

INDONESIA

Country Implementation Plan for IEES Activities

May 1987

IEES

Improving the
Efficiency of
Educational
Systems

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1.0 INTRODUCTION

In April 1985, Indonesia Ministry of Education and Culture officials, USAID/Jakarta personnel and IEES staff agreed to IEES assistance in two areas. First, IEES was asked to administer the \$1.3 million USAID-funded Educational Policy and Planning (EPP) Project (1984-1990). This assistance has initially involved the recruitment and placement of three long-term technical advisors to assist the Balitbang Dikbud staff, additional short-term consultants as needed, and other ongoing technical support.

In support of this effort, several important activities have already been mounted. Three long-term technical assistants were placed between January and May 1986, and the first EPP Annual Work Plan has been developed and approved. On the basis of this EPP workplan, three short-term consulting activities were completed between May and September 1986:

1. development of a monitoring system for MOEC development projects;
2. development of an evaluation model(s) for the Indonesia Fourth Five-Year Plan (Repelita IV) in preparation for the next Five-Year Plan (Repelita V);
3. development and production of detailed training modules, including audio-visual aids and computer software, for training MOEC staff in the use of computers in educational planning.

The second area of IEES responsibility was to conduct a systematic review of the Education and Human Resource Sector in collaboration with MOEC. This review was conducted by an IEES team in collaboration with MOEC counterparts during September and October 1985. The findings and recommendations were reviewed with the MOEC Steering Committee in January and February 1986, and the initial draft was printed and distributed in April 1986. An Indonesian version is now in production and near completion. The Sector Review has been well received by the MOEC and is now beginning to serve as an important vehicle for EHR policy planning in Indonesia.

This document presents the background, rationale, and proposed activities for the remainder of the first five-year commitment of the IEES Project. These activities largely follow from the recommendations of the Sector Review and from subsequent discussions with MOEC counterparts and USAID/Jakarta staff.

Section 1 states the purpose of the Country Implementation Plan and presents an overview of the IEES Project. Section 2 describes the context of the project in Indonesia. Section 3 summarizes current activities in the EHR sector. Section 4 provides the rationale for the proposed activities and Section 5 describes these activities in detail.

1.1 PURPOSE OF THE IEES COUNTRY IMPLEMENTATION PLAN

The principal objective of this plan is to identify, justify, and design activities for IEES assistance in Indonesia for the next three years. This includes identifying opportunities for cost sharing among other donor agencies and with the MOEC staff itself. The criterion for selection of the activities described in this plan is twofold. First, targets of opportunity related to Indonesia's EHR and institutional capacity building goals are identified. Secondly, a set of integrated activities are designed which are internally coherent and which emerge from the Sector Review process and subsequent follow-up by Indonesian EHR policymakers.

The ultimate criteria for all IEES-funded activities are improvement in the efficiency of resources utilization in education and improvement in the capacity of the EHR sector. These criteria are applied at the macro-educational (central, regional, and district) levels as well as at the microeducational (school and classroom) levels.

In addition, the Country Implementation Plan will:

1. Clarify the interrelationship among all the proposed IEES

activities in Indonesia. This includes both specific research, training, and implementation activities as well as such generic IEES activities such as networking and knowledge building.

2. Focus upon the development of institutional capacities for more efficient use of educational resources, based on the assumption that there will be little increase in EHR resources in the short-term. Improvements in the EHR sector, therefore, must result from improved efficiencies in use and allocation rather than from increased levels of resources.
3. Identify and describe activities that address priority IEES objectives and closely coordinate these with the plans and priorities of the MOEC.

1.2 THE IEES CONSORTIUM

The IEES Project is coordinated by the staff of Learning Systems Institute of the Florida State University. Other institutions participating in the consortium include Howard University, the Institute for International Research (IIR), and the State University of New York at Albany (SUNYA). Management responsibility is vested in the Executive Management Committee. This committee consists of the Principal Investigator, Project Director, Deputy Project Director (from Florida State University) and an Institutional Coordinator from each of the participating institutions.

The resources available through the IEES Consortium are primarily technical assistance services for planning, research, and training activities. Resources also exist for the procurement of local consultant services and for limited equipment requisition.

The project is coordinated for the U.S. Agency for International Development (AID) by the cognizant Technical Officer in Washington, D.C. (located in the Education office of the Science and Technology Bureau of AID). Project activities in Indonesia are coordinated with the EHR staff of USAID/Jakarta. Coordination of IEES activities for the Government of Indonesia is provided by the Balitbang Dikbud in the Ministry of Education and Culture.

2.0 CONTEXT

This section describes the context for IEES activities in Indonesia in terms of the current status and plans of the EHR system. The source for the information contained in this section is the Indonesia EHR Sector Review (April 1986). Some of these data and interpretations have been modified by subsequent discussions related to the development of the Indonesian version of the Sector Review (now in progress).

2.1 HISTORICAL AND SOCIAL SETTING

Indonesia is the largest archipelago in the world, stretching over 3,500 miles and composed of more than 14,000 islands. The connecting water surface area of this archipelago is far greater than the land surface area. Living on 6,000 inhabited islands are peoples from more than 300 ethnic groups speaking over 250 languages and dialects. Bahasa Indonesia is the official national language and is the language of instruction in both private and public schools from third grade throughout Indonesia. English is the second official language and is taught in the schools. All laws are published in English as well as in Bahasa Indonesia and many Indonesian policymakers speak English.

In this fifth most populous country in the world, 70% of the people live on the densely populated islands of Java, Bali, and Madura. Half of the total population is under 20 years of age and 85% still live in rural areas. Wet-rice agriculture was developed over 2,000 years ago and gave Indonesian society the economic capacity to support the great kingdoms of Central Java. This form of agriculture is still the mainstay of Indonesian society. For many years, as the population increased, rice had to be imported; but in recent years Indonesia has again become self-sufficient. This has been accomplished through the use of modern agricultural

techniques, the development of healthier and more productive plants, the introduction of petroleum-based fertilizer, and the promotion of better irrigation methods.

2.2 FISCAL CAPACITY

The fiscal capacity of the Government has been limited during the last five years because of slower growth in routine budget revenues relative to expenditures. This phenomenon is due largely to the world recession and its negative impact on receipts from corporate taxes on oil, the major source of government revenue. Development budget revenues, on the other hand, grew faster than expenditures during the same period. This is a reflection of large contributions from foreign sources and of the Government's difficulty in disbursing these funds. Relatively high debt service ratios, which must be financed out of the routine budget, limit the resources available for expenditures on public sector programs. In 1985/86, the routine budget was increased to a level which exceeds the development budget. This growth represents a trend aimed at providing a fiscal stimulus to the economy while at the same time tightening public investment in order to meet resulting recurrent costs.

It is difficult to determine the exact proportion of total public sector expenditure that is used for education. In part, this is because departments other than the MOEC also have educational functions. In recent years, it is estimated that the MOEC was directly responsible for only 44% of the public resources spent on education. The Ministry of Home Affairs, the Office of the President, and the Ministry of Religious Affairs also contribute a large portion of their resources to their own education undertakings. The picture is further complicated by a large and active private sector. Given the large number of actors providing education in both the

public and private sectors, it is difficult to judge what portion of total Indonesian education the MOEC should be responsible for in the future.

2.3 LABOR MARKET CONDITIONS

Although measured unemployment on the whole is very low in Indonesia (approximately 2%), underemployment is a widespread phenomenon. In recent years, approximately 37% of Indonesia's work force has been identified as underemployed. In rural areas, where underemployment is most prevalent, it is associated with poverty and the lack of land. In cities, underemployment is related to informal markets and labor flexibility. Due to conditions of falling labor absorption rates, underemployment, which is defined as 10 to 35 hours a week, provides a marginal income for those who do not have the skills or training to find jobs in the modern industrial sector.

The general education level of Indonesia's labor force remains low. In 1982, approximately 13% of the work force had more than a primary education. As is the trend in most developing countries, Indonesia's agricultural sector still employs 80% of the work force. The public sector, on the other hand, attracts the largest proportion of educated labor. Approximately 80% of all postsecondary graduates work in public services, while industry is staffed with relatively poorly educated labor. This is related to a concentration of high school public graduates in the wage rate for civil servants who are postsecondary graduates that is higher than the market rate. Indeed, unemployment rates among senior secondary school graduates are evidence of distortions in the wage rate. A recent tracer study shows that many secondary school graduates are only temporarily unemployed. Because public sector wage rates are so favorable at this skill level, many high school graduates will remain unemployed for up to two years while waiting for a job opening in the public sector.

Repelita IV suggests that the greatest need for manpower will be in the industrial sector. This is evidenced by the 200% growth in polytechnical enrollments envisioned for the five-year period of Repelita IV. Yet, previous manpower analysis suggests that Indonesian labor thus far has not reached the level of skill required for industrial expansion. A more labor-intensive economic strategy and a progressive shift toward a more complex economy that emphasizes the role of manufacturing and services will require a general upgrading of skills. For these reasons, a pool of well-trained secondary school graduates will be a vital factor in the expansion of the industrial sector. It is too costly for industry to produce the basic reading, writing, mathematical, and analytical skills that modern manufacturing requires. The expansion of a general secondary education system that produces graduates with these basic skills will be a priority measure for reducing the manpower shortages projected for Indonesia's industrial sector.

2.4 EDUCATIONAL FINANCE

The issues of educational finance in this Sector Review include (a) considerations of public and private sources of funding by type of schooling or training; (b) unit cost per student; and (c) cycle cost per graduate by level or type of education.

The Indonesian education system is characterized by a large and active private sector at the postprimary levels. Although the private sector receives a variety of government subsidies, the coordination of private and public sector efforts at the senior secondary and university levels of education offers the Indonesian Government important opportunities for reducing public expenditures on education.

The sources of funding for education including the MOEC budget, many

other government departments, private institutions, and private individuals present certain constraints. The wide variety of financing sources makes more difficult the task of coordinating education spending to achieve the most efficient allocation of resources. This problem is particularly noteworthy in the primary education subsector where departments other than MOEC are responsible for the teachers' wage bill and for major school construction and rehabilitation efforts. At the secondary and higher levels of education, a key concern is the appropriate mix of public and individual contributions to education.

The analysis of per student costs and cycle costs per graduate which are presented in Indonesia Sector Review (January, 1986) sheds some light on these concerns. There appears to be considerable regional variation in the cycle cost per graduate at the primary level. The cost per graduate in Java outside Jakarta and in the rest of the islands was found to be 1.5 times higher than in Jakarta. The higher cycle costs found outside Jakarta can be linked to higher unit costs. The higher unit costs are largely due to lower student/teacher ratios, smaller schools, and considerably higher repetition rates. This variation in repetition rates among regions supports earlier evidence that regional disparity in the quality of primary education persists.

Private costs to families and students are quite high for public secondary school. On the average, secondary school students provide more than 38% of their own annual instructional costs. Past rate of return studies of secondary education suggest that high private costs may deter students from remaining in secondary programs. These studies have shown the social rate of return to be higher than the private rate of return for secondary education in Indonesia. This finding is contrary to trends found

in other countries. Relatively high dropout rates compared to repetition rates suggest that high private costs may force students who are doing poorly to leave school rather than repeat a grade. Redistributing some of the secondary school costs back to the public sector or introducing a progressive fee system may have the positive impact of keeping students in school.

The annual per-student costs for public vocational/technical secondary schools were found to be 1.4 times higher than for general secondary programs. In addition, the vocational/technical secondary programs were found to have the highest dropout rates, and hence the highest costs per graduate, of all public secondary programs. The rate-of-return analysis completed for the Sector Review shows that the incremental earnings of STM graduates working in industry are considerably lower than those of SMA graduates. The implication of these findings is that planners should proceed cautiously with future investments in technical secondary programs as they are currently implemented.

In public universities, the average operating budget per student declined in real terms during the 1980/81 - 1984/85 period. This is due in part to the slow growth in operating expenditures compared to growth in enrollments. The continuing growth in social demand for higher education suggests that the situation will deteriorate if innovative measures are not taken. Two potential approaches to the problem of constrained resources in higher education are:

1. greater cost recovery of higher education in the public sector, and
2. greater responsibility to private institutions of higher education .

2.5 THE ECONOMIC AND FINANCIAL SETTING

There are seven major economic conditions that characterize the Indonesian economy. These conditions constitute a set of opportunities and constraints to Government as it attempts to meet the Repelita IV goals of raising the per capita income of Indonesia's population while assuring an equitable distribution of that income.

1. Dependence on oil revenues. Because oil remains the single largest earner of foreign exchange and other revenues, the continuity of Indonesia's public spending and investment in development projects is threatened by the slackening of foreign demand and declining world oil prices.
2. Falling labor absorption rates. It is difficult at this point to determine the extent to which the sluggish creation of new employment opportunities represents the short-term result of the recent world recession. Falling absorption does, however, appear to signal a serious, longer-term trend. The trend toward capital intensive modes of production in the oil industry, as well as in other industries seeking to compete in capital-intensive export markets, is a contributing factor that must be addressed.
3. Increased labor productivity in the agricultural sector. In recent years, Indonesia has reached self-sufficiency in food production, largely through increases in per-farmer productivity. Still the main employer of Indonesian labor, the agriculture sector will be able to provide fewer and fewer jobs in the future and will thus contribute to the decline in employment opportunities.
4. High expectations for the relatively fragile manufacturing sector. Although considered by many to be the sector with the greatest potential to contribute to economic growth, the manufacturing sector has not yet been able to diversify sufficiently to tap Indonesia's large domestic market successfully. As a result, the manufacturing sector also remains dependent on external markets, especially for textiles. The manufacturing sector's path to development is made more difficult by planners' conflicting objectives. On the one hand, manufacturing and industry are expected to be the main engine of economic growth, which to some non-economists has implied investment in overly capital-intensive equipment; on the other, the manufacturing sector has been given the responsibility of new job creation, a task that is inconsistent with the overly capital-intensive approach stressed earlier.
5. Recent decentralization of financial markets. The highly centralized banking system of Indonesia's past has only

recently been liberalized. To the extent to which competition is increased, credit may become available on somewhat more competitive terms.

6. Recent reforms in excise and income taxes. Recent and extensive reforms in the tax system have improved tax collection procedures and broadened the tax base. The success of these reforms will help ease Government's current dependence on oil for public revenue for economic development.
7. Institutional rigidities. There are institutional rigidities, such as the relatively distinct processes for formulating the five-year development plan, the annual routine budget, and the annual development budget. These rigidities make it difficult for the Indonesian Government to respond to cost-effective opportunities and cost inefficiencies, and to locate evidence of shortages and surpluses that reflect the growth bottlenecks in the economic environment.

2.6 NATIONAL GOALS, PLANS, AND PRIORITIES

Human resource skills are created by primary and secondary education and by training in science, technology, and efficient production organization techniques. A supply of skilled human resources is a requirement for Indonesia to achieve faster growth in per capita income. Human resources are relatively plentiful, even though some need to be upgraded. Compared to capital-intensive development, which is scarce and expensive, human resource development offers a particularly promising route to sustained development. However, major attention to efficiency in human resource development and utilization, with simultaneous consideration of equity, is vital. Without it, resources that could be used to produce greater growth are partially wasted, too few in the population benefit from the fruits of growth, and growth of both per capita income and the extension of equity is slowed.

Indonesia has a very clear and appropriate statement of its major national goals and priorities in the current five-year plan. It is these goals that this Country Implementation Plan seeks to serve.

The goal of Indonesia's current five-year plan is "to raise the

standards of living, intellectual abilities, and general welfare of the people and to lay strong foundations for the subsequent stages of the nation's development" (Repelita IV, p. 6). More specifically, "the plan seeks to ensure a minimum growth rate that provides a growing per capita income and assures an equitable distribution of that income" (p. 8). The Plan further recognizes efficiency in human resource development as a major means to that end, and states that "greater emphasis will be given to human resource development via education... while simultaneously stressing improved efficiency in the development and use of human resources" (p. 8).

Other government departments involved in human resource development and utilization have objectives that are consistent with this goal of efficiency and equity in economic development. The employment and manpower objectives define the mission of the Ministry of Manpower and the mission of the Ministry of Research and Technology. They stress "policies and investment projects in all sectors that are consciously and vigorously directed toward maximum employment (p. 48).... Investment policies are to be geared to the . . . uses of technology that ensure the attainment of the employment objective" (p. 49). This implies seeking higher labor absorption rates. With respect to science and technology specifically, which have the biggest stake in human resource development, Presidential Decree No. 28 states its main mission as managing "the research and technology issues and problems so that their development and application will be more effective and directly supportive of development needs."

Repelita IV clearly recognizes the important role of human resource development in meeting the objectives of increased economic growth and equitable distribution of that incremental income. As this is a time of limited growth in the resources available for human resource development,

it is important that strategies be formulated to use these resources in the most efficient manner.

2.7 OVERVIEW OF THE EHR-SUBSECTORS

2.7.1 Preprimary and Primary Education

Since 1954, six years of primary education have been compulsory for all Indonesian children who have reached eight years of age. The first five-year plan (1969/70 - 1973/74) targeted 80% enrollment in primary school for all children aged 7 to 12, but this target was not realized. The enrollment target of 50% was more modest for the second five-year plan. As rapidly increasing oil revenues became available for expansion of education, however, this target was revised upward. By 1978/79, nearly 80% of the 7 to 12-year-olds were enrolled. Universal primary education became a basic goal of the fourth five-year plan (1984/85 - 1988/89). Current estimates indicate that between 95% and 98% of the targeted age cohort are currently enrolled in primary school.

Primary education is now at a crossroads. A comparatively large proportion of funding is still allocated for primary education expansion, but debate has begun as to whether this funding should be redirected to other educational sectors with greater need. Secondary education expansion has been suggested, for example, and activities that better fulfill the other major objectives of the current five-year plan--improving educational quality and providing students with the skill training required by the job market. Recent announcements of government budget restrictions make such debate even more relevant.

Primary education programs in Indonesia are generally efficient in comparison to those of most other developing countries. Although there are serious regional disparities among the country's 27 provinces and 242

districts, the national figures for a variety of educational efficiency indicators compare very favorably with indicators from other countries. Student to teacher ratios in 1984/85 were 27 to 1, and the student to classroom ratio was 30 to 1. Of the 2,656,688 students enrolled in primary schools, 48% were girls. Among the 986,638 primary school teachers, however, only 33% were women. This disparity should diminish in the future as 64% of the 246,623 graduates of the teacher training schools in 1984/85 were women.

The dropout rate has been decreasing over the last 15 years and now stands at approximately 3%. The repetition rate is still high--nearly 11% for public schools and 8% for private schools; but it is also declining each year. Both dropout and repeater rates are notably higher in rural areas, suggesting that these areas are in special need of internal efficiency improvement efforts. The cost per graduate for primary education in 1984 was Rp.78,900, or approximately US\$80; the rate of return to primary education is 33% per year for males in industry and 39% for females. The cycle cost of primary education is Rp.633,567, or approximately US\$640. Each of these figures indicates that primary education in Indonesia is relatively cost efficient.

Despite these figures, the primary education system is inefficient in a number of respects. There are indications of an overproduction of primary school teachers. Given current projections, there could be serious overproduction in the next five years, even if there is a decrease in the number of teacher training graduates. The current Presidential Decree (Inpres) funding for primary school expansion and upgrading is another area in which external and internal efficiency could be improved. These resources might be redirected to quality enhancement activities (such as more effective inservice training, better supervision, and improved data

gathering and evaluation of programs) which improve the performance of primary school graduates. This would allow them to continue on to higher levels of education, or to obtain the skills needed for better performance in their jobs. At the same time, the serious variation among regions in academic performance, student to teacher ratio, student to classroom ratio, dropout and repeater rates, and other measures of quality and equity, indicate that more equitable distribution of resources among regions must also remain a priority.

Additional resources must be directed to other areas as well if the development targets for the Repelita IV are to be met. Targets call for 30% of all handicapped children in the primary school-age cohort to be enrolled in special education programs. At present, only 7% are enrolled and resources for these programs are severally limited. Of approximately 350 schools for handicapped children, 79% are in Java.

The last 3% to 5% of the 7 to 12 year-olds not enrolled in primary school are from groups who are traditionally hard to reach with effective educational programs. They are the dropouts, and children of semi-nomadic farming, hunting, or logging families in remote areas. Programs have been developed to reach these groups, but these need further testing, evaluation, and expansion.

The policy options of highest priority in the preprimary and primary education subsector center on improving the quality of education programs. An underlying theme in each of the recommendations is the importance of conducting research and evaluation (both formative and summative) in support of any program implementation. These research and evaluation activities should be designed through close, continuing, and systematic coordination between Balitbang Dikbud and the Directorate General

responsible so that the critical questions of concern to both offices can be addressed.

The policy options for primary education with regard to quality improvements include the following:

1. defining the criteria for judging attainment of quality education;
2. stressing refinement of the EBTANAS;
3. preparing a carefully designed and evaluated dissemination strategy for new teaching methodology;
4. developing diagnostic materials for primary school students;
5. streamlining the administration of primary education by placing full authority for supervision and promotion of teachers and principals under the authority of Depdikbud.

A second set of policy and research options relates to fulfillment of the goal of universal compulsory education:

1. expanding special education, small schools, Kejar and PAMONG Patjar programs through the reallocation of existing funds, primarily SD Inpres funds;
2. making special efforts to work with Kanwil offices in pinpointing areas of educational need and planning interventions;
3. improving data gathering systems for better identification of children who are still not attending school;
4. study of the problems of assignment and retention of primary school teachers in remote areas.

2.7.2 Secondary Education

The structure of secondary education in Indonesia is modeled on the American rather than the British pattern, and a commitment to a comprehensive junior high school has replaced earlier vocational alternatives. Moreover, a vigorous private sector has developed to meet the need for school capacity which the government cannot provide.

In the broadest sense, the goal of Indonesian secondary education in the next decade is to deliver to the nation skilled manpower with the

knowledge and competence to create a substantial new industrial base for the Indonesian economy. The nation views education as a tool of nation building and places heavy emphasis upon the Pancasila, which seeks to provide a universal value framework for the society within which to achieve these goals.

The Government is committed to meeting the popular goal for expansion of secondary education, even if this requires lowering the standards of quality (in the short-run) in order to reach the quantitative goals that reflect the will of the people. Its major strategy is to expand the capacity of education at all levels and find ways to provide the staff for the institutions thus created. The new Minister of Education and Culture has emphasized the development of educational programs in his three-point program calling for stabilization of curriculum, a higher level of administration efficiency, and the involvement of a broader cross-section of lay persons to advise on the development of education policy.

