

An Institutional Assessment of BP3K
(Centre for Educational and Cultural
Research and Development)
Ministry of Education and Culture
Jakarta, Indonesia

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December, 1982

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I. Introduction

Indonesia has one of the largest, most complex, and fastest-growing education systems in the world. The size of its routine and development budgets, the amount of external assistance provided for development projects, the magnitude of the system itself (e.g. perhaps 27 million children in primary school alone), and the government's commitment to further expansion of all levels of the system make Indonesia unique in the developing world.

The problems inherent in the development and maintenance of this system are also unique. Indonesia's geography and the gap between urban and rural living standards make educational equity a serious problem. The variety of local languages and ethnic groups causes tensions between nationalism and regionalism. The sheer size of the system makes management and control difficult, and its rapid expansion has caused serious concern over educational quality and over the absorption of graduates into higher levels of the system. And a suitable match between school learners' skills (and aspirations) and jobs available in the market place is becoming increasingly impossible to achieve.

Many of these problems relate to the changing focus of educational planning in the developing world over the last few decades. Educational planning as practised in the post-World War II era had two objectives: (a) to create functional systems of education in the sense that schools, colleges, technical

institutes and universities produced a supply of work skills that meshed closely with the labor market requirements, avoiding both surpluses and shortages in all the different occupations, and (b) to allow an expansion of places in educational institutions to meet "social demand," i.e., to reflect desires of students to enroll themselves in those institutions. In the experience of most developing countries, social demand for enrollment translated itself into political pressure for expansion, especially in the less demanding fields of study, far beyond the needs of the monetarized sector of the economy for work skills. Governments generally conceded to this pressure for expansion. The result oftentimes has been a distribution of educational resources favoring universities and an elite secondary sector and starving rural primary and secondary schools. Other expected results of a policy of expansionism are deterioration of the quality of schooling, excessive certification of the labor market, and educated unemployment among liberal arts graduates.

The versions of human capital theory that were developed in the 1950's and 1960's, based for empirical content on experience in western industrialized nations, were too macroeconomic in nature to help developing nations establish an appropriate set of

priorities for expansion. On the other hand, the specialists in projecting labor market demand, i.e. those responsible for helping governments meet the first objective stated above, tended to confine their attention to the monetarized sector of the economy, ignoring the relationship between basic education and farm productivity and slighting the economic significance of the education of women. Their recommendations for expansion, though highly prioritized, were simply too narrow and limited, especially in the light of the urgent need to provide some degree of social mobility in the developing nations.

Expansion must continue, but it needs to be guided by a sense of priority based, for example, on the objectives of improving quality of instruction, especially in the fields of mathematics and science, raising the level of efficiency in both its internal and external aspects, and advancing the contribution of the educational system to equity or social justice.

To consider the objectives in inverse order, one may note that educational systems are expected to see to it that poverty is not passed endlessly from one generation to the next and that the class structure is somewhat open. In Indonesia, the main requirement for equity would seem to focus on the needs of the

rural population for better educational opportunities. Efficiency in its external aspect focuses on the contribution of the educational system toward economic development - the traditional first objective of educational planning - but present plans for external efficiency need pay heed to the economic returns to basic education in rural areas. Internal efficiency has to do with getting higher yields of learning for whatever level of rupiah investment is made. Quality refers to the rigor of the educational system. Mathematics and science are often stressed because of the increasingly technical nature of work - a worldwide phenomenon.

In theory, Indonesia should be well-placed to face such challenges. Domestic and external funding, relative to many developing nations, is readily available. A basic educational infrastructure, both public and private, is in place. The Ministry of Education and Culture, as well as the personnel within it, is relatively stable in terms of organization and staffing. And an aggressive program of training and post-graduate education within the Ministry has produced a relatively well-trained cadre of administrators, planners, and researchers both in the Ministry itself and in universities and IKIPs.

But for a number of reasons - historical, financial, structural, cultural - the theoretical ability of the Ministry to address the problems of Indonesia's education system is not being adequately fulfilled. Data are not being systematically gathered, analyzed, and disseminated. The quality of the system is not being adequately monitored. Policies and projects are not being adequately evaluated. Future problems - medium-term and long-term - are not being adequately identified, analyzed, or researched. Pilot programs and experiments are not adequately conceived or implemented. And alternative policy recommendations are not being adequately formulated.

