the project is extensive as proposed by BPP, including all public lower and upper secondary schools. In the initial phase the project would be limited to science, mathematics and possibly language. At the lower secondary level all types of public secondary schools would be included to equalize the science and mathematics subjects taught among them; but no physical facilities would be provided because science at that level can be taught without a laboratory and most schools at this level are too small to use one efficiently. At the upper secondary level only SMAs and STMs would be included. Laboratory and library facilities would be provided to schools with sufficient size to use these rooms efficiently (e.g., 4 streams, or 12 classes).

87. Three IKIPs would be selected to develop new curricula, textbooks, equipment lists and in-service training programs subject to the approval of the University Science Consortium. The IKIPs would train provincial Kabins in the elements of the new program, i.e., textbooks and curricula. The provincial Kabins would organize in-service courses for the science and mathematics teachers to be held at various schools in their respective provinces. In-service courses would include courses on administration for headmasters.

88. Estimated Costs

Textbooks	\$ 900,000
Science Equipment	5,300,000
Library Books	400,000
Transport for <u>Kabins</u>	500,000
Strengthening of IKIPs	1,500,000
Upper Secondary Science and Library Rooms	4,800,000
Staff and Teacher Training	<u>3,000,000</u>
Total	\$16,400,000

89. Issues for Project Development

- (a) Feasibility of a nation-wide scope;
- (b) The quality of science and mathematics books currently being produced;
- (c) Prospects for interrupting the current schedule of textbook production for new development and testing;
- (d) Criteria for selecting schools at which facilities will be added; and
- (e) Recurrent costs implied by the program, e.g., additional secondary supervisors.

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BIBLIOGRAPHY

A. WORKS ON THE NATIONAL ASSESSMENT STUDY

1. Policy Statement (Unofficial Translation), Ministry of Education and Culture, December, 1972.
2. Educational Innovations in Indonesia, Ministry of Education and Culture.
3. Statistik Sekolah-Sekolah Diluar Departemen Pendidikan Dan Kebudayaan, Tahun 1971, BPP.
4. Education, Manpower Development and Employment in Indonesia, October 1973, BPP.
5. Struktur Organisasi & Hubungan Kerja Segenap Aparatur Departemen P dan K, (Keputusan Menteri P. dan K. No. 141/1969 dan No. 142/1969), BPP, 1972.
6. The Administration and Management of Education in Indonesia, BPP.
7. An Interpretation of the Descriptive Data Reports of the Education Administration Survey, BPP, March 1972.
8. Social Demand for Education, by Harold F. Carpenter, BPP, April 1972.
9. Teacher Performance, BPP, May 1972.
10. Trial Report Level III, Chapter on Primary Education, National Assessment of Education, by C.E. Beeby BPP, December 1971.
11. Level I Report, The National Education Survey, Part A: 1.0 Foreword, 2.0 Introduction, 3.0 Primary School Facilities, by Harold F. Carpenter, BPP, 1973.
12. Level I Report, The National Education Survey, Part C(2), 6.0 Primary School Inspectors, BPP, by Harold F. Carpenter.
13. Level I Report, The National Education Survey, Part E. 9.0 Primary School Teachers, by Harold F. Carpenter, BPP, 1973.
14. Chapter VI, Secondary Education, Part C, Section 14-14-58: Strategies for Introducing Changes, by C.E. Beeby, Office of Educational Development, Ministry of Education and Culture, Jakarta, 1972.
15. Chapter VI, Level III Trial Report, Secondary Education, Part C: Alternative Courses of Action, by C.E. Beeby, Ministry of Education and Culture, 1972.

16. The Quantity and Quality of Teachers in Indonesia, An Assessment: 1969-71.
17. Level I Report, The National Education Survey, Part D(2): 8.0 Secondary, (Interview Schedule, Secondary School Inspectors), by Harold F. Carpenter, BPP, 1973.
18. Level I Report, The National Education Survey, Part B: 4.0 Secondary Education Facilities, by Harold F. Carpenter, BPP.
19. Report Level II, Higher Education in Indonesia, A Summary of Needs in Higher Education, by Richard Pearse, BPP, March 1973.
20. Level II Report, Higher Education in Indonesia, BPP, March 1973.

B. STATISTICAL SOURCES

1. Statistik Mahasiswa Perguruan Tinggi Negeri 1972, BPP.
2. Statistik Mahasiswa Perguruan Tinggi - Swasta, Akademi & Sekolah Tinggi Olahraga Tahun 1972, BPP.
3. Lokasi SD, SLTP dan SLTA menurut - Propinsi, Kotamadya, Kabupaten, Seluruh Indonesia, Tahun 1971, BPP, 1973.
4. Statistik Persekolahan Seluruh Indonesia Tahun 1971, BPP, July 1973.
5. Model Kwantitatif, Sistem Pendidikan di Sulawesi Selatan, Beberapa Perhitungan Untuk Tahun 1974-1979, BPP 1973.
6. Explorasi tentang, Kemungkinan Pelaksanaan Kewajiban Belajar tingkat SD awal Pelita IV (tahun 1984), BPP, 1973.
7. Model Kwantitatip Sistem Pendidikan di Indonesia, Beberapa Perhitungan Untuk Tahun 1974-1979, BPP, October, 1972.
8. Survey Statistik Pendidikan 1971, Sekolah Dasar, Banyak Sekolah dan Murid Menurut Jenis Kelamin, Diseluruh Indonesia, BPP.
9. Data Propinsi, Jawa-Timur, Dalam Penyusunan Program/Proyek Pelita II Dept. P & K, 14-6-1973.
10. Data Propinsi, D.I. Yogyakarta, Dalam Penyusunan Program/Proyek Pelita II Dept. P&K, June 1973.
11. Basic Data, Menurut Universitas/Institut Negeri, Seluruh Indonesia, Tahun 1973, September 1973.
12. 1971 Population Census, Advance Tables, Central Bureau of Statistics, Jakarta, 1972.

13. Survey of Manufacturing Industries 1970, Biro Pusat Statistik, Jakarta, 1971.
14. Proyeksi Penduduk Indonesia 1971-1981, Biro Pusat Statistik, Jakarta, 1973.
15. Laporan Inventarisasi Jabatan Tenaga Asing, Departemen Tenaga Kerja, Transmigrasi dan Koperasi, Jakarta, 1973.
16. Survey Biaya Hidup, Jakarta, 1968-1969, Biro Pusat Statistik, Jakarta, 1973.
17. Laporan Hasil Survey Pengangguran Daerah Kota (Urban Unemployment Survey) Di DKI Jakarta, Kota Surabaya Dan Kota, Bandung, Jakarta, 1973.
18. Laporan Hasil Penelitian Tentang Pengangguran Dikalangan Tenaga 2 Muda Terdidik Di DKI Jakarta, 1972, Jakarta, 1973.

C. WORLD BANK GROUP SOURCES

1. Appraisal of a Third Education Project Indonesia (Report No. 112-IND), May 4, 1973.
2. The Indonesian Economy, Recent Developments and Prospects for 1974/75, (Report No. 286-IND), November 26, 1973.
3. Documents, Indonesia II (288-IND).
4. Documents, Indonesia III (387-IND).
5. Agricultural Sector Survey Indonesia (Report No. 183-IND), June 14, 1973.
6. Development Issues for Indonesia (in five volumes), The Main Report (Report No. 25-IND), December 1, 1972.
7. Indonesia: Investment and Growth Perspectives in the 1970's, A First Report, (Report No. EAP-22), March 25, 1971.
8. The Indonesian Economy, Recent Developments and Prospects for 1974/75, (Report No. 286-IND), November 26, 1973.
9. A Framework for Regional Planning in Indonesia, Draft Technical Assistance Report, February, 1974.

D. OTHER SOURCES

1. Survey of Community Development, Java Indonesia, by G.G. van Beers and Louise A. Colley, University of Guelph, February 1972.

2. A Study of the Planning Mechanism in the Educationl Sector in Indonesia, Unesco, by Dr. Soren Holm, Institute for History and Social Science, Odense University, Denmark.
3. Pemuda Dan Kesempatan Kerja, Tatang Mahmud M.A., Jakarta, 1973.
4. Bulletin of Indonesian Economic Studies, "Finance of Education," Part I, R. Daroesman, Vol. VII, No. 3, November 1971.
5. Bulletin of Indonesian Economic Studies, "Finance of Education," Part II, R. Daroesman, Vol. VIII, No. 1, March 1972.
6. Proyeksi Penduduk Angkatan Kerja Kesempatan Kerja Dan Gross Domestic Product 1971-1978, Departemen Tenaga Kerja, Transmigrasi dan Koperasi, Jakarta, 1973.
7. Indonesia - Development and Investment in a Malthusian Situation, Asian Research Bulletin, September 1-30, 1972.
8. The Impact of Technical and Commercial Education and Training on the Employment Situation in the Manufacturing Industries of East Java, German Development Institute, Surabaja, 1973.
9. Manpower Planning in Indonesia: A Practical Approach, by Edgar C. McVoy, Singapore, 1971.