Junior secondary education, rather than completion of primary education, has become the dividing point between the traditional and modern sectors in Indonesia. The popular perception that the completion of general lower secondary school will allow students to compete for advanced secondary education, and ultimately higher education has created the popular demand which has virtually eliminated the junior secondary technical schools.

At the lower secondary level, the Sekolah Menengah Pertama (SMP) is the general institution currently enrolling over 45% of its cohort and still expanding. At present, the general public and private secondary schools together enroll 98% of the total population of lower secondary students with only small enrollments in the home economics junior secondary

school and the technical junior secondary school. There are almost twice as many private schools--more than 9,000 compared to the 5,000 public schools. Lower secondary school enrollment is approximately five million students, with the public sectors enrolling about 55% or 2,850,000. Female students are slightly under 45% of the total enrollment. There are approximately 150,000 full-time teachers of whom two-thirds are in the public sector. There are approximately 115,000 part-time teachers of whom only about 6,000 are in the public sector. The lower secondary system is now producing about 1,200,000 graduates a year as candidates for admission to the upper secondary school system.

The upper secondary school sector consists of the general secondary school (SMA), economics (SMEA), home economics (SMKK), technical (STM), primary teacher training (SPG), and sports teacher (SGO) schools. The total SMA enrollment is approaching two million, about 60% of which is in the private sector. The number of graduates from the private and public sectors is approximately 200,000 each. Starting in the second year, the students are divided into science, social science, and language streams. The science and social science streams are approximately equal; the language stream is a very small proportion. Of the total 130,000 upper secondary school teachers, only 30% are in the public sector, but the majority of full-time teachers are in the public sectors. Of the 20,000 full-time senior secondary teachers in the private sector, only 3,000 are supported by Government.

In addition, there is a completely separate religious education system, financed by Government through the Ministry of Religion with its own counterpart in the private sector. At the lower secondary level it enrolls about 10% of all students in Indonesia.

Government's plans for an expanded capacity for secondary education

appears realistic. The nation has long since accommodated to emergency staffing patterns to achieve such expansion targets. A historical perspective on this emergency strategy shows that on the whole it has been effective. There is no doubt that quality has been depressed, at least for a time, and alternative strategies might be developed to lessen the compromise of quality at times of rapid expansion.

What is lacking in the current plan is a systematic strategy for rationalizing the relationship between public and private sectors of secondary education and the development of strategies to use Government support to private education in order to shape the delivery system to meet national objectives. There are plans to improve the logistics of the administration of the national secondary examination (EBTANAS). A careful evaluation of EBTANAS alternatives should accompany the development and expansion of this important national tool.

Plans are also underway to stabilize the curriculum in secondary education. It is important in a resource constrained environment to stabilize all aspects of the delivery system as much as possible and to make the curriculum more accessible and more understandable to the increasing number of teachers with minimum qualifications.

It is simplistic to say that resources are a constraint to the planned expansion of secondary education. The important point is that there are many ways in which the educational system in Indonesia can be improved within the present resource constraints. These constraints are serious and need to be examined: the rapid expansion of secondary education has made it impossible for teacher training institutions to meet the demand for teachers.

The teacher education process is perhaps the most serious resource

constraint in the secondary education sector. This constraint particularly applies to the shortage of science, math, and English teachers. Secondary education must rely in the foreseeable future on inservice training programs which give priority to the inservice/onservice model.

Secondary education expansion and improvement is also constrained by a shortage of well-trained school principals. A variety of models for the training of school principals needs to be developed since it is not clear what combination of training approaches will be most effective in Indonesia. In addition, the review of this subsector indicates that secondary education expansion is constrained by poor supervision, inadequate coordination (particularly at the local level), and overcomplexity of the budget processes.

The following options are proposed for this subsector:

1. Systematic experimentation should be continued in order to find ways to upgrade various parts of the secondary delivery system. Such experimentation should focus on the reallocation of existing resources rather than on the infusion of substantial new resources.
2. The Government should consider consolidating both the junior and senior secondary school curriculum so that fewer subjects are studied each semester. The current format is unnecessarily complex.
3. The Government should consider placing major emphasis on inservice/onservice education for upgrading secondary teachers' skills. One model for such a program is outlined in Appendix A of the Teacher Education Chapter.
4. The Government should also consider the restructuring and simplification of secondary school fees. The complexity and discrepancy of school finance can and should be greatly simplified and made more equitable.
5. Local correction of EBANAS examinations should be retained, even with centralized data handling capability, and sampling techniques for central data analysis should be developed.
6. The number of parallel forms of the EBANAS should be reduced to perhaps as few as six, and concentration should be placed on preparation of higher quality items. A simpler system of rotation of fewer forms may improve security and increase exam quality.

7. Several of the items from each examination (25% to 33%) should be released for school use and instruction. This practice would become a part of the quality control effort of the EBANAS examination. A small percentage, perhaps 10% of next year's items, could be taken from this pool. This practice should be announced to encourage the focus of attention on the item pool and the associated instructional topics.
8. A continuing effort should be made to reduce the distinction between public and private education at the secondary level. Government policy should encourage private schools to use public school facilities in off hours. Sharing of resources and materials--and in some cases, expenses--should also be encouraged.
9. The development of an open senior secondary school program of studies should be given high priority if the junior high open curriculum program can be institutionalized.

There are several priority research agenda items:

1. Evidence is needed on the relative economic efficiency of the public and private sectors in secondary education.
2. Studies should be conducted to examine the influence of class size on instructional outcomes. The conventional wisdom that smaller classes are better may not be correct for Indonesia, where the issue is to choose between larger classes with a relatively higher level of trained teachers and smaller classes with greater variation in teacher training.
3. Research is also needed to develop profiles for typical schools in systematically varying settings. Profiles of vocational technical schools and their students, for example, would be important to decision makers seeking an appropriate balance between general secondary and vocational secondary investment.

2.7.3 Vocational/Technical Education

The vocational/technical education subsector in Indonesia is extraordinarily complex. Indonesia's present and anticipated national industrial development requires far more skilled technicians and craftsmen as the country moves into an era of industrial expansion. In addition to the labor force already in place, by 1990 Indonesia will need nearly 20,000 individuals in the professions, 63,000 more technicians, 300,000 more skilled craftsmen, and almost two million semi-skilled and unskilled workers. The policy of Government is to stimulate development of business

and industry in preparation for this industrial growth in the 1990s. In recognition of this expansion Government has placed a high priority on building a labor force adequate to meet the demand of the burgeoning economy. It is within this context of growing demand for skilled manpower that the need for vocational/ technical education must be viewed.

The major stated needs are to expand capacity of the system 100% within five to six years in order to provide for doubling of the student population, to provide an effective method to link the training of skilled workers to the actual requirement of the job market, and to improve the quality of the skill development program. Over the next five years (1984/85 to 1988/89) Government's goal is to double the number of students enrolled in vocational schools--from 556,000 to 1.1 million. The enrollment in the technical high schools is to rise from 246,000 in 1983/84 to 493,000 in 1988/89, a 50% increase. The public STM enrollment is to move from 93,000 to 186,000, and the private STM from 153,000 to 307,000.

If the MOEC is to respond successfully to this Government mandate, it forecasts a need for 42,000 new teachers between 1985 and 1989. Public institutions will require 28,000 new teachers, and the private institutions 14,000.

Both public and private vocational/technical institutions in Indonesia suffer from an inadequacy of facilities and equipment which hinders the preparation of graduates for entry-level positions. Secondary technical schools suffer the most with a lack of adequate space and electrical power for their buildings. Many have no workshop facilities and few tools, supplies, and equipment. What they do have is often in poor repair and outdated when compared with the tools students will actually be required to use when they enter the industrial sector.

The factors constraining Government's plan for dramatically expanding skills training are:

- o the severe gap between the vocational/technical training students receive in school and the skills they are expected to perform on the job;
- o the lack of adequate facilities and equipment;
- o the shortage of adequately trained instructors with experience in the trade which they teach;
- o absence of any occupational certification and job standards;
- o great variation from one institution to another in the quality of the skills training received;
- o poor articulation between the vocational/technical institutions and business and industry; there is no effective formalized placement system for graduates and no consistent follow-up of graduates.

Expansion strategies for vocational/technical education have yet to be detailed. Translation of the expansion objective into planning strategies is still in progress, providing opportunities for consideration of newly identified alternatives. Indonesia is currently at a critical juncture in vocational/technical education. There is an opportunity to redefine structures to take advantage of findings in other countries which have come to challenge traditional patterns and assumptions for manpower development. This is particularly true with regard to the examination of relationships between vocational/technical and general secondary education.

There is insufficient coordination between vocational/technical training strategies and other Government policies relating to investment, manpower, taxation, and international trade. There is also evidence of a gap between performance of vocational/technical graduates and employers' expectations in many specializations. In fact, vocational/technical schools appear to be isolated from the employers and industries served, with little systematic feedback or analysis of success of graduates, career

patterns, or employer satisfaction.

There is poor articulation between the vocational/technical schools and business and industry. There is no formalized requirement for the local schools to involve business and industry in program formulation, implementation, or assessment. Some schools have informal advisory groups, but this important link between the school and the world of work is absent for the most part.

In addition, there are very few data on the cost of vocational/technical training. Such cost data are essential to identify the most cost-effective means for providing skilled manpower. Cost data are also needed in order to calculate total cost for graduates of various types of programs--a better indicator than annual training cost.

The policy options for the vocational/technical education subsector may be summarized as follows:

1. The external efficiency of vocational/technical education should be improved by establishing effecting linkages between training programs and employment needs. The business and industrial community must be brought into greater contact with the schools.
2. Business and industry should have systematic involvement in advisory councils for individual crafts and trades. At the local level a general advisory council for the entire school should suffice.
3. Government should consider giving additional support for alternative forms of vocational technical education (for example, apprenticeships, internships, cooperative education, and arrangements where theoretical training is offered in the school setting while practical experience is provided in the job setting).
4. Government should also consider reducing the number of vocational/technical education streams from 160 at present to 75 or fewer. The experience in most countries is that vocational/technical education provides the basic skills which are most often non-job-specific. Where job-specific training is desirable, it might be better accomplished in one-year postgraduate programs.
5. Consistent with this recommendation for reducing complexity,

consideration should be given to consolidating the different types of vocational/technical schools into fewer, more standardized patterns and to sampling course offerings. At present, vocational/technical education appears to suffer from overspecialization.

6. Job certification and proficiency standards should be established for trade and technical programs. These standards should be set in cooperation with the National Vocational Training Board in the Ministry of Manpower.
7. National standards should be developed for diplomas or certification in various trades and crafts. These standards should include both academic and performance criteria.
8. Locus of responsibility should be clarified between the Ministry of Education and Culture and the Ministry of Manpower for various aspects of vocational/technical training. A higher level of coordination might make possible the sharing of some facilities and staff.

In addition, a number of important research priorities have been identified:

1. The costs for the relatively low completion rates in both technical and vocational schools need to be examined if the internal efficiency of the program is to be improved. Improved completion rates produce immediate dramatic results in per-trainee cost.
2. Currently there is a lack of information on which to judge individual training programs, school by school, to determine adequacy of staff, facilities, and equipment. This information is needed to determine whether or not actual training environments meet government standards. The standard itself is sometimes unclear, making it difficult to plan effective upgrading programs and to establish priorities for budgeting resources.
3. Substantial attention also needs to be directed to increased data collection and analysis. Three goals should be considered in this regard: a) generating and using data to improve standards and accountability; b) improving feedback on the effectiveness of programs and courses to make them more relevant to employers' needs and; c) providing policy makers with more accurate information on which to base decisions.

2.7.4 Teacher Education and Training

Teacher training programs have experienced remarkable success since Indonesia became an independent nation. This success has been

demonstrated by the ability of the system to respond to emergency needs and to adapt programs to new priorities as they have emerged. As universal compulsory education programs have expanded over the last two decades, the critical need for primary teachers has generally been met (on a national scale) and has even been exceeded. The 261 public and 457 private teacher training institutes throughout the country (1984/85) enroll approximately 275,000 students and graduate approximately 62,000 teachers each year. Nationally, there is an oversupply of primary school teachers; this oversupply is projected through the end of Repelita IV and beyond. An opportunity exists in this area for improvements in efficiency, and the Directorate General of Primary and Secondary Education has begun to explore ways to shift resources to new areas of need.

Even though there exists a national oversupply of primary teachers, a serious need still exists in the placement and retention of teachers in remote areas. To resolve this problem, upgrading courses and incentive packages are required rather than expansion of capacity. For the junior and senior secondary level, on the other hand, significant quantity and quality improvements are necessary to meet the teacher training needs in this subsector.

Teacher training for the secondary level takes place at 12 institutes of teacher training and pedagogy (IKIPs), 10 public and two private and 28 teacher training faculties in universities (FKIPs), 20 public and eight private. There are two diploma programs designed to prepare teachers at the secondary level. The Diploma 2 program for junior secondary teachers and Diploma 3 program for senior secondary teachers graduate nearly 13,000 teachers a year, but the projected need for 1986/87, for example, is almost four times this number. The shortages are especially severe in the basic

specializations of mathematics, science, language (Indonesian and English), and social studies.

The need is not only for improvements in output; quality of teacher training programs must be addressed at all levels. Teacher training is seldom the first choice of graduates from junior and senior secondary school. Teacher training programs are seen as terminal, and qualified candidates tend to move instead into general academic streams where job opportunities are better. A variety of inservice training programs have been implemented as well as efforts to improve the preservice training curriculum by making it more relevant and practical. These efforts should continue, but they need to be supported by more evaluation and research examining which activities are successful and under what conditions.

The training of teachers for vocational/technical education suffers from a lack of instructional staff who have practical experience in the skills they are teaching. Facilities are also lacking for trainees to obtain hands-on experience in their skill area.

At the tertiary level, over 80% of the faculty in the IKIPs and FKIPs have less than a master's degree (Pasca Sarjana or S2). Degree training programs are a primary need at this level. Training that emphasizes specialization rather than more general training in pedagogy or methodology are the areas of greatest need.

Teacher training programs in IKIPs and FKIPs are administered by the Directorate General of Higher Education rather than the Directorate General of Primary and Secondary Education which has administrative authority over the secondary schools and teacher training for the primary level. Although this dualistic structure may have quality control benefits, it creates difficulties in establishing the type of dialogue and joint planning

required to ensure relevancy and continuity in programs. Administrative improvement to coordinate strategies, to enhance planning, and to identify potential areas for efficiency improvement should be explored.

The policy options presented within the teacher education subsector revolve around two themes:

1. improving the quality of teacher training at all levels, and
2. increasing the number of trained teachers at the secondary and tertiary levels.

Each of these options should be judged on the basis of information as to their cost effectiveness. This is impossible without continuously available evaluative information on program implementation costs and overall program impacts. An underlying principle, therefore, in each of the policy options considered is the inclusion of a strong evaluative component, both formative and summative.

Following are several policy options to be considered in improving the quality of teacher training:

1. developing competency-based teacher examinations for each level of teacher training;
2. reducing the complexity of teacher education programs (an option which may prove highly cost efficient if implemented properly);
3. consolidating all levels of teacher education under the same authority;
4. consolidating the primary education teacher training curriculum and limiting the proportion of pedagogical training for all teacher training, particularly at the secondary level;
5. adopting research guidelines for experimentation in teacher education.

Also developed were policy options for increasing the supply of teachers:

1. providing resource support for the private teacher education

sector and transferring SPG resources to training of teachers for the secondary level;

2. developing special AKTA programs at levels I, II and III.

2.7.5 Higher Education

Indonesian higher education, since its founding in 1949, has grown from only 2 institutions to 45 public institutions and 533 private institutions. The student enrollment has increased from 10,000 in 1950 to more than 800,000 in both public and private institutions in 1985. Slightly more than half the enrollment is in the private sector. The pressure for admission is mounting at an average of 12% per year. By 1990, it is expected that 1,200,000 students will be enrolled in higher education. The number of teaching faculty in the public sector is 24,000 and is expected to double by 1990 to keep pace with enrollment growth.

The higher education system is managed by the Director General of Higher Education and his staff in the MOEC in Jakarta; they control both public and private institutions, consistent with MOEC policy to deal with public and private higher education as a single enterprise.

Higher education in Indonesia is increasingly oriented to human resource development needs. Ten of the 45 public institutions are IKIPs, or teacher education colleges, and within 20 universities there are colleges of teacher education to train secondary school teachers. Recently, MOEC created polytechnic schools within 17 universities to prepare middle and upper level manpower. This number should double by 1990. There are also technical institutes offering advanced degrees in science, technology and engineering.

The routine budget for public higher education is approximately \$466,190,700 per year, with an annual cost per student of \$330. In

addition, the Director General of Higher Education During the past five years has managed a portfolio of some \$600,000,000 in external funds, mostly from loans, for development purposes such as constructing and equipping new universities and polytechnics, as well as for training the teaching staff for these schools.

In a tertiary system of this size and with its accelerated growth rate, there are still many problems and needs, despite the considerable efforts expended to improve higher education in recent years. The Directorate General of Higher Education has identified a number of problem areas, particularly in quantity, quality, internal and external efficiency, and relevance. In order to help meet enrollment pressures, the Directorate General has established an Open University. The Directorate General has also embarked on an in-country and overseas training program to improve faculty quality. It has focused program improvement efforts on math, science, and technology, and has established new schools to meet needs in agriculture and industry. It has initiated a tracer study to determine what happens in the job market to students who graduate. It has instituted a student credit system to help improve internal efficiency. Despite these efforts at improvement, there are still many unmet needs.

The analysis of this subsector leads to the conclusion that major problems in higher education are:

1. the need to continue controlling enrollment pressures;
2. the need to maintain and control finances and the cost of higher education;
3. the need to boost internal efficiency; and
4. the need to administer the growth of the system, especially the growth of polytechnic education.

Government plans in higher education are expressed at three levels:

at the national level through the Repelita, at the administrative and functional level through the Directorate General's ten-year plan for higher education, and at the institutional level for each university, institute, or IKIP. The current national plan, Repelita IV, will end in 1988/89. The higher education plan for 1985 to 1995 is now underway. Each university develops its own master plans for staff development, curriculum, and facilities improvement within the general plans for higher education and the Repelita.

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

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

A third phase of the World Bank loan program provides for the construction of 10 more polytechnics (in addition to the existing 17 ones) in 10 provincial capitals. This phase, originally planned for 1987, is presently (October 1985) on hold. Under World Bank Loan XIX (US\$93

million), plans have been made to train abroad staffs for six major research centers in Science and Technology.

The four most important constraints in Indonesian higher education are:

1. the limits to absorptive capacity of the higher education system;
2. the financial limits in meeting simultaneously both growth and upgrading;
3. the low educational levels of instructional personnel; and
4. the existing managerial system and skill levels of administrators.

With a national population growth rate of 2.3% and a primary and secondary education system that is graduating more young people, the Indonesian universities are under pressure to meet the enrollment demand. The higher education system is approaching the limits of its absorptive capacity unless drastic and/or innovative measures are taken.

The budget resources allocated to higher education have not kept pace with enrollments. World recession and oil glut have affected Indonesia, reducing anticipated national earnings, and resulting in budget austerity at a crucial time for higher education.

A third constraint is the inadequate preparation of instructional personnel. Approximately 15% of these hold postgraduate degrees. This constraint is especially serious in higher education as knowledge and advanced learning, for which there are no substitutes, are essential components of instruction at this level.

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

The policy options for the higher education subsector are summarized as follows:

1. to slow the expansion of higher education and concentrate resources on improving the quality of instruction and research. To ease the enrollment pressure by continuing to expand and improve the Open University;
2. to consider introducing cost recovery policies involving greater use of student loans and greater contribution through tuition by more affluent parents;
3. to improve administration of the rapid expansion of polytechnic institutes by creating a new Sub-Directorate of Polytechnical Education within the Directorate General of Higher Education;
4. to design specific interventions to attack internal inefficiency problems;
5. to consider low cost innovations for reducing regional inequalities; and
6. to continue to work toward the integrated system (pola tinggi) of public and private higher education.

In addition to these policy options, several research options identified.

1. to continue and refine the baseline studies research program as part of the long-range endeavor to gather trend data on specific critical areas, such as access and equity, internal efficiency, program quality, and others,
2. to study the budget process in higher education (at present the budget allocation process within higher education and between higher education and other EHR sub-sectors is not clearly defined--of importance here is the issue of surplus (SIAP) in the development budget).

2.7.6 Nonformal Education

The commitment to nonformal education in Indonesia, as expressed in the growth of participation, allocation of resources, and development of program capacity, has been longstanding and significant. The Directorate General of Nonformal Education, Youth, and Sports (Dikmas) is the largest and arguably the most effective large-scale national nonformal education

program in the world. The rapid growth in capacity and staff over the past six years has been phenomenal.

The nonformal education subsector is characterized by the size and diversity of the clientele it serves and the varied settings in which it operates. Over two million people from all of Indonesia's 27 provinces are currently enrolled in Government's major program of nonformal education. The largest proportion of these take part in community learning groups organized for purposes of improving literacy and income.

In Indonesia, nonformal education is defined in the Broad Outline of State Policy as any learning activity undertaken outside the structure of the school system that is designed in a deliberate and orderly manner, aimed at actualizing human potential in terms of attitude, action, and achievement, and leading toward the development of the complete personality of the individual and the improvement in community standard of living and quality of life. Nonformal education includes basic education (including literacy), as well as short-term vocational and business-related skills training, taking place outside of school and aimed at immediate employment, self-employment, or improvement of income. Under Repelita IV, Government's primary goals in this subsector are to expand access to basic education and income-generating training for those who have not attended school or who have dropped out prior to completing secondary school. Priority attention is to be given to providing basic education to illiterates aged 7 to 44, and to providing income-generating skills training for school dropouts aged 13 to 29. Government's goal is to reach 17 million people, including 12.3 million illiterates, and 4.7 million school dropouts.

Government strategy for expanding access to nonformal education includes the production and distribution of 89 million booklets for basic

education and a variety of supplemental materials, Repelita IV also stressed greater use of mass communication, especially radio, for nonformal education. Accomplishment of the government's strategy for expanded access to nonformal education is being assisted by the World Bank through the Second Nonformal Education Project. Emphasis will be placed on improving Dikmas planning and programming capabilities, increasing staff and facilities at provincial, kabupaten, and kecamatan levels, improving the technical support capabilities of Dikmas there, and extending the outreach of Dikmas programs.

A review of the current status of nonformal education in Indonesia points to a number of principal needs in the subsector:

- o Effective ways must be found to respond to pressure for increased access to employment-oriented skills training;
- o As training possibilities expand in the private sector, equitable participation must be ensured for those who cannot now afford these opportunities; and
- o With the rapid expansion of Kejar Paket A learning groups, increased attention must be given to the quality of learning that takes place in these groups.

