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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

APPRAISAL OF
AN EDUCATION PROJECT
INDONESIA

October 13, 1970

Education Projects Department

CURRENCY EQUIVALENTS

U.S. \$1.00	=	Rp. 378
1 Rupiah	=	U.S. \$0.003
1 million Rupiahs	=	U.S. \$2,646

MEASURES

1 m ²	=	1.20 sq. yd.
1 m ²	=	10.76 sq. ft.
1 km ²	=	0.38 sq. miles
1 hectare	=	2.47 acres

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This report is based on the findings of an appraisal mission which visited Indonesia during February - March 1970. The mission consisted of Messrs. W. van der Wal (agricultural educator), S. Kadleigh (architect), A. Tsantis (economist) and J. C. Jones (consultant, technical educator).

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INDONESIA

BASIC DATA

General

Area: Total	735,400 sq miles 1,904,600 km ²
Land Use	
Estate Agriculture	8,400 sq miles
Smallholder Agriculture	9,300 sq miles
Population (1969)	118.1 million
Density	161 per sq mile
Density of major islands	
Java and Madura	1,495 per sq mile
Sulawesi	119 per sq mile
Sumatra (and adjacent islands)	106 per sq mile
Rate of Population Growth (1961-1969)	2.5% p.a.
GNP per capita	\$80 *

Education

- Population aged 7-12 (1968)	18.8 million
- Population aged 13-18 (1968)	15.9 million
- Primary School gross enrollment ratio (1968)	65%
- Secondary School gross enrollment ratio (1968)	11%
- Public recurrent expenditures on education as a percentage of total public recurrent expenditures (1969/70)	15.5%
- Public development expenditures on education as a percentage of total public development expenditures (1969/70)	11.0%

* An approximation by the IBRD economic mission (1969)

INDONESIA

APPRAISAL OF AN EDUCATION PROJECT

SUMMARY AND CONCLUSIONS

i. This report appraises a project for the construction, equipping, and staffing of five technical training centers. The centers are clearly identifiable as priorities for improvement in Indonesia's education system. Further priorities, leading to possible Bank/IDA investment, should result from the educational planning work now undertaken by the Ford Foundation and UNESCO to reform Indonesia's education system.

ii. Specifically, the project would comprise:

- constructing and equipping five technical training centers which would provide practical training for about one-fourth of the students enrolled in senior technical secondary schools in Indonesia;
- training of 330 teachers from the technical secondary schools to enable them to teach in the centers in various fields of engineering (civil, mechanical, electrical, building and construction); and
- 12-1/4 man-years of technical assistance to help Indonesian counterparts in the initial operation and supervision of the centers.

iii. The quality of the present senior technical school graduates in Indonesia tends to be low partly because facilities and funds for the training of skilled craftsmen and lower-level technicians are either lacking or very limited. Yet, industrialization and expansion of infrastructure facilities and services, especially in Indonesia's major cities, require technical school graduates trained not only in theory but also in practice. Although adequate manpower studies and reliable statistics are not yet available, there is sufficient evidence to conclude that the proposed centers would meet an immediate need.

iv. Each center would be located in a major area of industrial employment and would serve from two to four technical secondary schools. The centers would provide students from 15 technical secondary schools with practical training in modern laboratories and workshops. An Advisory Committee would be established to promote coordination between the schools and employers, and to ensure that the curricula used are relevant to industrial needs.

v. A Project Implementation Unit would be established for the execution of the project. It would consist of a project director, an architect, a technical education specialist and other supporting staff.

vi. Action has been taken to acquire the sites for four of the centers and the fifth will be acquired soon. Civil works contracts and furniture and equipment supply contracts would be awarded in accordance with the Association's guidelines for international competitive bidding. If all furniture contracts were won by local manufacturers, about US\$40,000, corresponding to 50% of the total estimated furniture cost, would represent local currency financing.

vii. The project is estimated to cost about US\$7.6 million, with a foreign exchange component of about US\$4.6 million (about 61 percent of the total cost). The project is suitable as a basis for an IDA credit of US\$4.6 million equivalent to the Government of Indonesia.

I. INTRODUCTION

The Request

1.01 A first IDA reconnaissance mission in January 1969 concluded that, although basic manpower data for planning Indonesia's future education and training development were still lacking, education projects limited in scope and in areas of obvious priority could be undertaken. In June 1969, an IDA reconnaissance mission identified such a project in technical and agricultural education. A UNESCO mission assisted the government in November 1969 in preparing this project for presentation to the Association.

1.02 A mission comprising Messrs. van der Wal (agricultural educator), Kadleigh (architect), Tsantis (economist), and Jones (consultant, technical educator) appraised the project in February - March 1970. The agricultural project items, comprising a new in-service training institution in Djakarta for senior extension officers and instructional equipment for two agricultural senior secondary schools, were deferred because of inadequate planning. With assistance from FAO, the Ministry of Agriculture intends to prepare for the Association's consideration a new agricultural training project to include a revised program for in-service training of extension workers and an expansion of sub-professional agricultural training. This would be done after an examination of the administration and structure of sub-professional agricultural training, including manpower requirements, has been completed. The present project comprises, therefore, only the technical education items.

Demographic and Economic Background

1.03 The Republic of Indonesia extends over a large archipelago of 13,000 islands. More than 65 percent of the 118 million inhabitants live on the islands of Java and Madura which account for less than 7 percent of the total area of the country; this makes them among the most densely populated areas in the world. The other 6,000 inhabited islands vary from slight to heavy in density of population. More than 80 percent of the population lives in rural areas. The age structure is similar to that of other South-east Asian countries with about 43 percent below 14 years of age and only about 3 percent over 65. A UN/WHO/IBRD family planning mission has proposed an extensive five year Family Planning Plan (1971-75) for the islands of Java and Bali.

1.04 Bahasa Indonesia is the national language and the medium of instruction after the third grade. Approximately 80 percent of the children receive two years of primary education but less than half of them finish grade six. While reliable data are lacking, the general literacy rate is estimated at about 40 percent.

1.05 The economically active population is estimated to be about 42 million, of whom about 70 percent are engaged in agriculture and less than 6 percent in mining and manufacturing. The majority of the workers are self-employed or unpaid family workers; substantial under-employment exists in both urban and rural areas. Increasing urbanization has expanded the volume of small-scale trading in the towns.

The Education System

1.06 Responsibility for education is centered essentially within the Ministry of Education and Culture (Appendix). The Ministry has recently been reorganized. A number of Directorates General have been eliminated in order to reduce overlapping of responsibilities and improve coordination. An Office of Educational Development has also been established to improve overall planning (Chart 1).

1.07 With a view to a fundamental reform of the educational system, the Office of Educational Development is at present conducting a National Assessment Study, supported by the Ford Foundation, and a systems analysis study, initiated with the assistance of UNESCO/UNDP. The National Assessment Study includes collection of basic educational statistics, now often unavailable, and a review of the education system's organization, curricula, finances and relevance to manpower requirements. While this study will not be completed before 1973, interim reports will be available periodically. The systems analysis study will provide, by some time next year, broad guidelines on options for policy decisions on the reorientation of the educational system and its main sectors.

1.08 In addition to the Education Ministry, the Ministries of Religion and Agriculture also direct education programs. Most of the Ministries, including the Ministry of Manpower, run training programs for the upgrading of specific skills. Private schools play a very significant role in education. While reliable data are lacking, it is estimated that approximately 20 percent of the primary school children, 35 percent of the junior secondary students, and at least 40 percent of the senior secondary students are enrolled in private schools.