INDONESIA

COMPARATIVE EDUCATION INDICATORS

Country	ASIA														OTHER			
	INDONESIA	PAKISTAN	PAPUA NEW GUINEA	THAILAND	PHILIPPINES	KOREA	TAIWAN	MALAYSIA	SINGAPORE	JAPAN	NEW ZEALAND	ETHIOPIA	NIGERIA (Northern)	TURKEY	IRAN	NETHERLANDS		
Year	71	72	71	71	70	71	68	72	70	69	71	70	70	69	71	70	69	71
Per Capita Income (US\$)	80	85	160	220	210	270	300	400	960	1900	2000	65	120	270	350	1700	1770	69
Column No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)		
% Adults Literate	60	20	18	70	72	85	90	60	75	99	99	7	-	50	37	99		
Public Education Expenditure as % GNP	1.9	1.8	5.1	3.7	3.6	3.8	3.2	6.4	3.1	3.9	4.8	2.9	3.2	3.5	3.2	7.2		
% Total Public Expend. on Education	13.5	6.4	16.6	19.4	29.0	18.4	16.6	20.9	16.2	20.5	16.5	20.0	26.8	17.1	10.8	20.0		
Public Educ. Expend. Per Capita (US\$)	1	1	19	8	6	13	13	32	30	50	110	2	3	9	11	180		
% Public Educational Recurrent Expend. on:																		
a. Primary	71	42	31	54	51	48	39	50	44	42	34	45	31	47	50	28		
b. Secondary	20	24	22	20	19	35	34	23	31	42	20	22	30	23	18	43		
c. Higher	9	22	7	18	30	14	15	15	15	16	19	18	32	22	12	17		
<u>Unit Recurrent Costs (US\$)</u>																		
a. Primary	5	7	80	20	25	25	20	75	70	180	230	20	30	20	50	300		
b. General Secondary	17	15	450	60	30	70	55	130	90	230	360	100	270	25	65	700		
c. Secondary Vocational/Tech.	21	87	960	180	40	470	95	280	580	230	...	800	520	-	-	1150		
d. Teacher Training	26	180	1680	140	-	-	210	1800	520	...	2575	400	270	-	-	1150		
e. University	126	-	4980	380	130	250	290	3100	910	1780	1230	1200	3320	230	-	3750		
<u>Ratio of Recurrent Costs to Primary</u>																		
a. Primary	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
b. General Secondary	3	2	6	3	1	3	2	2	1	1	2	5	9	1	1	2		
c. Sec. Vocational/Tech.	4	12	12	9	1	19	3	4	8	1	...	40	17	-	-	4		
d. Teacher Training	5	26	21	7	-	-	6	24	7	...	11	20	9	-	-	4		
e. University	25	-	62	19	5	10	7	41	13	10	5	60	110	11	-	13		
<u>Ratio of Teacher Salary to Per Capita Income</u>																		
a. Primary	2	4	15	-	3	4	-	4	3	-	-	19	7	-	5	3		
b. Secondary	3	7	45	-	3	5	-	6	4	-	-	30	34	-	10	4		
c. Higher	6	12	75	-	3	7	-	13	7	-	-	45	-	-	20	8		
<u>Enrollment Ratios</u>																		
a. Primary (Gross)	80	42	56	83	119	100	98	90	90	99	99	-	13	92	62	-		
(Net)	68	-	41	-	93	-	-	-	-	-	-	17	-	-	-	95		
b. Secondary (Gross)	18	16	12	13	71	46	44	33	40	90	68	-	2	25	23	-		
(Net)	11	-	8	-	42	-	-	-	-	-	-	5	-	-	-	66		
c. Higher (Gross)	3	-	2	3	25	8	-	2	5	21	58	-	0	6	4	-		
(Net)	2	-	1	-	-	-	-	-	-	-	-	0	-	-	-	9		
Higher Graduates/100,000 pop.	-	-	1	37	457	117	179	80	144	308	287	4	2	41	39	230		
<u>% Total Enrollment by Level</u>																		
a. Primary	85	-	86	89	73	70	69	73	69	46	61	82	91	81	75	57		
b. Secondary	13	-	12	10	20	28	26	26	28	46	22	17	8	17	23	37		
c. Higher	2	-	2	1	7	2	5	1	3	8	17	1	1	2	2	6		
<u>% Distribution of Secondary Enrollments</u>																		
a. General	67	-	78	82	89	51	81	97	92	80	99	95	63	71	96	58		
b. Technical/Vocational	28	-	16	13	11	49	18	2	5	0	...	2	8	15	3	41		
c. Teacher Training	5	-	6	5	0	0	1	1	3	21	...	3	29	14	1	1		
<u>% Total Enrollment in Private Schools</u>																		
a. Primary	20	22	67	-	5	1	1	0	23	1	64	91	61	-	7	63		
b. Secondary	43	42	50	-	67	55	32	8	77	16	36	8	39	4	21	33		
c. Higher	35	52	0	-	93	68	52	0	-	76	-	1	0	25	17	4		
<u>Completion Rates (% Initial Entrants)</u>																		
a. Primary	23	49	60	20	56	90	-	90	72	99	99	56	85	76	74	95		
b. First Cycle Secondary	80	75	80	-	90	-	95	51	96	...	-	68	75	-	-	...		
c. General Secondary	80	83	85	60	71	92	-	60	-	94	76	43	90	-	80	71		
d. Technical Secondary	60	-	80	-	-	-	-	-	78	...	...	-	-	-	-	66	
e. Teacher Training	70	-	-	-	76	96	-	99	88	...	80	-	-	-	98	84		
f. University	30	-	40	-	63	90?	-	80	68	87	48	-	-	-	-	77		
<u>Progression Rates between Levels</u>																		
a. Primary to Secondary	80	73	35	85	75	69	-	69	99	99	99	40	20	-	80	95		
b. Secondary to Higher	47	80	75	80	80	27	-	14	54	23	21	18	13	-	25	35		
<u>Students Per Teacher</u>																		
a. Primary	32	33	31	34	30	56	-	32	32	26	27	51	34	42	33	30		
b. Secondary	17	28	18	25	36	36	-	26	25	21	18	34	21	33	36	19		
<u>Teacher Qualifications</u>																		
a. Primary: Required No. Yrs. Edn. & Trg.	12	11	10	12	12	14	12	13	12	-	17	12	14	-	12	14		
" % Qualified	47%	83%	95%	70%	96%	90%	100%	88%	88%	96%	99	67%	45%	100%	66%	100%		
b. Secondary: Req. No. Yrs. Edn. & Trg.	13	13	13	14	14	16	16	17	14	-	18	14	18	-	14	15		
" % Qualified	50%	90%	95%	85%	94%	80%	70%	93%	95%	75%	99	9%	74%	100%	46%	87%		

Notes: 0 = less than 0.5
 - = not available
 ... = not applicable

Source: World Bank Group, Comparative Education Indicators

INDONESIA

LITERACY AND EDUCATIONAL ATTAINMENT OF THE POPULATION BY REGION AND SEX
 (% of Population Ten Years of Age and Over)
 (1971)

		Literate	No Schooling	Incomplete Primary	Complete Primary	Junior Secondary General	Junior Secondary Technical	Senior Secondary General	Senior Secondary Technical	Academy	University	Total	Population Sample (Millions)
Java-Madura	Total	57.3	42.9	32.5	18.2	2.8	1.2	1.1	0.9	0.2	0.2	100.0	52.3
	Urban	78.1	22.9	28.5	26.6	9.5	5.2	2.8	2.8	0.9	0.8	100.0	9.8
	Rural	52.8	47.7	33.3	16.3	1.3	0.3	0.7	0.4	0.0	0.0	100.0	42.5
	Male	69.6	30.9	37.6	22.9	3.5	1.7	1.6	1.2	0.3	0.3	100.0	25.2
	Female	46.3	54.1	27.0	14.0	2.2	0.7	0.7	0.5	0.1	0.1	100.0	27.1
Sumatera	Total	71.1	29.5	39.6	22.9	4.2	1.3	1.2	1.0	0.2	0.1	100.0	13.8
	Urban	84.8	16.4	33.4	30.1	9.4	4.3	2.7	2.6	0.7	0.4	100.0	2.5
	Rural	68.0	32.6	41.1	21.3	3.0	0.6	0.8	0.6	0.0	0.0	100.0	11.2
	Male	81.6	19.1	43.6	26.7	5.5	2.0	1.4	1.4	0.2	0.1	100.0	6.8
	Female	71.1	39.9	35.9	19.2	2.8	0.6	0.9	0.6	0.1	0.0	100.0	7.0
Kalimantan	Total	55.3	48.3	28.9	18.8	2.3	0.5	0.9	0.3	0.0	0.0	100.0	3.5
	Urban	75.6	27.1	37.2	23.9	6.1	1.8	2.6	1.0	0.2	0.1	100.0	0.8
	Rural	49.7	54.2	26.6	17.3	1.2	0.1	0.5	0.1	0.0	0.0	100.0	2.7
	Male	66.0	37.8	32.2	24.3	3.3	0.7	1.2	0.4	0.1	0.0	100.0	1.7
	Female	44.6	59.0	25.6	13.1	1.2	0.2	0.7	0.2	0.0	0.0	100.0	1.7
Sulawesi	Total	59.5	41.6	28.4	21.9	4.2	1.4	1.2	1.1	0.1	0.1	100.0	5.6
	Urban	76.0	24.0	25.9	27.7	10.6	4.8	2.7	3.2	0.5	0.6	100.0	1.0
	Rural	56.0	45.2	29.0	20.7	2.8	0.7	0.9	0.7	0.0	0.0	100.0	4.6
	Male	67.2	34.1	30.5	24.4	5.4	2.2	1.5	1.6	0.1	0.2	100.0	2.7
	Female	52.4	48.4	26.5	19.6	3.0	0.7	0.9	0.7	0.1	0.1	100.0	2.9
Other Islands	Total	52.9	46.5	28.1	19.2	3.0	0.9	1.2	0.9	0.1	0.1	100.0	5.2
	Urban	78.8	22.6	29.7	25.7	8.6	3.7	4.0	4.4	0.4	0.9	100.0	0.6
	Rural	50.0	49.5	28.1	18.5	2.3	0.6	0.8	0.5	0.1	0.0	100.0	4.7
	Male	61.3	37.9	31.9	21.9	3.7	1.4	1.5	1.3	0.2	0.2	100.0	2.6
	Female	44.7	55.0	24.6	16.5	2.2	0.4	0.8	0.5	0.0	0.0	100.0	2.6
Indonesia	Total	59.6	41.0	33.0	19.4	3.1	1.2	1.1	0.9	0.2	0.1	100.0	80.4
	Urban	79.1	22.3	29.1	27.4	9.4	4.8	2.8	2.7	0.8	0.7	100.0	14.7
	Rural	55.2	45.2	33.6	17.7	1.8	0.4	0.8	0.5	0.0	0.0	100.0	65.8
	Male	70.8	29.8	37.5	23.6	4.0	1.7	1.6	1.3	0.3	0.2	100.0	39.0
	Female	49.0	51.6	28.7	15.4	2.3	0.6	0.7	0.5	0.1	0.1	100.0	41.4

Source: Calculated from Series C, Advance Tables, 1971 Population Census, Biro Pusat Statistik, July 1972.

INDONESIA

SCHOOLS, STUDENTS AND TEACHERS BY LEVEL AND TYPE OF SCHOOL
(1971)

		(thousands)												Equivalent		
		Institutions				Students				Teachers				Full Time Teacher:	Average School Size	
		a/ Public	Private	%	Total	a/ Public	Private	%	Total	Full Time	Part Time	Total	Student Ratio	Public	Private	
I. PRIMARY (SD)	Total	61,040	25,410	29	86,450	(12,494)	(3,280)	21	(15,774)	-	-	534,800	1:29	205	129	
a. Secular		60,680	5,270	8	65,950	12,404	870	7	15,274	-	-	414,800	1:32	204	165	
b. Madrasah Ibtidaiyah		360	20,140	98	20,500	(90)	(2,410)	96	(2,500)	-	-	120,000	1:21	250	120	
II. LOWER SECONDARY (SLTP)	Total	4,344	6,830	61	11,174	(1,074)	(694)	39	1,768	-	-	-	-	247	102	
a. General (SMP)		2,450	2,840	54	5,290	720	382	35	1,102	46,600	26,600	73,200	1:19	294	135	
b. Madrasah (Tsanawiyah)		180	1,670	90	1,850	(30)	(166)	85	196	-	-	11,750	-	(167)	(99)	
c. Technical (ST)		630	135	18	765	146	17	10	163	10,540	5,110	15,650	1:12	230	125	
d. Commercial (SMEP)		490	335	41	825	88	20	19	108	7,320	3,900	11,220	1:15	180	60	
e. Home Economics (SKKP)		275	80	23	355	33	5	13	38	2,700	1,330	4,030	1:12	120	60	
f. Agricultural		50	50	50	100	6	4	40	10	-	-	-	-	120	80	
g. PGA (i) 4 year Course b/ (ii) 6 year Course b/		150	1,460	91	1,610	(30)	(70)	70	100	-	-	1,600	-	(200)	(50)	
h. Industrial Arts (SPIK)		115	260	69	375	(20)	(30)	60	50	-	-	7,640	-	(174)	(115)	
		4	-	0	4	1	-	1	10	100	100	110	-	250	...	
III. UPPER SECONDARY (SLTA)	Total	1,822	1,801	50	3,623	(559)	(290)	34	849	-	-	-	-	307	161	
a. General (SMA)		630	520	45	1,150	218	75	26	293	12,300	12,400	24,700	1:17	346	144	
b. Madrasah (Aliyah)		40	510	92	550	(10)	(36)	78	46	-	-	3,500	-	(250)	(71)	
c. Technical (STM & STMI)		240	160	40	400	95	28	23	123	3,200	7,100	10,300	1:16	400	175	
d. Commercial (SMEA)		270	320	54	590	86	75	47	161	4,600	6,200	10,800	1:18	320	230	
e. Home Economics (SKKA)		60	60	50	120	11	5	31	16	900	1,000	1,900	1:13	180	80	
f. Teacher Training (SPG)		300	200	40	500	72	23	24	95	3,900	4,800	8,700	1:18	240	115	
g. Islamic Teacher Training (PGA) b/		...	...	-	...	(25)	(45)	64	70	-	-	-	-	...	...
h. Agricultural (SPMA) (1973 data)		69	29	30	98	(9)	(3)	25	12	-	-	-	-	-	-	
i. Agricultural Technology (STMA)		23	0	0	23	9	...	-	9	-	-	-	-	-	-	
j. Sport (SMOA)		58	2	3	60	9	-	-	9	600	1,200	1,800	-	150	-	
k. Social Workers (SPSA)		12	0	0	12	2	...	-	2	10	50	60	-	170	-	
l. Other		120	0	0	120	13	...	-	13	-	-	-	-	110	-	
IV. HIGHER EDUCATION (1972)	Total	180	185c/	51	365	169	84c/	33	253	-	-	-	-	939	454	
a. Academies		120	77c/	39	197	25	20c/	44	45	-	-	-	-	208	260	
b. Colleges		7	21c/	75	28	2	5c/	71	7	-	-	-	-	286	238	
c. Islamic Institutes (IAIN)		13	0	0	13	18	-	-	18	-	-	690	-	1,385	-	
d. Secondary Teacher Training (IKIP)		11	17c/	61	28	25	5c/	17	30	-	-	-	-	2,273	294	
e. Technical Institutes		3	0	0	3	10	0	0	10	-	-	-	-	3,333	-	
f. Universities		26	70c/	73	96	88	54c/	38	142	-	-	13,430d/	-	3,385	770	

a/ Including fully or partly subsidized except in higher education.

b/ Prorated between lower and upper cycles.

c/ Excluding fully private.

d/ Public universities only.