There are three major constraints to Government in its attempt to eradicate illiteracy and to extend opportunities through basic education and income-generating skills training for those who dropped out of school:

- o the low level of motivation of illiterates to join basic education learning groups and to sustain a commitment to learning activities until literacy and other skills are acquired to a level of functional utility;
- o the large number of persons still not able to speak Bahasa Indonesia and the difficulties this presents in following a standardized national curriculum; and
- o the continued unwillingness of qualified persons to serve without pay as tutors and monitors for learning groups as economic development extends the cash economy in Indonesia.

The analysis of nonformal education in the sector review reveals the

following:

During Repelita V the number of illiterates who have not been served in Kejar Paket A learning groups will decline dramatically as a result of primary school expansion. This will permit a refocusing of the Kejar Pake A program and a shift in resources for employment-oriented skills training for the 13 to 29 age group. The analysis also indicated that better information is needed concerning the external efficiency of existing skills-training programs. It is not yet known what capacity the informal sector has to provide employment and to improve income for larger numbers of persons with similar skills.

Although the information on the accomplishments of learning groups needs to be improved, the analysis indicated a need for more attention to the quality of learning that takes place in Kejar Paket A groups. As in the formal system, qualitative inefficiencies are reflected in the low attainment of participants, poor preparation and effectiveness of instructors, inadequate or inappropriate methods of instruction, and unavailability of ineffective learning materials. Quantitative inefficiencies are reflected in high dropout rates and excessively high or low participant-to-instructor ratios.

The analysis of this subsector also indicated that private nonformal education may offer promise for future development. Clear policy and good management will be required to ensure that public interest is being served in the assistance given to private organizations. Furthermore, steps must be taken to ensure the equitable participation of those unable to pay fees. Finally, although noting the substantial progress of nonformal education on a national scale, the analysis indicated the need for better mechanisms for administering nonformal education at the local level.

The major policy options for the nonformal education subsector are the following:

1. Clear and realistic policies should be developed for the expansion of employment-oriented and income-generating skills training;
2. To give major consideration to policy revision concerning the emphasis of Dikmas programs (this emphasis should reflect the changing composition of the target population and allow a shift in resources in the direction of employment-oriented training for the 13 to 29 age group).
3. Quality of instruction in the Kejar Paket A program should be improved. Also, in anticipation of the reorganization of basic education under one Directorate General, the policy regarding equivalency of primary school and nonformal education should be clarified).

The nonformal education subsector review identified the following research priorities:

1. In conjunction with the Second Nonformal Education Project, tracer studies should be undertaken immediately to examine the consequences of nonformal education participation not only for the Kejar Usaha participants, but those from the Diklusemas courses as well.
2. Nationally-used instruments should be developed to assess literacy abilities of participants before and after completing Paket A, and to measure skill acquisition of participants in employment-oriented training planned for the Second Nonformal Education Project.
3. A study of successful learning groups should be undertaken to determine the characteristics of participants and tutors, the characteristics of the instruction offered, the frequency with which the groups meet, the length of time they exist, the relationship of literacy training to income-generating activities, and the kind of supervision groups received. Results of these studies should be used to improve program planning.

3.0 CURRENT AND PLANNED ACTIVITIES

Indonesian government objectives for the education and human resource sector are described in the Indonesian five and twenty-five year plans. These objectives are consistent with those of the Improving the Efficiency of Education Systems (IEES) Project. This concordance of goals and priorities has led to the integrated set of objectives selected and prioritized by the Indonesian Government, refined in joint discussions between IEES and the Government, and described below.

3.1. HOST GOVERNMENT

The Indonesian Government's objectives for human resource development as stated in the most recent five year plan, are to develop human resources to best contribute to "a growth rate that provides a rising per capita income and assures an equitable distribution of that income." (Repelita IV, p. 8) Furthermore, the objectives are to "stress efficiency in the development of these human resources." (Repelita IV, p. 8)

The objectives of the Improving the Efficiency of Educational Systems Project are to contribute both to the external efficiency of the educational systems (which relates to achieving faster per capita growth), as well as to internal efficiency (which relates to increasing the quality of education and managerial efficiency for waste reduction). Consistent with this, IEES seeks to "help developing countries improve the performance of their educational systems, and strengthen their capacities for educational planning, management and research." (Sector Review, Chapter 1 and 2).

This confluence of basic objectives has not only established the framework for an exceptionally successful Sector Review but also has led to the integrated set of objectives developed below. It must be emphasized that the process by which these objectives have evolved has been a joint

effort throughout by the Ministry of Education and Culture, others in the Indonesian Government, and the IEES Project.

During the preparation of this Country Implementation Plan, the IEES team extended the "bridging" strategy initiated during the Sector Review, only this time the aim was to include other non-education Ministries. Key personnel in the Ministries of Planning (BAPPENAS), Finance, and Manpower were interviewed. In all cases, it was found that these senior staff members were in possession of copies of the Sector Review, had read those sections pertinent to their work and were at some level using the study as a guide to policy planning. Following interviews with the Ministries of Planning and Finance, the policy makers involved contacted Balitbang Dikbud to explore opportunities for jointly staffed and funded research activities suggested by the Sector Review and tentatively included in the Country Implementation Plan. BAPPENAS is particularly interested in involvement in Objective I, Efficiency in Education and in Human Resource Development for Growth in Indonesia. The Ministry of Finance indicated a strong interest in Objective V, Financing Education: Community and Private Sources for Overall Efficiency and Equity. The Ministry of Manpower indicated a willingness to help sponsor the policy study on Cost and Quality of Vocational/Technical Education.

3.2 USAID

USAID/Indonesia believes that the Sector Review has been a successful activity. In particular, this study has provided the information base necessary to assist them in making decisions about future investment in the Education and Human Resources Sector.

As during the Sector Review activity, the US AID Mission staff was not only supportive, but was also continuously involved with the work of the

IEES Country Implementation Plan team. Mission Director Bruce Fuller, and EHRDO Cameron Bonner made it clear from the outset that the limited amount of available IEES central funding should not be a constraint to the planning of the Country Implementation Activities. Instead, that the planning for the five-year period was carried out under the assumption of the availability of additional funds (the amount at that point was still unspecified) directly from USAID/Indonesia and from the likely amendment of the EPP budget. As the specific objectives are described in Part 4, funding sources will be recommended for each. These recommendations reflect discussions with the potential donors.

3.3 OTHER DONORS

During the IEES Country Implementation Plan team's work, in-country US AID EHRDO Bonner initiated the first of what is planned to be a regularly scheduled meeting of both multilateral and bilateral donor organizations in Indonesia. This first meeting was scheduled to coincide with the opening of the new USIS building and with visit of the CIP team. Bock and McMahon (IEES Sector Review Team members) were invited to make the keynote presentation at that initial meeting, addressing the process and findings of the Indonesian Sector Review. The session produced numerous inquiries about possible collaboration. Some specific discussions of cost-sharing possibilities for specific objectives (including several of the activities described in this CIP) were also discussed. At this early stage, both Fuller and Bonner requested that this aspect of joint funding not be pursued further until US AID/Indonesia had reflected upon which activities they might decide to fund. An agreement was reached to explore this issue further at a later date, after initial funding participation had been determined.

4.0 RATIONALE FOR COUNTRY IMPLEMENTATION ACTIVITIES

This section of the Indonesia Country Implementation Plan (CIP) includes 1) a description of the collaborative process followed in arriving at a consensus on IEES CIP objectives and activities, and 2) an overview of target opportunities for Indonesian educational priorities.

4.1 THE COLLABORATIVE PROCESS

An extensive collaborative process has characterized the refinement and design of the objectives, involving not only persons within Balitbang Dikbud, but also persons in the Secretary General's office in the MOEC, the Directors General in the MOEC, persons in other Ministries, and other donors.

The process began following completion of the Sector Review by the appointment of several task forces within Balitbang Dikbud. These groups translated the Sector Review, carefully discussed and extended it, and now have produced an Indonesian version of the entire Sector Review. Ten objectives, drawn from the Sector Review and the Indonesian task forces, were identified through this iterative process as having the highest priority.

The nine proposed objectives that emerged were first ranked by Balitbang Dikbud in highest priority in terms of their relative importance and conceptual integration. These objectives were also prioritized in terms of timing. Next, the proposed objectives were discussed at BAPPENAS with those responsible for the education and manpower sectors. BAPPENAS is concerned with relative importance and the timing of the objectives in order to assist the Ministry of Education and Culture and the Government of Indonesia in preparing the next Five-Year Plan (Repelita V). This iterative ranking by the Indonesian Government led to a remarkable degree

of agreement on the first four objectives listed below, and support for all of the remaining activities in the list.

The first five objectives form an integrated set of goals which focus on the central aspects of the human resource planning process that flows logically from the common aims stated above. The objectives focus respectively on external efficiency, internal efficiency, quality, and financing. Each objective also includes an equity dimension, with the other activities designed to provide technical and institutional support.

The content of each objective, its coordination with other agencies and donors and its timing has been discussed in broad outline with those responsible for the education and the manpower portions of the human resource sector in the next Five-Year Plan at BAPPENAS. The objectives based on the external and internal efficiency of the education sector, and the relevance of internal efficiency to labor absorption, were discussed and coordinated with the Ministry of Labor and Manpower, as well as BAPPENAS. The objective which focuses on the financing of education, as well as its support role in helping to achieve increased efficiency and equity, was discussed and coordinated with those policy makers concerned with educational finance in the Ministry of Finance. The objectives relevant to the incentives for math and science teachers to serve in remote regions, for computer literacy, and for other aspects relevant to science education were discussed and coordinated with those concerned with human resource development in BAPPENAS and in the Ministry of Science and Technology (BPPT). Finally, Dr. Moegiadi convened a meeting of approximately fifteen persons constituting the various Sector Review task forces, including the three EPP resident technical advisers, at which each

of the ten objectives in the list was carefully discussed and suggestions were sought for each.

Throughout this intensive process, the Secretary General's Office in the Ministry of Education and Culture and persons in the various Director General's offices were consulted to the extent that this was possible in the time available, as indicated by the names listed in the Appendix.

4.2 TARGET OPPORTUNITIES

The IEES objectives are to increase the efficiency of human resource utilization through data-based decisionmaking and to improve the quality of education through enhanced institutional capacity for medium-and long-range planning. The objectives and activities described below were selected on the basis of their convergence with these IEES objectives. Moreover, as discussed in Part I, the IEES objectives are consistent with those of the GOI. This is particularly true since the current drop in oil revenues has heightened the sensitivity of Indonesian policy makers to the need for greater efficiency in the utilization of educational resources in order to realize Repelita IV goals of growth with equity.

These Country Implementation Plan activities have emerged as the distillation of the research and policy recommendations outlined in the Indonesian Sector Review. Every activity scheduled was first identified in the Sector Review as relating to the improvement of efficiency and quality of education through the development of a sustained planning capability within the MOEC.

In brief, there is a high degree of congruence between FIEES, GOI, MOEC, and AID/Indonesia goals and priorities. There is also conceptual integration along those themes which provide the basis for IEES activities (external efficiency, internal efficiency, quality and financing). The

Sector Review was utilized as the key data base for the initial selection of these activities and, most importantly, these criteria converge upon the specific operational needs of the MOEC.

It is crucial, therefore, that IEES take advantage of this agreement on objectives and conceptual integration to design and assist in supporting: (a) a set of integrated activities aimed at the development of a continuing medium and long range policy planning capability (Group A activities), and (b) a set of practical training and technical assistance activities to provide technical/institutional support for that planning capacity (Group B activities).

The activities described below were selected, prioritized by in overall importance and by time. This was done based on extended conversations with the key decisionmakers in the several human resource-relevant ministries and with USAID/Indonesia. These objectives and their supporting activities can provide three important benefits:

1. the generation of knowledge about allocation and utilization of scarce education resources;
2. the development of the planning capacity to sustain and apply this knowledge; and
3. the provision of immediate, practical products which can feed into the current preparation of the fifth Five-Year Plan (Repelita V).

These objectives will be addressed through three types of activities over the life of the project: 1) research and development activities to further define the issues relevant to the development of a continuing policy planning capacity within the MOEC; 2) training activities to provide appropriate MOEC personnel with the necessary background and competencies to implement and sustain this planning capacity, and; 3) implementation activities to provide technical and institutional support for this newly developed policy planning capability.

The specific activities designed to achieve these objectives are clustered under two categories: A) Policy Capacity Building; and B) Technical and Institutional Support Activities which provide practical training and technical assistance. The generic project activities such as Sector Review Updates, Annual Country Implementation Plan revisions, IEES International Conferences, and Steering Committee Meetings will be designed to parallel those in other IEES collaborating countries.

The nine objectives will be illustrated below in two groups following two different patterns of sequencing. The first pattern of sequencing is indicated by Roman numeral ordering to reflect both their timing and conceptual flow (the former as indicated by Balitbang Dikbud, the Secretary General, and BAPPENAS).

PLANNING CAPACITY BUILDING OBJECTIVES

To Improve the External Efficiency of Education:

- Objective I. Explore Efficiency in Education--and in Human Resource Development for Growth in Indonesia.
- Objective II. Conduct a Policy Study on the Cost and Quality of Vocational/Technical Education.
- Objective III. Design a Medium Term Manpower Plan for MOEC.

To Improve Internal Efficiency and Quality:

- Objective IV. Identify Teacher Incentives for Improvement in the Quality of Education.

To Identify Financing Sources in Support of Efficiency and Equity:

- Objective V. Identify Community and Private Financing Sources for Overall Efficiency and Equity in Education.

These five Group A objectives are interrelated in that the implications for greater efficiency of the system (Objective I) drives to some extent the internal MOEC Manpower Plan (Objective III). Both of these

need to be underway and in first draft form with preliminary results by early 1987, with a second draft usable product by June 30, 1987, if they are to be a contribution by Balitbang Dikbud and the Secretary General to MOEC, and hence to BAPPENAS, for the next Five-Year Plan.

Work on the financing changes needed for greater efficiency and equity in the educational system (Objective V) is necessary for the support of the work on teacher incentives and the quality of teaching in underserved areas (Objective IV). It is also supportive of external efficiencies that imply relative rates of expansion and of the financing necessary to the implementation of the Five-Year MOEC Manpower Plan, all of which can go astray if the financing incentives generate inefficiencies, waste, and inequity. Central to all four of these objectives, and their supporting activities, is their contribution to the development of a continuing planning capacity within the MOEC.

The following activities are designed to provide the technical and institutional support for the development of a sustained planning capacity within the MOEC. They have a less critical timing dimension and are less interdependent than the Planning Capacity Building activities. They are, however, high priority to the MOEC, especially Balitbang Dikbud, and each can make important contributions to the support of a more efficient and effective planning agency.

TECHNICAL AND INSTITUTIONAL SUPPORT ACTIVITIES

- Objective VI. Analyze Available EBANAS Data (needed for Repelita V); To Develop Culturally Sensitive Family Financial Statements; and To Develop Processing Systems for Both.
- Objective VII. Conduct a Nationwide Computer Literacy Feasibility Study.
- Objective VIII. Improve the Computer Software Model Development Capacities and Training Programs in Balitbang.

Objective IX. Develop Library and ERIC Research Support Systems (ERIC and LCS).

The second pattern of sequencing by priority reflects the order of importance as assigned by the Balitbang Dikbud.

PLANNING CAPACITY BUILDING OBJECTIVES

- Priority #1. Design a Medium Term Manpower Plan for MOEC.
- Priority #2. Identify Community and Private Financing Sources for Overall Efficiency and Equity in Education.
- Priority #3. Explore Efficiency in Education--and in Human Resource Development for Growth in Indonesia.
- Priority #4. Conduct a Policy Study on the Cost and Quality of Vocational/Technical Education.
- Priority #5. Identify Teacher Incentives for Improvement in the Quality of Education.

TECHNICAL AND INSTITUTIONAL SUPPORT ACTIVITIES

- Priority #6. Analyze Available EBANAS Data (needed for Repelita V); To Develop Family Financial Statements; and To Develop Processing Systems for Both.
- Priority #7. Conduct a Nationwide Computer Literacy Feasibility Study.
- Priority #8. Improve the Computer Software Model Development Capacities and Training Programs in Balitbang.
- Priority #9. Develop Library and ERIC Research Support Systems (ERIC and LCS).

5.0 DETAILED PLANS FOR CIP ACTIVITIES

IEES success in Indonesia to date has been built upon the coincidence of IEES Project activities with the Indonesian government five-year planning cycle. The potential impact of the Indonesian Country Implementation Plan (CIP) requires that identified activities feed into this national planning process. The Indonesian government has drafted a five-year plan based on the analyses of the Indonesian Education and Human Resources Sector Review. Revisions to this draft will be made in February and July 1987, and a final Five-Year Plan will be completed in the Fall of 1987.

The following activities are therefore designed to serve two ends. First, the activities are designed to develop a continuing policy planning capacity within the MOEC. Second, these activities are designed to be integrated into the major revision dates for the next five-year plan (Repelita V).

This two-fold purpose has necessarily prevented the presentation of IEES Country Implementation Plan (CIP) that has been developed in full detail over the entire five-year period. Additional factors affecting the level of detail which is specified for activities in this CIP are discussed below.

First, the IEES Country Implementation Plan team was requested by Balitbang Dikbud and AID/Jakarta to prepare a plan for the development and support of a policy planning capability within the Ministry of Education and Culture over five years. Also, the CIP team was advised not to allow the limitations on IEES central funds constrain the planning effort since there were a number of possible alternative sources available. The CIP team agreed to design a five-year plan, but pointed out that the IEES team could not obligate funds beyond the IEES contract termination date (June,

1989) nor exceed the central funds allocated to Indonesia by the IEES Executive Management Committee. The task of attempting to plan for activities for which there is insufficient information regarding both the amount and source of funding, puts a constraint on the ability to develop all the activities in full detail until further discussion.

Second, this reflects the iterative nature of the process. This Country Implementation Plan has been, and continues to be, a fully collaborative process. Those activities which have the highest importance and temporal priority have been subjected to the most intensive discussion and, as a result, have been developed in the greatest detail. Those activities judged to be of lower priority and/or further removed in time await more detailed elaboration through further iterations and subsequent CIP updates.

Activity IV, Teacher Incentives, and Activity V, Community and Private Sources for Financing Education, are to be coordinated and, to the extent possible, integrated with those two Policy Research Initiative studies. It is intended that the IEES International Conference in February 1987 will provide the forum for this integration and the development of more elaborated design for subsequent detailed activities.

There are various possible sources for funding the activities described in this Country Implementation plan. However, the amount of funding each donor will provide, and for which activities, requires further discussion and negotiation in-country between the Ministry of Education and Culture, AID/Jakarta and IEES. Tentative suggestions regarding the structure of donor support, based initially upon discussions in October 1986 with the MOEC and AID/Jakarta, are included in Annex D.

5.1 Activity I. EFFICIENCY IN EDUCATION--AND IN HUMAN RESOURCE DEVELOPMENT FOR GROWTH IN INDONESIA.

Statement of the Activity

Activity I. will explore the increased efficiency to be achieved by changing the relative rates of increase in investment in the different types and levels of education. The long-term objective of this activity is an institutionalized educational planning capability focused on economic efficiency. It seeks to relate considerations of economic efficiency and employment or manpower to the educational budgeting and program planning decisions. This is viewed but as an ongoing iterative process that utilizes new data as they become available. It should be noted that Activity II will focus on the optimum rate of expansion of vocational and technical education, as well as the improvement of the quality of vocational education. This will be done in consideration of the equity issues that influence relative expansion rates. External efficiency is concerned with the employability of graduates, so labor force absorption and employment issues also will be included.

Activity I. will be implemented in collaboration with the two studies proposed by EPP on "Economic Efficiency" (Study #2) and "Education and Employment" (Study #3) described below. Chapter 2 of the Sector Review is directly relevant to these issues. Data tapes are available to serve as the basis for policy analysis papers. Two policy analysis papers could be completed in time for the June 30, 1987, deadline for the planning cycle of Repelita V).

The EPP studies of efficiency and employment focus on collection of original survey data. These will include tracer studies of earnings, employment, and job search. These studies would complement and institutionalize an in-depth research capability in this area. These data

collection efforts could be designed to provide the required data on vocational and technical secondary school graduates, and to examine the external and internal efficiency problems described below. IEES and EPP will closely cooperate to help to build a strong policy analysis and program planning capability in the economic efficiency area.

Background

The Indonesian Educational and Human Sector Review presented considerable evidence that: (a) a substantial resources are wasted on high cost and low return options, and; (b) other strategic opportunities that would contribute more to industrialization and growth are being missed. Activity I. will focus on providing evidence from the Sector Review to support major policy decisions. These decisions are on allocations the education budget to reduce external and internal inefficiencies. Short problem-oriented studies that can be completed in a timely fashion, will be relevant and fit within the June 30, 1987, deadline for the Repelita V planning cycle.

As the early planning cycle for Repelita V is completed, the mid-term reconsideration of Repelita IV targets, the annual budget cycle, and the preliminary work will begin on the second 25-year plan, where major new policy decisions will be made. There is an urgent need for a continuing problem-oriented studies and policy analysis and program planning papers concerned with economic efficiency in education and investment strategies in human resource development for growth. Activity I will secure the new SUSENAS data tapes for 1986 and 1987. These tapes are now being generated on a regular basis, and will be downloaded onto diskettes for use in Pusat Informatik's software development project. In cooperation with EPP, this data base will be supplemented with the EPP efficiency and employment

survey data and tracer studies. Most important, Activity I will attempt to institutionalize the use of this data in through a flow of problem-oriented policy issues and program planning studies.

It will be supplemented by the addition of one or more Indonesian senior policy analysts as they complete training and return to Jakarta.

Scope and Methodology

The scope is best defined by the problems or policy issues addressed. Each problem or issue will be addressed by brief papers in the short-term, followed by research papers based on deeper analysis of SUSENAS data and tracer-study data over the five years covered by this Country Implementation Plan. The policy problems to which answers are sought are outlined below:

- i) What is an appropriate rate of increase in investment and enrollment in vocational/technical schools versus expansion of the general secondary schools? What is a more advantageous use of the resources saved? (Education Sector Review, Major issue #1, Ch. 2, p. 4 and Recommendation #4, p. 331.)
- ii) What rate of increase in investment in junior and senior secondary schooling is efficient relative to the continuing needs for of improving the quality of primary education? What are the best means of improving the quality of primary education? This is related to phasing out the SPP fees at the junior secondary level as a possible target for Repelita V in order to reducing the dropout rate. (Sector Review, Recommendations 3, 5, and 6, pp. 331, 332, and 333.)
- 3) What means are most viable for improving the quality of vocational and technical education? This would draw upon the findings in the

Sector Review (Chapter 7) supplemented by the results of a tracer study as soon as they become available. (ESR, Ch. 7.)