1.09 Secondary education is offered after six years of primary education. Junior and senior secondary school courses are both of three years' duration and are divided into four main types: general, vocational, technical and agricultural (Chart 2). The school curricula are not related to current manpower needs of the country. Teacher salaries are low - below the subsistence level - with the result that teachers must have a second job. Even though schools meet six days a week, double shifting is required because of the great number of children and few available teachers. Most schools are without sufficient equipment or books. For these and allied reasons, the quality of education is very poor. Dropout rates are high: a 1968 UNESCO report estimates them at 67 percent in primary schools, 25 percent in junior secondary schools and 40 percent in senior secondary schools.

1.10 About 15 percent of the junior secondary and about one-third of the senior secondary students are in vocational, technical, or agricultural training. Because the vocational and technical secondary schools lack adequate facilities and equipment, teaching is devoted almost exclusively to theory. For example, instead of learning how a machine works by using actual machinery, students have to learn by drawing diagrams on the blackboard.

1.11 Higher education includes 40 public universities, institutes, and teacher-training colleges. In addition, 200 other institutes and academies are controlled by other ministries and private organizations. As part of the adult education program, the Ministry of Manpower operates eight centers for the upgrading of craftsmen's skills. Two of the eight, the ones in Djakarta and Bandung, are assisted by the I.L.O.

Education Finance

1.12 Total central government recurrent and capital expenditure on education in the 1969/70 fiscal year was Rp. 43.5 billion, or 13 percent of the total central government expenditure. This ratio is within the range of average commitment to education by countries of comparable income level. About 85 percent of the expenditure was channeled through the Ministries of Education, Home Affairs, and Religion and the remainder through other Ministries. Parent-teacher associations supplement the school budgets in their area through student subscriptions.

1.13 The government's recurrent expenditure on education, excluding the administrative expenditures of the several Ministries, was about Rp. 34 billion in 1969/70 (Annex 1) or 15.5 percent of the total recurrent expenditure. This includes Rp. 20 billion in transfers to regional authorities through the Ministry of Home Affairs which is responsible for the salaries of the 320,000 primary school teachers. Expenditure by the Ministry of Education was about Rp. 7 billion (Annex 2). Since 85 percent of the total budget is spent on teacher salaries, there is a shortage of funds for teaching materials and for maintenance of equipment and buildings. Based on projections of growth of recurrent government expenditure, it would be reasonable to assume that recurrent expenditure on education will increase to about Rp. 59 billion (in 1969/70 constant prices) by 1973/74, or about 20 percent of the central government's total recurrent expenditure. This level would allow a larger share of education expenditure to be spent on qualitative improvements, especially on didactic materials.

1.14 The total capital budget for education and culture under the current five-year plan is Rp. 95 billion, or 15.3 percent of the total capital budget. The emphasis to be given to the development of technical and vocational education and training is reflected in the Rp. 47.5 billion to be allocated to technical and vocational education, equivalent to 50 percent of the total amount allocated for educational development (Annex 3).

1.15 In the recent past, the Ministry of Education has had difficulties in implementing its development projects, partly due to the wide dispersal of numerous small projects and to the inadequacies of existing management and control mechanisms. In 1969/70, budget provisions of Rp. 5.6 billion were made for 694 approved projects of the Ministry. Disbursements in the year amounted to 80% of the total appropriations. The new Office of Educational Development (para. 1.06) is expected to improve the implementation of development projects in the 1970/71 fiscal year.

1.16 Foreign aid to education, coordinated by the Office of Educational Development, has provided expatriate specialists and fellowships for overseas training, particularly in agricultural education. An exception is a Canadian aid project for the construction and equipment of a textbook plant valued at \$150,000.

II. MANPOWER AND EDUCATION NEEDS

Manpower Needs

2.01 Information on the occupational and educational distribution of the labor force and the labor market is very limited. The Development Planning Board (Bappenas), with Dutch and Ford Foundation technical assistance, is working to identify critical manpower requirements in selected areas and projects under the five-year development plan.

2.02 The recent years have been a period of rehabilitation of the economy. A government freeze on hiring since 1967, a very small expansion of wage and salaried jobs and more efficient utilization of labor by the larger industrial firms have had a restrictive effect on general labor demand. There has been, however, a chronic shortage of well trained middle level manpower, primarily with skills in the fields of mechanical, electrical and civil engineering. But in the absence of a manpower survey, these shortages cannot be quantified. In addition, a strong demand for middle level manpower is being increasingly generated as a result of the public sector development programs and the foreign private capital investments. The implementation of projects approved in 1967-69, financed from foreign sources, in the fields of manufacturing and processing, will alone create about 7,500 new jobs for technicians and craftsmen. New job openings will be added to this level as investment activity in the economy gathers momentum and the execution of recently approved projects proceeds.

Education and Training Requirements

2.03 While data on the education and training needs in Indonesia are now meager, (para. 1.07), two areas of obvious priority which require improvement are technical and agricultural education. Improvement in the provision of secondary technical education in order to meet the urgent manpower needs for craftsmen and lower supervisory personnel are, therefore, not likely to conflict with the priorities to be set by the National Assessment Study (para. 1.07).

2.04 Because of inadequate funds for purchase, maintenance and replacement, the senior technical secondary schools operate, at present, with woefully inadequate laboratory and workshop equipment, thus placing too heavy emphasis on theoretical studies. As a result, the graduates are frequently unwilling to enter industrial workshops or are unable to adapt to employers' requirements. Because of the absence of practical training, and because the present technical school instructors, in many instances, also have not had this practical training, the schools have been unable to prepare students properly for industrial employment at skilled-craftsman and lower-supervisory levels. The senior technical secondary school system clearly requires assistance to up-grade the quality of instruction in practical subjects.

2.05 Most of the existing technical schools are located in the larger industrial urban areas and in groups near each other. If, therefore, practical training centers were established serving several senior technical secondary schools, the need for practical training for the students could be met at minimum cost. These centers would offer modern practical instruction in the three main fields of engineering: mechanical, electrical, and civil. Five such centers could supply about 4,000 much-needed workers annually at the craftsman and supervisory levels. A demonstration of successful operation of the centers could lead to their numerical expansion to encompass other areas where similar arrangements for technical training can be promoted.

III. THE PROJECT

General

3.01 The proposed project, which is designed to improve practical training in selected senior technical secondary schools, would consist of:

- construction of and equipment for five new technical training centers;
- training of 330 senior technical secondary school staff; and
- 12-1/4 man-years of technical assistance to help the Indonesian counterparts in the initial operation and supervision of the centers.

The estimated cost is US\$7.6 million equivalent.

Technical Training Centers

3.02 The five technical training centers would be located in major areas of industrial employment, each serving from two to four senior technical secondary schools and providing much needed practical training in modern laboratories and workshops. A total of 15 senior technical schools would be served by the five centers. Some 13,800 students of the 58,600 enrolled in senior technical secondary schools in the country would be accommodated in these centers. The distance from the feeder schools to their center would vary from two to eight km; hence students would be able to reach them by bicycle, the common form of transportation in Indonesia from home to school.

3.03 In order to make full use of the equipment, the centers would operate on a double-shift basis, five days per week, 16 periods a day, or 80 periods a week, compared with the normal week of 45 periods. On the sixth day, when students have a half day of school, the centers would be closed for maintenance and repair of the equipment. Students would spend two 8-period shifts a week in a center.

3.04 The present curriculum would have to be changed in the feeder senior technical secondary schools to make adequate provision for laboratory and workshop practice. The revised curriculum would provide 29 periods per week on theoretical subjects and 16 in practical work, instead of the present 45 periods per week of theoretical class work. The courses would be designed to facilitate the students' entry into the labor market, although a small proportion of the graduates may pursue further studies. Final examinations different from those now in use would be required so that sufficient recognition could be given to the practical subjects and the students' ability to respond to practical tasks properly. The government

has provided assurances that such a special terminal examination would be administered.