- = not available

... = not applicable

Estimated figures in parenthesis

INDONESIA

ENROLLMENT RATES
1971

Province	Primary (Gr. 1-6)			Lower Secondary (Gr. 7-9)			Upper Secondary (Gr. 10-12)		
	Population (7-12) (thousands)	Gross a/ Enrollment Rate (%)	Net b/ Enrollment Rate (%)	Population (13-15) (thousands)	Gross a/ Enrollment Rate (%)	Net b/ Enrollment Rate (%)	Population (16-18) (thousands)	Gross a/ Enrollment Rate (%)	Net b/ Enrollment Rate (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
01 Jakarta	681	83	69	314	36	23	295	21	13
02 West Java	3,581	75	62	1,417	15	10	1,131	10	7
03 Central Java	3,615	75	62	1,497	23	14	1,227	13	9
04 Yogyakarta	401	89	73	182	41	25	150	37	24
05 East Java	3,952	82	62	1,598	19	12	1,353	10	6
Sub-Total: Java	(12,231)	(78)	(63)	(5,007)	(21)	(13)	(4,156)	(13)	(8)
06 Aceh	299	86	78	120	28	17	113	13	7
07 North Sumatera	1,342	85	71	501	29	19	404	19	13
08 West Sumatera	415	99	83	216	30	19	164	19	13
09 Riau	251	88	82	121	45	25	104	10	7
10 Jambi	155	92	84	72	24	14	59	14	8
11 South Sumatera	533	91	74	250	) 22	12	213	) 10	8
12 Bengkulu	87	95	80	39	)		30)	
13 Lampung	469	73	84	180	19	11	145	10	6
Sub-Total: Sumatera	(3,569)	(87)	(76)	(1,498)	(28)	(17)	(1,232)	(15)	(10)
14 West Kalimantan	330	66	52	143	14	7	114	6	3
15 Central Kalimantan	121	77	61	50	21	12	40	8	4
16 South Kalimantan	295	81	69	114	22	12	95	14	10
17 East Kalimantan	113	78	61	48	22	12	48	9	5
Sub-Total: Kalimantan	(858)	(74)	(60)	(355)	(19)	(10)	(297)	(9)	(6)
18 North Sulawesi	331	94	73	128	31	21	105	26	18
19 Central Sulawesi	175	88	67	62	31	17	53	15	9
20 South Sulawesi	810	89	72	330	22	15	276	14	9
21 Southeast Sulawesi	128	85	68	45	27	12	38	13	9
Sub-Total: Sulawesi	(1,444)	(89)	(71)	(565)	(26)	(16)	(473)	(17)	(11)
22 Maluku	186	98	75	80	28	16	57	16	10
23 Bali	344	73	62	116	26	16	110	12	8
24 West Nusatenggara	359	66	54	126	14	9	97	9	6
25 East Nusatenggara	381	91	68	155	19	9	114	8	5
26 Irian Jaya	128	85	66	66	13	5	69	4	4
Sub-Total: Other Islands	(1,398)	(80)	(64)	(544)	(20)	(11)	(447)	(10)	(6)
INDONESIA: TOTAL	19,500	80	68	7,969	22	14	6,605	13	9

a/ Gross enrollment rate = enrollment by level as a percent of population in the age group.

b/ Net enrollment rate = percent of eligible students enrolled in the appropriate level.
This ratio excludes overaged students.

Source: BPP, Ministry of Education

INDONESIA

STUDENTS IN PUBLIC UNIVERSITIES BY FACULTY AND TYPE OF EMPLOYMENT OF PARENTS, 1972

Faculty	Employment of Parents								Total
	Civil Servants ^{a/}	Armed Forces	Government Enterprise	Private Enterprise	Farming ^{b/}	Trade ^{c/}	Self Employed	Others ^{d/}	
1. Medicine	38%	9%	4%	9%	9%	14%	8%	8%	100%
2. Agriculture	39%	9%	4%	5%	24%	8%	5%	7%	100%
3. Engineering	37%	10%	5%	9%	14%	10%	8%	8%	100%
4. Science	33%	9%	3%	9%	14%	13%	8%	11%	100%
5. Law	35%	8%	3%	4%	23%	9%	7%	10%	100%
6. Humanities	30%	10%	4%	9%	16%	12%	10%	9%	100%
7. Social Science	31%	8%	4%	6%	23%	11%	8%	10%	100%
8. Education	27%	5%	2%	3%	39%	6%	5%	13%	100%
9. Teacher Training	24%	5%	1%	2%	48%	5%	5%	11%	100%
10. Teacher Training: Science	32%	7%	3%	4%	31%	7%	6%	11%	100%
11. Teacher Training: Technical	27%	8%	4%	5%	34%	5%	7%	10%	100%
12. Teacher Training: Social	27%	6%	2%	3%	44%	5%	5%	8%	100%
13. Teacher Training: Arts	31%	8%	3%	6%	27%	7%	6%	13%	100%
TOTAL	33%	8%	3%	6%	24%	9%	7%	9%	100%

Source: "Statistik Mahasiswa Perguruan Tinggi Negeri", 1972, BPP, Ministry of Education

Average Family Income:

a/ Rp. 121,440

b/ Rp. 66,618

c/ Rp. 210,600

d/ Rp. 24,368

INDONESIA

ACTIVITIES IN NON-FORMAL COMMUNITY EDUCATION
(PENMAS)
1972

Types of Activities	Duration	Teaching Hours	Number of Teachers ^{a/}		Explanation
			Courses	Students	
I. Fundamental Education Service					
1. Literacy classes	3 months	48	920	1,200	18,800
2. Intro. Community Development courses I	3 "	48	4,370	6,000	116,500) Teaching people human relations skills and problem solving.
3. Intro. Community Development courses II	3 "	48	3,660	5,600	) Social sciences, agriculture, health, techniques of rural development.
4. Adult Socio-Econ. courses	6 "	150	1,000	3,700	28,200
5. Reading & Discussion groups	2-4 times, 1½-2 hrs. 1 month	mtg.	-	-	-) In 10,760 locations, by 21,600 leaders, with 321,900 members.
6. Local news sheets	-	-	-	-	In 3 districts, 1,000 copies/month, Malang, Tegal, Kudus.
7. Teachers Training for literacy & post-literacy courses					
a. Traditional literacy	7-10 days	6 hrs/day	30	90	640
b. Functional literacy	10-15 "	10 " "	10	30	180
II. Community Library Service					
1. Intermediate village libraries	-	-	-	-	a. locations: 6,950, b. books: 402,000, c. readers: 209,800
2. Community libraries level A (sub-district)	-	-	-	-	a. " 1,380 b. " 221,100 c. " 103,900
3. Community libraries level B (districts)	-	-	-	-	a. " 170 b. " 285,000 c. " 85,000
4. Community libraries level C (provinces)	-	-	-	-	a. " 20 b. " 121,200 c. " 42,700
III. Vocational Education Service					
1. Vocational courses	1 week - 3 months	30-180 hrs.	1,000	4,900	21,700 Radio mech., automobile, bicycle repair, watch repair, carpentry, brickwork, basket weaving, bamboo processing, photography, tailoring, barbering, agriculture, poultry, fishery, processing of fish products, food preservation, home industries, ceramics, shoe-making, repair, typing.
2. Vocational development training (training of trainers)	-	-	20	80	170 locations: 20
3. Youth work training	-	-	-	-	members: 4,000, leaders: 2,200, locations: 730
4. Guidance & counselling to local youth associations	-	-	-	-	
IV. Women's Education Service					
1. Family life courses	4 months	60	3,930	18,700	203,300 Include: cooking, nutrition, consumer information, household skills, home care, child rearing, budgeting, family inter-personal relationships.
2. Pioneer fam. life educ. training	3 days	21	560	2,200	15,600
3. Courses for fam. life educ. workers	6 months	180	530	3,100	20,500
4. Women's vocational courses	4 "	150	940	4,800	14,200
5. Child guidance courses	3 "	58	20	140	460
6. Guidance to local fam. welfare assoc.	-	-	-	-	members: 163,900, leaders: 15,000, locations: 3,500
7. Mother craft centers	-	-	-	-	
V. Leadership Training Service					
1. Community leadership courses Level A (sub-district)	6 months	190	1,620	9,300	42,600
2. Community leadership courses Level B (district)	8 "	200	220	9,300	10,100
3. Community leadership courses Level C (province)	10 "	225	10	160	610
4. Comm. Ed. training centers	-	-	-	-	locations: 110 centers
TOTALS			18,800	69,300	611,200

^{a/} Including part-time teachers.

Source: PENMAS, Ministry of Education

1/1974

INDONESIA
a/
 PERCENTAGE OF TEACHERS UNQUALIFIED BY TYPE OF SCHOOL AND PROVINCE
 (1971)

Province	Primary Schools (SD)	Lower Secondary				Upper Secondary				Primary Teacher Trg. (SPG)
		General (SMP)	Commercial (SMEP)	Home Economics (SKKP)	Technical (ST)	General (SMA)	Commercial (SMEA)	Home Economics (SKKA)	Technical (STM)	
Jakarta	6	31	49	72	45	11	9	26	35	81
West Java	8	36	56	61	52	14	25	52	31	16
Central Java	7	26	25	54	53	17	19	45	35	12
Yogyakarta	3	21	22	66	51	9	19	37	19	12
East Java	8	30	52	70	58	17	26	48	34	18
Aceh	7	43	57	73	49	25	18	40	28	20
North Sumatera	7	37	74	71	55	15	21	52	43	-
West Sumatera	5	44	57	71	64	16	14	27	30	21
Riau	5	42	53	73	52	36	31	42	36	16
Jambi	21	49	72	80	44	31	24	74	53	45
South Sumatera	28	)	45	72	72	30	40	72	56	35
Bengkulu	31	)	45	72	69	30	40	72	56	35
Lampung	18	35	55	63	53	23	9	55	43	10
West Kalimantan	38	62	53	55	79	40	57	82	86	43
Central Kalimantan	11	57	61	53	-	70	48	-	-	32
South Kalimantan	12	27	39	58	47	42	50	-	64	19
East Kalimantan	24	63	69	0	-	22	41	-	-	46
North Sulawesi	13	62	64	77	46	39	53	74	48	79
Central Sulawesi	10	64	76	0	-	45	42	-	-	21
South Sulawesi	1	15	31	69	59	31	46	42	59	-
Southeast Sulawesi	7	11	-	58	43	72	70	83	45	16
Maluku	2	56	78	78	33	56	68	40	54	47
Bali	4	63	64	80	55	27	27	64	42	41
West Nusatenggara	3	63	69	85	55	28	34	80	69	21
East Nusatenggara	5	53	68	73	51	48	59	71	26	63
Irian Jaya	10	34	55	67	40	25	6	50	39	25
National Average	8	35	48	66	55	20	29	49	38	23

- = not available

a/ "Unqualified" includes the following: Primary: SD, SLTP, SLTA and CVO only.

Lower Secondary: SLTP, SLTA, SPG, STM only.

Upper Secondary: SLTA, SPG, STMI, PGSLP.

Source: "Statistik Persekolahan Seluruh Indonesia Tahun 1971," BPP, July, 1973,
 Office of Educational Development, Ministry of Education.