It is the purpose of this report to discuss to what extent the Ministry of Education and Culture's Research and Development Centre is able to assist in these various areas-and then to suggest ways in which USAID might improve its ability to do so.

II. The Roles and Functions of BP3K

A. Formal assignment of roles and functions

In facing the problems of Indonesia's education system, the Ministry of Education and Culture expects its Centre for Research and Development (BP3K) to play a key role in a number of areas: in data collection, innovation, and curriculum development; in testing, research, and system evaluation; and in planning, policy analysis, and policy formulation. BP3K is also responsible for coordinating foreign technical assistance to the Ministry and planning the next Five-Year Plan. In a sense, then, BP3K is meant to be all things to all people - to the Minister, a high level "think tank"; to the Directorates-General, a source of quick advice on policy alternatives; to provincial offices, a source of up-to-date data and tested innovations; to the IKIPs, a source of funding and intellectual leadership. But it is apparently not yet achieving any of these goals satisfactorily.

In formal terms BP3K's functions are spelled out most clearly in a Ministry document of 1980:

- 1) to prepare Ministry policies and formulate technical policies for research and development in education and culture,
- 2) to carry out research and development in education and culture in connection with the formulation of policy, and
- 3) to coordinate and guide educational and cultural research, the development of curriculum and educational facilities, the development of "informatique" for the analysis of education and culture, the development of educational and cultural innovations, and research and development in testing systems.

Other documents lay out more specifically the objectives and goals of BP3K. The chairman, for example, at various Ministry meetings in 1981 and 1982, spoke of the need for improving data collection, evaluating the Third Five-Year Plan, making inventories of innovations, identifying specific problems in educational development and renovation, formulating alternative

policies, and studying various educational "concepts" and "models" such as the school as a centre for culture and life-long education. BP3K's key role in coordinating educational research activities was also discussed.

Yet another definition of BP3K's goals and functions is found in the 1982 report done by BP3K's "team of experts" when requested to outline a "reconceptualization" of BP3K for the future. Here the general role of BP3K is to serve as a forum within the Ministry for the development of national and ministerial policies and strategies in education. Specifically, its functions are to:

- 1) review periodically the entire condition of the education system,
- 2) identify the sector's primary problems,
- 3) formulate long-term ideas for educational development,
- 4) inform policy-makers concerning the quality and problems of the system and provide alternative ways of reacting to these problems, and
- 5) evaluate the implementation of current policies and suggest ways to improve them.

B. Actual Functions of BP3K

The implementation of any of these various ideal interpretations of BP3K's objectives is hindered by lack of agreement within the Ministry over what its actual role should be. While some of BP3K's tasks are clearly defined and not duplicated elsewhere in the Ministry - such as curriculum evaluation, test development, and long-term experimentation with educational innovations - others are not so clearly delineated in relation to other ministerial units. This is particularly true in regard to: 1) planning and policy formulation, and 2) data gathering and analysis.

In terms of planning and policy formulation, BP3K is torn by demands for rapid answers to problems being faced by Ministry directorates and provincial offices, by the responsibility for coordinating medium-term planning (Five-Year Plans), and by the more general responsibility for being the ministerial "think tank"--projecting ahead perhaps twenty years to foresee future problems and beginning now to plan research to enable the Ministry to face these problems. But other agencies are also doing such work.

Even in the longer term, there are many issues which BP3K should be thinking about but is not--ways to achieve universal primary education, problems likely to be encountered in planning for the 5th Five-Year Plan, alternative streaming patterns, the fate of open SMP's, problems of equity in university admission, etc. In the absence of BP3K direction, such issues tend to get resolved by ad hoc committees, individual directorates, or the Minister's own advisors.

Thus, while BP3K has some strong centres, they do not appear to be involved in policy analysis beyond their own boundaries, if at all. And so its research program has no unity, and it is certainly not guided by any research priorities related to middle or longer term planning. In this sense, BP3K resembles not an organization for policy formulation and analysis, but an education department in a major university. Senior officers set their own individual research objectives without serious consultation with other senior officers. There are no tight time lines for completion of work. There is no review process to evaluate completed work. Like an education department in a major university, BP3K has a poor reputation with other units of government or university departments that pride themselves on

rigor of analysis and the power they hold (e.g., BAPPENAS). Morale is low, and members of BP3K often appear isolated, defensive and reclusive.