3.05 Candidates for admission to senior technical secondary schools are required to complete satisfactorily a junior secondary school (general or technical) and to take a competitive entrance examination. The numbers applying for admission are usually double the number of the available places. The Ministry of Education does not maintain drop-out statistics, but it is estimated that the drop-out rate between the first and second year is high, perhaps 30 percent. If this drop-out rate were to prevail at the project schools it would represent a significant loss in the effective use of the expensive equipment to be installed. Assurances have therefore been obtained from the government that, in addition to the existing entrance examination, a specially devised aptitude test would be employed. This will help to ensure that only students with appropriate interest and ability in technical courses would be admitted to the selected senior technical secondary schools.

3.06 At present, the senior technical secondary schools are generally unaware of and unconcerned with the nature of employment followed by their graduates. Although reliable statistics are not available, the general impression is that the employment record of the senior technical secondary school leavers is not good, due principally to industry's refusal to accept the poorly trained products of the present technical secondary school system. To ensure the continued relevance of the revised curricula to industry's needs and to assist in improving industry's association with the senior technical schools, the government has agreed to establish local advisory Committees comprising representatives of local industries, feeder school administrators, and officers of the project centers. These committees will advise the director of the training center in their area. Similarly, the government has agreed to establish a National Advisory Committee composed of representatives from the Ministries of Education and Manpower, the Planning Agency (Bappenas), industry, and senior technical secondary school administrators. The national committee will advise the Director of Technical and Vocational Education in the Ministry of Education on the overall policy of the centers and their feeder schools. The Director of Technical and Vocational Education will have the administrative jurisdiction of the centers when they become operational. Assurances have also been obtained from the government that the senior technical schools to be served by the proposed centers will collect employment data about their graduates for at least three years after their graduation.

Staff Development

3.07 As stated before, most Indonesian teachers require part-time jobs to supplement their inadequate salaries. For proper functioning of the project centers, their teachers should receive salaries which, with other remunerations, would allow them to devote their attention exclusively to the centers. The government is aware of the need and has given assurances that such salary supplements would be provided for the teaching staffs of the centers either from the national budgetary resources or through other suitable arrangements. On the basis of current salary differentials the

required increases in teacher salaries would amount to less than 0.4 percent of the 1969/70 Ministry of Education's recurrent budget and 0.2 percent of the total recurrent budget of the central government on education.

3.08 As there are at present no teachers with adequate training to staff the proposed centers, a special one-year training course will be initiated for selected senior technical secondary school teachers. The five centers will require 305 staff members (65 laboratory teachers, 240 workshop instructors). Ideally, all should have had industrial experience, but this is difficult to attain. The Ministry of Manpower, which operates vocational training centers in Bandung and Djakarta, can provide courses comprising workshop, laboratory, and pedagogical training. The precise nature of the courses will be determined by the Ministries of Education and Manpower with advice from the leader of the technical assistance team that is to be recruited. The cost of this training, which would be in local currency, would be borne by the government as a part of its contribution to the total project cost. The training program may also benefit from UNDP/ILO assistance.

3.09 During the credit negotiations, the government has provided assurances that the special one-year training courses for selected workshop instructors and laboratory teachers will be established as described above and that the content of the courses will be approved by the Association. The courses would begin in 1973 and terminate in 1975 (Annex 4).

Technical Assistance

3.10 To provide much-needed advice and guidance, a team of five specialists, who would preferably belong to one institution only, will be included in the project, one for each project center. The selecting of each specialist and the terms of his employment will be subject to approval by the Association. The team leader, who would reside in Djakarta, will take up duties three months before the beginning of the training course for the teaching staff (paras. 3.08-3.09) and remain in Indonesia for about four years. He will coordinate the work of the team as a whole. He will also assist the Project Director, as required, in programming and supervising the teacher-training courses. The other four specialists will report three months before opening of the centers assigned to them and remain at these centers for two years. They will help prepare timetables, advise on curriculum, and generally provide advice and assistance to the counterparts assigned to them during the first two years of each center's operation. Although each member of the five-man team would specialize in a different technical field, and would reside at a different center, each will periodically visit the other centers. In this manner, all centers will receive guidance in all five technical areas from the specialists. The government has provided assurances that the specialists would be recruited and placed as described above and in accordance with the timetable shown in Annex 5.

Cost of the Project

3.11 The enrollments of the training centers will be: 3,360 for Bandung, 3,600 for Djakarta, 2,160 for Medan, 2,880 for Surabaya and 1,800 for Makassar. The estimated costs for each center, together with technical assistance, are shown below:

	<u>Rupiahs (Million)</u>			<u>US\$ (Million)</u>			<u>% of Total</u>
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	
Bandung (TTC)	183.5	330.3	513.8	.49	.87	1.36	18%
Djakarta (TTC)	190.8	343.6	534.4	.50	.91	1.41	19%
Medan (TTC)	117.4	211.5	328.9	.31	.56	.87	11%
Surabaya (TTC)	146.7	264.2	410.9	.39	.70	1.09	14%
Makassar (TTC)	95.4	171.8	267.2	.25	.45	.70	9%
Technical Assistance	40.6	121.6	162.2	.11	.32	.43	6%
Teacher Training	66.0	-	66.0	.17	-	.17	2%
Contingencies	<u>305.7</u>	<u>281.7</u>	<u>587.4</u>	<u>.81</u>	<u>.75</u>	<u>1.56</u>	<u>21%</u>
TOTAL	1,146.1	1,724.7	2,870.8	3.03	4.56	7.59	100%

The project costs by the types of expenditure would be as follows:

	Rupiahs (Million)			US\$ (Million)			% of Total
	Local	Foreign	Total	Local	Foreign	Total	
<u>Construction</u>							
<u>Academic and Communal</u>	397.2	264.8	662.0	1.05	.70	1.75	23%
<u>Site Development</u>	86.6	57.7	144.3	.23	.15	.38	5%
Sub-Total	483.8	322.5	806.3	1.28	.85	2.13	28%
<u>Furniture</u>	15.2	15.0	30.2	.04	.04	.08	1%
<u>Equipment</u>	99.9	898.4	998.3	.26	2.38	2.64	35%
Sub-Total	598.9	1,235.9	1,834.8	1.58	3.27	4.85	64%
<u>Professional Services</u>	134.9	85.5	220.4	.36	.22	.58	7%
<u>Technical Assistance</u>	40.6	121.6	162.2	.11	.32	.43	6%
<u>Teacher Training</u>	66.0	-	66.0	.17	-	.17	2%
Sub-Total	840.4	1,443.0	2,283.4	2.22	3.81	6.03	79%
<u>Contingencies</u>	305.7	281.7	587.4	.81	.75	1.56	21%
TOTAL	1,146.1	1,724.7	2,870.8	3.03	4.56	7.59	100%

3.12 Construction cost estimates are based on: (a) unit area costs of US\$52 to US\$74 per m² for buildings, depending on their geographical location, and (b) site development costs at about 20 percent of the cost of the buildings. Costs were established by the government, with UNESCO assistance, from available data on recently completed education buildings in Indonesia. The percentage for site development costs is high, but is acceptable considering that a large proportion of the available land consists of rice fields which present special drainage problems.

3.13 Furniture and equipment costs for each institution are reasonable. Detailed schedules will be prepared by the project implementation unit during the design stages of project implementation and approved by IDA before procurement.