INDONESIA

EDUCATION LEVEL OF TECHNICAL PERSONNEL IN THE GOVERNMENT AGRICULTURAL SECTOR

(1971)

	PRIMARY	SENIOR AND JUNIOR HIGH SCHOOLS	SENIOR HIGH SCHOOL	ACADEMY AND UNIVERSITY	TOTAL TECHNICAL	TOTAL STAFF
A. Ministry of Agriculture						
General Secretariat	211	222	145	177	610	1,241
Dir. General Agriculture *	5,733	6,737	3,396	625	12,895	18,536
(including BIMAS Staff)						
Dir. Gen. Animal Husbandry	3,046	1,050	784	327	4,423	6,578
Dir. Gen. Fisheries	1,442	1,325	366	236	3,003	5,252
Dir. Gen. Forestry	5,202	2,429	1,248	340	7,971	11,070
Dir. Gen. Plantations	243	233	150	43	519	992
	15,877	11,796	6,089	1,748	29,421	43,669
B. Staff Enterprises	na	3,000	na	200	na	15,000
* Directorate General of Agriculture - Distribution of Personnel by Education Level						
Central Office	232	88	188	145	653	1,537
Field staff of Central Government	320	100	350	135	905	2,100
Total Central	552	188	538	280	1,558	3,637
Provincial	662	219	540	179	1,600	2,898
District Offices	1,052	935	668	118	2,773	4,462
Sub-District Offices	2,213	1,568	335	-	4,116	4,291
Seed Gardens	902	87	10	4	1,003	1,398
Village Extension	352	144	105	-	601	606
Total Provincial Staff	5,181	2,953	1,658	301	10,093	13,655
BIMAS	na	na	na	44	44	na
Subject Matter Specialist	na	na	1,200	na	1,200	na
Village Extension Workers						
	5,733	3,141	3,396	625	12,895	18,536

Source: Ministry of Agriculture

Date: January, 1974

INDONESIA
UNIVERSITY FACULTIES OF AGRICULTURE AND RELATED SCIENCES
(1973)

ANNEX 9

UNIVERSITY	FACULTY	YEAR ESTABLISHED	STUDENT ENROLLMENT	FULL TIME	PART TIME	AFFILIATION	EVALUATION BY ^{a/} CONSORTIUM OF AGRI. SCIENCES
1. Institute Pertanian Bogor (IPB)	Agriculture	1941	330	165	na	-	-
	Agri. Techn.	1964	252	58	na	-	-
	Animal Husbandry	1963	202	43	na	-	-
	Vet. Med. I	1948	170	78	na	-	-
	Forestry	1963	325	37	na	-	-
	Biol. and Fisheries	1963	159	44	na	-	-
2. Gajah Mada Yogyakarta (UGM)	Agriculture	1946	768	65	na	-	-
	Agri. Techn.	1963	564	29	83	-	-
	Animal Husbandry	1969	419	28	126	-	-
	Vet. Med. II	1946	450	44	39	-	-
	Forestry	1963	544	30	150	-	-
	Biology		354	44	na	-	-
3. Syah Kuala, Banda Atjeh	Agriculture	1964	67	21	23	IPB	a-1
	A. H. Vet.	1960	145	4	26	USU	a-2
4. Sumatera Utara Medan	Agriculture	1956	817	50	50	-	a-1
5. Riau, Pakanbaru	Fisheries	1963	57	6	24	IPB	a-2
6. Andalas, Padang	Agriculture	1954	360	61	30	IPB	a-1
	Animal Husbandry	1963	120	39	20	IPB	a-2
7. Sriwijaya Palembang	Agriculture	1960	275	29	-	IPB	a-2
8. Jambi, Telanai pura	Agriculture	1963	36	18	-	-	a-2
9. Tanjungpura Pontianak	Agriculture	1963	50	3	13	IPB	a-2
10. Lambung Mangkurat Bandjar Masin	Agriculture	1961	98	22	-	IPB	a-2
	Forestry	1964	66	2	193	IPB	b-1
	Fisheries	1964	40	1	-	IPB	b-2
11. Mulawarman Samarinda	Agriculture	1962	39	5	21	IPB + GMU	a-2
	Forestry	1962	88	-	-	-	b-2
12. Sam Ratulangi Menado	Agriculture	1960	314	23	43	-	a-2
	Animal Husbandry	1963	224	8	28	IPB	a-2
	Fisheries	1967	56	2	38	-	b-1
13. Hasanuddin Ujung Padang	Agriculture	1962	543	38	250	IPB	a-2
	Animal Husbandry	1963	285	26	36	-	-
14. Pattimura Amboi	Agriculture	1963	30	3	30	IPB	a-2
	Animal Husbandry	1963	15	2	31	IPB	b-1
15. Jendrawasih Manokwari West Irian	Agriculture	1964	38	3	13	IPB	a-2
16. Mataram Lombok	Agriculture	1967	79	3	21	GMU	-
	Animal Husbandry	1968	49	0	18	GMU	-
17. Udayana DenPasar Bali	Agriculture	1967	106	9	30	-	a-2
	Vet. + An. Husb.	1962	185	32	31	-	a-1
18. Jember East Java	Agriculture	1961	264	4	47	GMU	a-1
19. ^{b/} Brawijaya Malang	Agriculture	1960	371	18	48	-	a-1
	Animal Husbandry	1961	99	8	77	IPB	a-2
20. Diponegoro Samarang	Animal Husbandry	1964	261	8	-	-	a-2
21. J. Sudirman Purwokerto	Agriculture	1961	247	12	41	GMU/IPB	a-2
	Animal Husbandry	1966	72	7	41	GMU/IPB	a-2
22. Padjajaran Bandung	Agriculture	1959	550	44	na	-	a-1
	Animal Husbandry	1963	na	23	na	-	a-1
23. Nusa Cendana Kupang Timdre	Animal Husbandry	1964	29	0	13	IPB	b-2
24. Lampung Univ.	Agriculture	1971	57	na	na	na	na
TOTAL	-	-	10,669	1,199	2,833	-	-

^{a/} Evaluation Categories:
a-1 = to be developed to M.S. level
a-2 = to be developed to B.S. level
b-1 = to be integrated with other faculty
b-2 = to be closed down

Source: (a) Agency for Agr. and Training
(b) Consortium of Agri. Sciences

^{b/} 25 Faculty of Veterinary Science transferred to the Airlangga University, Surabaya

Date: January, 1974

INDONESIA

Central Government Budgets for Education and Training, by Ministry, 1970/71-1973/74 (in bill. Rp)

<u>Ministry</u>	1970/71		1971/72		1972/73		1973/74	
	<u>RB</u>	<u>DB</u>	<u>RB</u>	<u>DB</u>	<u>RB</u>	<u>DB</u>	<u>RB</u>	<u>DB</u>
Education	16.7	5.3	20.9	6.1	27.8	7.9	25.0	8.6
Religion	8.2	0.6	8.8	0.6	11.6	0.7	11.3	0.6
Defense	2.0	-	1.7	2.3	1.6	3.6	4.0	4.6
All Others	1.1	2.6	1.7	2.3	1.6	3.6	4.0	4.6
<u>Transfers</u> ^{1/}	21.0	-	30.7	-	39.5	-	49.6	15.8 ^{2/}
<u>Totals</u>	49.0	8.5	64.4	9.0	83.8	12.2	93.4	29.6
in percent of total Central Gov't. Budget	17.0	5.0	18.4	4.6	19.2	3.9	18.0 ^{3/}	4.5 ^{3/4/}
in percent of GDP	1.5	0.3	1.7	0.2	1.8	0.3	n.a.	n.a.

RB = Recurrent Budget.

DB = Development Budget.

1/ Primary education subsidies from Ministry of Home Affairs to the Provinces2/ Extraordinary allocation for primary school buildings3/ Provisional estimate4/ Excluding extraordinary allocation for primary school buildings

Source: Ministry of Finance and IBRD Reports No. 25-IND and 286-IND

INDONESIA

CLASS SIZES BY LEVEL, TYPE OF SCHOOL, GRADE AND PROVINCE
 (Average Number of Students Enrolled Per Class Session)
 (1971)

Province	Lower Secondary								Upper Secondary								Primary		
	General (SMP) Gr.7 Gr.9		Technical (ST) Gr.7 Gr.9		Commercial (SMEP) Gr.7 Gr.9		Economics (SKKP) Gr.7 Gr.9		General (SMA) Gr.10 Gr.12		Technical (STM) Gr.10 Gr.12		Commercial (SMEA) Gr.10 Gr.12		Economics (SKKA) Gr.10 Gr.12		Home Teacher Trg. (SPG) Gr.10 Gr.12		
Jakarta	46	40	22	19	42	29	30	20	41	33	26	23	48	36	33	22	34	31	
West Java	38	34	28	25	29	25	24	16	38	30	33	28	38	35	31	18	36	34	
Central Java	39	35	24	20	28	27	29	19	36	28	32	30	40	34	32	18	31	32	
Yogyakarta	36	37	24	20	28	24	27	16	38	30	29	24	34	30	29	18	32	36	
East Java	41	36	29	25	40	36	28	18	37	29	34	33	39	29	29	18	32	30	
Aceh	33	28	35	24	27	22	21	19	34	25	29	24	36	32	36	31	35	22	
North Sumatera	39	31	30	24	27	22	27	21	38	32	33	26	31	24	39	27	33	33	
West Sumatera	37	33	27	20	28	20	25	18	36	27	42	34	39	27	31	22	39	37	
Riau	34	28	26	19	18	21	18	11	31	24	31	22	29	27	35	18	26	24	
Jambi	36	32	33	27	30	22	20	10	28	25	25	22	32	20	17	10	37	35	
South Sumatera)	41	34	32	29	29	25	20	17	36	29	31	28	35	21	27	15	36	28
Bengkulu)																		
Lampung	38	34	34	28	26	20	23	18	35	28	29	33	34	30	-	-	34	31	
West Kalimantan	37	28	20	15	25	26	23	13	35	21	23	16	37	28	32	12	32	27	
Central Kalimantan	31	27	-	-	22	19	-	-	26	23	-	-	23	22	-	-	19	17	
South Kalimantan	32	27	22	18	21	20	23	14	31	21	43	20	26	23	-	-	28	24	
East Kalimantan	33	28	-	-	29	23	-	-	28	18	-	-	31	23	-	-	27	18	
North Sulawesi	34	30	26	25	27	23	25	12	34	27	35	31	33	26	30	11	33	27	
Central Sulawesi	33	28	-	-	28	22	-	-	27	16	-	-	22	19	-	-	28	25	
South Sulawesi	33	30	23	19	29	24	22	13	30	23	26	21	29	24	20	14	-	-	
Southeast Sulawesi	31	28	25	19	32	22	31	12	34	21	28	22	23	24	31	12	36	28	
Maluku	30	26	31	23	23	21	20	15	32	19	36	30	29	23	24	14	29	24	
Bali	35	32	33	28	29	30	34	18	34	27	31	34	36	28	29	17	34	37	
West Nusatenggara	33	26	24	28	32	29	20	11	34	23	28	37	41	32	22	10	41	34	
East Nusatenggara	34	27	37	22	27	23	29	16	35	21	31	34	32	22	28	15	42	33	
Irian Jaya	30	25	28	20	28	20	22	9	32	17	25	16	33	16	22	11	27	20	
National Average	38	34	27	22	29	25	26	17	36	28	31	28	35	28	31	18	33	32	

- = not available

Source: "Statistik Persekolahan Seluruh Indonesia Tahun 1971," BPP, July, 1973,
 Office of Educational Development, Ministry of Education.