There is no effective contact with planning units outside of education such as in BAPPENAS, the Ministry of Health, and the Ministry of the Interior. There is not even effective contact with provincial officers. Relationships with the universities exist through specific contracts or because, one suspects, many BP3K people are holding second jobs in the universities.

As a de facto university department of education, BP3K has a certain utility: some of its work in curriculum development and testing appears to be good. But it is not effective in developing and refining national objectives in education, in helping the provinces set their objectives, nor in proposing and evaluating alternative means through which national and provincial objectives can be obtained. If BP3K is to take on the responsibility for planning and policy analysis, this implies centralization of the components of BP3K into an organization whose primary function is policy analysis, the very opposite of the present organization in which most effective power appears to be held by centre directors working on quite unrelated activities.

In terms of data gathering and analysis, lines of authority and responsibility are also confused. There are several data bases being established at BP3K itself--data on achievement, and other test results at the Testing Centre, data on system evaluation at the same centre, and more routine quantitative data at the Informatique Centre. Other bases are found at the various Directorates-General, in the Planning Bureau, and in provincial offices. Lack of clarification over which of these bases take precedence in planning exercises and of how they relate to each other has made BP3K's role in data analysis an unclear one.

C. Potential Functions of BP3K

As a highly placed unit in the Government of Indonesia, and as an organization that already carries responsibilities for curriculum design, educational innovation, and testing, BP3K is potentially the ideal body to conduct prospective (long-range) and five-year planning in education. These kinds of planning activities embody policy analysis, and in this report middle-and-long-range planning, on the one hand, and policy analysis, on the other, are terms that are used interchangeably.

There is little evidence, however, that planning-cum-policy analysis is now being done in BP3K, though some members are participating in planning and projecting tasks related to the next Five-Year Plan. All over the world this kind of work has become routine, but it is only the first step, a kind of background activity, to more serious exercises in planning.

Based on its assigned tasks and its potential, there are several functions which could be performed well by BP3K. They include the following:

- 1) To serve as a ministerial "think tank". No one unit of the Ministry now appears to be "one step ahead" of the others--assessing the issues, the problems, the educational structures and processes which will be important to Indonesia in the years ahead. Individual directorates need guidance on future planning, BAPPENAS requires information on major changes in resource allocation possible or desirable in future five-year plans. BP3K could become a vital part of this longer-term planning process.

- 2) To set system objectives in a more precise or relevant manner. This means, for example, setting objectives not in terms

of national targets but in terms of provincial targets and by characteristics of students: urban, semi-rural, isolated rural, low-income, gifted, handicapped, etc. It also means setting objectives in terms of results, not just in the proportion of examination passes but in terms of what graduates know and can do with their knowledge.

How does one go about setting objectives? There is no single scientific procedure, but what one does not do is ask all provincial authorities to prepare a long list of objectives within a very short period. Setting objectives is based on consultation with people in other Ministries; especially BAPPENAS. BAPPENAS should be asked to describe at least in general terms how the skills requirements of the country will change in the next five years and in later planning periods, and BP3K would then translate these into skills targets for the educational system. It could consult with the Ministry of Health to see what the particular health problems of students are and then try to see how schools can better accommodate and ameliorate those problems. It could consult with university leaders to see what, from their perspective, are the academic deficiencies in secondary education. It could seek guidance from economics and education literature and from the experience of other countries.

It could also take counsel from teachers, administrators, parents, students and local government officials. And it could work even more closely with the various Ministry directorates.

3) To convert objectives into measurable units of attainment. If one says that an objective is to raise mathematical understanding of university entrants, what does this mean in practice? Are existing tests going far enough to measure mathematical competence? If not, how do we get better ones? Having settled upon tests, what are the benchmark data, meaning how well are given groups of students doing today? Should one concentrate one's efforts more on certain groups of students than others, and, if so, which ones? How much raising of test scores is to be regarded as a policy success? Is there a way to monitor progress during the plan period? These are some of the questions that the translation of a broad objective into measurable specifics implies. This work, too, must be done in close cooperation with other units of the Ministry.

4) To consider alternative means to achieve results for each major policy objective. These means need to be conceived, tested, and evaluated. What works in one province may not work in another, and the same applies to dealing with different groups of students. Imagination is helpful in conceiving educational

innovations, but the testing of them is difficult and time-consuming. It is good that BP3K includes developmental and testing activities within its own organization, but things are not now synchronized. Policy objectives need to be stated sufficiently in advance of plan writing so that the various means to achieve the results can be tested and evaluated prior to the time when specific proposals for change are written into the plan.