3.14 The contingency allowances (Annex 7) provide (a) for increases in the cost of the project's physical facilities due to factors which may emerge during the design and construction stages of the project; these have been assessed as likely to represent about 10% of the basic cost of construction, furniture and equipment; and (b) for price increases. The latter have been difficult to assess in the absence of an official building price index and related data. Indications are that the recent rise in construction activity, coupled with an increasing scarcity of skilled labor in the industry would

accentuate the present wage-price increases in the sector, which seem to be above the average of the other sectors of the economy. Accordingly a relatively high rate of 8% has been used for local cost increases and a lower rate of 3% for foreign imports per annum. Altogether allowances would represent 21% of the total cost of the project (7% for physical increases and 14% for price adjustments), which is justifiable in the case of the present project.

3.15 On the basis of 3,420 student places in the five centers the estimated unit cost per student place is shown below, not including professional fees and contingencies:

Unit Cost per Student Place

Average number of
student places per center: 684

<u>Type of Expenditure</u>	<u>Unit Cost</u>	<u>Percent of Total</u>
Site Development	\$111	8%
Buildings	512	36%
Furniture	23	2%
Equipment	<u>772</u>	<u>54%</u>
Total	\$1,418	100%

These unit costs are economical. Since this would be the first time for the Bank/IDA to finance this type of technical training center, no comparison can be made with similar institutions elsewhere.

3.16 The project's foreign exchange component has been determined as follows: (i) construction, 40 percent; (ii) furniture, 50 percent; (iii) equipment, 90 percent; (iv) professional services, 40 percent; and (v) technical assistance, 75 percent. The total, US\$4.6 million equivalent (61 percent of the project cost), is high due to the relatively large amounts of imported equipment required for the project.

3.17 An IDA Credit of US\$4.6 million is recommended to cover about 61 percent of the total estimated cost of the project, or about 100 percent of the total estimated foreign exchange component. The government would provide the remainder of the capital costs and the recurrent costs of the proposed project. During negotiations, it has been agreed with the government that adequate funds will be available not later than the fifteenth day of each quarter for the implementation of the construction of the project and for the operation and proper maintenance of the training centers.

IV. IMPLEMENTATION AND DISBURSEMENT

Administration

4.01 The government will establish within the Ministry of Education a Project Implementation Unit under the Office of Educational Development. The Project Unit will be responsible for (a) the proper execution of the project, (b) coordination with the Ministry of Manpower, and (c) liaison with the Association. The Unit will also prepare the lists and bid packages of furniture and equipment and will be responsible for their procurement. Principal officers of the Unit will comprise a project director, an architect, a technical educator, a procurement officer, and an accountant, all selected in consultation with the Association. They will be provided with adequate supporting staff and accommodations. The project director, has already been selected. The appointment, on a full-time basis, of the project director, project architect and technical educator and the establishment of the Project Unit will be a condition of effectiveness for the credit. The government has provided assurances that the procurement officer and accountant will be appointed according to a timetable agreeable to the Association, which will initially provide for the procurement officer and accountant to be available to the Unit on a part-time basis six months after credit signing and on a full-time basis twelve months thereafter. Salaries of the Unit personnel and operating expenditures will be borne by the government.

Professional Services

4.02 A firm of architects and consulting engineers, acceptable to the Association and experienced in tropical school building, will be appointed on terms and conditions acceptable to the Association. It would report to the project director and would be responsible for the design and supervision of construction under the project. It will be available to start operations in the field within six months after the signing of the proposed Credit Agreement.

Land

4.03 All sites for the project centers have been selected and are satisfactory. Action has been taken to acquire four of the sites and the fifth will be acquired soon. The government has provided assurances during negotiations that not later than six months after the signing of the Credit Agreement all sites would be available for the Consultants (para. 4.02) to survey and that construction would be legally permissible 12 months thereafter.

Procurement

4.04 The awarding of civil works, furniture and equipment contracts would be on the basis of international competitive bidding in accordance

with the Association's Guidelines. Local manufacturers of furniture would be allowed a preferential margin of up to 15% of the c.i.f. landed costs, exclusive of import duties and other taxes. If all furniture bids are won by local manufacturers, then about 50 percent of the furniture component would represent local currency financing (i.e. about US\$40,000 or less than one percent of the proposed credit). Civil works contracts would be large enough to attract international competition, but it is unlikely that foreign firms not already operating in Indonesia would participate in the bidding. Procurement would be based on contract documents and bid-packages for which concurrence of the Association would be obtained. The suppliers of equipment would translate instructions for operation and maintenance into Bahasa Indonesia.

Disbursements

4.05 The Association would disburse or reimburse:

- (i) the foreign exchange costs of instructional equipment, technical assistance specialists and professional services;
- (ii) 40% of civil works contracts representing the estimated foreign exchange component;
- (iii) the actual foreign exchange cost of imported furniture and/or the ex-works cost of locally manufactured furniture.

Completion of the project would require six years (Annex 8). The percentage disbursed against civil works would be adjusted to distribute disbursements over the project period and to disburse US\$4.6 million equivalent or about 61% of the project costs whichever is lower. Undisbursed funds would be available for cancellation.

V. RECOMMENDATIONS

5.01 During credit negotiations, agreement has been reached with the government regarding:

- (a) provision of special entrance and terminal examinations (paras. 3.04 and 3.05); employment data collection about the graduates (para. 3.06); and creation of advisory committees (para. 3.06);
- (b) measures to retain the technical teachers at the centers on a full-time basis (para. 3.07); provision of teacher training courses (paras. 3.08-3.09 and Annex 4); and recruitment of five technical education specialists to assist in the initial operation of the centers and the training of counterparts (para. 3.10);
- (c) the establishment of a Project Unit within the Office of Educational Development to be responsible for the over-all supervision of the project (para. 4.01).

5.02 A condition of effectiveness of the proposed credit will be the establishment of the Project Unit and the appointments, on a full time basis, of a project director, project architect and technical educator, all selected in consultation with the Association (para. 4.01).

5.03 The proposed project is suitable as a basis for an IDA credit of US\$4.6 million to the Government of Indonesia representing about 61 percent of the total estimated project cost.

APPENDIX

THE EDUCATION SYSTEM

Administration

Responsibility for primary, secondary and higher education lies generally with the Ministry of Education; a relatively large number of "mosque" schools are separately administered by the Ministry of Religion; the Ministry of Agriculture is responsible for agricultural education in secondary and post-secondary schools. The Ministry of Manpower is responsible for out-of-school, skilled-worker training and a number of other Ministries are responsible for their own pre-service and in-service training.

Educational Structure

Primary education extending over a period of six years is followed by six years of secondary education divided equally between junior and senior levels. At each of the secondary levels separate provision is made for general, technical, commercial and domestic (home economics) education and training. Students completing a general education course have access to all courses at the next higher level but students in technical, commercial, or home economics training are restricted to courses of the same nature. The general secondary schools attract the more able students.

Education at the tertiary level is provided by some 40 universities and institutes administered by the Ministry of Education together with some 200 other institutes and "academies" controlled by other ministries and private organizations.

Technical Education

Technical education is provided at three levels corresponding to industrial employment as craftsmen, technicians or technologists. Training at the semi-skilled craftsman level may be given students in a junior technical secondary school (Ministry of Education) or, for adults, in a vocational training center (Ministry of Manpower).

The junior technical secondary schools offer 12 to 14 year-old students a three-year course with a relatively heavy content of general education. Graduates are eligible to enter the senior technical secondary schools, but in competition with the graduates from junior general secondary schools few (10-15 percent) are able to gain admission and the majority must seek employment.

In principle, the vocational training centers should offer adults both up-grading and apprenticeship courses, but owing to lack of funds they are limited to offer specific up-grading courses financially sponsored by industry. The centers are under-utilized.