Type of School	Age													Total					
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
I. PRIMARY SCHOOL (SD)	526,516	1,548,526	2,087,116	2,144,528	2,004,299	1,866,238	1,473,924	1,025,663	537,378	193,325	54,302	12,915							13,474,780
	3.9%	11.5%	15.4%	15.9%	14.9%	13.9%	10.9%	7.6%	4.0%	1.4%	0.4%	0.1%							100.0%
II. LOWER SECONDARY (SLTP)					24,354	151,284	316,311	375,948	305,283	164,141	54,916	14,511	4,104	844					1,411,696
					1.7%	10.7%	22.4%	26.6%	21.6%	11.6%	3.9%	1.0%	0.3%	0.1%					100.0%
a. SMP (General)					19,147	123,908	257,324	300,559	235,833	118,999	35,933	7,863	1,949						1,101,515
b. SMEP (Commercial)					2,053	11,071	21,551	26,355	22,490	14,231	6,356	2,764	1,376	615					108,862
c. SKKP (Home Economics)					606	3,748	8,440	10,435	8,245	4,655	1,570	357	69						38,125
d. ST (Technical)					2,548	12,557	28,996	38,599	38,715	26,256	11,057	3,527	710	229					163,194
III. UPPER SECONDARY (SLTA)									9,132	67,471	157,296	188,778	140,539	57,430	23,087	7,502	3,512		654,747
									1.4%	10.3%	24.0%	28.8%	21.5%	8.8%	3.5%	1.2%	0.5%		100.0%
a. SMA (General)									3,787	34,089	75,460	84,902	59,393	21,772	8,866	2,929	1,880		293,078
b. SMEA (Commercial)									2,933	14,244	32,219	36,126	26,619	10,431	3,650	1,026	399		127,647
c. SKKA (Home Economics)									133	1,459	4,318	4,995	3,554	1,399	419	85	15		16,377
d. STM (Technical)									1,399	10,651	26,823	35,693	27,248	12,768	5,483	1,873	654		122,592
e. SPG (Primary Teacher Training)									839	7,028	18,476	27,062	23,725	11,060	4,669	1,589	564		95,053
Total									11,148,985		2,609,041		1,005,102						251,529
	526,516	1,548,526	2,087,116	2,144,528	2,004,299	1,866,238	1,498,278	1,176,947	853,689	578,405	427,056	834,352	243,694	155,050	61,534	23,931	7,502	3,512	15,541,173
	3.4%	10.0%	13.4%	13.8%	12.9%	12.0%	9.6%	7.6%	5.5%	3.7%	2.7%	2.1%	1.6%	1.0%	0.4%	0.2%	0.1%	0%	100.0%

Excludes pre-school (TK), SMOA, SPSA, SPIK, SPG C₁-C₂ and PGSLP.

Source: Office of Educational Development (BPP), Ministry of Education and Culture.

INDONESIA

UNIVERSITY STUDENTS ENROLLED BY FIELD OF STUDY AND GRADE
(1972)
(Within Ministry of Education)

		I	%T	II	%T	III	%T	IV	%T	V	%T	VI	%T	VII	Unknown	Total	%T
Medicine:	Total	(2,530)	6.1	(2,589)	9.6	(2,654)	8.7	(2,076)	13.2	(2,411)	13.1	(1,464)	63.5	(413)	(34)	(14,171)	(10.4)
Public		1,920		1,839		1,538		1,358		1,521		1,242		413	32	9,863	
Private		610		750		1,116		718		890		222		-	2	4,308	
Agriculture:	Total	(3,156)	7.5	(1,637)	6.1	(1,449)	4.7	(1,254)	8.0	(1,805)	9.8	(767)	33.3	-	(15)	(10,083)	(7.4)
Public		2,894		1,551		1,284		1,162		1,770		767		-	15	9,443	
Private		262		86		165		92		35		-		-	-	640	
Engineering:	Total	(8,742)	20.9	(4,552)	16.9	(4,021)	13.2	(2,191)	14.0	(1,709)	9.3	-	-	-	(26)	(21,241)	(15.6)
Public		5,351		2,882		2,606		1,516		1,398		-		-	25	13,778	
Private		3,391		1,670		1,415		675		311		-		-	1	7,463	
Science:	Total	(1,646)	3.9	(794)	3.0	(883)	2.9	(532)	3.4	(678)	3.7	-	-	-	(18)	(4,551)	(3.3)
Public		1,595		744		792		466		659		-		-	18	4,274	
Private		51		50		91		66		19		-		-	-	277	
Law:	Total	(5,514)	13.2	(3,050)	11.4	(3,353)	11.0	(3,145)	20.0	(2,753)	15.0	-	-	-	(58)	(17,873)	(13.1)
Public		3,557		1,894		1,916		2,198		1,930		-		-	53	11,548	
Private		1,957		1,156		1,437		947		823		-		-	5	6,325	
Social Science & Humanities:	Total	(9,070)	21.7	(5,853)	21.8	(6,188)	20.2	(4,438)	28.3	(6,028)	32.7	(56)	2.4	-	(62)	(31,695)	(23.2)
Public		6,179		3,934		4,178		3,350		4,820		56		-	40	22,557	
Private		2,891		1,919		2,010		1,088		1,208		-		-	22	9,138	
Education:	Total	(11,014)	26.3	(8,209)	30.5	(11,815)	38.6	(1,997)	12.7	(2,954)	16.0	-	-	-	(74)	(36,063)	(26.4)
Public		9,373		6,902		9,844		1,682		2,706		-		-	73	30,580	
Private		1,641		1,307		1,971		315		248		-		-	1	5,483	
Of which: Pedagogy	Total	2,874		2,086		3,172		558		802		-		-	33	9,525	
Teacher Training	"	1,191		698		1,113		189		184		-		-	2	3,377	
Science Teaching	"	1,143		1,015		1,495		179		328		-		-	3	4,163	
Technical Teaching	"	1,254		826		1,113		156		184		-		-	8	3,541	
Soc. Sci. Teaching	"	2,683		2,218		3,323		632		1,096		-		-	17	9,969	
Humanities Teaching	"	1,869		1,366		1,599		283		360		-		-	11	5,488	
Other:	Total	(177)	0.4	(199)	0.7	(220)	0.7	(60)	0.4	(74)	0.4	(19)	0.8	(39)	(2)	(790)	(0.6)
Public		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Private		177		199		220		60		74		19		39	2	790	
TOTAL		41,849	100.0	26,883	100.0	30,583	100.0	15,693	100.0	18,412	100.0	2,306	100.0	452	289	136,467	(100.0)

a/ The above table is the result of a questionnaire to which about 80% of the estimated total students responded. The figures therefore do not include all students.

Source: "Statistik Mahasiswa Perguruan Tinggi Negeri 1972" and "Statistik Mahasiswa Perguruan Tinggi - Swasta, Akademi & Sekolah Tinggi Olahraga Tahun 1972," Office of Educational Development, Ministry of Education.

INDONESIA

ENROLLMENTS IN PUBLIC SECONDARY TEACHER TRAINING INSTITUTIONS (IKIP)
(1972)

Location	Year of Study						Total
	I	II	III	IV	V	Other	
1. Medan	790	490	840	120	180	10	2,430
2. Padang	300	590	1,040	20	160	20	2,130
3. Jakarta	480	440	610	140	350	-	2,020
4. Bandung	1,090	640	1,290	210	400	-	3,630
5. Semarang	570	520	780	140	160	-	2,170
6. Yogyakarta	1,300	860	1,040	260	610	-	4,070
7. Surakarta	530	540	460	180	160	-	1,870
8. Malang	550	590	560	140	170	-	2,010
9. Surabaya	790	420	470	30	30	-	1,740
10. Ujung Pandang	870	700	690	110	250	-	2,620
11. Manado	330	40	120	20	20	-	530
Total	7,600	5,830	7,900	1,370	2,490	30	25,220

Source: "Data Statistik Mahasiswa, 1972," BPP, Ministry of Education

INDONESIA
SCHOOL AGE POPULATION PROJECTIONS

	(Thousands)			
	Ages			
	7-12	13-15	16-18	19-23
1971	19,410	7,959	6,605	9,687
1972	20,086	8,410	6,960	9,887
1973	20,654	8,814	7,382	10,121
1974	21,213	9,161	7,838	10,434
1975	21,757	9,459	8,281	10,854
1976	22,256	9,730	8,679	11,394
1977	22,671	9,997	9,021	12,033
1978	22,955	10,276	9,314	12,722
1979	23,245	10,563	9,581	13,407
1980	23,504	10,845	9,844	14,039
1981	23,758	11,101	10,118	14,602
1982	24,042	11,306	10,416	15,101
1983	24,399	11,433	10,694	15,560
1984	24,881	11,459	10,947	16,003
1985	25,364	11,540	11,136	16,462

Source: National Bureau of Statistics: Proyeksi Penduduk Indonesia, 1971-81; Figures for 1982-85 extrapolated according to projected trend 1975-81.

INDONESIA
DRAFT FIVE YEAR DEVELOPMENT PLAN, 1974-1978
TARGETS BY LEVEL OF EDUCATION

	1973	1974	1975	1976	1977	1978
I. PRIMARY (Grades 1-6)						
1. Students Enrolled (millions)	13.6	14.7	15.9	17.3	19.0	20.9
2. Percentage Increase	-	8.1	8.1	8.8	9.8	10.0
3. Teachers Required (thousands)	425	445	455	475	495	525
4. Population (Age 7-12) (millions)	20.7	21.2	21.8	22.3	22.7	23.0
5. Gross Enrollment Rate (Col. 1 as % Col. 4)	65.7	69.3	72.9	77.6	83.7	90.9
6. Primary School Graduates (thousands)	818	861	871	889	940	1,000
II. LOWER SECONDARY (Grades 7-9)						
7. Students Enrolled (thousands)	1,536	1,625	1,723	1,829	1,940	2,056
8. Percentage Increase	-	5.7	6.0	6.1	6.0	6.0
9. Primary Graduates Entering (thousands)	642	660	703	718	740	799
10. Transition Rate (Col. 9 as % Col. 6 ^{a/})	-	80.7	81.6	82.4	83.2	85.0
11. Teachers Required (thousands)	90.4	92.2	94.6	97.0	99.4	101.9
12. Population (Age 13-15) (millions)	8.8	9.2	9.5	9.7	10.0	10.3
13. Gross Enrollment Rate (Col. 7 as % Col. 12)	17.5	17.7	18.1	18.9	19.4	20.0
14. Lower Secondary Graduates (thousands)	373	379	389	409	439	472
III. UPPER SECONDARY ^{b/} (Grades 10-12)						
15. Students Enrolled (thousands)	686	726	766	806	846	886
16. Percentage Increase	-	5.8	5.5	5.2	5.0	4.7
17. Lower Secondary Graduates Entering (thousands)	275	298	304	315	332	357
18. Transition Rate	-	79.8	80.2	81.0	81.1	81.3
19. Teachers Required (thousands)	52.0	53.0	54.0	55.5	57.0	59.0
20. Population (Age 16-18) (millions)	7.4	7.8	8.3	8.7	9.0	9.3
21. Gross Enrollment Rate (Col. 15 as % Col. 20)	9.3	9.3	9.2	9.3	9.4	9.5

Note: Excludes public and private religious schools.

Source: Bappenas

^{a/} Previous year

^{b/} Within the Ministry of Education

INDONESIA

**Ongoing Foreign Aid Projects in Education
and Training, by Donor, Recipient Sector, and Type
of Assistance, 1973**

<u>Donor</u>	<u>Recipient Sector</u>	<u>Type of Assistance</u>
Australia	HE, AD, VT, ST	TA, EQ, LM, UC, SC
Canada	PR	LM, TA, RS, EQ
France	SG(?)	TA
Germany	HE, VT, NF	BU, EQ, SC, RS, TA
Japan	HE	TA, LM, EQ
Netherlands	HE, SG, ST, SR, VT	BU, EQ, LM, TA, RS, UC
New Zealand	HE	LM(?)
Switzerland	HE, ST, VT	BU, EQ
U.K.	HE, ST	TA, LM
U.S.A.	HE	BU, EQ, LM, RS, SC, TA
Asia Foundation	HE	LM, TA, SC
CARE	PR	FE
FAO	ST	TA, EQ
Ford Foundation	AD	TA
IBRD	ST, PR	BU, EQ, LM, TA, SC
ILO	VT	EQ, TA, RS
Rockefeller Foundation	HE	RS, SC, TA, EQ
UNESCO	AD, PR, SG, ST	TA, SC, EQ
UNICEF	PR, SG, ST, NF	TA, EQ, LM
WHO	HE, ST, VT	TA

Key for abbreviations; Recipient Sector:

HE - higher education	VT - vocational training
SG - secondary general education	PR - primary education
ST - secondary technical education (incl. agricultural and specialized schools)	NF - non-formal education
	SR - primary teacher training
	AD - administration and planning

Key for abbreviations; Type of Assistance:

TA - technical assistance	RS - research
BU - buildings	SC - scholarships
EQ - equipment	UC - university partnership
LM - learning materials	FE - school feeding program

Source: Compiled from statements by individual donors.