One general thing can be said about choosing alternative courses of action: the choice of the preferred alternative follows the rule that this alternative should yield the greatest progress for a given rupiah investment (or alternatively, that it achieves the stated objective at lowest rupiah cost). This rule is at the heart of policy analysis, and the identification of this kind of preferred alternative is what all analysts aim for, however much their technical exercises are constrained to the realities of the planning process. Thus, the overall objective of this exercise is to produce a series of five year plans that are both comprehensive and realistic and that show what education can contribute to the economic and social life of the country.

To summarize, BP3K's role in most general terms is to help Indonesia sort out its expenditure priorities toward and within the field of education. If BP3K is to do this successfully, it must first sort out its own research priorities. At the present time, these do not appear to be guided by the setting of longer-term educational objectives nor the identification of major educational problems. Reasons for this situation are varied but can best be examined in terms of BP3K's structure, its project focus, coordination and communication within and without BP3K, and its lack of adequate facilities and staff. Consideration of these factors will lead us to proposals for future technical assistance to help BP3K fulfill its potential in research and planning activities.

III. Impediments to the Fulfillment of BP3K Goals

The Structure of BP3K

When BP3K was first established as a Centre of Educational Development (BPP), the education system was considerably smaller and the tasks of research, experimentation, and planning considerably less complex. A major first task was a national assessment of education, which trained many new staff, produced

volumes of data, and led indirectly to many of the projects still being carried out today. It led also to a pattern of dependence on donor funding and therefore a focus on small projects of work which could attract such funds. As more local funding appeared, the structure of BP3K - and its project focus (seemingly allowed to flourish on a rather laissez-faire basis) - continued more or less unchanged. Major personnel changes - predicted over three years ago and now still occurring - produced an even greater loss of direction so that it now appears (at least to the outsider) that BP3K is still working on a set of assumptions and with an organizational structure that may have been appropriate several years ago but are no longer appropriate today.

This is not to say that BP3K has remained unchanged. A Testing Centre was recently established, and innovation and technology projects have been separated into different centres. But BP3K's basic structure of centres and sub-centres (bidang) and the tasks formally assigned each bidang have largely been unaltered. Meanwhile, projects have multiplied and have been assigned to centres in a not particularly rational or consistent way.

One centre, for example, collects yearly data on enrollments and teachers. Another, has been given responsibility for "systems evaluation and quality control", requiring access, no doubt, to the other centre's data, while yet another has already begun an evaluation of the 1975 curriculum--one of the most important issues of educational quality in Indonesia. Meanwhile, two other centres (Innovation and Research) theoretically perform roles also performed elsewhere; the Curriculum and Testing centres, for example, carry out research and try out innovations on their own.

Once frozen into a certain structure by ministerial decree, BP3K finds it difficult to create formally a more rational organization. The Curriculum Centre has therefore re-organized itself informally--from sections organized by levels into "clusters" of activities organized by stages in the curriculum development process: basic research, evaluation, the development of new curriculum models, and the development of equipment and facilities. The Innovation and Testing centres have not been similarly re-conceptualized. Their work therefore reaches out to all areas of the system in somewhat random fashion--the Research Centre, for example, into drop-outs, language teaching, culture, teacher training, research methods training, Five-Year Plan evaluation and long-term planning (the "Grand Design"). And the

Innovation Centre is involved in both formal and non-formal education, rural development, career development, and teacher training, with plans for future work in moral education, culture, education in transmigration areas, and the training of school supervisors; again, these appear to be somewhat random choices rather than the outgrowth of a systematic review of the centre's structure and functions.

B. The "project focus"

Related to the somewhat unsystematic nature of BP3K's structure, perhaps as both cause and effect, is the nature of its work: a focus on the "project" as the basic unit of activity. One informant said that BP3K's work agenda is the sum of many individual agendas. Though this exaggerates the situation, it does seem true that BP3K's work consists largely of narrowly-defined projects in search of policies to inform rather than of programs of work derived from policy issues and resulting in particular research and development projects.