- 4) What relative percentage rates of increase in each budget line in the attached human resource development budget (Table 1) can be suggested that would increase both efficiency and equity? In particular, are there situations where the social rates of return are high, where equity is simultaneously increased? (There is significant evidence already available in the Sector Review, Ch. 2, Major Issue #3, p. 6; evidence pp. 327-8, Recommendations #3, 4 and 9, pp. 331-6.)
- 5) How should these rates of increase be adjusted to reflect available data on unemployment, underemployment, and labor absorption? In the longer run, EPP survey data should be available. Martin Godfrey's and David Clark's two very large ILO and World Bank studies in the Ministry of Labor and Manpower should be complementary to, and integrated with, this MOEC external efficiency and employment problem focus. (Sector Review, Ch. 2, Major Issue #2, p. 5; Recommendations #1, 8, and 11, pp. 329, 334, and 336.)

The overall scope of Activity I also looks toward institution-alization and strengthening of a longer run policy analysis and planning capability that emphasizes economic efficiency. For this reason, it must include provision for the training of 1-2 senior policy analysts. This might be accomplished with the cooperation of the UNDP and World Bank programs. The degree candidates should pursue degrees in economics. Coursework for these degrees should include econometrics plus specializations in the economics of education, educational policy studies,

and/or economic growth and development. Aspects of this Activity I could provide suitable dissertation topics, which would facilitate their familiarity with the data and also be of use to the MOEC. They could return to Jakarta to join an on-going research program with procedures for issuing a flow of policy studies, a broadly based steering committee, and usable data bases in place.

There are two aspects of methodology that need to be briefly discussed. They are those that relate to data collection, and those that relate to the methods for analysis of the data once it is collected, cleaned, on tape or diskettes, and ready for analysis.

With respect to data collection, there are three considerations. First, the SUSENAS and the 1985 inter-censal year Census tapes should be secured by Pusat Informatik from the Bureau of the Census on a regular and timely basis. The published information by the Bureau of the Census is relatively unclear because of lack of ability to make the necessary analyses. Progress during each successive visit to Jakarta has been greatly delayed by the delays in obtaining copies of these tapes. A regular procedure for obtaining the tapes should be established.

Second, a survey of the activities, employment, and earnings of participants in, and graduates of, education programs is badly needed. The proposed survey is necessary for the following purposes: (a) It would provide more detailed cost information on the educational institutions. This information is not analyzed by SUSENAS or Census data. (b) It would supplement SUSENAS data with greater detail at the college level. Earnings data collected by SUSENAS could be used, for validation. This could be accomplished if the MOEC would request the Bureau of the Census to include one or two more key questions in their rolling surveys. (c) It would supplement the higher education baseline studies with information about

earnings. This is the same sample survey that EPP requires (EPP Interim Status Report No. 5, Study 2, Attachment 2). It should be developed in cooperation with EPP.

The third data collection effort required is a tracer study. This study would examine how vocational technical secondary education is related to general education and requirements of the labor market. This information would help to improve the relevancy and quality of vocational/technical education. It would also allow comparisons of benefits to costs.

Balitbang Dikbud and MOEC require assistance in analysis in the following areas. First simple descriptive statistics on the search time and the percent of graduates that eventually find employment, the cycle costs of different curricula, the location of under-employment, and earnings in different kinds of employment can be brought to bear on problems 1 through 5 defined above. Second, at a more sophisticated level, and explaining how earnings understate the returns to education in some occupations and overstate them in others, while also explaining how it is possible to sort the sample for this, benefit cost ratios in the form of rates of return can be computed. The setting of certain national goals and manpower planning techniques applied to manpower fields where there is a longer run comparative advantage for the nation and something needs to be started quickly also contribute to the methodology. But neither technique is appropriate if used blindly. The alternatives are often worse: to use cruder partial indices, or not to measure cost effectiveness and efficiency at all. Benefit/cost techniques, of which rates of return are one type, do have the advantage of considering the costs in relation to the potential benefits, and therefore of bringing considerations of allocative efficiency

and economic efficiency into the discussion in a manageable way.

Implementation Schedule

The time frames suggested are over the next five fiscal years of the project (July 1 through June 30 each year).

Year 1. To June 30, 1987:

For the portion remaining from early 1987-June 30, 1987:

1. Policy Paper #1, "Investment Priorities". To be completed by early 1987, the deadline for broad directions for Repelita V. This paper will focus on policy problems #1 and #4 above; and of necessity must be based primarily on the work done in the Sector Review.
2. Policy Paper #2, "Analysis of Educational Investment Priorities for Growth." By June 30, 1987, the deadline for more refined input from MOEC into Repelita V, if possible. This study will involve:
 - a. Re-runs of the SUSENAS tape (to get the standard errors, unemployment rates in each category, and to obtain breakdowns by region within the country if possible).
 - b. Preliminary run if possible of the newest 1986 SUSENAS tape.
 - c. Reporting employment, underemployment, earnings by level and type of education in each major occupation.
 - d. Educational policy simulation model; completion of programming the above results into a microcomputer color simulation model that relates different types of investment in education to productivity growth for use by Pusat Informatik.
 - e. This second policy paper will focus on policy problems #1, #4, and # 5 in greater depth, and perhaps can be augmented in limited ways by the new SUSENAS data soon to become available.
3. Design of the Surveys for Data Collection.
 - a. School and Tracer study of vocational-technical education See issue 4 above. Dr. Hardijono is the tracer study expert in Balitbang and could potentially be of great help in this study.
 - b. Efficiency study. This study will examine costs of institutions and earnings, especially to supplement the SUSENAS and baseline studies at the college level (see issues 2, 3, and 5 above).

Year 2. July 1, 1987-June 30, 1988:

1. Formation of a task force (or Steering Committee) on Efficiency.
2. Establish system for acquiring a regular and timely flow of SUSENAS and Census data tapes, downloading the relevant aspects onto microcomputer disks.
3. Conduct the efficiency survey, tabulate, clean, and computerize the data.
4. Conduct the vocational/technical school and tracer study, tabulate, clean and computerize the data.
5. Analyze the new (1986-87) SUSENAS tapes and prepare major analyses based on them of:
 - a. "Investment in Junior and Senior Secondary vs. Improvements in the Quality of Primary Education" (Policy Problem #2 above).
 - b. "Investment Priorities in Education for Growth and Equity" (Policy Problems #4 and #5 above).
 - c. Refinement of the microcomputer model, using this new data, for formulation of the results and for policy simulations in the Minister of Education and Culture's Operations Room.
6. Work on merging manpower planning goals with rate-of-return efficiency insights into an integrated, rolling annual budgeting and medium term planning capability (e.g., Yudo Swasono's dissertation focusing on employment and labor absorption aspects and related to David Clark's and Martin Godfrey's work, and Rony Bisry's dissertation focusing on science and technical change, and how they can be related efficiently to human resource development).
7. Networking with UI Jakarta and UGM Yogyakarta Economics Department Research Programs (MUCIA program).

Year 3. July 1, 1988-June 30, 1989:

1. Analysis of the Efficiency in Education survey data, and writeup of the results (Policy problems #1, 2, and 4). Supplementation of the SUSENAS data with the new earnings data at the college level should be available by this time.
2. Analysis of the School and Tracer Study of Vocational Education, and write-up of the results (Policy problem #3).
3. Several short, focused policy papers reflecting this greater in-depth data collection and study of policy issues 1-5 above.
4. Preparation of materials helpful in the discussions of the targets for the second 25 year plan.

Year 4. July 1, 1989-June 30, 1990:

1. Completion of the efficiency study.
2. Completion of the vocational/technical study.
3. Integration of the first returning M.A. and Ph.D. candidates into the on-going human resource planning process (Totok, Sophia, and Bambang in Balitbang, Rony Bisry as a liaison at the Ministry of Research and Technology, Yudo Swasono as a liaison at the Ministry of Labor, and perhaps others).
4. Serious work on policy papers for the next 25 year plan.
5. Continuation of networking with UI and UGM.

Year 5. July 1, 1990-June 30, 1991:

1. Continuation of activities listed under third and fourth year above.

Potential Implementation Personnel

Indonesian Counterparts: Dr. Boediono (Balitbang Dikbud), Pak Aris Pungtuluran (Secretary General's office)

Managerial Authority: Balitbang Dikbud (Dr. Moegiodi). To be shared technically with BAPINAS (Pak Tillar, and Pak Hasibuan).

Design of the Efficiency and VOTEC Sample and Tracer Studies: Nat Colletta (EPP Chief of Party) Dr. Hardjono (Balitbang), Walter W. McMahon (IEES) and Jay Salkin (EPP)

Analysis of the SUSENAS data: McMahon, Boediono, Ju

Analysis of the Survey data: Salkin, Boediono, McMahon, Hardjono, Research Assistant (50% time): Good possibilities include Xiao-Lei Zuo (experienced using SAS), Yudo Swasono, Ministry of Labor (very, experienced with computers and use of SUSENAS data), and Pak Totok (advanced Ph.D. candidate, scheduled to return to Balitbang Dikbud). The Indonesian students could assist with translation, programming, and some analysis even

though they do not need and cannot accept 50% research assistantships. All are Ph.D. candidates at the University of Illinois. Xiao-Lei Zuo is available beginning January 5, 1987 and it would be most advantageous if she could begin at that time and continue for the Spring Semester.

5.2 Activity II. POLICY STUDY ON THE COST AND QUALITY OF VOCATIONAL/TECHNICAL EDUCATION.

Statement of the Activity:

This activity will be consistent with the findings and recommendations of the Indonesian Education and Human Sector Review and the priorities of the MOEC. This study would determine the comparative costs of specific vocational/technical programs and explore alternatives to teaching vocational skills.

Background

The Director of Vocational/Technical Education has estimated that the recurring costs of vocational/technical education are two to three times greater than those of general secondary schooling. A recent unpublished World Bank study indicated even recurring higher costs. In spite of evidence of high cost and the Sector Reviews findings of a low rate of return to vocational/technical education, the MOEC is required to expand vocational/technical school enrollment by 100 percent within a five-year period. Even if the government decides to moderate this expansion target for vocational/technical education, some level of expansion will still be retained. In addition, quality improvement in the existing system is imperative.

This study will examine cost efficiency and effectiveness of alternative forms of vocational/technical education. Such a study is important to both internal and external efficiency. While Activity I addresses the macro-level question of what is the appropriate level of social investment in vocational/technical education relative to general secondary schooling, this activity focuses on the issues identified below.

Policy Issues

1. What are the current costs of vocational/technical education programs?
2. What are the cost implications of investment in alternative forms of vocational/technical training (including low cost alternatives involving cooperation between schools and private firms)?
3. What quality improvements in vocational/technical education will be most effective in terms of enhancing employability of vocational/technical graduates?
4. What low cost vocational/technical alternatives are available? Are they practical? Have they been tried?
5. What evidence from the experiment with cooperative venture between vocational/technical schools and private firms might be generalized?

Scope and Methodology

An initial problem which this study must address is the identification of appropriate methodological approaches for making comparisons across alternative human resource systems. Consideration should also be given to comparisons with other educational forms and the attendant policy implications. Dr. Soemardi, head of the Research Center within Balitbang, is presently working with personnel within the office of the Director of Vocational and Technical education to examine methodological approaches to these problems. The steps described below should be integrated with their findings.

Implementation Schedule

Year 1, to June 30, 1987:

1. Assist Balitbang Dikbud in the design of a feasibility study. This study is required for the implementation of the new regional programs by the Directorate of vocational/technical education. This study should:
 - o assessment of the needs for a regional studyprogram (and of what specific type) in a particular region;
 - o an assess of the minimum available resources in the region

necessary to support such a program;

- o conduct a survey to determine whether there is a sufficient number of students in the region who would participate such a program if available.

By September 30, 1987:

1. The staff of the Directorate of Vocational/Technical Education have reported some success in developing cooperative relationships between vocational/technical programs and private industry. However, there have been difficulties in institutionalizing and generalizing such successes. It would be valuable, to conduct a "best case" study to examine several of these successes. In this way it would be possible to determine the factors responsible for their success and explore the feasibility of generalizing them to other vocational/technical programs throughout the country. This study is to begin April 1, 1987.

Year 2, By January 30, 1988:

1. A study to examine the effect of the new curriculum (1985) of the new region-specific Study Program on the subsequent employability of the graduates. This would be part of the overall effort to examine the payoff to different interventions aimed at quality improvement. Balitbang Dikbud will have overall management responsibility for this study (Mr. Harjono). However, it would be coordinated with the Directorate of Vocational/ Technical Education. This is to begin September 1, 1987.

By June 30, 1988:

1. A detailed study of the recurrent costs of the different vocational/technical education programs. This study will be managed by Balitbang Dikbud but coordinated with the Directorate of Vocational/Technical Education and with Martin Godfrey at BAPPENAS. Particular attention should be paid to the cost implication of the new "study program" approach. This study program approach is not housed within a formal school and designed to be more flexible and responsive to regional job market conditions.

These three linked studies will be planned by the Policy Research Center at Balitbang Dikbud (with assistance by EPP consultant Jay Salkin) and will be conducted by the regional IKIPs.

Managerial Authority:

Dr. Soemardi of Balitbang Dikbud, to be shared technically with

Dr. Hasibuan and Martin Godfrey of BAPPENAS.

Potential Implementation Personnel:

Dr. Situmorang, Director of Vocational/Technical Education, will name appropriate members of his staff.

5.3 Activity III. MEDIUM-TERM MANPOWER PLANNING BY MOEC FOR APPROPRIATE SUPPLIES OF TEACHERS AND ADMINISTRATORS

Statement of Activity

This activity will contribute to an integrated R&D planning capacity coordinated by Balitbang Dikbud for more efficient ongoing supplies of new teachers and administrators.

Background

Coordination for this activity is needed on several fronts. First, from the point of view of overall efficiency and equity in the educational system. There are too many teachers in some areas (e.g., humanities) and not enough teachers in others (e.g., for the planned expansion of secondary schooling, and in math and science fields). The requirements for teachers are driven by enrollments in the first instance. Enrollments depend upon the policy decisions for budgeting. These decisions should be based on considerations :

1. efficiency and equity in the types of education budgeted (Activity V),
2. the capacity of the tax system to finance increased access to secondary education by reducing mandatory fees that hold down enrollments (Activity III below), and
3. the creation of incentives to improve the recruitment and retention of math and science teachers (Activity IV).

Coordination is necessary on two levels. The first level of coordination is with the policy-decision studies regarding overall efficiency, equity, quality, financing, and incentives in the system. The second type of coordination required is with the various Director Generals' offices, including Primary and Secondary, Vocational/Technical, Higher, and Nonformal Education. All of these offices do some planning for teacher training. This planning is closer to the operational needs of each

subsector. However, planning in one education subsector is often inconsistent with that in the other subsectors. A general planning framework is needed. It must be consistent with (a) preparation of efficient numbers and types of teachers for the entire system; (b) overall early planning for Repelita V, and; (c) realistic financing capacities of the economy and the tax system. The intent is not to centralize this planning function for teacher training, but to provide R&D support and to coordinate the decentralized planning functions among the separate DG offices. Such planning could utilize broader efficiency, equity, quality, and financing guidelines and information about the demographic forces which drive enrollments.

This type of MOEC internal investment (i.e., manpower) planning needed is for an annual, ongoing, adaptation and planning process. This requires an investment in planning capability. This capability would be supplemented with coordinating R & D support from Balitbang Dikbud. The internal capital goods and investments of MOEC and the education sector are in buildings (physical capital) and teachers (human capital).

Scope and Methodology

A manpower plan is proposed that will be able to change in response to yearly data. This plan will have a time horizon that advances annually one year into the future.

One critically important aspect of this activity is its timing. What is needed as a first step is a "mini" MOEC Medium Term Manpower Plan available as the first usable product by January 30, 1987. A more complete draft of the first plan must be done by June 30, 1987. This timing is important if Balitbang is to make a usable contribution to the preparation of REPELITA V.

A second critical aspect of this activity is to integrate the "manpower planning" approach with the efficiency, equity, quality, and financing policies developed by Activities I-IV. More specifically, unlike many sectors of the economy, forecasting and planning needs for teachers and administrators for the educational sector is relatively advanced. There are close relationships between these needs and demographic and enrollment trends. It is therefore possible to relate enrollment trends for different levels and institutions of different types to the efficiency considerations and their budget policy implications as developed in Activity I above. It is also possible to relate those trends and the schools, classes, and number of teachers needed to the economic forces driving the financing of education. Alternatives to the base case run must also provide for the proposed reductions in junior secondary fees and increases in higher education fees considered by Activity V below. Similarly, alternatives to the base case run must provide for the alternative types of incentives for the recruitment and retention of math and science teachers which flow from Activity V.

Policy Issues

The substantive policy issues addressed by this activity also affect the scope and method to be followed. These issues are discussed below:

1. Given the evidence on efficiency and its implications for changing enrollments, how many new teachers and administrators needed for the next five years?
2. Alternative financing scenarios for the education sector, are determined by alternative economic forecasts (oil price scenarios), alternative financing policies (e.g., BAPPENAS School Aid formulas, and shifts from SPP-BPP to Kabupaten local sources,

as considered within the financing Activity V). What are the implications of these various alternatives for the number of teachers and administrators required?

3. Differential salaries may be established for teachers (on the pattern used in Korea) by the Civil Service and if further incentives may be established for Math, Physics, Chemistry, and other science teachers serving in rural areas. How will each of these changes affect the current shortages of science teachers and surpluses of humanities teachers? Given these changes, how many teachers will be required in the future?
4. The rate of expansion of public and private higher education, is dependent on: (a) increased resource recovery in financing expansion and (b) in curtailing increases in enrollments (Activity V). Are the overall totals of Master's and Ph.D.'s to be trained for university teaching consistent with the overall guidelines for efficiency and equity in the system (Activity 1)?

Implementation Schedule

As with the research and development program areas addressed by Activity I above the time lines for this activity are for the next five years.

Year 1. January 1987-June 30, 1987:

EPP Consultant Jay Salkin is already at work part-time on a preliminary design for this MOEC ongoing manpower plan. He was selected for this task because he possesses the skills needed to elicit intra-MOEC cooperation. It is also essential to hire someone in-country on a continuing basis due to the level of cooperation required between each of the Director General's offices. The work also needs to be closely coordinated with efficiency considerations and with Dr. Boediono's INPLAN model.

The product required is Policy Paper #4-1 "A Coordinated MOEC Teacher-Training Manpower Plan for Greater Efficiency." (See ANNEX A,P.) An outline is needed early in 1987 with the draft completed by June 30 in order to be useful for Repelita V planning.

Year 2. July 1, 1987-June 30, 1988:

In order to develop a long-term institutional capability for the planning of teacher and administrator training, the following are required:

1. Development of the capacity to work at a disaggregated level to determine how local teacher requirements are influenced by local Kabupaten property tax revenues and other local factors: as well as by the central budget. Localities may also lack the capacity to predict the impact of oil price changes, SPP decisions, policies and tax decentralization.
2. Refinement of the model in Paper #4-1 into a permanent ongoing plan, that is updated as new data on policy decisions and economic conditions is provided.
3. Selection of one or two MOEC personnel to be trained in the economics of education and in manpower planning at the advanced graduate level. These persons would be assigned to the continuing planning process. Such a person (or persons) should have the MOEC Teacher-Administrator Training Plan as one of his or her permanent and continuing responsibilities.

Year 3. July 1, 1988-June 30, 1989:

Completion of the first two objectives listed above under the second year. Formation of an interdepartmental task force within MOEC. This task force will include representatives from each of the Directorate's General internal teacher training. Building facilities planning functions should be considered.

Year 4. July 1, 1989-June 30, 1990:

Fourth year objectives are:

1. Integrate the MOEC manpower plan with the investment planning for buildings. Efficiency and equity considerations drive the manpower plan with the investment planning. The result should be a coordinated human and physical capital investment strategy that will be effective in the future. Planning of this type now occurs within the separate DG offices (e.g., in the Directorate General for Higher Education), so this is a coordinating R&D support function.
2. Relate this work to the needs for MOEC input into the work on the second 25-year plan.

Year 5. July 1, 1990-June 30, 1991:

Continued work on the above objectives, stressing (1) a yearly planning function based on current data, (2) institutionalization

of an "Internal MOEC Manpower Investment Planning" function or division, and (3) to bring the returning Indonesian Masters and Ph.D. candidates into the planning process so that they can assume continuing responsibility for the coordinating R&D support function.

Managerial Authority

Balitbang Dikbud (Dr. Moegiadi). To be shared technically with the DG's of Higher Education, Primary, Secondary, and Vocational Education, and the Ministry of Home Affairs. With technical assistance from Pak Waskito, the Head of Personnel.

Potential Personnel to Implement the Project

Indonesian Counterparts: Dr. Abas Gozali, Dr. Simanjuntak, and Dr.

Boediono (the latter only to the extent that the INPLAN model is involved).

Implementation of the Analysis: Jay Salkin (EPP) and the Indonesian Counterparts listed above. An Educational Economist (IEES Consultant) is needed a part-time to assume responsibility for coordination with Projects 1, 2, and 3, as their substantive outcomes are interrelated.

Research Assistant: (50% time) Assistance for Salkin is necessary.

This is an opportunity for supporting a Ph.D. candidate at UGM or UI while involving him in this activity. This activity could and should be networked with the economics departments.

5.4 Activity IV. QUALITY EDUCATION: TEACHER INCENTIVES

Statement of the Activity

The goal of this activity is to provide relevant data, background information, systematic procedures, policy recommendations, and analyses of alternatives to policy makers in the Ministry of Education and Culture. This information will enable them to select appropriate strategies to strengthen the teacher incentive system. Improvement of teacher incentives is expected to improve recruitment and instruction, and to increase retention of teachers.

Background

According to the Indonesian Sector Review, and all other the IEES sector assessments to date, instruction in schools remains a teacher centered activity. The teacher is the most obvious educational factor that is both subject to policy control (unlike the home environment) and a significant determinant of student achievement.