INDONESIA

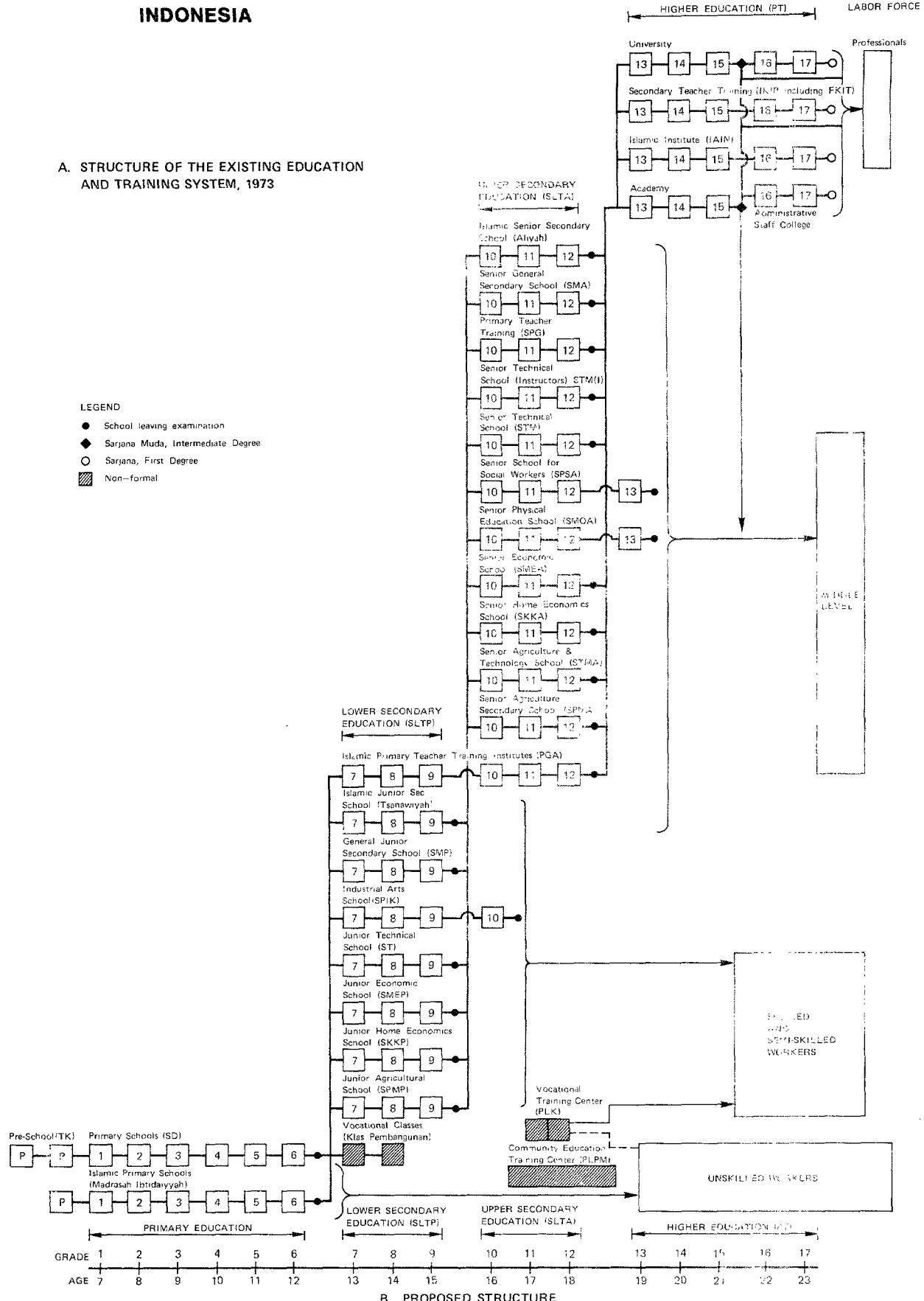
REQUIREMENTS AND SUPPLY PROJECTIONS FOR AGRICULTURAL PROFESSIONAL PERSONNEL, 1974 - 1978BY TYPE OF REQUIREMENTS, LEVEL OF QUALIFICATIONS AND FIELD OF SPECIALIZATION

	AGRICULTURE			ANIMAL HUSBANDRY			OTHER FIELDS ^{1/}			TOTAL		
	PhD	S	SM	PhD	S	SM	PhD	S	SM	PhD	S	SM
A. REQUIREMENTS												
1. Vacancies ^{2/}	0	60	80	0	90	..	0	30	50	0	190	130
2. Replacements ^{3/}	..	120	110	..	40	10	..	20	30	..	180	140
3. Expansion, ^{4/} New Programs	40	420	290	..	620	10	10	60	70	50	1,100	370
4. Conversion of PT to FT posts and improvement of SPR	20	190	390	..	100	80	10	120	160	30	410	630
TOTAL	60	790	870	..	850	100	20	230	310	80	1,880	1,270
B. SUPPLY												
Surplus (+) or Deficit (-)	na	710	na	na	200	na	na	110	na	40	1,020	na
	~(na)	-80	+(na)	na	-650	+(na)	-(na)	-120	+(na)	-40	-860	+(na)

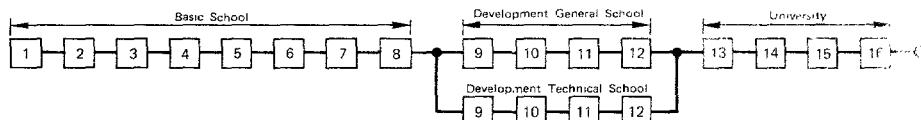
^{..} Less than ten.^{1/} Veterinary Medicine, Agricultural Technology, Forestry, Fisheries and Agricultural Economics.^{2/} As of 1972^{3/} At three percent p.a.^{4/} Does not include requirements for BIMAS and expansion of extension services (about 6000); new research stations and the new information centers to be established (about)

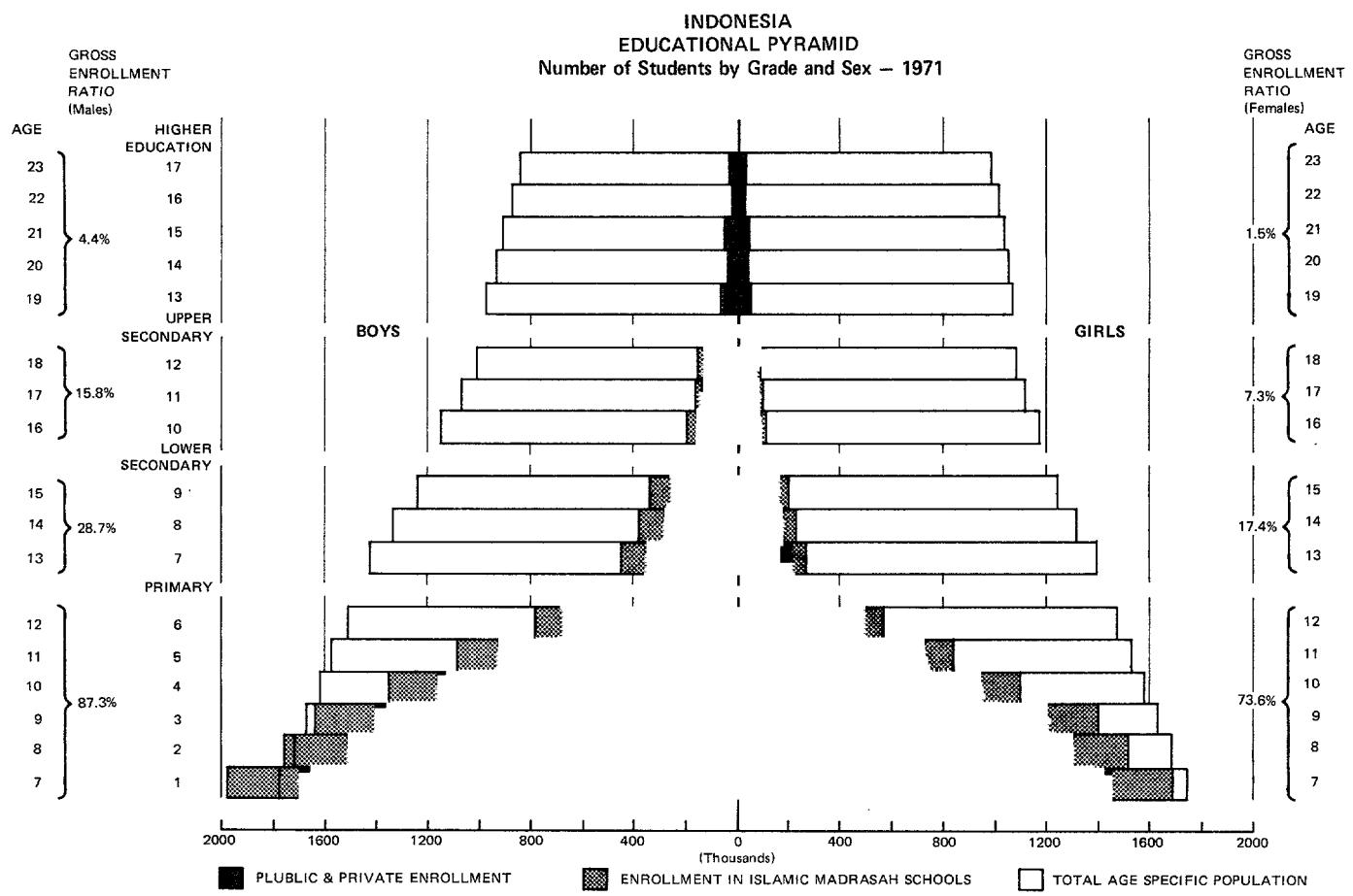
INDONESIA

A. STRUCTURE OF THE EXISTING EDUCATION AND TRAINING SYSTEM. 1973



B. PROPOSED STRUCTURE





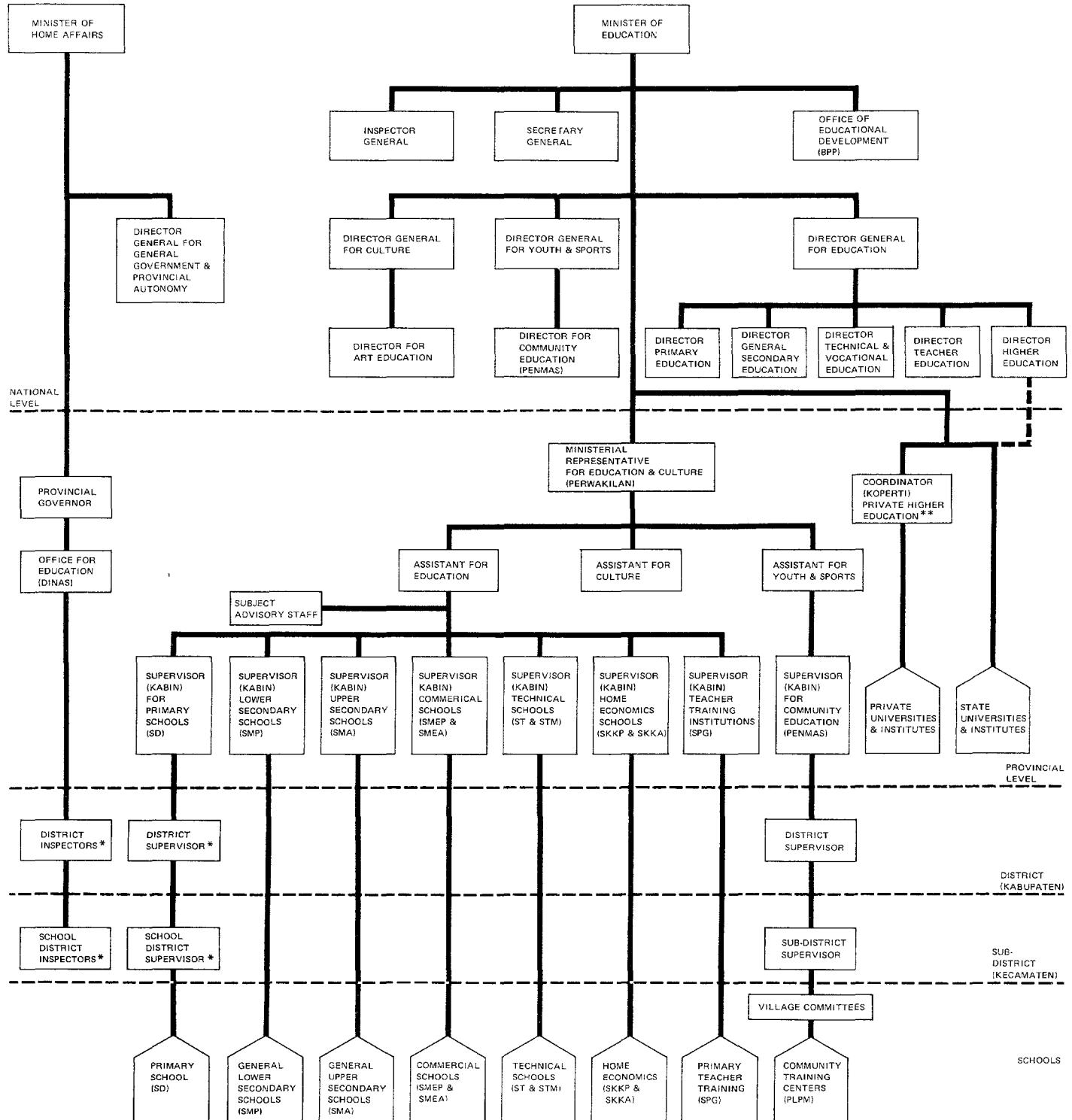
Notes: (1) Enrollments and their Distribution by Sex and Grade are Estimated for Madrasah Schools.