This project focus derives from a number of causes. In part it is historical--projects developed over a number of years based on the interests of individual centres and researchers (and donor

agencies). Many of these have continued for several years without systematic review or planned completion. The project focus relates also to the annual budget cycle which seems to encourage both the continuation of old projects rather than the initiation of new ones and the operationalization of BP3K's work into short spurts of activity within a narrowly-defined project, year after year, rather than into longer periods of more systematic work related to a coherent institutional plan of research and development. Lacking such a plan of work, BP3K appears to select projects somewhat at random. Though all are approved by the Chairman and Centre directors, they derive from a number of sources--the Minister's speeches, the interests of individual researchers, the funding preferences of donor agencies. They do not appear to be based upon a list of research priorities or an analysis of the information required or the policy alternatives needed to meet educational development issues in years to come.

One result is that projects sometimes overlap or duplicate each other, in result if not design. In-service primary school teacher training experiments, for example, are being developed in the centres for Innovation (NTR). Research (the classroom environment study), Curriculum (the Cianjur project), and

Technology (distance upgrading). Such overlap is not necessarily disadvantageous if it is planned, if differences among related projects are made explicit and lead to systematic comparisons, and if one project team knows clearly what another is doing. This is not, however, the usual case.

C. Communication and coordination

Problems of overlap are compounded by a lack of communication and coordination of activities within BP3K. Centres are planning projects in the training of school supervisors and the development of self-instructional manuals to train teachers in test construction without knowing details of related projects in other centres. And three different centres are exploring ways to define the school as a "centre of culture" without apparently being aware of what the other centres are thinking.

Much work is also being done outside of BP3K--in universities and IKIPs especially--which is not known to BP3K researchers. The projects done in IKIPs with funding from the Directorate-General of Higher Education apparently do not reach

BP3K, and while greater contacts are now being made between BP3K and the various Ministry directorates, there is still a feeling that BP3K and these directorates do not know well what each other is doing. The same appears true between BP3K and provincial education offices. Though BP3K periodically receives information from provincial offices regarding school data and general development needs, it does not appear to communicate systematically its reports or project conclusions to provincial staff.

D. Facilities and Staff

A major problem with BP3K's long-term development prospects--and the cause of many of the problems discussed above--is the lack of adequate, integrated facilities and of a well-balanced, full-time staff. BP3K's present building is clearly unable to handle its increased responsibilities; the library and the Information Centre are especially in need of more space, and little concentrated, reflective work can get done in the small work places now provided professional staff.

The worst prospect facing BP3K is that its new Testing Centre will be built 17 kilometers away from the rest of the institution. This Centre's important role in system evaluation and quality control and in relating to other centres through the development of various tests and measurements makes it imperative, we believe, that it be placed closer to the rest of BP3K.

In terms of staff, BP3K is making progress. By the end of 1984, over a dozen Ph.D.'s and 30 M.A.'s should be available among a total staff perhaps double its present size. But this training appears to be unbalanced, neglecting fields such as policy analysis and the economics and anthropology of education. And the incentives available to BP3K staff do not appear high enough to convince first-rate university or IKIP staff either in Indonesia or currently abroad to move to Jakarta and work full-time at BP3K.

The alternative has been part-time staffing, an unsatisfactory solution. This is especially true at the centre director level where 3-4 days per week at BP3K is inadequate for the planning and monitoring work required to move into new, more systematically derived activities. While recognizing the reasons

for such part-time staffing, we hope that it is only a temporary aspect of BP3K's organization

E. Summary

Any consideration of assistance to BP3K must therefore take into account the structural and definitional ambiguities of BP3K's current condition. Many of these are not readily amenable to external aid. Questions of organization and management, of communication and coordination, of program planning and the clarification of roles and functions are matters primarily for internal decision-making. What is important to remember here is that in spite of many difficulties BP3K stands at a threshold of sorts--with reconfirmed trust from the Minister, improved relations with many directorates, and a growing cadre of trained staff. It needs now firm decisions and imaginative plans for the future; external assistance can help only indirectly in this regard. But there are other areas where such assistance can be of greater use. The following section outlines two possible strategies for external assistance.

IV Assistance Alternatives

A. A minimum program of assistance

The first alternative for USAID assistance is based on the assumption that the structural, definitional problems which currently hinder BP3K's full development cannot be easily overcome--that its various roles within the Ministry will not be soon clarified nor its current organization and process of work easily rationalized. In this situation, we recommend that assistance be limited to those centres whose tasks and activities are already relatively well-defined but which lack particular expertise or facilities to carry out these tasks effectively. This assistance should be structured so as to encourage new and existing links between BP3K and the Planning Bureau, the Ministry's various directorates, and provincial education offices.