At the technician level, the senior technical secondary schools offer three-year courses in a large number of specialties (recently reduced from 50 to 30) with the object of producing skilled craftsmen who may later be promoted to lower-level technician or supervisory staff. The curriculum makes provision for workshop experience but because of the lack of necessary facilities neither laboratory nor workshop training of any real value is given. Again, in competition with the general secondary school graduates, few (10-15%) are able to embark upon higher studies and the majority must seek immediate employment. In the absence of any form of guidance service or of follow-up records, their success in doing so is not known.

Higher Education

The higher education system has two degree levels corresponding to courses of three years and five years duration (for most students a preliminary year of study is also required). In engineering faculties the lower award (diploma or first degree) corresponds to the status of engineering assistant or higher technician, a status similarly achieved in the "academies" organized by certain government departments. The higher award (second degree) corresponds to the status of a fully-qualified engineer or technologist, or a baccalaureate degree for those in general education.

INDONESIA
RECURRENT EXPENDITURES ON EDUCATION^{1/}

1969/70

(in Rp. billions)

Primary Education		20.3
Ministry of Home Affairs	19.9	
Ministry of Education	.3	
Ministry of Religion	.1	
Secondary Education		3.7
Ministry of Education		
General and Vocational	2.2	
Technical	.9	
Ministry of Agriculture	.2	
Ministry of Religion	.4	
Higher Education		6.2
Ministry of Education	2.5	
Ministry of Religion	3.7	
Teacher Training		1.0
Ministry of Education		
Primary	.74	
Secondary	.26	
Other (Ministry of Education)		.4
Unallocable (other Ministries)		<u>2.0</u>
Total		33.6
of which: Ministry of Education expenditure		(7.3)

^{1/} Excludes administrative expenditures of respective Ministries.

Source: Ministries of Education and Culture, Home Affairs, Religion, Agriculture and Finance.

INDONESIAMINISTRY OF EDUCATION AND CULTURERECURRENT BUDGET

(in Rp. million)

	<u>1969/70</u>	<u>1970/71</u>
Office of the Secretary General	2,853.1	2,871.8
Directorate General of Basic Education (Primary and Secondary)	6,099.0	12,177.5
Directorate General of Higher Education	2,449.6	
Directorate General of Culture	295.6	308.6
Directorate General of Sports	891.4	1,232.1
Directorate General of Youth and Scouts	84.3	
Inspectorate General		36.7
Office of Development of Education		<u>74.2</u>
Total	12,673.0	16,700.9

1/ If administrative expenditures are excluded, the total Rp. 8.5 billion is reduced to the amount of Rp. 7.3 billion in Annex 1.

Source: Ministry of Education and Culture.

INDONESIADEVELOPMENT BUDGET

(in millions Rupiah)

	<u>1969/70</u>	<u>1970/71</u>	<u>1969/70- 1973/74</u>
Total Development Budget	90,240	115,784	619,000
Development Budget for Education and Culture (% of total development budget)	9,938 (11.0)	10,673 ^{1/} (9.2)	95,000 (15.3)
<u>Ministry of Education and Culture</u>			
<u>Education:</u>	<u>5,213</u>	<u>5,320</u>	<u>53,729</u>
(a) Quality improvement in Primary Schools	360	360	3,348
(b) Increase in Vocational Education in Secondary Schools	300	500	2,500
(c) Improvement of Technical and Vocational Education	2,454	2,161	21,373
(d) Improvement of Teachers' Education	239	239	2,621
(e) Development of Higher Education	1,700	1,800	15,500
(f) Expansion of Community and Adult Education	160	160	1,742
(g) Development of Education	-	100	6,645
<u>Culture:</u>	<u>370</u>	<u>420</u>	<u>5,271</u>
(a) Development of National Culture	279 ^{2/}	300 ^{2/}	4,305
(b) Intensification of Sports Activities	91	120	966
<u>Other Ministries</u>	<u>4,355</u>	<u>4,733</u>	<u>36,000</u>
(a) Technical and Vocational	3,200	3,262	26,164
(b) Research and Surveys	1,155	1,471	9,836

^{1/} An appropriation of Rp. 200 m. for administrative infrastructure has also been allotted to the Ministry of Education through other provisions of the Development Budget.

^{2/} Including expenditures for national monuments.

Source: Development Budget 1969/70, Development Budget 1970/71,
Five Year Development Plan 1969/70 - 1973-74.

INDONESIATRAINING OF TEACHERS AND INSTRUCTORS

The training of existing teachers and instructors must be phased to minimize the impact of withdrawal from the schools and to ensure the absence of a gap between completion of training and employment in the project centers. The program given below is based on the assumption that the first center will come into operation in January 1974 and that the one-year training courses will commence in January of each year.

	<u>Bandung</u>			<u>Djakarta</u>			<u>Total</u>
	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	
Technical teachers	15	30	30	-	-	-	75
Workshop instructors	<u>60</u>	<u>45</u>	<u>45</u>	<u>-</u>	<u>60</u>	<u>45</u>	<u>255</u>
Total	75	75	75	-	60	45	330 *

* Includes provision (25) for wastage.

The first group of trained teachers would enter the first center in January 1974. Under the guidance of a technical assistance officer, available trained teachers would assist in the installation of equipment and general preparation of each center prior to its opening.

All five centers are expected to be in operation in January 1975.

Cost of Training

Vocational training center fees	Rps.	30,000
Board and subsistence charges		50,000
Average annual salary of trainee		120,000
Total individual cost/course =	Rps.	200,000
Cost for 330 trainees = 330 x 200,000 =	Rps.	66,000,000
	=	<u>US\$ 174,603</u>

INDONESIA
TECHNICAL ASSISTANCE

The following program is based on the assumption that all the new centers will be in operation by January 1975:

Year Commencing						Total
<u>1st of January</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>man-years</u>
Mission Leader	.25	1	1	1	1)	12.25
Assistants	.0	.25	1.75	3.75	2.25)	

The mission leader will be available to assist the project director as required and to take part in joint consultations with the Ministry of Manpower with respect to the teacher and instructor (for laboratories and workshops) training program. He will be joined by an assistant one year after his own arrival.

The remaining three members of the technical assistance mission will report for duty three months before the opening of the centers assigned to them. They will advise on time-tables, curricula, syllabus content, and all other relevant matters. Their services will continue for two years.

It is expected that in selecting the members of the mission, consideration will be given to full coverage of the subjects taught within the centers and that the services of each specialist will be available to the others.

1. The cost of technical assistance is estimated to be:

(a) Team leader: 4.25 man-years x \$35,000 = \$148,750

(b) 4 specialists: 8 man-years x \$35,000 = \$280,000

Total: \$428,750

Foreign Exchange (75%) \$321,562

2. The cost of training teachers is estimated to be:

330 teachers (1 year course) x Rp 200,000 = Rp 66 million
(\$174,603)

INDONESIA

ESTIMATED EQUIPMENT COSTS

(in US\$ 000's)