(2) Gross Enrollment Ratio=Enrollment (including overage students) as a Percentage of the Population in the Relevant Age Group.

Sources: Office of Educational Development (BPP), Ministry of Education and Culture; Directorate of Education, Ministry of Religious Affairs; Central Statistical Bureau.

INDONESIA ORGANIZATION OF THE ADMINISTRATION OF EDUCATION AND TRAINING

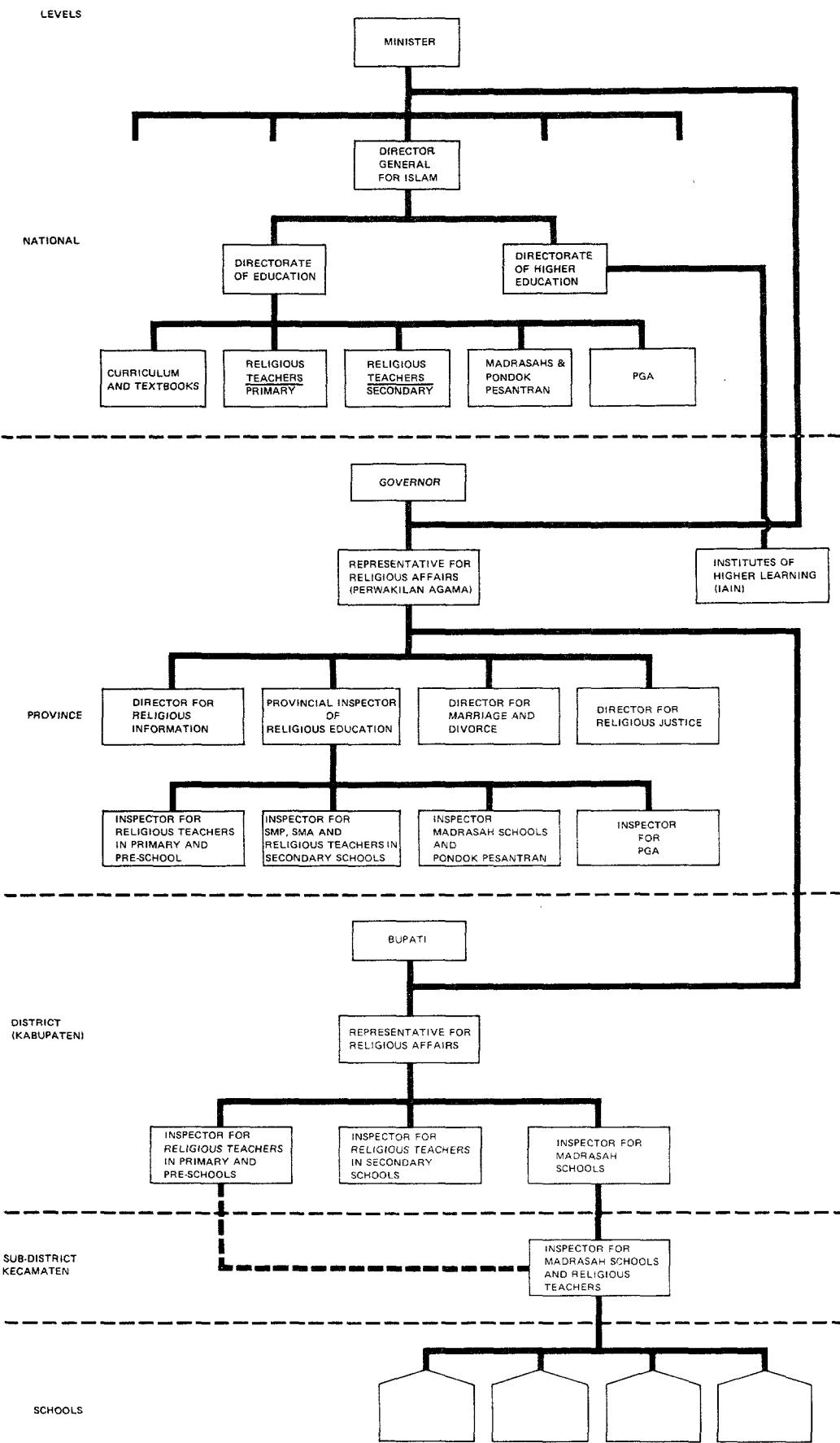
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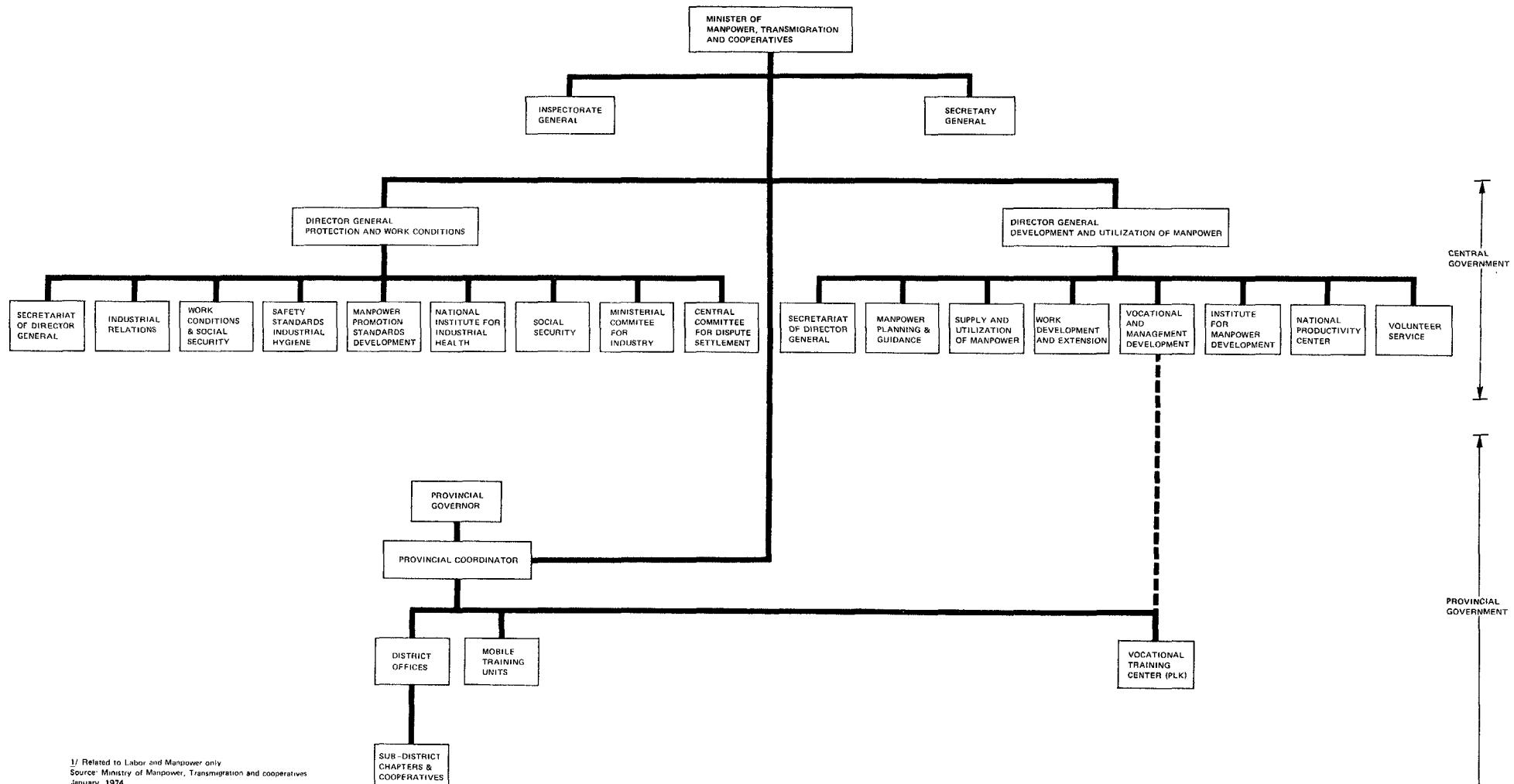
* In a few Provinces (e.g. West Sumatera and Yogyakarta) the offices of the Dinas and the Kabin are integrated.