1) The Informatique Centre

Three centres show the most promise for such assistance: Informatique, Testing, and Curriculum. The Informatique Centre has a particularly important role to play in coordinating its

activities with those of other Ministry units collecting and analyzing data: provincial offices, each Directorate-General, the Planning Bureau, and BP3K's own Testing Centre. But there does not yet appear to be either a ministerial decision on how these units can coordinate their activities nor a BP3K plan on how its Informatique Centre can service the data needs of the rest of the Ministry.

Here, external assistance can help in several ways:

- 1) Provision of experts to advise the Ministry on appropriate equipment for BP3K, other units, and some (if not immediately all) provincial offices.
- 2) The provision of such equipment. One possibility would be for provincial hook-ups, with live terminals and visual displays, to the central computer at BP3K. This would allow provincial analysts to make comparisons between their data and national data--and with the data of other provinces. It would also allow any given province to use the software developed in the centre or by other provinces. However, if the central computer will be subject to a lot of down time or if the provincial operations are very inefficient, with some provinces crowding out others for time, then an

integrated system of micro-computers in the provinces might be better.

3) Technical assistance in the use of the computer facilities. This would mean both a computer programmer and a policy analyst. The computer programmer should be very technical while the analyst should be competent in technical matters but also interested in collecting and using data to solve practical problems--and in training BP3K to do the same. These foreigners should be available during the period of time that present and future BP3K staff are being trained abroad in policy analysis and during their re-entry period.

4) Training in the use of this equipment and in the preparation of models appropriate to the various data analysis needs of the Ministry. Such training should be appropriate for both national and selected provincial staff.

5) Special assistance in linking the Informatique Centre to the Planning Bureau, particularly in regard to data required in short and medium-term planning, and to selected provincial offices, such as in East Java.

6) Establishment of a centre (perhaps an "operations room") where up-to-date information would be available on major aspects of the education system; this should be done in

conjunction with the quality control/system evaluation section of the Testing Centre.

2) The Testing Centre

The Testing Centre is important for its role not only in the development of various achievement, aptitude, and attitude measures but also in the creation of a mechanism to carry out "system evaluation and quality control". Its importance could conceivably be even further enhanced if the system as a whole moves toward the development of formal, "open", and non-formal streams of education among which individuals could move upon passing the necessary tests.

The Testing Centre is relatively new and its tasks, still relatively undefined. Several aspects of external assistance should be considered:

- 1) Provision of space in the Senayan Ministry complex rather than in a now-planned building 17 kilometers away. Proximity to the rest of BP3K is absolutely essential for effective work.
- 2) Provision of access to data processing and analysis facilities commensurate with its needs: optical scanners, word processors, etc.

- 3) Advanced training and technical assistance in the general areas of evaluation and tests and measurements (aptitude, achievement, non-cognitive) and in more specific fields such as item bank development and national assessment design.
- 4) Visits of staff to other testing centres in the region (Malaysia, Singapore) and eventually in Europe and North America.

3) The Curriculum Centre

The Curriculum Centre appears already to have a clearly-defined program of work for the years to come. Its goals, however, are ambitious, going beyond the evaluation and revision of present curriculum to the development of curricula for new Ministry interests such as special education and education for rural development. External assistance to this centre is less obvious, but might include:

- 1) Access to appropriate equipment (word processors, for example) and access to the data analysis equipment described above.

2) Training and technical assistance in various curriculum specialties, such as special education, pre-school education, science and mathematics education, etc.

3) Training in research methods particularly appropriate to curriculum evaluation and testing, including content analysis and ethnographic techniques.