	<u>Bandung</u>		<u>Djakarta</u>		<u>Medan</u>		<u>Surabaja</u>		<u>Makassar</u>		<u>Totals</u>	
	<u>Places</u>	<u>Cost</u>	<u>Places</u>	<u>Cost</u>	<u>Places</u>	<u>Cost</u>	<u>Places</u>	<u>Cost</u>	<u>Places</u>	<u>Cost</u>	<u>Places</u>	<u>Cost</u>
Basic (mech.)	100	31.0	80	26.0	60	21.0	80	26.0	60	21.0	380	125.0
Sheet Metal	100	30.0	80	22.0	60	22.0	80	26.0	40	18.0	340	118.0
Machine Tools	120	350.0	80	260.0	60	210.0	80	260.0	60	210.0	400	1,290.0
Auto-diesel	20	20.0	20	20.0	20	20.0	20	20.0	-	-	80	80.0
Foundry	-	-	40	25.0	-	-	-	-	-	-	40	25.0
Construction	60	12.0	60	12.0	40	9.0	60	12.0	40	9.0	260	54.0
Wood-work	60	18.0	60	18.0	40	14.0	60	18.0	40	14.0	260	82.0
Basic (elect.)	40)	54.0	60)	82.0	40)	54.0	40)	62.0	20)	36.0	200)	288.0
Electrical	60)		120)		60)		80)		40)		360)	
Electronics	40	20.0	40	20.0	20	12.0	40	20.0	-	-	140	72.0
Engineering Science	40	15.0	40	15.0	20	10.0	20	10.0	20	10.0	140	60.0
Strength/Materials	20	20.0	20	20.0	20	20.0	20	20.0	20	20.0	100	100.0
Metallurgy	20	6.0	20	6.0	20	6.0	20	6.0	20	6.0	100	30.0
Soil Mechanics	20	10.0	20	10.0	-	-	20	10.0	20	10.0	80	40.0
Electrical Measurements	20	6.0	20	6.0	20	6.0	20	6.0	-	-	80	24.0
Audio-visual aids	-	3.0	-	3.0	-	3.0	-	3.0	-	-	-	12.0
Totals	720	595.0	740	546.0	480	407.0	640	499.0	380	354.0	2,960	2,400.0

INDONESIA

CONTINGENCY ALLOWANCES

	<u>Construction</u>		<u>Furniture</u>		<u>Equipment</u>		<u>Professional Services</u>		<u>Technical Assistance</u>		<u>Teacher Training</u>		<u>Total</u>
	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	
Allowances for physical increases	10%		10%	10%	10%	10%	6%		-	-	-	-	
	(Combined)						(Combined)						
Allowances for price increases	27%		25%	6%	25%	8%	10%		35%	13%	31%	-	
	(Combined)						(Combined)						
Total cost before contingency allowances (US\$ thousands)	2133		40	40	264	2377	583		107	322	176	-	6042
Contingency allowances													
a) Physical	213		4	4	26	238	35		-	-	-	-	520
b) Price	<u>576</u>		<u>10</u>	<u>2</u>	<u>66</u>	<u>190</u>	<u>58</u>		<u>38</u>	<u>42</u>	<u>54</u>	-	<u>1036</u>
Total (US\$ thousands)	789		14	6	92	428	93		38	42	54	-	1556
Total cost including contingency allowances (US\$ thousands)	2922		54	46	356	2805	676		145	364	230	-	7598

INDONESIA - IMPLEMENTATION SCHEDULE OF OPERATIONS
(US\$1 - Rp 378)

Implementation (3 month periods)	YEAR I (1971)				YEAR II (1972)				YEAR III (1973)				YEAR IV (1974)				YEAR V (1975)				YEAR VI (1976)				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
<u>Physical Facilities</u>	(F)																								
Bandung (TTC)	...				*** **				XX				XXX XXX XXX XXX				+								
Djarkarta (TTC)	...				*** **				XX				XXX XXX XXX XXX				+								
Medan (TTC)	...				*** **				XX				XXX XXX				+								
Surabaja (TTC)	...				*** **				XX				XXX XXX XXX XXX				+								
Makassar (TTC)	...				*** **				XX				XXX XXX XXX XXX				+								
<u>Technical Assistance</u>																									
Specialists (man-months):	Leader:				3				3 3 3 3				3 3 3 3				3 3 3 3				3 3 3 3				
	Others:								3				3 3 3 12				12 12 12 9				9 9 9 -				
Training teachers	Teachers								(75)				(135)				(120)								
<u>FORECAST EXPENDITURE</u>																									
	Total (Rp. Mill)	Local		Foreign		Local		Foreign		Local		Foreign		Local		Foreign		Local		Foreign		Local		Foreign	
Construction	806.3	-	-	15.82	10.99	238.42	161.02	206.58	135.58	23.03	14.93	-	-	-	-	-	-	11.49	33.23	-	-	-	-	-	-
Furniture	30.2	-	-	-	7.50	7.60	7.50	7.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Equipment	998.3	-	-	-	179.68	19.96	718.72	79.93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Professional Services	220.4	19.10	27.69	27.26	31.30	44.22	11.20	35.07	11.29	9.24	4.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tech. Assistance	162.2	-	-	.73	2.32	3.73	11.84	8.74	26.80	15.92	47.40	11.49	33.23	-	-	-	-	-	-	-	-	-	-	-	-
Teacher Training	66.0	-	-	-	-	14.06	-	26.49	-	25.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Contingencies	587.4	4.40	1.80	13.00	38.50	122.10	179.60	137.20	46.20	24.90	11.20	4.00	4.40	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	2,870.8	23.50	29.49	56.81	270.29	450.09	1089.88	501.61	219.87	98.57	77.57	15.49	37.63	-	-	-	-	-	-	-	-	-	-	-	-

Legend (Civil Works)

... = Survey & studies
 ::: = Design
 *** = Production of bid-packages
 = Tender
 XXX = Construction
 + = End Guarantee Period (F) = Feedback Report

Legend (Furniture & Equipment)

... = Syllabi, class sizes, curriculum timetables and basic lists
 ::: = Specialist room layouts
 *** = Production of bid-packages
 = Tender
 XXX = Installation (F) = Feedback Report

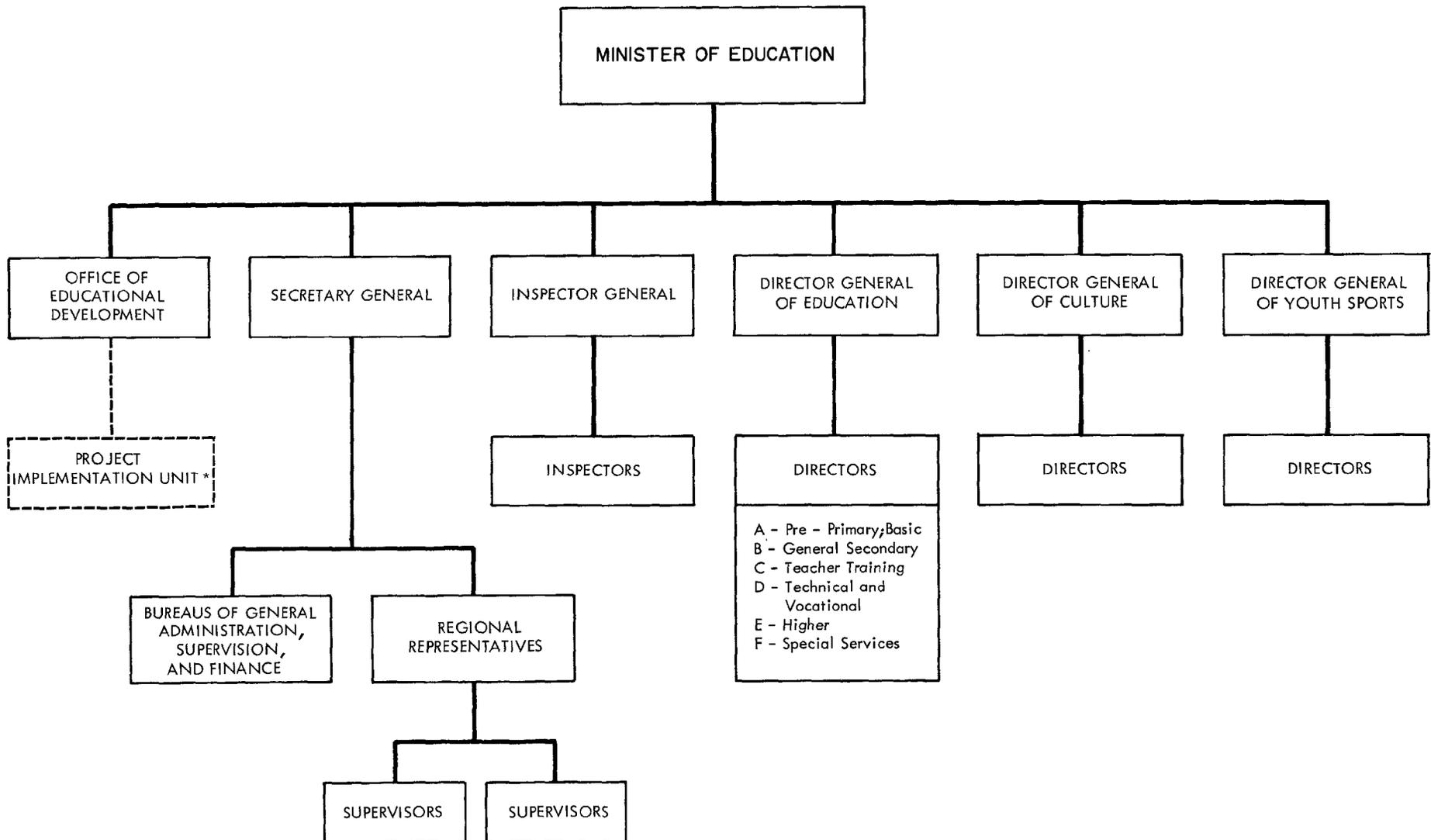
INDONESIA
DISBURSEMENT SCHEDULE
(US\$ Equivalent)