Policy research on this topic will be related to the other major IEES Activities in group A. These other activities include a project on "Problems of Quality in Education and Their Impact on Employment (Godfrey)", and several special studies of IEES, EPP, Pusat Penelitian, and UNDP. The Activity V, "To Identify Community and Private Sources for Efficiency and Equity in Education," of this Country Implementation Plan will review potentially feasible financial incentives for teachers will be reviewed. Activity I, "To Identify Investment Strategies for Increased Efficiency," will identify the types and qualifications of teachers needed. Activity III, "To Design a Medium Manpower Plan for the MOEC," will review teacher training institutions and teacher preparation.

EPP has outlined a policy research initiative entitled, "Improving the Quality of Basic Education in Indonesia." This study will assess the relative impact of educational inputs on educational outcomes by focusing on educational context, inputs, process, outputs, and outcomes. A headmaster, teacher, and student survey will be conducted. Any outcomes of this study should be incorporated in this effort to design models of teacher incentives programs.

Martin Godfrey will support this activity by coordinating his study, supported by BAPPENAS and the Department of Manpower with this focus on teacher incentives. UNDP recently contracted a review of potential qualitative policy studies for the MOEC. One of the studies, drafted in tentative proposal form, is "Teachers' Lives, Work and Perceptions in Rural Indonesia." This study provides further opportunities for shared input into the development of models and cost sharing for this activity.

Many studies which have a primary focus (or a component) on teacher issues and teachers in rural areas, have been completed, are underway, or are now being developed in Indonesia. These studies should be reviewed for their contribution to this teacher incentives activity, knowledge gaps can be identified and research designed to fill those gaps. Presently lack of there is a need for a thorough review of local data pertinent to the role of the teacher, especially that which could identify nonmonetary as well as monetary incentives for enrollment, retention, and graduation of students in teacher training programs, and for employment and retention of qualified teachers in rural and remote regions. Local evidence of the impact of these improvements has not been well established. Studies report differing impacts of differing factors at differing grade levels.

Scope and Methodology

The nature of teacher incentives considered should go beyond salary and other explicit financial considerations to include the nature of the assignment process, the regional origin of the teacher/trainee, the possibilities for further training and/or promotion and future career opportunities in non-teaching positions in and outside of government. An important consideration in the design of incentive policies is the issue of the individual's opportunity cost. Special areas of concern in regard to opportunity cost exist in Indonesia for the science and mathematics programs and for the vocational/technical education programs.

This study will:

1. review available state-of-the-art data and analyses of the teacher in Indonesia (both qualitative and quantitative data and studies),
2. collect and analyze data to fill any identified major gaps,
3. isolate differentiated incentives for teacher training and service in rural and remote areas,
4. draft potential teacher incentives programs, and
5. assess the potential impacts of these improvements according to location.

Special attention will be given to present trends and the problem of current disparities among urban/rural locations, regions, subject specializations (particularly mathematics and sciences) and level of the school system. Nominal scales of teacher, location, and school system types will be developed and assigned corresponding educational issues and targets, as a base for a differentiated incentives program. The program will follow the processes of trainee recruitment, teacher preparation, assignment, job support, career advancement and professional development, as well as the educational policies and targets set by the MOEC for each region.

For an incentives program to utilize cost neutral strategies, it must be logically coherent from the perspective of teachers and potential teachers to make sense to them, motivate them, form their career identity and also inspire them. Special attention will also be given, therefore, to a compilation of teacher background demographics and to a number of qualitative profiles dramatizing the lives, aspirations, and perceptions of teachers.

Although not funded through the IEES Policy Research Initiative, it is intended that this study will be closely coordinated with these three integrated efforts in Liberia, Somalia, and Yemen.

Policy Issues Addressed:

1. In which locations are the needs for mathematics, physics, chemistry, science, and social science teachers most acute?
2. Which of the financial incentives identified in Activity V can be provided within a differentiated, matching incentives program?
3. What nonmonetary incentives would be most feasible and effective?
4. What are the differentiated needs and impacts of teacher factors by region, grade level, and subject area?

The overall product of this activity is an enhanced ability to restructure public sector incentives for teacher training, employment and retention, especially in the more remote areas of Indonesia.

Implementation Schedule

Year 1. By August, 1987:

1. Since the study of Teacher Incentives is primarily a descriptive one, the first product will consist of three integrated sub-studies:
 - a) the current status of the system (numbers of teachers, regional distribution, salaries, etc.);
 - b) the current rules and regulations relative to teacher incentives;
 - c) the balance of current incentives and disincentives embedded in these rules and regulations governing recruitment, performance, and retention will be summarized. Much of this information already exists in several of the sub-sectors of the EHR Sector Review.
2. A study isolating the current status of local data on teacher demographics, categorizing the rural and remote areas, and identifying shortages of specific qualifications and subject areas in specific locations. This will be linked to a policy paper presenting this data, and stating educational goals within the context of these shortages.

By October, 1987

3. To supplement these two descriptive and quantitative studies, it is necessary to conduct a qualitative investigation, using in-depth interviews of teachers, administrators, parents to determine how regions, levels, and subject area differ with respect to institutions, incentives, and feasible solutions. There may be marked differences between different regions, cultures, and educational levels within Indonesia as to what constitute incentives for recruitment and retention. For example, within certain sparsely populated settings rotation may be preferable to continuous retention. This information is critical to the design of any teacher incentive program in a country as geographically and culturally complex as Indonesia, and requires a more qualitative approach.

Year 2. by February, 1988:

4. A comprehensive study designed to fill the data gaps identified by the above descriptive studies and, further, to integrate the insights gained from these studies. This stage in particular will be coordinated and integrated with the Policy Research Initiative on Teacher Incentives in Liberia, Somalia, and Yemen.

By June, 1988:

5. Based upon the foregoing studies (as well as upon the pertinent findings relative to teacher incentives in the other Policy Research Initiative participating countries) a draft for recommendations for a differentiated incentives program will be prepared for the Ministry of Education and Culture.

Managerial Authority:

Dr. Moegiadi of Balitbang Dikbud, with technical assistance from the National Civil Service Commissions.

Potential Implementation Personnel:

A team leader chosen by Pak Moegiadi from one of the universities.
Mr. Kristadi (and Dono Iskandar), Ministry of Finance. John Bock and Frances Kemmerer (IEES).

5.5 Activity V. IDENTIFY COMMUNITY AND PRIVATE FINANCING SOURCES FOR OVERALL EFFICIENCY AND EQUITY IN EDUCATION

Statement of Activity

Financing education is an essential part of an educational policy analysis and planning capability. Financing arrangements should not be separated from the many other educational needs due to their influence on the achievement of efficiency, quality, and equity.

A major effort to decentralize educational finance for public schools in Indonesia is in progress. Ninety percent of all property tax revenues are to be retained at the provincial level or below. Local property tax yields are being used to finance the expansion of junior secondary and senior secondary schools (e.g., decentralization via a separate school tax millage, and reform of local assessment practices). relevant to the current Indonesian situation. However, property tax has not yet been fully developed as a source of support for schools. This is partly because the choice to finance more public schools has not been made available by votes at the local level. The effects of BP3 fees (fees levied on parents by the individual school) on educational equity is an important consideration.

The influence of the BP3 fees is resulting on the loss of math and science teachers from less advantaged schools. This is particularly true in the rural areas. In order to achieve equity in education and to reverse this influence, it is necessary to use equalization grants. At present, there are no equalization grants in any sector from the provinces to the local levels of government. It is necessary to provide matching incentive grants to the lower income provinces and the poorer localities. In this way, the quality of education in these poorer districts will not fall when central government support on a per pupil

basis is reduced. Work on these and the related problems that accompany the decentralization is required.

Background

Educational financing for public schools in Indonesia comes from many public and private sources. Forty percent of the junior secondary school enrollments are in private schools, and almost 50% of the secondary school enrollments are accounted for by private schools. The majority of private schools are not exclusive. They are the result of a private demand for education due to shortfalls in the government's ability to provide educational service.

At the primary level, 100% of the kindergardens are private, and 10% of the primary schools are private. The latter percentage sounds small until it is realized that 2.25 million pupils in Indonesia are in private primary schools. Nearly 50% of the students training to become primary school teachers are in private schools as well.

Quality varies widely across the 20,000 private schools which now exist throughout the educational system. Many of these are religious schools, supervised and financed in part by the Ministry of Religion. Only a part of these are eligible for state aid (bantuan) as the result of having met minimum standards.

In higher education there is also a significant private sector. Although at the secondary level, SPP fees, BP3 fees, and foregone earnings costs to the parents are relatively high, while at the college level fees are relatively low. Fewer funds from student loans, work study, and tuition are made available than there might be. This policy is intended to: (a) encourage students to complete school more quickly, (b) be more equitable by letting those whose earnings will be high in

the future pay more, and (c) to help finance further expansion of public higher education. (See Annex D. Financing Education for Development for further discussion of the rationale for this activity.)

Policy Issues

The main issue is how better to utilize the local Kabupaten property tax sources for financing the needed expansion of junior and senior secondary education. This decentralization should be combined with new equalizing grants. Such a provision would finance improvements in the quality of education in the poorer schools, and integrate all of the revenue sources into one scheme. This would improve overall external efficiency, quality, and equity in education.

This activity will require coordination with the results of other studies and with other interested parties. Balitbang Dikbud has indicated a willingness to undertake this coordination. Douglas Lamb and Ruth Daroesman of the University of Birmingham, England, have produced a comprehensive study Financing Education, (Central-Local Financial Relations Review for the Government of Indonesia, Sectorial Study No. 6, March 1982). The IEES Indonesia Education Sector Review (Chapter 2, 1986) contains a major review of educational financing. The Harvard Institute for International Development, has offices in the Ministry of Finance. Although this group has not worked on the local property tax in connection with the recent central income and excise tax reform, David Blum and Ben Snodgrass (Harvard School of Education) and the Harvard Jakarta Center for Policy Implementation Studies (CPIS) have examined the financing of education. The World Bank Loan (24272-0-IND) is undertaking a major study on educational finance (Study #3) under the direction of Bruce Fuller on the Local Financing of Primary

and Secondary Schools. This study is to be completed by June 1987.

Experience in Indonesia suggests that an interdepartmental committee and task force is often more efficient than separate departments which communicate informally with related functional responsibilities. The Ministry of Finance is willing to cooperate, and assist with the work of a task force. The MOF suggests that this task force should include persons from BAPPINAS (responsible for the school aid formula) and the Civil Service Commission (responsible for teachers salaries). The Ministry of Home Affairs, which is responsible for the direct supervision of local governments, should also be involved. As problems with education and educational finance are the focus of this activity, the Ministry of Education and Culture must take the initiative in this task.

Scope and Methodology

The scope of activity V is defined by the policy issues to be addressed. This problem-oriented focus appears to have the greatest potential for impact on a continuing basis.

The major policy issues to be addressed by this activity are:

1. Can universal junior secondary education be financed by more effective use of local property tax sources? This is an efficiency and equity issue. It reflects the high rates of return and the high drop-out rates that exist (particularly in the rural areas) (ESR, Ch. 2). Issues to be addressed in this first policy paper include: (a) The effect of the SPP fees, BP3 fees, and foregone earning costs, due to the high drop-out rates; and (b) The possibility of providing matching grants to the poorest districts. Matching grants are proposed so that local effort will not be reduced.

These grants would be used to reduce the inequality produced by an increased reliance on local property tax sources.

2. Can provinces be asked to initiate equilization grants to support teacher deficit areas? These grants to counteract the tendency of BP3 fees and salary supplements to drain the math and science teachers from the outlying provinces and rural areas. This supports teacher incentives (Activity IV). It requires a basic study and extended work by a task force, since there are currently no equilization grants from the provinces to the localities. Alternatively, these equalization grants could be called "teacher incentive grants."
3. Are national guidelines for minimal current operating expenditure per pupil on education presently possible? This question is important since central government grants have been replaced by the 90% of the property tax kept locally? Guidelines also would require that an interdepartmental committee concentrate on this issue. Guidelines should be effective because the use of the local share of the property tax yield is set by national guidelines issued by the Ministry of Home Affairs.
4. The Korean system requires 6% of all private business budgets to be spent for vocational training (accompanied by tax incentives). Is this system more cost effective than the current expansion of public VOTEC schools as a way to accomplish vocational education at the secondary level? This issue has not been carefully studied. It is an efficiency and finance issue. It is also a key economic issue, given the low labor absorption rates in Indonesia. The labor rates are largely influenced by: (1) the restriction of

output by licensed monopolies and (2) the relationship between the current tax subsidies to physical more than to human capital formation by firms.

5. In higher education, can financing be further decentralized and resource recovery increased by an increase in tuitions accompanied by expanded use of work study grants, student loans and tuition waivers? The latter would need to be supported by better capabilities for financial need analysis involving Indonesian extended families (see Activity VI below).
6. Can the many financing sources for primary and secondary education in Indonesia be integrated into one financing scheme? This scheme must identify the key policy leverage points for making marginal adjustments that lead to greater efficiency and equity in the educational system. The financing components necessary to achieve it can be a theme for institutionalizing a more permanent education finance analysis and planning capabilities in Balitbang Dikbud. This information would assist the educational finance specialists in Balitbang Dikbud.

Implementation Schedule

Year 1, present to June 30, 1987:

1. Policy Paper #1, as defined above by Issue #1. This paper will examine the potential of the Kabupaten property tax at the local level, supplemented by equalization grants or incentive matching grants for the poorest localities. The deadline of June 30, 1987, must be met if this is to support planning for Repelita V goals. The expansion of Junior Secondary education is efficient, equitable and worthy of serious consideration if it can be financed.

Year 2, July 1, 1987 - June 30, 1988:

1. Policy Paper #2, as defined above by Issue #2 will provide an

analysis of economic and non-economic incentives. It will then examine the economic incentives underlying the drain of teachers from the rural areas and out of the system in order to present a clearer view of what can be done with financing to solve this problem.

2. Policy Paper #3, "Resource Recovery in Higher Education," policy Issue #5 above. Studies of student loans exist (e.g., Maureen Woodhall, World Bank Staff Working Paper #599), but there is little research on work study or financial need analysis in extended-family contexts (see Activity VI). An estimate of the total size of the additional resource recovery that is possible under various assumptions should be part of this activity.
3. During the second year, the Interdepartmental Committee on Educational Finance R&D should be formed charged with the short-term Issue #3 (property tax guidelines) and the longer-term Issue #5 (how to use the multiplicity of financing sources and decentralized sources to realize greater efficiency). A task force also should be formed. The World Bank study of local financing of primary and secondary education scheduled to become available July 1, 1987, should be carefully reviewed by this committee and its task force.

Year 3, July 1, 1988 - June 30, 1989:

1. Policy Paper #4. A policy paper on national guidelines for use of the property tax for schools, (Issue #3 above) is concerned with decentralization and community sources in the financing of schools. This paper should be completed by December 1. The rest of the year should be reserved for discussions and further studies regarding implementation.
2. Policy Paper #5. This paper is on Issue #4. This study will examine the potential cost effectiveness of the policy option that firms spend 6% of their budgets on training, accompanied by suitable tax incentives. This will be compared to the cost effectiveness of building more vocational/technical schools. Its timing could be appropriate to achieving the maximum impact in the drafting of the next 25-year plan. There is little flexibility in Repilita V, compared to the wider options offered as the new 25-year plan goals are selected. Selection of these goals should take place by the Fall of 1988.

Year 4, July 1, 1989 - June 30, 1990:

1. Policy Paper #6. This paper will focus on Issue #6 above; how to organize the many sources of financing for education, as a more decentralized system that will improve efficiency and equity. There are eleven major sources of financing for primary education alone, as listed by Lamb and Daroesman (op. cit., p. 32).

2. The Interdepartmental Committee of Educational Finance R&D would continue to meet regularly (once a month or bi-monthly) to advise on the direction and context of policy papers 5 & 6.

Year 5, July 1, 1990 - June 30, 1991:

1. Policy Paper #7. Since Issue #6 is a broadly-defined major theme (multiplicity of decentralized sources and efficiency), a second more tightly focussed policy paper is suggested. It will be guided in its specification by the permanent Interdepartmental Committee on Education Finance R&D (with rotating membership).
2. Institutionalization of the Educational Finance Policy Analysis Function. By 1990, at least a second senior policy analyst will have returned from Ph.D. training and joined the permanent staff in Balitbang. He or she would assume responsibility for implementation of the FFS system (see Activity VI below) and perhaps a department of Education Finance. This department would produce problem-oriented policy papers to support the financing system.

Potential Personnel to Implement the Activity

Indonesian Counterparts: Dr. Boediono (Balitbang), Dono Iskander (DG, Ministry of Finance), and/or Pak Kristdodi and Arlan Pakpahan (Ministry of Finance), and Pak Prometadi (Office of the DG of Higher Education).

Managerial Authority: Balitbang Dikbud (Dr. Moegiadi). To be shared technically with BAPPINAS, the Ministry of Home Affairs, and the Ministry of Finance.

5.6 Activity VI. ANALYSIS OF EBTANAS DATA AND REFINEMENT
OF EBTANAS AND FFS DATA SYSTEMS

In this activity the existing EBTANAS data on the academic achievement of primary and of secondary school leavers, will be organized and analyzed for use in establishing Repelita V targets.

In the long-term it is necessary to systemize the collection and use of the EBTANAS data. At the university level, a centralized capacity is required to (1) process financial need analysis forms, and (2) analyze the results. The results of this analysis will be used for tuition and fee waivers and to improve resource recovery and equity in higher education.

Scope and Methodolgy

The short-term outputs of IEES efforts to assist in improving the quality of education needs to focus on the use of data that is already in hand. Although the data is not perfect, it can be used to determine:

1. In which localities is the quality of the education most deficient?
Which localities should be targeted by Repelita V?

2. In which types of schools (e.g., vocational vs. general, primary religious schools vs. primary government schools, etc.) are the problems with quality most severe? Measures would be required that would assist these schools in making the necessary improvements.

In the longer-term this activity will:

1. Assist in improving the quality of the EBTANAS data. It will also obtain a regular flow of information to Balitbang for analysis. This information will come from the provinces and from the Indonesian University Computer Center. The primary school learning data has been decentralized to the provinces while the secondary school EBTANAS data is still centralized) to Balitbang for analysis.

2. Assume responsibility for establishing a nationwide family

financial need analysis system. The computerized processing and use of the results will be done by Pusat Informatik (with the assistance of ACT). The form completed by the parents will be supplemented with data from the CENSUS and SUSENAS about the economic circumstances of the parents' locality (and/or housing). This supplementary information for the family financial analysis will be the responsibility of Pusat Informatik.

There could be joint responsibility for pilot testing the FFS form (Activity V above focuses on resource recovery in higher education). In addition, the form can be used to estimate the parent's income bracket using the census data. Questions about the student's "extended family" that are appropriate to the Indonesian context would be included in the form.

Activity V will examine better resource recovery in higher education, and local property tax assessment. For this reason, the refinement of the FFS forms should be done in cooperation with this activity. A first draft of the FFS form appears in the ESR, Chapter 2, page 95). The American College Testing Program has experience with nation-wide processing of both school achievement data and family financial statements. This experience could be helpful with both the EBANAS and FFS refinement and processing systems.

Implementation Schedule

Year 1, February 1987 - June 30, 1987:

1. Analysis of EBTANAS data for Repelita V targets.

Year 2, July, 1987 - June, 1988:

1. Download secondary school EBTANAS data for continuing analysis within Pusat Informatik.
2. Pilot Test Family Financial Statement (see also Year 2 of Activity IV).
3. Obtain a flow of better quality primary school leaving EBTANAS data from the provinces. This data will be used for nationwide policy analysis within Balitbang.

Year 3, July 1988 - June 1989:

1. If pilot testing of FFS and spot cross-checks of results with Census and SUSENAS data (and earnings tax data in the Ministry of Finance) can be accomplished, then implement the FFS for college applicants. This can be done by distributing the form to parents to complete if they wish to apply for tuition waivers, student loans, or work-study). Preliminary results could be sent on a trial basis to student financial aid officers showing the parents' expected contribution.
2. Coordinate the primary school EBTANAS and secondary school EBTANAS data with the EPP Quality study, and with the IEES Teacher Incentive Systems (Policy Research Initiative) study. At the same time, the quality of both types of EBTANAS data can be improved.

Year 4, July 1989 - June 1990:

1. De-bug the Family Financial Statement System. The procedure should include: (1) Interviews with a group of the respondents, (2) Interviews with financial aid officers at the colleges, (3) continuing discussion with the Ministry of Finance about verification of earnings as reported by a sub-sample of respondents, and (4) face-to-face interviews with a small sample of students with a few questions about their extended family and various sources of support. This interview should not be the basis for lifting their financial aid, but instead for studying and improving the data collection system.
2. Analyze the improved EBTANAS data flow to assist in establishing quality-of-education and regional targets for the second 25-year plan.

Year 5, July 1990 - June 1991:

1. Institutionalize the EBTANAS and FFS processing and analysis functions. As Indonesian staff assume operational responsibility for both systems, IEES and EPP assistance should be gradually withdrawn.

Potential Personnel to Implement Project VI

Indonesian Counterparts: Dr. Boediono (Balitbang); Dr. Proemitadi

(Office of DG of Higher Education); Dr. Ade Cahyana (Balitbang); and

Dr. Ace Suryadi (Balitbang).

Managerial Authority: Balitbang Dikbud (Dr. Moegiadi) to be shared

technically with the University of Indonesia computer center, the DG of Higher Education, and the provincial education offices in possession of the primary school EBTANAS data.

Analysis of the EBTANAS Data: Dr. Nat Coletta, with the assistance of

Indonesian counterparts listed above, Gweneth Eng would be another possibility.

Development of FFS System for Indonesia: Dr. Nat Coletta, with the

assistance of Nick Zenick (familiar with FFS), and/or Walter W. McMahon (IEES). James Maxey (ACT, Iowa City) would be a good person to whom send trainees to.

5.7 Activity VII. A NATIONWIDE COMPUTER LITERACY
FEASIBILITY STUDY

Statement of the Activity

A feasibility study is needed to assist Balitbang Dikbud and the Ministry of Education in dealing with computer firms who are willing to assist with contributions of hardware and software. This study would address the potential for a pilot project, and its expansion to a nationwide computer literacy movement similar to the one conducted by South Korea and Taiwan Republic of China. This activity would contain the following components:

1. Computer literacy. Students should be familiar with and able to use microcomputers when they apply for jobs.
2. Computer-assisted instruction. (e.g. PLATO).
3. Use of computers in the local schools for management purposes. This would tie in with the software development group in Balitbang.

The British Government, along with private firms, is currently assisting with a six month pilot project. It is supplying computers and sending three people to develop a Ministry of Education pilot project. For this reason, comprehensive feasibility studies need to be undertaken quickly.