4) A Program and Policy Planning Group

Further assistance might also be proposed for the development of what we believe is a crucial component of BP3K's future development: the establishment of a Program and Policy Planning Group within BP3K.* Such a group might have several functions:

1) to gather data on current Ministry policies (from speeches, REPELITA documents, legislative actions, etc.) and translate them into BP3K research and development priorities over the medium- and long-term. Such priorities would

*Ideas in this section have been gathered from earlier memos and reports done by Dr. Bill Cummings, Dr. James Johnstone, and the "Team of Experts" requested to examine the possible "reconceptualization" of BP3K.

relate to possible policy alternatives for the future development of Indonesia's education system. They would therefore keep BP3K "one step ahead" of the rest of the Ministry in terms of policy-making and planning;

2) to advise and assist the chairman and centre directors of BP3K in the development of both systematic programs of research related to the priorities previously identified and specific projects deriving from these programs;

3) to monitor and review the progress and results of the centres' projects;

4) to compile and synthesize reports of BP3K research and development activities into executive reports and, where appropriate, into specific policy options;

5) to carry out brief, incisive studies, using primary or secondary data, on key issues facing Indonesia's policy-makers. These might be in response to unusual circumstances (e.g. increased violence in schools) or to requests from other Ministry units (e.g., problems of access to higher education); and,

6) in cooperation with the Secretariate, to insure increased coordination and cooperation among BP3K centres through the routine circulation of reports, regular

information meetings, the periodic publication of project results, the collection of questionnaires and codebooks used in BP3K studies, etc.

Such a Program and Policy Planning Group could be located in a variety of places within BP3K. Wherever situated, however, its staff should be full-time (perhaps drawn on a contract basis from throughout Indonesia as well as from recent Ph.D.'s at BP3K itself) and should be able to advise and act on the behalf of the Chairman. Some of its staff should be trained in project appraisal techniques and policy analysis; others might be experts in statistics, planning, finance, curriculum, adult education, etc.

This Group could be located in BP3K's Secretariate, the drawback here being the traditional lack of promotion possibilities for Secretariate staff. It might therefore be better placed temporarily (as a task force, perhaps) and later permanently between the Chairman and the Secretariate, taking advice from, but also being able to influence the work of, individual centres. What is important is to maintain its independence, its freedom to investigate and comment, and its willingness to undertake difficult and perhaps sensitive tasks.

Only then could it help BP3K become the "think tank" the Ministry needs.

External assistance would be useful in the development of such a Program and Policy Planning Group by providing short- and long-term training to its staff in policy analysis and by making available to it external expertise, as needed, for specific research studies or for specific stages of the planning and policy formulation process.

At the moment BP3K has some bright younger people, but they are to be found in fields such as educational psychology, measurement and testing, and curriculum design. They have no special background for policy development, a background which necessarily includes economics and certain elements of statistics (regression analysis, time series analysis, forecasting, construction and testing of analytical models).

In improving BP3K's capacity in policy analysis, one must consider whether it would be better (1) to retrain existing staff to work as policy analysts (probably starting in most cases at the very beginning of economics and statistics), (2) to hire some

economics graduates (thus to top off their training in policy work), or (3) to borrow experts in Indonesia who are already doing long-term policy work (the most likely source is BAPPENAS). These are not mutually exclusive options. Our guess is that the best choice is (2) for the main, but not exclusive, source of talent.

It is also our belief that such upgrading through retraining should be done abroad, not necessarily, however, in the U.S. The Netherlands, for example, has possibly the most competently devised system for social sector planning anywhere in the world at the Bureau for Socio-Cultural Planning.

Also useful in the establishment of a Policy and Program Planning Group would be a seminar in policy analysis, running six months or so under the initial guidance of an outside consultant. We received vague answers in BP3K when we asked both what sort of research should be started now to inform the structure and content of the 5th Five-Year Plan and how the Ministry should examine its priorities for resource allocations in education--for example, the competing demands of the need to strengthen the supervisory system and the need to establish non-formal learning centers in each district. The answer to the latter

query was "we should do as much as we can" of both." The idea of trade-offs among competing uses of resources, the maximization of returns through equating marginal yields per rupiah, the general concept of scarcity of resources, do not seem to be a part of BP3K's thinking. A policy analysis seminar could deal with these ideas, as well as display concrete examples of policy analysis as conducted in other countries, revealing both data requirements and analytical techniques required to solve problems.

5) Re-structuring of the Innovation and Research Centres

One of the first priorities of a Program and Policy Planning Group would be to assist BP3K in the reconceptualization and re-organization of its centres for Innovation and Research. The Innovation Centre, we believe, should concentrate on research and development related to non-formal, out-of-school education (e.g., Penmas and DELSILIFE) and culture. Its experience and expertise lie largely in these fields rather than in the areas of formal education, teacher training, and career development; focus on these latter issues only detracts from its ability to meet the challenges of non-formal education and cultural development. Re-organization in this way would make the Innovation Centre (or whatever new name might be given it) BP3K's main liaison with the

Directorates-General of Culture and of Out-of-School Education, Youth, and Sports.