<u>Implemen- tation Quarters</u> ^{1/}	<u>Expenditures</u>			<u>Disbursements</u> ^{2/}	<u>Undisbursed</u>	<u>(%)</u>
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>			
1	-	-	-	-	4,600,000	(100.0)
2	-	-	-	-	4,600,000	(100.0)
3	37,300	46,800	84,100	-	4,600,000	(100.0)
4	24,700	31,200	55,900	46,800	4,553,200	(99.0)
5	22,200	22,100	44,200	31,200	4,522,200	(98.3)
6	22,100	22,100	44,200	22,100	4,499,900	(97.8)
7	22,100	22,100	44,200	22,100	4,477,800	(97.3)
8	83,700	648,800	732,500	22,100	4,455,700	(96.9)
9	348,000	154,300	502,300	648,800	3,806,900	(82.8)
10	277,500	154,200	431,800	154,300	3,652,600	(79.4)
11	284,800	155,200	440,000	154,300	3,498,300	(76.1)
12	280,600	2,416,600	2,697,200	195,200	3,303,100	(71.8)
13	595,200	167,100	762,300	2,416,600	886,500	(19.3)
14	283,700	166,400	450,100	167,100	719,400	(15.6)
15	265,100	133,100	398,200	166,400	553,000	(12.0)
16	183,000	115,100	298,100	133,100	419,900	(9.1)
17	117,900	85,900	203,800	115,100	304,800	(6.6)
18	57,000	46,400	103,400	85,900	218,900	(4.8)
19	44,400	40,200	84,600	46,400	172,500	(3.8)
20	41,500	32,800	74,300	40,200	132,300	(2.9)
21	12,600	30,600	43,200	32,800	99,500	(2.2)
22	12,600	30,600	43,200	30,600	68,900	(1.5)
23	12,600	30,600	43,200	30,600	38,300	(0.8)
24	3,200	7,700	10,900	30,600	7,700	(0.2)
25	-	-	-	7,700	-	(-)

1/ From date of signing Development Credit Agreement.

2/ Assuming 3 months between expenditure and disbursement.

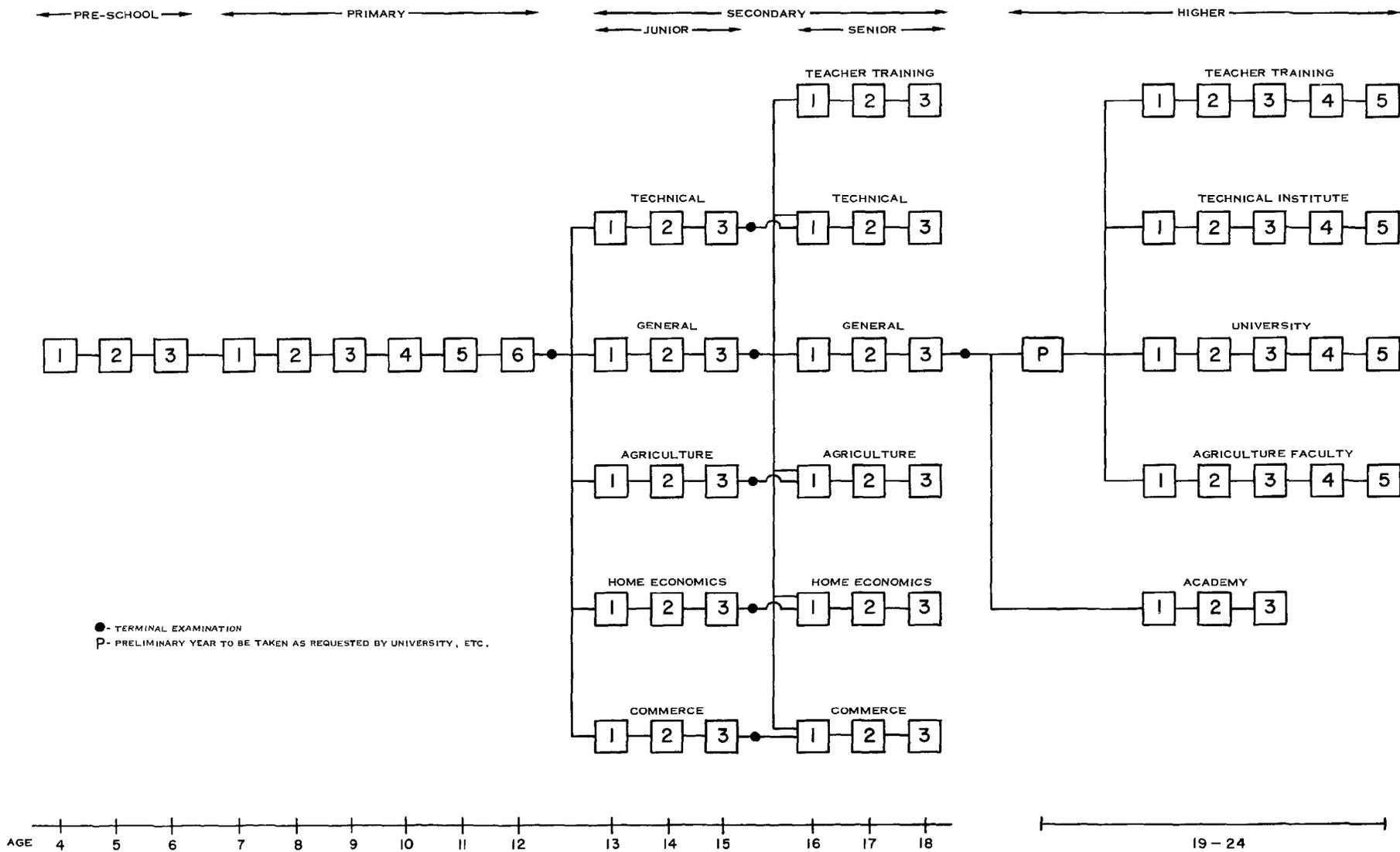
INDONESIA ORGANIZATION OF MINISTRY OF EDUCATION AND CULTURE