Objectives

1. To study the feasibility of nationwide instruction in the use of computers in the schools.
2. To study the feasibility of developing the software needed for computerized instruction in Indonesia.
3. To explore the relation of computer literacy to the project proposed previously within Balitbang for implementation at four pilot sites.
4. To study the potential use of computers in schools for administration purposes

This activity has a relatively high priority among Balitbang Dikbud policy makers and it is included in the Country Implementation Plan for that reason. It is necessary, however, to have further input from Balitbang Dikbud and EPP before it can be specified at any greater level of detail. Long-term EPP Consultant, Simon Ju, is presently developing a more elaborated design which will include scopes of work and a cost estimate.

Implementation Schedule

Year 1: May - July 1987

1. Design and implement a feasibility study to accomplish the objectives listed above. This study would require one short-term consultant to work with Simon Ju and the Balitbang Dikbud staff over a 3-month period. The short-term IEES consultant should have experience in examining the uses of micro-computers in LCL schools. This is not an MIS study and, therefore, an individual with experience limited to assistance to Ministries of Education is not qualified. This study should be integrated with EPP/Balitbang Dikbud's other projects in computer software. (See Activity VII below)

Managerial Authority:

Balitbang Dikbud, to be shared technically with the Ministry of Science and Technology.

Potential Implementation Personnel:

Simon Ju (EPP)
Pak Wardiman (and persons he might designate on his staff) at the Ministry of Science and Technology.

5.8 Activity VIII. POLICY ANALYSIS SUPPORT: INSTITUTIONALIZATION OF COMPUTER SOFTWARE DEVELOPMENT AND TRAINING.

Statement of Activity

This activity is already supported by EPP and will be strengthened by the support of IEES. It needs supplementary support for expansion of its computer software development and training functions. These model development and training functions, operated within Pusat Informatik, can eventually be expanded to serve the entire Balitbang Dikbud staff.

Background

There are opportunities for increased training to strengthen the software development and analysis capacities within the Pusat Informatik at Balitbang Dikbud. This is not a research project, but a training project within the unit. This objective encompasses two major aspects:

1. To develop the institutional capacity within the Pusat Informatik at Balitbang. This includes improvement of technical manpower resources, innovate data/information handling capabilities, (including computer software development) and data/information analysis.
2. To improve utilization of information. This will be accomplished by the use of advanced technologies to enhance the capabilities for decision-making and policy formulation processes.

This activity involves the following specific objectives:

- a) To strengthen the technical capabilities of the Software Development Group at the Pusat Informatik. This group should be able to provide satisfactory software developmental services to the Ministry.
- b) To establish an information/policy modeling group within the Pusat Informatik and develop an analytical framework for making decisions and formulating policy.

- c) To develop a comprehensive MIS training program and a plan for its institutionalization in the Pusat Informatik. The training will be developed for both technical personnel as well as information users.

Scope

A long-term plan for the achievement of these objectives is presently being developed by EPP Consultant, Simon Ju. The activities necessary to provide initial support to this effort in the short-run are described below.

An effective software development program is currently being implemented by EPP and Balitbang in Jakarta, and in three provincial centers by Simon Ju and Hee Wee Lee. The program badly needs the following support:

1. A training program designed to assist Balitbang personnel in the use of LOTUS, SPSS, SAS, and BASIC software applications for education research problems.
2. The center operated by Dr. Boediono also needs support for development of a standard operating procedure. This procedure would be for the use of the newest SUSENAS and CENSUS data tapes most relevant to education, with a systematic method of downloading these onto microcomputer diskettes for analysis. SPSS, SAS, LOTUS, and BASIC software will be used by all research and development staff in Balitbang, as well as by IEES and EPP consultants.
3. Pusat Informatik also needs assistance in acquiring, downloading, and making available for analysis the EBTANAS survey data. This achievement test data crucial to the improvement of the quality of education.
4. Finally, Pusat Informatik needs assistance in model development.

This is closely related to the more substantive in-depth analyses defined by Activities 1, 2, 3, and 4 above. In each of these activities a microcomputer simulation model could be designed for experiments. This model could be used to study (1) rough estimates of changes in educational budgeting on growth, (2) the effects of changes in the school aid formula on per pupil financing in the different districts, or (3) the different runs of the MOEC manpower planning model. These experiments would be useful in Dr. Boediono's Operations Room for discussion by the DGs, or committees tasked with deliberating policy. Use of the models would require the integration of the efforts of the model development group (supervised by Pusat Informatik) with the efforts of the staff person involved in the substance of the research.

Implementation Schedule

Year 1 & 2 - Early 1987 - August 1987

1. Implementation of tasks 1 and 2 support for Software Development Group, and estblashment of an Indonesian Policy Modeling Group is already underway, supported by EPP funds. Further specifications of the implementation schedule is being developed by EPP and was not received in time to include here.
2. It is necessary to support EPPs efforts to develop on ongoing policy planning capability in Balitbang Dikbud which would include an MIS training capacity in the Pusat Informatik. This training program should include boht technical personnel and information users. The long-term aim is the institutionalization of MIS trianing capacity within the MOEC. An important component of this training program will be to provide training for senior policy

analysts in: (1) Balitbang Dikbud, and (2) for all of the MOEC. This training will acquaint them with the use and the value of the many presently available software packages that have specific application for planning, management, and forecasting. This training will also be useful as a marketing strategy for persuading senior decision makers in the MOEC of the value of the policy planning process being mandated. This task will require a short-term IEES MIS computer training specialist to work with EPP and Pusat Informatik staff between June 1 and August 30, 1987. The timing is necessary due to the budget limitation of the IEES funds during the present project year (ending June 1987).

Managerial Authority:

Pusat Informatik

Balitbang Dikbud

Potential Implementation Personnel:

Pak Boediono (Pusat Informatik)

Simon Ju (EPP)

Hee Wee Lee (EPP).

5.9 Activity IX. DEVELOPMENT OF LIBRARY AND ERIC RESEARCH SUPPORT SYSTEMS

Statement of the Objective

This activity will improve access to the library resources available in Jakarta. ERIC information will be made available on microcomputer diskettes produced in the U.S., while an ERIC system is initiated in Indonesia. This should be helpful to the Balitbang Dikbud research staff and to the planning staff in the DGs and Secretary General's offices.

Background

The quality of an R&D support function is dependent not only on its access to data, but also on its access to library resources. Waste occurs as research is duplicated, and adaptation is often simple if a staff has access to library resources.

There are excellent library resources available in the central library (which is computerized), in the Ministries, the University of Indonesia, and in the Ministry of Education and Culture's complex of buildings near Balitbang. Improved access to these library resources by the Balitbang R&D staff is necessary.

Better access is also needed to the current research in education now being conducted in Indonesia and elsewhere. Access to the U.S. ERIC system abstracts and results, as well as the beginning of a computerized ERIC system for Indonesia, is also proposed for this activity.

Scope

Specific objectives for improving the efficiency and effectiveness of library services for educational research and development include the following:

1. Computerization of the library services, including cataloging,

- information retrieval, reporting and acquisition.
2. Preparation of abstracts derived from reports, especially in the field of education research and development;
 3. Establishment of technical capabilities to access educational information abroad (particularly ERIC and IBE); and
 4. Improvement of information exchange among the libraries within Indonesia.

Implementation Schedule

Year 1, By June 1987:

1. Provide an IBMXT to the Balitbang librarian as soon as possible.
2. Investigate the possibility of linking Balitbang via a MODEM and telephone lines to the search system in the Jakarta main libraries.
3. Assist the librarian to train assistants to conduct searches. Provide access to a driver-messenger who would make one round of other libraries each day to pick up and return books, delivering them to the Balitbang staff.

Year 2, July 1987 - June, 1988:

1. Acquisition of the ERIC Resources in Education abstracts (RIE) and Current Index to Journals in Education (CIJE) files on floppy disks.
2. A microcomputer printout by the librarian of titles of new research by topic and of titles of new books in education in the Jakarta library that are grouped by the same topic headings should be made available. This could be cut up, xeroxed, and only the relevant list circulated to the people that specialize in each topic, this would publicize the retrieval service.
3. Prepare a short paper reporting on use of this new system, and disseminating the results.

Year 3, July 1988 - June 1989:

1. Extend this library search and retrieval service to all of the other Directorate General offices in the Ministry of Education as a service provided by Balitbang Dikbud.
2. Plan and computerize abstracts reporting Indonesian research, including Balitbang research, in education.

Year-4, July 1989 - June 1990:

1. Extend the computerized search to include other MOEC libraries.
2. Extend the ERIC system in Indonesia to bring Indonesian universities into the net if studies for the use of the EIRC system warrant it.

Year 5, July 1990 - June-1991:

1. Terminate external support of the computerized search and retrieval system. By this time the ERIC systems should have become institutionalized.

Potential Personnel to Implement the Project

Indonesian Consultants: Dr. Ipon Purairidjaja, Dr. Samekto Prayitno,
Dr. Sekarsih.

Managerial Authority: Balitbang Dikbud (Dr. Boediono), to be shared
technically with Nurtati Mardjaman of the National Library System
(ITB).

IEES Supported Personnel: One IEES Consultant who may be
assisted by Nick Zenick of the World Bank office in Jakarta.

ANNEXES

- A. SCOPES OF WORK FOR C.I.P. ACTIVITIES
- B. DETAILED IMPLEMENTATION SCHEDULE FOR CIP ACTIVITIES
- C. COST AND SUGGESTED FUNDING SOURCES FOR CIP ACTIVITIES
- D. FINANCING EDUCATION FOR DEVELOPMENT

ANNEX A: SCOPES OF WORK

ACTIVITY I (Year 1)

Activity Name:

Efficiency in Education: Immediate Five Year Plan Assistance (Repilita V) (Year 1 of Activity I).

Purpose:

To assist the Ministry of Education and Culture to develop efficient vocational-general and junior-senior secondary enrollment and budget increment planning contributions to Repelita V.

Rationale:

Drawing on the recommendations in the Educational Sector Review, Short Policy Paper #1-1 "Investment Priorities" is needed by early 1987 (the early deadline for broad directions in Repilita V). After that, Short Policy Paper #1-2 "Analysis of Educational Investment Priorities for Growth" is needed by June 30, (see above). A preliminary version of a color microcomputer model will also be refined incorporating these results.

Scope of Work:

One IEES Consultant, and one half-time Research Assistant will work with MOEC staff to 1) develop the broader guide-lines envisioned for policy paper 1 in January; 2) do the necessary computer runs to refine and update the ESR results during the Spring Semester; 3) write policy paper 2 during May and June of 1987, ending the first project year.

Schedule:

(Part I only) January 1, 1987 - June 30, 1987.

Resources:

One Educational Economist for 1) full-time for 2 weeks in early 1987; 2) 10% time during the Spring Semester; and 3) full-time for one month from approximately May 15 - June 15; plus 4) one half time research assistant at a minimum is needed for March, 1987 to June 30, 1987 (see Potential Personnel in text of Chapter 5, Activity I). Indonesian counterparts would also be involved.

Outcomes:

Policy Papers # 1-1 and # 1-2 to be used by the MOEC in its contributions to the human resources section of the 5th Five-Year Plan, plus a preliminary version of a microcomputer model in color that can be used to simulate various education budget policies as a basis for discussion by groups within MOEC.

ACTIVITY I (Year 2)

Activity Name:

Efficiency in Education--Investment Priorities (Vocational-General, etc.) in Educational Planning for Efficiency as a Continuing Process (Year 2 of Activity I).

Purpose:

To assist MOEC to develop use of the SUSENAS data, survey data (VOTEC, and Efficiency surveys), EBTANAS data, and equity data in developing integrated educational planning for efficiency and equity on a continuing basis.

Scope of Work:

One IEES Consultant plus one half-time Research Assistant (both in cooperation with the EPP Chief of Party) to 1) form a task force or steering committee on efficiency; 2) assist in the design of the questionnaires for the school and tracer studies of Vocational-technical education and for the efficiency survey (both of which would then be conducted by EPP); 3) get each successive quarterly SUSENAS tape as it is released downloaded onto microcomputers and analyzed using SPSS and SAS software for employment, underemployment, and earnings by level of education, by occupation, and by region; 4) compute the rates of return using the PC program written for the ESR; 5) refine the other PC simulation model to incorporate these new results on efficiency and equity; and 6) write up the results. This should be coordinated with work at BAPPINAS, and potentially with new work started at UGM, Yogyakarta, and UI Jakarta.

Schedule:

July 1, 1987 - June 30, 1988.

Resources:

One Educational Economist for one-third time for one year (4 p.m.), plus a modest amount of computer time, with Indonesian counterparts.

Outcomes:

Policy papers #1-3 "Investment in Secondary vs. Improvements in Primary," #1-4 "Investment Priorities in Education for Growth and Equity," and completed microcomputer simulation model in color focused on efficiency and equity for use in the Minister's Operations Room.

ACTIVITY I (Year 3)

Activity Name:

Efficiency in Education: Analysis of Survey Data (Year 3, of Activity I).

Purpose:

To assist MOEC in addressing policy issues in depth involving the operation of vocational and technical schools and efficiency in all schools utilizing survey data, as well as Census data, and to relate this to an on-going policy analysis and program planning process.

Scope of Work:

One IEES Consultant (part time) plus one member of the EPP staff in Jakarta to 1) work with the steering committee; 2) analyze the Efficiency in Education survey data; 3) analyze the School and Process Study of Vocational Education survey data; 4) integrate this with the on-going analyses of SUSENAS employment (and earnings) data and with the Repilita V and early Second 25 Year Plan planning activities. This activity should be coordinated with work on the Economics Departments at the University of Indonesia and at Gadjah Muda University, and with BAPPINAS.

Schedule:

July 1, 1988 - June 30, 1989.

Resources:

One IEES Consultant for 3 months, one Research Assistant (4 p.m.), plus one EPP staff member half-time for the year (6 months).

Outcomes:

Major economic analysis and program planning papers 1) #1-5, "Vocational and Technical Education," 2) #1-6 "Efficiency in Education"; and 3) an early discussion paper pointing up some possibilities for the second 25-Year Plan.

ACTIVITY I (Year 4-5)

Activity Name:

Efficiency in Education: Institutionalization of Educational Planning for Efficiency, Equity, and Growth in Indonesia (Years 4 and 5 of Activity I).

Purpose:

To integrate returning Ph.D. candidates into the on-going educational planning process, institutionalize the Steering Committee process, and develop the skills of additional Indonesians.

Scope of Work:

One IEES Consultant and one EPP staff member will work on a continuing basis with Indonesians to assist them in taking the initiative to 1) complete the efficiency study, and additional policy papers; 2) complete the vocational/technical education study and additional policy papers; 3) continue to do policy analysis papers on "Investment Priorities" and the continuing flow of SUSENAS and Census data; 4) work with the steering committee; 4) coordinate with returning Ph.D.'s in other Ministries working on the same issues (e.g., Yudo Swasono, Ministry of Labor, Rong Bisry, Ministry of Research and Technology); and to 5) begin intensive work on the second 25-Year Plan.

Schedule:

July 1, 1989 - June 30, 1991 (2 years).

Resources:

One IEES Consultant for 2 months each year, one Research Assistant (half time), one EPP staff member (half time), plus Indonesian counterparts.

Outcome;

An institutionalized educational policy analysis and planning capability for efficiency and equity in Indonesia's human resource development.

ACTIVITY II (Year 1)

Activity Name:

Policy Study on Cost and Quality of Vocational/Technical Education

Purpose:

To assist the MOEC to design the feasibility study of the new regional study program

Rationale:

This activity will help the Directorate of Vocational/Technical Education determine the feasibility of implementing a new regional study curriculum in vocational/technical education which is intended to be more responsive to the unique vocational/technical requirements of each province or, in some cases, sub-regions (districts).

Scope of Work:

One IEES consultant working with Balitbang Dikbud's Policy Research Center and the Directorat of Vocational/Technical Education to design and help conduct a study of the feasibility of implementing the new regional study curriculum in vocational/technical education. This study will: (1) access the needs for such a program (and if what specific type) in the various regions, (2) determine the minimum available resources in the region necessary to support such a program, and (3) design a survey to determine whether there is a sufficient number of students in the region who would consume such a program if available.

Schedule:

May, 1987

Resources:

One vocational/technical education analyst for one month. One counterpart staff member each from Balitbang Dikbud and the Directorat of Vocational/Technical Education.

Outcomes:

The outcome will be a finished design for a feasibility study which can be conducted by the Directorat of Vocational/Technical Education utilizing IKIP personnel in the regions.

ACTIVITY II (Year 1)

Activity Name:

Policy Study on Cost and Quality of Vocational/Technical Education

Purpose:

To assist the Directorat of Vocational/Technical Education in conducting a "best-case" study of co-operative programs between vocational/technical education departments and private industry.

Rationale:

The Directorat of Vocational/Technical Education reports some limited, yet encouraging success in developing co-operative work/study programs with private firms. But this success varies systematically by region and by occupation/skill. Also, the reasons for these successes need to be documented and analyzed if they are to be institutionalized and generalized to other regions and in other vocational fields.

Scope of Work:

One vocational/technical analyst working with the Directorat of Vocational/Technical Education counterparts, utilizing "best-case" methodology to examine a variety of these successful co-operative programs, determine the factors which help to explain their success, and exploring the feasibility of applying this approach to other appropriate regions and industries.

Schedule:

April, 1987

Resources:

One IEES vocational/technical analyst, working with designated Directorat of Vocational/Technical Education counterparts for one month

Outcomes:

The outcome will be a completed "best-case" survey and a set of written recommendations (if findings warrant) for generalizing these instances of successful co-operative programs throughout Indonesia.

ACTIVITY II (Year 2)

Activity Name:

Policy Study on Cost and Quality of Vocational/Technical Education

Purpose:

To assist the MOEC to design a study which examines the effect of the new curriculum (IAFS) of the regions specific study program on the subsequent employability of the graduates

Scope of Work:

One IEES consultant will work with personnel from Balitbang Dikbud and the Direktorat of Vocational/Technical Education to design a tracer study to determine the impact of the new region, specific vocational/technical study programs in the employability of graduates. It will be necessary to sample tract regions where the program was first implemented.

Schedule:

September, 1987

Resources:

One IEES Consultant for one month working with counterparts from Balitbang Dikbud's Policy Research Center and the Direktorat of Vocational/Technical Education

Outcomes:

A finished study design to be submitted to Dr. Soemendi's consideration (reasearch itself will be conducted by the Policy Research Center and the Direktorat of Vocational/Technical Education)

ACTIVITY II (Year 2)

Activity Name:

Policy Study in Cost and Quality of Vocational/Technical Education

Purpose:

To assist the MOES and BAPPENAS to design a study of the recurrent costs of the different vocational/technical education programs

Rationale:

The Directorate of Vocational/Technical Education is presently under pressure to expand vocational/technical education dramatically (possibly as much as 100%) over the next five years. Yet there is currently insufficient data on the cost of different types of vocational/technical programs and interventions to guide even more moderate expansion targets.

Scope of Work:

To assist the Directorate of Vocational/Technical and BAPPENAS design a study of the recurrent cost of the different vocational/technical education programs. It will be particularly important that this study examine the cost implications of (1) the new regional study program approach, which are not housed in formed schools; and (2) the successful examples of co-operation between the Directorate of Vocational/Technical Education and private industry.

Schedule:

January, 1988

Resources:

One IEES educational economist for one month to work with counterparts from Balitbang Dikbud, EPP consultant Jay Salkin, and Martin Godfrey from BAPPENAS

Outcome:

A study design which can be implemented in January 1988 with results available by June 1988

ACTIVITY III (Year 1)

Activity Name:

MOEC Manpower Planning for Teaching Preparation
(Year 1 of Activity 4)

Purpose:

To assist the MOEC to develop an integrated plan for more efficient supplies of teachers and administrators as part of Repelita V.

Rationale:

This project will coordinate the planning for the number of teachers and administrators to be trained with the preliminary results of the policy analyses focused on enrollment planning for greater efficiency and equity, financing changes, and changes in teachers incentives recommended by Activities 1, 2, and 3. It should also seek to coordinate the R&D planning for the separate levels and types of education now carried out in other offices.

Scope of Work:

One IEES/EPP Consultant will work with MOEC staff to (1) design a framework for 5-year plan or model, updated annually, that simulates the effects of efficiency, equity, quality, and financing changes explicitly, (2) contracts and coordinates with the other centers where planning for teacher training and administrator training is done, and (3) prepares the first draft of such a plan.

Schedule:

1/1/87 - 6/30/87

Resources:

One IEES/EPP consultant half-time from January 1, 1987 through June 30, 1987.

Outcomes:

(1) a first draft outline submitted by January 30 to MOEC and (2) Policy Paper #4-1 submitted to MOEC by June 1, both on "A Coordinated MOEC Teacher and Administrator Training Manpower Plan for Increased Efficiency."

ACTIVITY III (Year 2)

Activity Name:

A MOEC Manpower Plan for Teacher Participation:
A More Permanent, Rolling Plan (Year 2 of Activity 4)

Purpose:

To refine the MOEC Manpower Planning Process into a permanent, rolling plan.

Rationale:

The first 6 months of this activity will be very intensive in order to produce a helpful and usable product as part of MOEC's Repelita V contribution. This later activity will focus on developing a more refined rolling plan, and on institutionalizing this on-going planning activity.

Scope of Work:

One IEES/EPP RTA will work with MOEC staff and one part-time Research Assistant to (1) develop in greater depth the relation of the planning to decentralized budget factors, (2) refine the plan, (3) refine alternatives to the base case run that reflect alternative efficiency, equity, quality, and financing decisions, and (4) select one or two Indonesians for Ph.D. level training and/or involvement in an integrated planning process for MOEC teacher training and school building investment.

Schedule:

7/1/87 - 6/30/88

Resources:

One IEES/EPP Consultant 1/3 time (4 p.m.); one Research Assistant graduate student in the Economics of Education at UI or UGM half-time (6 p.m.); plus one IEES Educational Economist Consultant to assist with coordination with Projects 1, 2, and 3 (1 p.m.).

Outcomes:

A finished paper #4-2 on "A Coordinated MOEC Teacher Training Plan for Greater Efficiency" that can be annually updated.

ACTIVITY III (Years 3-5)

Activity Name:

Institutionalization of an On-Going Annually Updated Coordinated MOEC Teacher Training and Building Investment Plan (Years 3-5 of Activity 4)

Purpose:

To assist MOEC in permanently strengthening its capacities to coordinate the education sector's investment in teacher-administrator manpower and school building investment.