** In Central and East Java the Koperti also coordinates public universities

**INDONESIA
ORGANIZATION OF THE MINISTRY OF RELIGIOUS AFFAIRS**

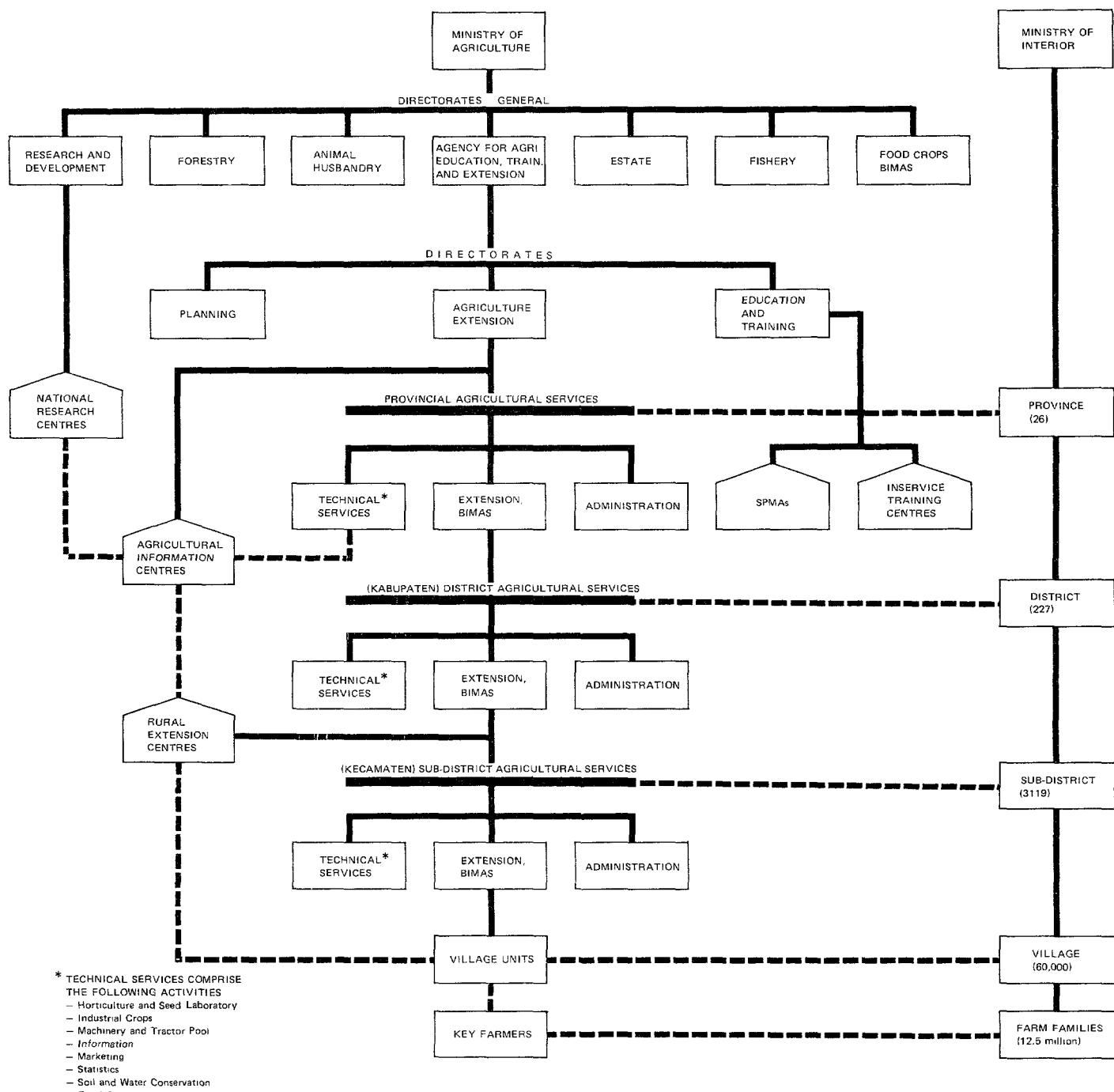


INDONESIA
ORGANIZATION OF MINISTRY OF MANPOWER, TRANSMIGRATION AND COOPERATIVES ^{1/}

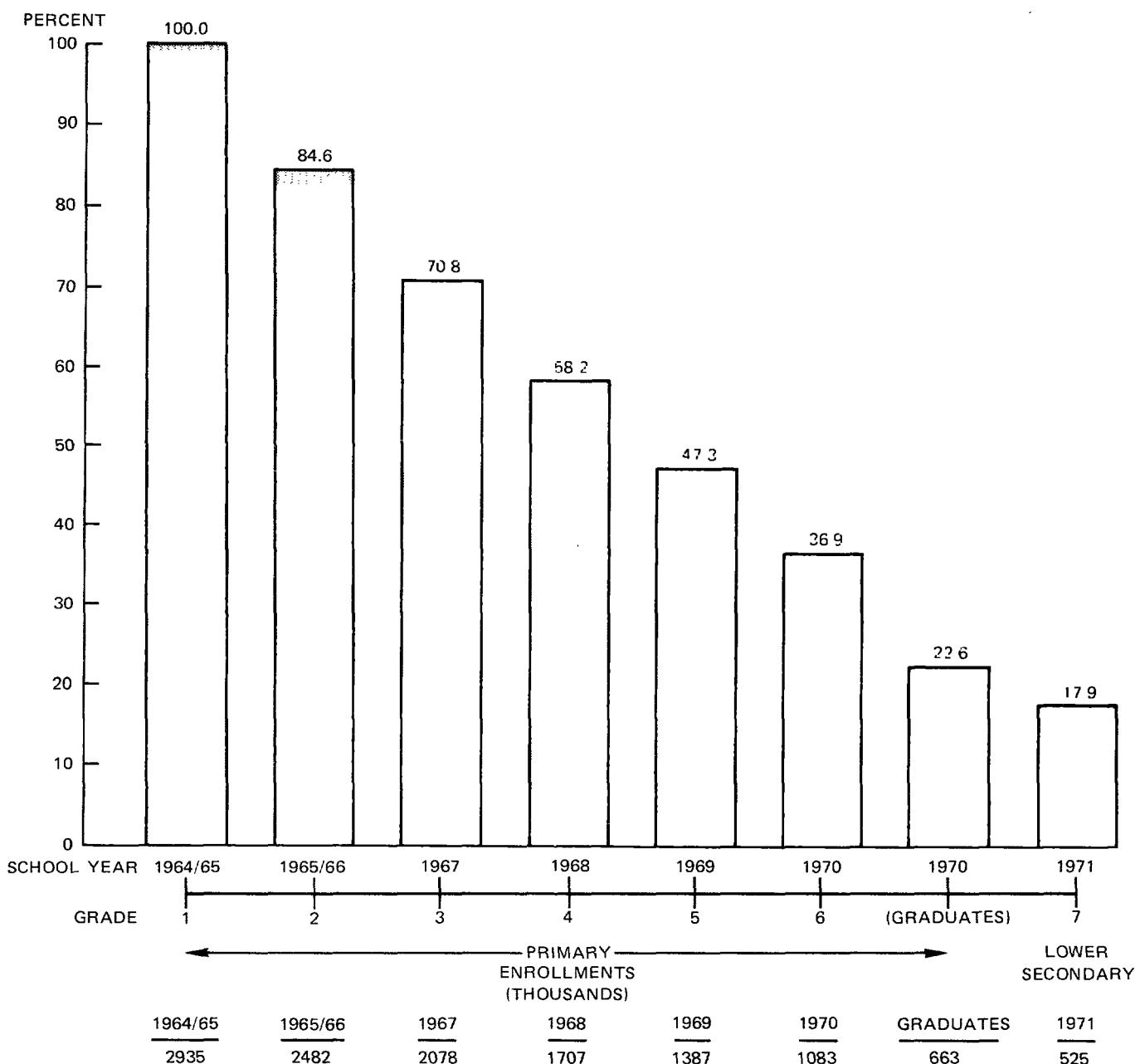


^{1/} Related to Labor and Manpower only
Source: Ministry of Manpower, Transmigration and cooperatives
January, 1974

INDONESIA
PROPOSED AGRICULTURAL EXTENSION SERVICE ORGANIZATION

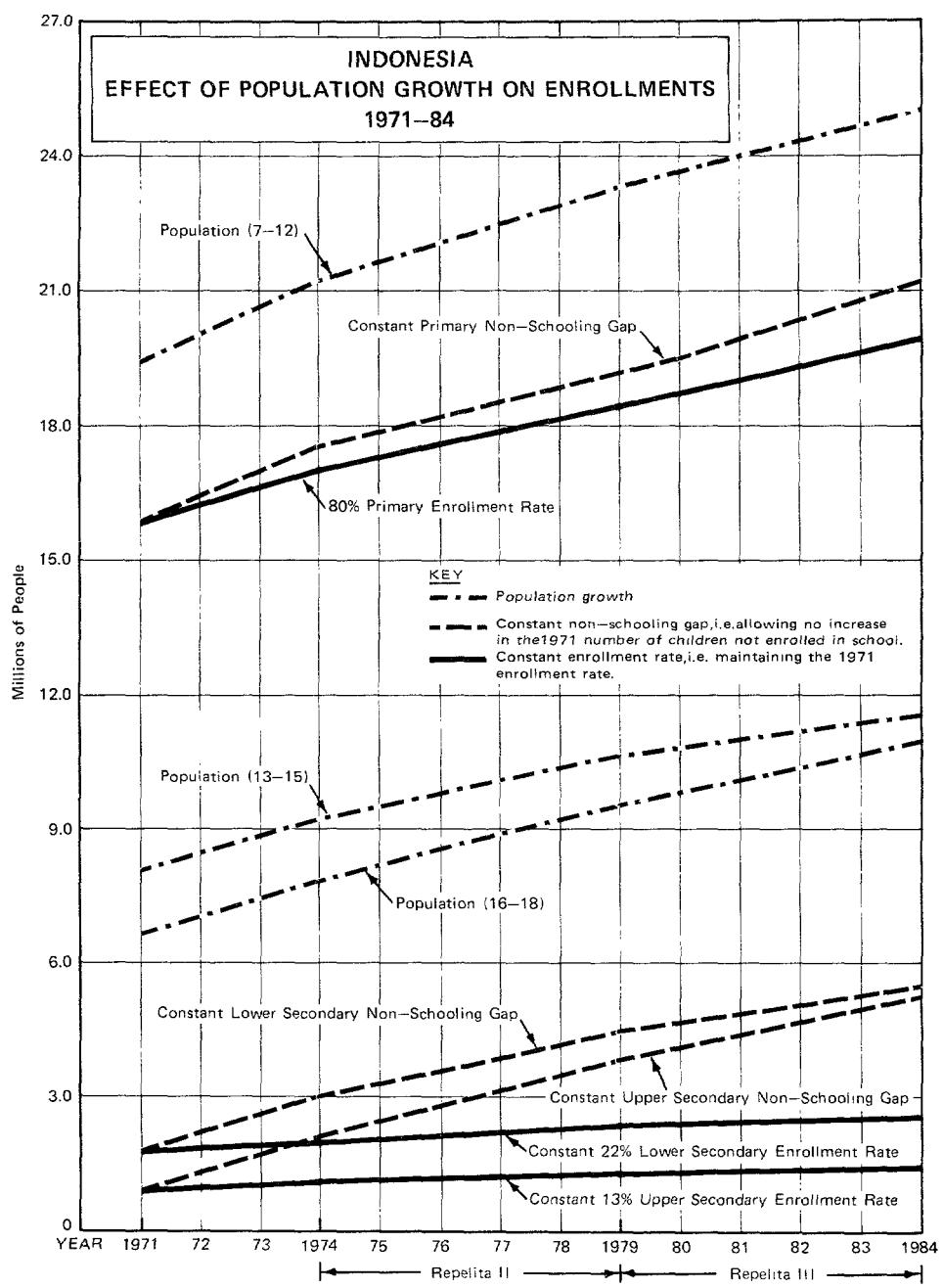


INDONESIA
Primary School Retention Rates
Enrollments in Succeeding Grades and Successive Years



Source: Office of Educational Development, Ministry of Education
 Excluding Religious Schools.

World Bank—8477



	1971	1974	(millions)		1971-84 Annual Growth Rate
			Repelita II	Repelita III	
PRIMARY (Gr. 1-6)					
School Age Population (7-12)	19.4	21.2	23.2	24.9	2.0%
Constant Enrollment Rate	80%	80%	80%	80%	—
Enrollments	15.7	17.0	18.7	19.9	1.8%
New Places Required	—	1.3	1.7	1.2	—
Constant Non-Schooling Gap	3.7	3.7	3.7	3.7	—
Enrollments	15.7	17.5	19.5	21.2	2.5%
New Places Required	—	1.8	2.0	1.7	—
LOWER SECONDARY (Gr. 7-9)					
School Age Population (13-15)	8.0	9.2	10.6	11.5	2.8%
Constant Enrollment Rate	22%	22%	22%	22%	—
Enrollments	1.8	2.0	2.3	2.5	2.5%
New Places Required	—	0.2	0.3	0.2	—
Constant Non-Schooling Gap	6.2	6.2	6.2	6.2	—
Enrollments	1.8	3.0	4.4	5.3	8.7%
New Places Required	—	1.2	1.4	0.9	—
UPPER SECONDARY (Gr. 10-12)					
School Age Population (16-18)	6.6	7.8	9.5	10.9	3.9%
Constant Enrollment Rate	13%	13%	13%	13%	—
Enrollments	0.9	1.0	1.2	1.4	3.4%
New Places Required	—	0.1	0.2	0.2	—
Constant Non-Schooling Gap	5.7	5.7	5.7	5.7	—
Enrollments	0.9	2.1	3.8	5.2	14.4%
New Places Required	—	1.2	1.7	1.4	—

Source of Population Projection: National Bureau of Statistics, "Proyeksi Penduduk Indonesia," 1971-81; figures for 1982-84 are extrapolated from trend 1976-81.

INDONESIA

IBRD 11038