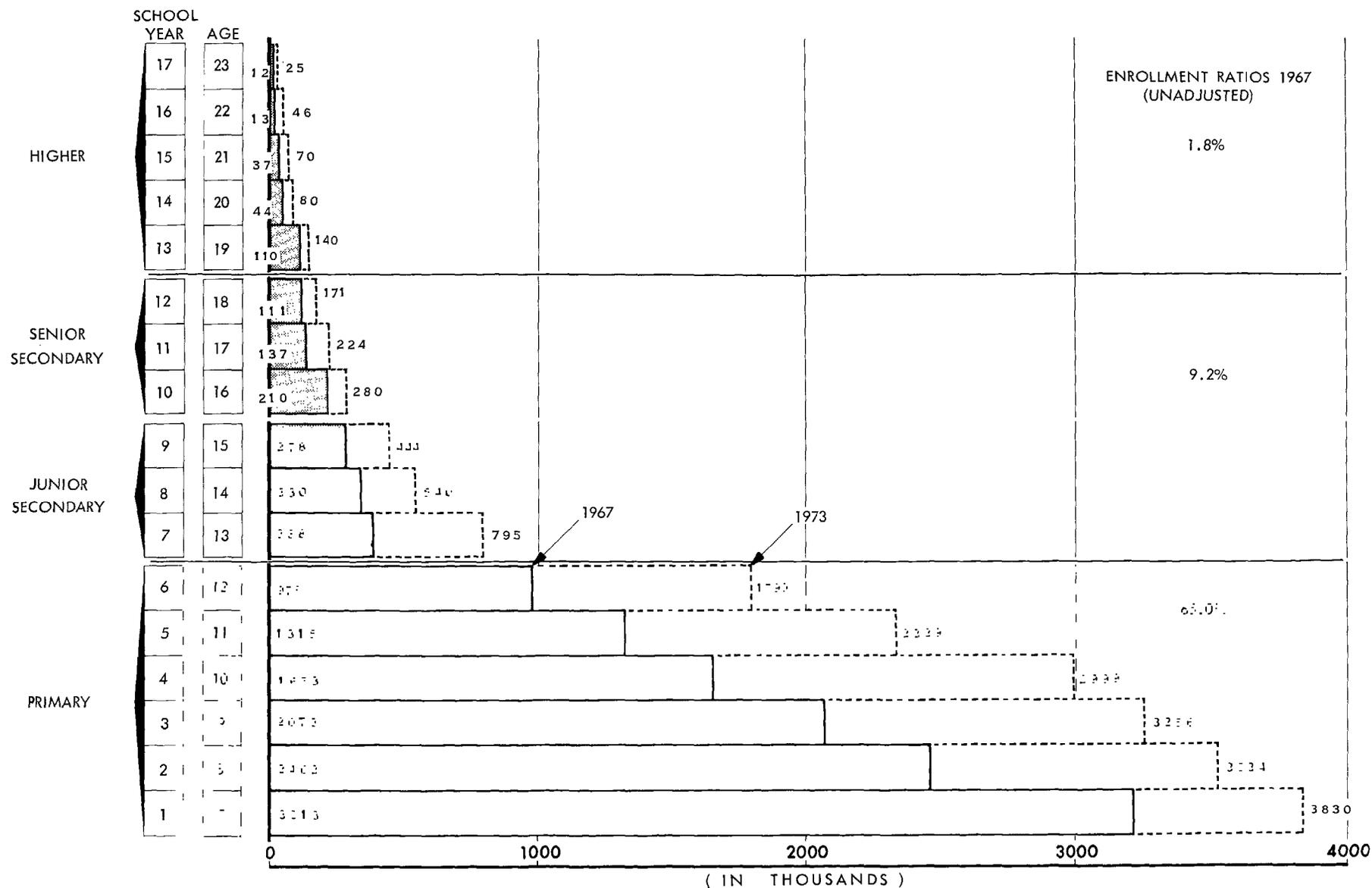
* To Be Phased Out When Project Is Completed.

INDONESIA

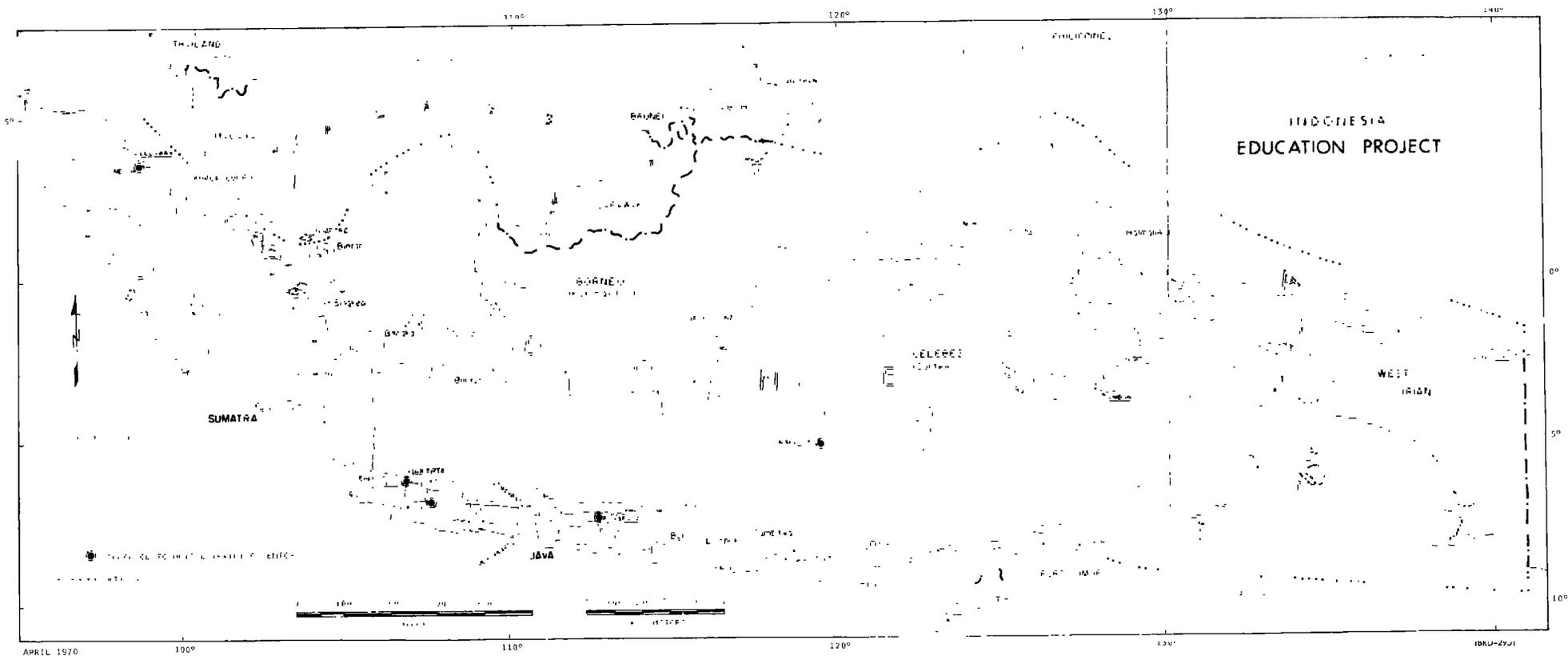
STRUCTURE OF THE EDUCATIONAL SYSTEM IN INDONESIA



INDONESIA: TOTAL SCHOOL ENROLLMENTS FOR 1967 AND PROJECTIONS FOR 1973



SOURCE: Ministry of Education and Culture



APRIL 1970

100°

110°

120°

130°

140°