Rationale:

To assist in developing MOEC's input into the second 25-year plan, this educational sector internal investment planning needs to be coordinated not only among the various education offices, but also with the efficiency, equity, quality, and financing goals stated by the nation and studied with respect to their implications for education in Activities 1, 2, and 3 above.

Scope of Work:

One IEES/EPP Consultant to (1) work with the inter-departmental task force mentioned in the text above on a regular basis (e.g., monthly meetings), (2) integrate the investment planning of building so that there is a similar response to the efficiency and financing changes the produce difference simulation runs of the manpower plan, (3) project activities for the next 25 years, and (4) integrate returning Indonesian Ph.D.'s into the rolling, annual adaptation of the models as part of the continuing and planning process.

Schedule:

7/1/88 - 6/30/91

Resources:

One IEES/EPP RTA one-third time (4 p.m./p.a.); one Indonesian Research Assistant from IU or UGM half-time (6 p.m./p.a.); one IEES Educational Economist Consultant from either Activity 1, 2, or 3 (1 p.m./p.a.).

Outcomes:

(1) A Policy paper #4-3 "A Coordinated MOEC Investment Plan for Teaching Training and Buildings" reflecting efficiency and equity helpful as part of the second 25-year planning process and (2) an institutionalized coordination of the R&D planning process by Balitbang Dikbud for MOEC's human and physical capital investment planning for the education sector.

Activity IV (Year 1)

Activity Name: Quality Education: Teacher Incentives

Purpose:

To assist Balitbang Dikbud to design two complementary descriptive studies related to teacher incentives

Rationale:

The policy issue of providing adequate incentives for the recruitment, employment, and retention of qualified teachers (particularly in the critical fields of science and mathematics and especially in the more remote regions) continues to be among the MOEC's highest priorities. It is a significant means of improving the quality of instruction in a system which has suffered from the massive expansion the past two decades. At this point insufficient evidence exists upon which to design an effective incentives program. This is an area where IEES can provide valuable assistance due to the parallel research on teacher incentives being conducted in three other participating IEES countries--Liberia, Somalia, and Yemen--under the Policy Research Instruction. Since the MOEC opted to participate in the "Strengthening Local Education Capacity" PRI project, the teacher incentive study cannot be funded out of that topic's budget. However, the issue of teacher incentive is so critical to Indonesia that it justifies funding the study from other available sources (but integrating it fully with the research being conducted in Liberia, Somalia, and Yemen).

Scope of Work:

This study is designed to be conducted and managed largely by Indonesian personnel with some limited assistance from IEES consultants. The first step is to design and conduct a pair of complementary descriptive studies which are needed as the basis for all further work. Study I will examine a) the current status of the system (numbers of teachers, regional distribution, salaries, etc.), b) the current rules and regulations relative to teacher incentives, and c) the incentives and disincentives embedded in these rules and regulations. Study II will attempt to isolate the current status of local data on teacher demographics, categorizing the rural and remote areas, and identifying shortages of specific qualifications and subject areas in specific locations.

Schedule:

March 1987

Resources:

One IEES consultant with experience in the designing of the PRI

Teacher Incentive Study for one month, an Indonesian Country Team Leader selected by Balitbang Dikbud for 50% time over 18 months (this person will also be helping to design, co-ordinate, and conduct the other studies described under this activity).

Outcome:

The short term outcome will be a descriptive basis addressing those data needs listed above. The long term outcome will be to provide the data base upon which the subsequential design of a differential incentive program will be based.

Activity IV (Year 1)

Activity Name:

Quality Education: Teacher Incentives

Purpose:

To assist in the design and implementation of a qualitative investigation to determine how regions, grade levels, and subject areas differ with respect to institutions, incentives, and feasible solutions.

Rationale:

There may be marked, systematic differences between different cultures and educational levels within Indonesia as to what constitutes incentives for recruitment and retention. This culturally/regionally specific information is critical to the design of any incentive program in a country as geographically and culturally complex as Indonesia, and requires a qualitative methodology to supplement the two foregoing studies.

Scope of Work:

To assist the Indonesian Country Team Leader in designing a qualitative study of cultural and regional factors which may critically affect the design of a differentiated incentives program.

Schedule:

May 1987

Resources:

One consultant with experience in the design and conduct of qualitative studies in education (preferably in Indonesia) for one month (Indonesian counterparts to conduct the study itself in a sample of regions remain to be assigned by Balitbang Dikbud).

Outcome:

A design for a qualitative study to be conducted by Indonesian counterparts with results by October 1987 which will be integrated with the results of the two foregoing descriptive studies all of which will feed into the next stage of this activity.

Activity IV, Year 2

Activity Name:

Quality of Education: Teacher Incentives

Purpose:

To assist in the design of a comprehensive study intended to fill the data gaps identified by the above descriptive study, and further, to integrate insights gained from these studies.

Rationale:

This stage is necessary for the synthesis and integration of foregoing work. This stage, in particular, needs to be co-ordinated with the policy research incentive work in Liberia, Somalia, and Indonesia.

One IEES consultant, preferably one of the RRI teacher incentives co-ordinators for two weeks to work with the Indonesian Country Team Leader in the design of a comprehensive study which will synthesize the findings up to this point and envision the next steps toward the design of a teacher incentives program.

Schedule:

November 1987 (with results by February 1988). Draft recommendations to be presented by June 1988

Resources:

One IEES consultant for two weeks. Parttime assistance by one of the EPP consultants during that period.

Outcomes:

The short-term outcome of this activity will be a design for a comprehensive study to pull together the findings of data on teacher incentives to integrate the findings from the participating IEES countries. The long-term objective is to utilize the results of this comprehensive study, together with the lessons learned in Liberia, Somalia, and Yemen to generate a draft for recommendation to the MOEC for a differentiated incentives program responsive to the geographically and culturally complex setting of Indonesia.

ACTIVITY V (Year 1)

Activity Name:

Financing Education: Immediate Five Year Plan Assistance (Repelita V) (Year 1 of Activity 3).

Purpose:

To assist the Ministry of Education and Culture in specific analyses of the financing possibilities for achieving preliminary Repelita V efficiency and equity goals in education.

Rationale:

Drawing on the results already presented in the ESR, policy paper #3-1 focused on the possibility of financing the needed expansion of secondary (and/or improved quality in primary) education by a more decentralized local access to a Kabupatenan property tax millage for education, supplemented by equalization grants or incentive matching grants for the poorest localities.

Scope of Work:

One IFES Consultant working closely with one Indonesian counterpart to 1) review the ESR, Birmingham, Harvard CPIS, and World Bank descriptions of the decentralization of educational finance (see also the C. Shoup Mission's report on reform of the tax structure in occupied Japan); and to 2) distill the elements relevant to implementation of Repelita V's preliminary targets; 3) the interdepartmental task force and/or steering committee on educational finance mentioned in Chapter 5 above also should be formed.

Schedule:

January 1, 1987 - June 30, 1987.

Resources:

One IEES Educational Economist for two months, plus one Indonesian counterpart principal investigator (Mrs. Widodo).

Outcomes:

Policy analysis paper #3-1 in direct support of the Repelita V efficiency-equity planning effort.

ACTIVITY V (Year 2)

Activity Name:

Financing Education: Community Sources with
Teacher Incentive Supplements (Year 2 of Activity 3)

Purpose:

To assist in the development of financing arrangements to provide teachers with incentives for serving in the outlying and rural shortage areas and in math and science fields. This should be planned as part of a broader, consistent scheme for coordinating the multiplicity of financing sources to achieve greater efficiency and equity.

Rationale and Description:

To assist MOEC, in cooperation with the Ministry of Finance, BAPPINAS, the Civil Service Commission, and the Ministry of Home Affairs, to develop a scheme, for coordinating the multiplicity of financing sources into a system that (a) more effectively utilizes decentralized local property tax sources for the schools and (b) coordinates with the teacher incentive study (Activity 2) to address the need for financial incentives to serve in the outlying math and science shortage areas.

Scope of Work:

One IEES Consultant will work closely with one senior staff person on the Balitbang staff to (a) plan the implementation of better utilization of the local property tax (see text and see Activity 1 above), working with the interdepartmental tax force, (b) specifically address the need for stronger teacher incentives in rural and in math and science areas, and (c) start work on a coordinated scheme of financing, given the multiplicity of sources, that is conducive to efficiency and equity.

Schedule:

July 1, 1987 to June 30, 1988

Resources:

One IEES Educational Environment consultant half-time for 10 months (5 p.m.), working closely with one full-time Balitbang Dikbud Educational Finance Specialist.

Outcomes:

Policy Paper #3-2 on "Financing Teacher Incentives for Service in Rural and Math-Science Shortage Areas," the beginning draft of Policy Paper #3-3 on "Coordinating Fragmented Sources of Financing (for Efficiency and Equity)," and institutionalization of an Interdepartmental Committee on R&D in Educational Finance.

ACTIVITY V (Year 2)

Activity Name:

Resource Recovery in Higher Education (Year 2 of Activity 3)

Purpose:

To develop better decentralized sources for financing higher education needs.

Rationale:

The possibilities for more resource recovery to finance the needed expansion of access and needed improvements in the quality of higher education will be studied and the implementation of a scheme will be planned. Such a scheme needs to propose a more comprehensive student financial aid package. Greater use of each of the following components for the financing of public institutions, should be examined including (a) tuition, (b) tuition waivers for students from low income neighborhoods (augmented by a more objective family financial need analysis system), (c) work-study 15-20 hour a week jobs for students, and (d) student loans each have a place as part of a financial aid package.

Scope of Work:

One IEES Consultant will work with Balitbang staff in cooperation with the Secretary General and representatives of the Office of the DG of Higher Education to (a) design appropriate tuition plus financial aid package options for consideration by MOEC. To make the tuition waiver, work-study, loan package available to those that need it. A second task is to design and pilot test a simplified financial need analysis form that explores use of the Census data to determine wealth of the neighborhood plus a parent's report on their income (verifiable by tax data) or real estate (verifiable locally) and help from the extended family to the student.

Schedule:

July 1, 1987-June 30, 1988

Resources:

One IEES Educational Economist consultant half-time for 10 months (5 p.m.) working closely with the Educational Finance Specialist in Balitbang and a representative of Dr. Proematadi's office. The American College Testing Program, or ETS, should be consulted, and may be willing to send a testing and financial need analysis consultant to work with this team.

Outcomes:

Policy Paper #3-4 on "Resource Recovery in Higher Education" and a pilot-tested, computerized, and verifiable (if necessary) family financial need analysis form.

ACTIVITY V (Year 3)

Activity Name:

Financing Education: Use of the Local
Property Tax for Schools (Year 3 of Activity 3)

Purpose:

This is a continuation of the activity entitled "Community Sources with Teacher Incentive Supplements" from Year 2 into Year 3. Its purpose is to assist in designing and implementing appropriate national guidelines for use of the local property tax for education.

Schedule:

July 1, 1988-June 30, 1989

Rationale:

The study of decentralization of local property tax sources, and allowing local choice of the level of taxation earmarked for schools, will require more than one year. It should also be studied as part of a broader scheme to achieve increasing efficiency and equity in school finance.

Scope of Work:

One Educational Economist working with the Indonesian Educational Finance Specialist in Balitbang and with the Interdepartmental Committee to (a) explore the possibility of guidelines for use of the property tax by localities for schools, and (b) explore inte-gration of this with equalization grants (or teacher incentive grants) in an overall system for efficiency and equity.

Resources:

One IEES Educational Economist (School Finance Specialist) half-time for 5 months (2.5 p.m.) working with one Educational Finance Specialist in Balitbang half-time for 6 months (3 p.m.) and with the person in BAPPINAS responsible for the school aid formula.

Outcomes:

Policy Paper #3-5 on potential guidelines for use of the property tax by schools, followed by work through the Interdepartmental Committee on Implementation.

ACTIVITY V (Year 3)

Activity Name:

Private Firm Investment in Vocational Training (Year 3 of Activity 3)

Purpose:

To explore the cost effectiveness of private operation and partial financial of vocational training in place of expansion of public vocational and technical schools.

Scope of Work:

One IEES Economist, in cooperation with the Efficiency in Education Activity I study of vocational/technical schools, to focus on the financing aspects. This requires (a) utilizing the cost data on VOTEC schools collected in the efficiency survey, (b) collecting some data on the costs and effectiveness of VOTEC training with firms, (c) studying the tax incentive possibilities for inducing firms to invest more in human capital formation, and (d) making an overall comparison on the cost effectiveness of the two schemes.

Schedule:

July 1, 1988-June 30, 1989

Resources:

One Educational Economist half-time for 6 months (3 p.m.), in cooperation with Martin Godfrey and David Clarke in the Ministry of Labor and Manpower, working with Indonesian Counterparts. [The EPP would need to assist in collecting some data from firms on OJT costs. Ministry of Labor has not done this.]

Outcomes:

Policy Paper #3-6 on "The Cost Effectiveness of OJT, and its Effects on Labor Absorption."

ACTIVITY V (Years 4-5)

Activity Name:

Financing Education in Support of Increased Efficiency and Equity (Years 4 and 5 of Activity 3)

Purpose:

To design a coherent overall scheme for financing education that utilizes a multiplicity of decentralized sources (and taps the incentives that this accommodates) while identifying the policy options for maximizing the achievement of overall efficiency and equity.

Rationale:

This is the continuing charge suggested for the Interdepartmental Committee on R&D in Educational Finance. It will have generated a series of focused policy analysis papers (#3-1 through #3-6) in prior years, and should continue to do so. The problem-focus for papers in years 4 and 5 will be collaboratively defined with the committee.

Scope of Work:

An Educational Economist continuing to work on a part-time basis with the Education Finance Specialists in Balitbang. They will (a) complete the basic policy paper on how to draw the multiplicity of decentralized and centralized financing sources into a coherent scheme that seeks to encourage overall efficiency and equity, and (b) seek to institutionalize the Educational Finance Committee and policy planning capability.

Schedule:

July 1, 1989-June 30, 1991

Resources:

One IEES Educational Economist half-time for two years (5 p.m. per year) plus one Educational Economist in Balitbang half-time for two years (5 p.m. per year).

Outcomes:

(1) A continuing flow of brief policy analysis and planning papers, (2) institutionalization of the educational finance policy analysis and planning function in Balitbang.

ACTIVITY VI (Year 1)

Activity Name:

Analysis of EBTANAS Data for Repelita V (Year 1 of Activity 6)

Purpose:

To assist in analyzing the existing EBTANAS data for establishment of more specific education targets in Repelita V.

Scope of Work:

One IEES Consultant will work with MOEC staff to (1) analyze the EBTANAS secondary school-leaving data to isolate the localities in which the quality of the education is most deficient (e.g., the lowest 20%), (2) prepare a policy analysis paper targeting these localities for special assistance in improving educational quality through teacher incentive grants and textbook aid as a potential goal in Repelita V, and (3) prepare a second policy analysis paper focused on a potential goal for quality improvement in Repelita V stated in terms of target EBTANAS scores.

Schedule:

1/1/87 - 7/30/87

Resources:

One IEES Consultant for 3 months (3 p.m.) assisted by EPP staff (e.g., Simon Ju, Wee Lee) and Indonesian staff to help with data processing.

Outcomes:

Policy analysis papers #6-1 "Targeted Assistance to Localities for Quality Improvement," and #6-2 "Quality Improvement Goals" (for Repelita V).

ACTIVITY VI (Years 2-5)

Activity Name:

EBTANAS Analysis (2nd through 5th years of Activity 6)

Purpose:

To improve the quality, access to, and analysis of EBTANAS primary school and secondary school leaving achievement test data.

Scope of Work:

One IEES Consultant and one ACT (or ETS) Consultant to (1) design and implement a system of getting a regularized flow of better quality EBTANAS data for both primary schools (from the provinces) and secondary schools for analysis within Balitbang and (2) analysis of this data in depth, coordinating this with the EPP Quality Study, and with the definition of targets for the second 25-year plan.

Schedule:

7/1/87 - 6/30/91

Resources:

One IEES Educational Statistician (with some background in Economics and Educational Testing, if possible) for 2 months per year, plus one educational testing and test-processing Consultant for 1 month (perhaps supplied by ACT or ETS), working in cooperation with data processing assistance and MOEC staff.

Outcomes:

Regularized analysis of EBTANAS data with a steady flow of policy analysis papers (#6-2, #6-3, #6-4, #6-5) dealing with five- and 25-year quality-improvement planning targets, and programs for quality improvement (e.g., targeting localities, and setting achievement test score improvements as goals).

ACTIVITY VI (Years 2-5)

Activity Name:

Establishing a Family Financial Need Analysis System for Indonesia (years 2-5 of Activity 6)

Purpose:

To assist the MOEC develop a workable Financial Need Analysis System to facilitate better resource recovering and greater efficiency in higher education.

Rationale:

Resources are wasted in subsidizing those students who are without financial need, whereas able students from poor families constitute a valuable resource for the nation and should not be forced out of the system. Furthermore, on efficiency grounds, there needs to be a more significant "parents expected contribution" to deter the common practice of taking 6 years to complete a 4-year degree (see ESR). It would also increase the external efficiency of higher education if more students had the experience of part-time 12 hour a week jobs since employers are reporting that graduates are poor work-force leaders as a result of their lack of exposure to work habits.

In support of resource recovery and these efficiencies using a financial aid package strategy, a more objective financial need analysis system is needed that is less conducive to favoritism and that is tested in Indonesia's extended family context.

Scope of Work:

One IEES Educational Economist Consultant will work with MOEC staff to (1) pilot test a Family Financial Statement, (2) secure the assistance of ACT (or ETS) in implementing a nationwide system, (3) work with Pusat Informatik to devise cross checks for on the value of the house (using Census data) and on earnings (using SUSENAS data), (4) cooperate with Activity 3 where consultants and Indonesians will be working on a broader student financial aid package, and (5) work out with the Ministry of Finance means of auditing the FFS earnings report in cases where misrepresentation is suspected.

Schedule:

7/1/87 to 6/30/91.

Resources:

- (a) One IEES/EPP Educational Economist Consultant familiar with ACT and ETS Family Financial Statements (including the cross checks used to verify accuracy in reporting and criteria used to appraise ability to pay) for 3 months per year (3 p.m./p.a.) plus
- (b) one ACT or ETS Consultant for 1 month per year (1 p.m./p.a.).

ACTIVITY VII (Year 1)

Activity Name:

Nationwide Computer Literacy Feasibility Study

Purpose:

To assist the MOEC in the design of a study which would address the potential for a pilot project on computer literacy and the feasibility of expanding such an effort to national scope.

Rationale:

Indonesia is on the threshold of learning to make potentially costly decisions regarding the use of microcomputers in the educational system. Already donors are beginning to provide both hardware and other resources for pilot projects. It is important, therefore, to conduct a feasibility study such as the one proposed here, to help guide these decisions and to avoid costly misallocation of constrained EHR resources in haste.

Scope of Work:

One IEES Consultant for three months to work within EPP Consultant Simon Ju and Balitbang staff to design and implement a feasibility study which would accomplish the following objectives:

- (1) explore the feasibility of nation-wide instruction in the use of microcomputers in schooling;
- (2) study the feasibility of developing the software instead for computerized instruction in Indonesia;
- (3) examine the relationship of computer literacy to the EPP's proposed project to be implemented on a trial basis, at the four EPP pilot sites;
- (4) study the feasibility of microcomputers in local schools for management purposes.

Schedule:

May - July 1987

Resources:

One IEES consultant, with expertise in the use of microcomputers in lesser developed countries for three months to work with EPP Consultant Simon Ju. (What is needed here is a person who has experience of computer use in schools - not just at managerial level of Ministries of Education or provincial Education offices.

Outcome:

A written document which can tie in with the EPP/Balitbang Dikbud Software Development Project (see below) and provide guidance for future decisions and investments relative to the feasibility of computer literacy in Indonesia.

ACTIVITY VIII (Year 1-2)

Activity Name:

Institutionalization of Computer Software Development and Training.

Purpose:

To supplement EPP support for the expansion of Pusat Informatik's Software development and training functions.

Rationale:

This activity would assist Balitbang Dikbud to:

- (1) strengthen the capability of the software Development Group at the Pusat Informatik to be self-supportive for providing necessary Software Development services to the MOEC;
- (2) establish an information/policy modeling group within the Pusat Informatik, which is intended to provide the logical framework for policy analysis and decisionmaking;
- (3) develop a comprehensive MIS training program.

Scope of Work:

Sub-activities (1) and (2) described above will require six and five person months respectively. It is recommended that EPP long-term Consultant, Simon Ju, and his staff (Hee Wee Lee) be requested to provide these services as part of the overall EPP Mission. Dr. Ju is currently developing detailed scopes of work for these two related activities. Estimated costs are given in Annex C.

Sub-activity (3) will require one IEES Specialist for three person months to work with EPP and Pusat Informatik staff to assist in developing a comprehensive MIS training program, inclusive of technical personnel as well as the information consumers (policy workers). This task will also involve the development of a concrete strategy for institutionalizing this training program within Balitbang Dikbud.

An important component of task (3) will be the design and institutionalization of a training program specifically aimed at familiarizing senior policy analysts with the use and value of the wide variety of computer software packages that have special application for planning, management, and forecasting. This strategy is intended to have an important spin-off effect in serving as an effective marketing strategy for the policy planning process being modeled by EPP and IEES within Pusat Informatik throughout the MOEC.

It is possible that the training modules developed by the IEES supported CIRCED workshop in Lome, Togo as well as the modules developed by Dr. Yip for EPP could be adapted for use by senior-level planners.

Schedule:

June - August 1987

Resources:

Tasks (1) and (2) require eleven person months overall of EPP Staff

(Simon Ju and Hee Wee Lee) over a two year period. If Dr. Ju cannot be available for this length of time, the required technical assistance will be funded from the EPP budget. Task (3) requires one IEES MIS training consultant for three months to work with the EPP and Pusat Informatik Staff.

Outcomes:

Specific outcomes for tasks (1) and (2) are currently being developed by Dr. Simon Ju. The short-term outcome of task (3) will be the development and placement of an MIS training function within Pusat Informatik. The long-term outcome will be the institutionalization of a training program that will service policymakers throughout the MOEC.

ACTIVITY IX (Year 1-4)

Activity Name:

Computerized Library Retrieval System (Years 1-4 of Activity 8)

Purpose:

To expand MOEC's library resources by facilitating inter-library computerized searches and loans.

Rationale:

The main Jakarta library is computerized, but access by Balitbang and MOEC staff to this resource is poor. There are also libraries in the various DG divisions which are now poorly networked. The Balitbang librarian is capable of providing leadership in improving access and utilization of these resources.

Scope of Work:

(1) Purchase of an IBM-XT and Modem for the library. The library is administered by Pusat Informatik and could be assigned one PC. This type of machine is needed to read the ERIC floppy disks, (2) training of librarian assistants to conduct computerized library searches, and (3) effective presentation of the service to MOEC staff.

Schedule:

1/1/87 - 6/30/90

Resources:

(1) Microcomputer hardware (see above), (2) assignment of one driver half-time for interlibrary loan runs for Balitbang (and MOEC research staff, (3) support and guidance from the RTA (Simon Ju) for the Balitbang librarian (1 p.m. per year).

Outcomes:

Recognition by MOEC that Balitbang Dikbud has provided leadership in improving access to greater library resources.

ACTIVITY IX (Years 2-4)

Activity Name:

An ERIC System for Indonesia (Years 2-4 of Activity 8)

Purpose:

To improve access to current research in education.

Schedule:

7/1/87 - 6/30/90

Rationale:

The ERIC abstracts now available in the Balitbang Dikbud library are not used, partly because they are out of date, because their contents are not publicized, and partly because microfiche is inaccessible and different to use. Access to ERIC via the PC floppy disks now available is more practical, and could serve as a model as Balitbang establishes an ERIC abstracting system for Balitbang research and for educational research in Indonesia.

Scope of Work:

(1) After July 1, 1986, IEES (and EPP) will purchase the ERIC system diskettes from the U.S., (2) purchase the necessary floppy disk reader, (3) assist in setting up an Indonesian educational research abstracting system.

Resources:

(1) Purchase of ERIC diskettes (\$6,000), (2) purchase of an Hitachi CD-ROM reader to attach to the PC, (3) one IEES/EPP consultant to assist in setting up an ERIC abstracting system.

Outcomes:

(1) Access to all educational research done in the U.S. (including that on Indonesia), (2) an Indonesian ERIC system.

ANNEX B. DETAILED IMPLEMENTATION SCHEDULE FOR C.I.P. ACTIVITIES

INDONESIAN COUNTRY IMPLEMENTATION PLAN:

TIMELINE

ACTIVITY	Y				E				A				R *							
	1987				1988				1989				1990				1991			
	M	J	S	D	M	J	S	D	M	J	S	D	M	J	S	D	M	J	S	D
ACTIVITY I																				
1. Produce Policy Paper #1: "Investments Priorities"																				
2. Policy Paper #2: "Analysis of Educational Investment Priorities for Growth"																				
3. Design Surveys for Data Collection																				
4. Formation of Task Force on Efficiency																				
5. Establish system for acquisition of SUSENAS and census data tapes.																				
6. Conduct efficiency survey.																				
7. Conduct Voc./Tech. Tracer Study.																				
8. Analyze 1986-87 SUSENAS tapes.																				
9. Merge Manpower Planning Goals with Rate-of-Return efficiency insights.																				
10. Networking																				
11. Analysis of Efficiency in Education data.																				
12. Analysis of School and Tracer Study of Vocational Education																				
13. Policy Papers on #11 and #12.																				
14. Materials preparation for the second 25 year plan.																				

* THE YEARS ARE DIVIDED INTO QUARTERS AS FOLLOWS:

- M = MARCH
- J = JUNE
- S = SEPTEMBER
- D = DECEMBER

INDONESIAN COUNTRY IMPLEMENTATION PLAN:

TIMELINE

ACTIVITY	TIMELINE																								
	1987					1988					1989					1990					1991				
	M	J	S	D		M	J	S	D		M	J	S	D		M	J	S	D		M	J	S	D	
15. Completion of Efficiency Study.																									
16. Completion of Voc./Tech. Study																									
17. Intergration of returning M.A. & Ph.D. candidates into HR planning process.																									
18. Work on policy papers for next 25-year plan.																									
19. Continuation of net-working with VI & UGM.																									
20. Continuation of activities in years 3 & 4.																									
ACTIVITY II																									
1. Assist Balitbang Dikbud in designing feasibility study.																									
2. Conduct "best case" study of Voc./Tech. Programs.																									
3. Study on effect of new curriculum (1985).																									
4. Detailed study of recurrent costs of different Voc./Tech. education programs.																									
ACTIVITY III																									
1. Produce Policy Paper #4-1: "A Coordinated MOEC Teacher-Training Manpower Plan for Greater Efficiency".																									

* THE YEARS ARE DIVIDED INTO QUARTERS AS FOLLOWS:

M = MARCH S = SEPTEMBER
 J = JUNE D = DECEMBER

INDONESIAN COUNTRY IMPLEMENTATION PLAN:
TIMELINE

ACTIVITY	Y				E				A				R *							
	1987				1988				1989				1990				1991			
	M	J	S	D	M	J	S	D	M	J	S	D	M	J	S	D	M	J	S	D
2. Development of capacity to work at a disaggregated level.																				
3. Refinement of model in Paper #4-1.																				
4. Selection of two MOEC personnel for graduate training.																				
5. Completion of objectives #2 & #3 under year 2.																				
6. Formation of an interdepartmental task within the MOEC.																				
7. Integrate MOEC manpower plan with investment planning.																				
9. Relate #7 to needs of MOEC.																				
10. Yearly planning function based on current data.																				
11. Institutionization of an "Internal MOEC Manpower Investment Planning Function".																				
12. Integration of returning Indonesian M.A. & Ph.D. candidates into planning process.																				
ACTIVITY 19																				
1. Descriptive study of Teacher Incentives.																				
2. Policy Paper based on Teacher Incentives data.																				
3. Qualitative study on Teacher Incentives.																				

* THE YEARS ARE DIVIDED INTO QUARTERS AS FOLLOWS:

M - MARCH S - SEPTEMBER
J - JUNE D - DECEMBER

INDONESIAN COUNTRY IMPLEMENTATION PLAN:

TIMELINE

ACTIVITY	TIMELINE																							
	Y					E					A					R *								
	1987					1988					1989					1990					1991			
	M	J	S	D	M	J	S	D	M	J	S	D	M	J	S	D	M	J	S	D				
4. Comprehensive study to fill the data gaps identified in studies #2 & #3.																								
ACTIVITY 9																								
1. Policy Paper #1: "Examining the Potential of the Kabupaten Property Tax at the Local Level."																								
2. Policy Paper #2: "Analyzing Economic and Non-Economic Incentives".																								
3. Policy Paper #3: "Resource Recovery in Education".																								
4. Formation of the Inter-departmental Committee on Educational Finance R&D																								
5. Policy paper #4: "National Guidelines for Use of the Property Tax for Schools".																								
6. Policy Paper #5 on the potential costs effectiveness of the policy option that firms spend 6% of their budgets on training.																								
7. Policy Paper #6 on organizing sources for financing education.																								
8. Continuation function of the Interdepartmental Committee on Educational Finance R & D																								

* THE YEARS ARE DIVIDED INTO QUARTERS AS FOLLOWS:

- M = MARCH
- J = JUNE
- S = SEPTEMBER
- D = DECEMBER

INDONESIAN COUNTRY IMPLEMENTATION PLAN:
TIMELINE

ACTIVITY	Y				E				A				R *							
	1987				1988				1989				1990				1991			
	M	J	S	D	M	J	S	D	M	J	S	D	M	J	S	D	M	J	S	D
9. Policy Paper #7: "Providing a Narrower Focus on the Theme: Multiplicity of Decentralized Sources and Efficiency".																				
10. Institutionalization of the Educational Finance Policy Analysis Function																				
ACTIVITY VI																				
1. Analysis of EBTANAS data.	-----																			
2. Download EBTANAS data.		-----																		
3. Pilot test Family Financial Statement			-----																	
4. Secure data for nation- wide policy analysis.				-----																
5. Pilot test FFS and cross- check with Census and SUSENAS data.						-----														
6. Coordination of EBTANAS & EPP & ICES PRL.							-----													
7. Debug Family Financial Statement System.											-----									
8. Analyze improved EBTANAS data flow.												-----								

* THE YEARS ARE DIVIDED INTO QUARTERS AS FOLLOWS:

- M - MARCH
- J - JUNE
- S - SEPTEMBER
- D - DECEMBER

INDONESIAN COUNTRY IMPLEMENTATION PLAN:

TIMELINE

ACTIVITY	TIMELINE																								
	1987					1988					1989					1990					1991				
	M	J	S	D		M	J	S	D		M	J	S	D		M	J	S	D		M	J	S	D	
9. Institutionalize EBANAS & FFS system.																									
ACTIVITY VII																									
1. Design and implementation of Feasibility Study.																									
ACTIVITY VIII																									
1. Software development (EPP)																									
2. Model development (EPP)																									
3. Computer Training Program Consultancy																									
ACTIVITY IX																									
1. Provision of an IBM XT.																									
2. Investigate linking MODEM																									
3. Training Library Assistants.																									
4. Budgeting acquisition files on floppy disks.																									
5. Circulation of library research holdings.																									
6. Short report on use of computerized library system.																									
7. Extension of library services to MOEC.																									

* THE YEARS ARE DIVIDED INTO QUARTERS AS FOLLOWS:

M = MARCH S = SEPTEMBER
 J = JUNE D = DECEMBER

INDONESIAN COUNTRY IMPLEMENTATION PLAN:

TIMELINE

ACTIVITY	TIMELINE																			
	1987				1988				1989				1990				1991			
	M	J	S	D	M	J	S	D	M	J	S	D	M	J	S	D	M	J	S	D
8. Planning & disk computerization of Indonesian Research.																				
9. Extension of computerized search to NOEC libraries.																				
10. Extension of ERIC system to include Indonesian universities.																				
11. Institutionalization of ERIC Systems.																				

* THE YEARS ARE DIVIDED INTO QUARTERS AS FOLLOWS:

- M = MARCH
- J = JUNE
- S = SEPTEMBER
- D = DECEMBER

ANNEX C. COST AND SUGGESTED FUNDING SOURCES FOR C.I.P. ACTIVITIES

KEY TO C.I.P. ACTIVITIES DESCRIBED IN THE BUDGET DESCRIPTION (ANNEX C)

- Activity I. Efficiency in Education--and in Human Resource Development for Growth in Indonesia.
- Activity II. Policy Study on the Cost and Quality of Vocational/Technical Education.
- Activity III. Medium-term Manpower Planning by MOEC for Appropriate Supplies of Teachers and Administrators.
- Activity IV. Quality Education: Teacher Incentives.
- Activity V. Identify Community and Private Financing sources for Overall Efficiency and Equity in Education.
- Activity VI. Analysis of EBTANAS Data and Refinement of EBTANAS and FFS Data Systems.
- Activity VII. Nationwide Computer Literacy Feasibility Study.
- Activity VIII. Policy Analysis Support: Institutionalization of Computer Software Development and Training.
- Activity IX. Development of Library and ERIC Research Support Systems.

INDONESIA COUNTRY IMPLEMENTATION PLAN:
ACTIVITIES BUDGET

IEES FUNDS CANNOT BE OBLIGATED BEYOND JUNE 1991

ACTIVITY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
	Feb. - July 1987	July 1987-June 1988	July 1988-June 1989	July 1989-June 1990	July 1990-June 1991
Activity I					
Funding Source					
IEES					
USAID/U (PD & S)	\$20,000.00	\$30,000.00	\$15,000.00	\$12,000.00	\$12,000.00
EPP					
Activity I: Total	\$20,000.00	\$30,000.00	\$15,000.00	\$12,000.00	\$12,000.00
Activity II					
Funding Source					
IEES					
USAID/U (PD & S)	\$18,000.00	\$18,000.00			
Activity II: Total	\$18,000.00	\$18,000.00			
Activity III					
Funding Source					
IEES:					
1. Short-term TR					
EPP:			\$20,000.00	\$20,000.00	
2. Data Collection and Processing	\$10,000.00	\$10,000.00			
3. Training	\$20,000.00	\$20,000.00			
BRIDGES:					
4. Computer Model Development	\$40,000.00	\$40,000.00			
Activity III: Total	\$70,000.00	\$70,000.00	\$20,000.00	\$20,000.00	
Activity IV					
Funding Source					
IEES					
USAID/U (PD & S)	\$10,000.00	\$20,000.00	\$20,000.00		
Activity IV: Total	\$10,000.00	\$20,000.00	\$20,000.00		

INDONESIA COUNTRY IMPLEMENTATION PLAN:
ACTIVITIES BUDGET

IEES FUNDS CANNOT BE OBLIGATED BEYOND JUNE 1989

ACTIVITY	YEAR 1 Feb. - July 1987	YEAR 2 July 1987-June 1988	YEAR 3 July 1988-June 1989	YEAR 4 July 1989- June 1990	YEAR 5 July 1990-June 1991
Activity V					
Funding Source					
Policy Research Initiative (PRI)	\$15,000.00	\$25,000.00	\$25,000.00		
Activity V: Total	\$15,000.00	\$25,000.00	\$25,000.00		
Activity VI					
Funding Source					
EPP:					
1. Data Collection	\$37,000.00				
2. Data Analysis	\$5,000.00				
3. Systems Development	\$18,000.00				
4. Short-term TA	\$60,000.00				
IEES:					
Years 2-5 activities		\$18,000.00	\$18,000.00	\$18,000.00	\$10,000.00
Activity VI: Total	\$120,000.00	\$18,000.00	\$18,000.00	\$18,000.00	\$10,000.00
Activity VII					
Funding Sources					
IEES					
USAID/0 (PD & S)	\$15,000.00	\$30,000.00			
Activity VII: Total	\$15,000.00	\$30,000.00			
Activity VIII					
Funding Source					
IEES:					
1. Computer Training		\$30,000.00			
EPP:					
2. Software Development	\$60,000.00				
3. Model Development	\$50,000.00				
Activity VIII: Total	\$110,000.00	\$30,000.00			

INDONESIA COUNTRY IMPLEMENTATION PLAN:
ACTIVITIES BUDGET

ACTIVITY	YEAR 1	YEAR 2	YEAR 3	IEES FUNDS CANNOT BE OBLIGATED BEYOND JUNE 1989	
	Feb. - July 1987	July 1987-June 1988	July 1988-June 1989	YEAR 4 July 1989- June 1990	YEAR 5 July 1990-June 1991
Activity IX					
Funding Source					
IEES					
USAID/U (PD & S)					
EPP					
UNDP					
Activity IX: Total		\$10,000.00	\$10,000.00	\$10,000.00	\$5,000.00
IEES Generic Activities					
Funding Source					
IEES:					
1. Sector Review Update			\$70,000.00		
2. CIP Update(s)		\$10,000.00		\$10,000.00	
IEES Generic Activities: Total		\$10,000.00	\$70,000.00	\$10,000.00	

ANNEX D

Financing Education for Development

Families must bear most of the financing costs of the education of their children, whether through foregone earnings, taxes, or tuition, at least until the later years of college. The way in which these costs are shared is important not only to the external efficiency of the system, but also to its internal efficiency and to the equity with which both the benefits and the costs are distributed. For "industrialization" to become true "development," growth with increasing inequality (e.g., Table 6, see Brazil) must become growth with decreasing inequality implying a wider sharing of the benefits of industrialization (Table 6, see South Korea, Taiwan, Hong Kong, and Singapore).

Private vs. Public Financing

Small children cannot finance their own education, nor can children who have no parents, poor parents, or ungenerous parents, so the state inevitably has a role in financing education. Where parents are temporarily or abnormally short-sighted there will be underinvestment in education unless the state intervenes, and the state will bear unnecessarily high welfare costs later and suffer less income growth, requiring everybody to pay their own way and pricing strictly on the basis of private marginal cost makes no sense in the education sector. There is a common good to be derived from education in addition to individual gain.

The social rate of return is a price that reflects the growth payoff to the society of each dollar invested. It takes into account the full cost, including the public tax cost, and the full measured GNP-related return, including taxes paid for the support of public goods. Its limitations should be clear, so that care is used to make allowances in

those situations where earnings data are misleading. This can occur when there is income in kind, or where earnings do not reflect true productivity accurately, due to the monopoly elements in dual labor markets.

Table 6

Industrialization with Equity

Patterns of Income Distribution in Selected Countries¹

Countries from Highest to Lowest Inequality	Relative Share of Income by Income Class (%)			Year of Data	Percent Industrialization and Growth Rates		
	Top 20% of all Households	Lowest 40% of all Household	Lowest 20% of all Households		Industry % of GDP 1984	GNP Per Capita (US\$)	Growth Per Capita 1965-84
High Inequality							
Brazil	66.6	7	2.0	1972	35	1,720	4.6%
Leban	61.1	10.8	3.5	1976	39	470	-1.3%
South Africa	58.0	6.2	n.a	1965	47	2,340	1.4%
Chile	n.a	n.a	n.a		39	1,700	-1.1%
Philippines	54.0	14.2	5.2	1971	34	660	2.6%
Moderate Inequality							
Malawi	49.8	15.2	5.6	1976	28	860	4.2%
Indonesia	49.4	14.4	6.6	1976	40	540	4.9%
India	49.4	16.2	7.0	1976	27	260	1.6%
Egypt	48.0	16.5	5.8	1974	33	720	4.3%
Hong Kong	47.0	16.2	3.4	1980	22	6,330	6.2%
Low Inequality							
South Korea	43.3	16.9	5.7	1976	40	2,110	6.6%
United States	37.9	17.2	5.3	1980	32	10,630	4.7%
Israel	39.9	18.0	6.0	1980	27	5,600	2.7%
Taiwan	37.5	22.3	n.a	1979	52	2,280	9.9%
Japan	37.5	21.9	8.7	1979	41	10,630	4.7%

¹Source: World Bank (1980a, pp. 180, 184, and 226) except for Taiwan and South Africa data which is from Kuo, Ranis, and Fei (1981, pp. 7, 10 and 36).

Responding implicitly to relatively high social rates of return, the proportion of GNP devoted to education in developing countries doubled from an average of 2.3% in 1960 to 4.5% in 1984 (Psacharopoulos and Woodhall, 1985, p. 128). The proportion of national government budgets devoted to education rose from 11.7% in 1960 to 16.1% in 1984. Given what is known about the relatively high rates of return, and the use of them as the appropriate marginal cost pricing criterion, this maybe said to increase economic efficiency.

The evidence is, however, that there is still significant underinvestment in education in many of the poorest nations. The limitations on public sources of financing are such, including the problems with common evasion and little enforcement of the tax laws in many developing countries, that this situation has led to discussion of the possibilities for greater use of decentralized community level and private family financing sources. This discussion focuses on greater use of the local property tax for support of the local schools. That tax is most available to localities, and promises greater resource recovery from the higher-income parents of college students. College students benefit incommensurately from relatively costly and highly subsidized college enrollments, especially in African nations.

Primary school, junior secondary, and (as soon as a country can afford it) senior secondary school pupils cannot and should not be expected to pay their own way. The foregone earnings costs borne by the parents are the major costs of investment in human resources by far. These costs become even greater after the child reaches fifth or sixth grade, and can be of practical help with family work. In wet rice cultures, such as Southeast Asia, this often forces the parents to with the child from school to work in agriculture. The result is a high dropout rate, because the true price

to the low income parents has become too high. To add junior secondary and senior secondary SPP fees and BPP fees to cost, as is done in Indonesia, makes the total price for junior secondary schooling for low income parents prohibitive for many.

The problem of utilizing community resources at the primary, junior secondary, and senior secondary levels is one of use of local property taxes, combined with provincial (and central government) school aid grants to the lower income districts. It is also one of eliminating the school fees supplement in the lower income districts (such as the major BPP fees collected by parent teacher organizations in Indonesia). These fees result in teacher salary supplements being available in the higher income districts, and thus attracting the math, physics, chemistry, and other science teachers from the lower income schools.

There are also possibilities for better resource recovery in higher education, which should also improve with equity. There is extensive evidence in Africa, (especially in the Francophone countries) that the unit costs of higher education are not only extraordinarily high, but are also very highly subsidized. Mingat and Psacharopoulos (1985, p. 37) (Table 7) find unit costs of public higher education in Africa as a percent of per capita GNP to be over 16 times greater than comparable costs in the developed countries. The high degree to which these students are subsidized is reflected in the extraordinarily high 32% private rates of return to higher education in Africa, relative to the more typical 12% social rates of return at that level also shown in Table 7. This point is addressed in a World Bank (1986c) paper, "Financing Education in Developing Countries: An Exploration of Policy Options". Thus study concludes that the needed continuing expansion of higher education could be financed if there

were more resource recovery from high income parents, with tuition and fee waivers and student loans available to students from low income families, so that these students are not excluded. Such a policy of improved resource recovery can also be conducive to greater efficiency, since able students from low income families are an existing resource. There are also implications for greater internal efficiency. In Indonesia, for example, it takes 6 1/2 years for the average student to complete a bachelors degree at many of the major universities. The Indonesian Government is taking steps to correct this, such as are the doubling of tuition in mid-1986 which will provide an incentive to complete the course more rapidly. Government is also considering of the possibility of eliminating a school leaving bachelors thesis requirement (the Skripsi) which aggravates the completion problem.

Table 7
Cost, and Private v.s. Social Rates of Return
Higher Education Only

	Unit Costs of Public Higher Education (% of Per Capita GNP)	Rates of Return to Higher Education	
		Private Rate	Social Rate
Africa		32%	12%
Francophone	804%		
Anglophone	920		
Asia	118	19	11
Latin America	88		
Developing Countries	370	24	13
Industrialized Countries	49		

Source: Mingat and Psacharopoulos (1985, p. 37)

Cost recovery must be done with fairness and equity, as all taxation and public finance must consider. In the United States students in public higher education institutions pay almost 33% of the institution's cost and

all of their room, board, and transportation costs. This contrasts with the highly subsidized situations in higher educational institutions (and in some residential secondary schools) in Africa. Every student in both public and private higher educational institutions in the U.S. has access to financial aid dependent on the parents ability to pay which might consist of grants, student loans, week part-time employment, and the "parents expected contribution." The parents expected contribution is determined on the basis of a Family Financial Statement filled out by the parents and processed in a computerized private financial need analysis center (ACT or ETS). The information reported is verifiable, and the centralized national processing enables consistent standards to be applied in the same way to processing of family financial statements also facilitates the elimination of most local favoritism or bribery.

Research would be necessary if the decision were made to adapt the family financial statement concept to Indonesian conditions. In Indonesia there is an extended family of "uncles" and friends who may often replace the parents in supporting the student. Pilot testing of ways of learning about these alternatives, as well as the types of income that are verifiable (e.g., a house, an apartment, or a car) is a necessary first step. If tuition is to be raised to increase resource recovery in higher education, then it would be important to develop better family financial statements to be used for tuition waivers and student loans. It would prevent able children from poor families from merely being excluded and would increase both the efficiency and the fairness of the system.