Re-structuring of the Research Centre presents greater problems because several possibilities appear viable:

1) It could focus on issues of importance at various levels of the education system and therefore be divided into sections for pre-school, elementary, secondary, and tertiary education. Within each--and growing out of its current involvement in developing a "Grand Design" for the education system--it could stress studies related to long-term policy issues: alternative ways to expand early childhood education through public or private schools, career development for primary school teachers, streaming policies in secondary education, equity of access to higher education, etc.

2) It could focus on issues which cut across all levels of the system: quality, relevance, efficiency, equity, etc., and its various sections could reflect a long-range interest in each of these areas.

3) it could become a centre based on a variety of research techniques with sections (for example) devoted to longitudinal tracer studies of students and youth within and without the education system, periodic national assessments of educational achievement (in the process perfecting sampling and statistical analysis techniques appropriate to such surveys), and ethnographic case studies of classrooms, schools, communities, training programs, etc.

B. A maximum program of assistance

If we can assume that the Ministry will continue to support BP3K, then a broader program of assistance in the form of training and technical assistance might be appropriate. The following sections provide further details concerning the training which such assistance might provide and the kind of information system and policy studies which it might encourage.

1) Training

In addition to the training described above, a more general program of assistance to BP3K might include training in the following:

a) Policy analysis: A 2 year program at Kennedy School at Harvard or the Graduate School of Public Policy in Berkeley. This covers the necessary micro-economics, model-building, and statistical techniques that are related to policy work.

b) Applied statistics and computer science: A 2 year program at any major university. The policy analysis course listed above does not alleviate the need in BP3K for more specialized knowledge of statistics and programming.

c) Labor economics and labor market forecasting: Staff at BP3K need to know something about labor markets in order to help create an educational system that more adequately meets the needs of Indonesia for work skills, avoiding both shortages and surpluses of particular skills. A one-year course, at a place such as the Institute of Labor and Industrial Relations, at Cornell, would be a good introduction to this area.

d) Project evaluation: A combination course for one or two years in a graduate school of education and a graduate school of business (for cost-benefit techniques) would be a good program for BP3K staff - at Stanford, for example.

e) Special topics in planning: Either as an add-on to their training overseas or as a separate study program, BP3K staff should spend time in the following places, for the following purposes: the Netherlands Bureau mentioned above, to see what comprehensive planning is like; the Survey Research Center, University of Michigan, Ann Arbor, to learn how to conduct high-grade longitudinal studies; and the World Bank, to understand the applied techniques of project evaluation in education and how to do pre-investment studies.

f) Anthropology and education: Though all the social science and education fields should be represented at BP3K (sociology of education, economics of education, etc.), the greatest need at the moment is for staff trained in educational anthropology. Such training would not only relate to the Ministry's particular interest in the cultural aspects of schooling; it would also give to BP3K expertise in intensive,

ethnographic research methods needed at the community, school, and classroom level both to assess the "real" implementation and achievement of development and pilot projects and to provide data on some of the most basic problems of the school system: classroom language, teacher practice, parental involvement, etc.

2) A management information system

General external assistance to BP3K might also be used to help it develop a systematic management information system. One must first ask the following question, however: what does one want an information system for? In the last twenty years many countries have developed an information system to serve the requirements of the five-year, one-year planning cycle. In the traditional form, the five-year plan is a series of projections, based largely on demographic variables, of future enrollments in the different levels of the education system, ordinarily disaggregated by province, and of the requirements for buildings and teachers associated with those enrollments. In most past experiences, enrollments go up during the course of the five-year plan, and for two reasons: the population of school age children is increasing and the government seeks to enroll larger and larger proportions of each age cohort in the various levels of

the educational system. The requirements for buildings are priced at the average level for the nation or each province. The requirements for teachers establish targets for expansion of teacher training facilities, which again is a development budget item.

The planning process, then, is directed toward expanding the conventional educational system, with emphasis on sequestering resources for the necessary expansion of physical facilities. The essential analytical device is a student flow model. The model is based on demographic changes in the school age population, enrollment ratios, coefficients for wastage, repetition of grades, re-entry into the system, and transition ratios between levels. The demographic variables are given, and the coefficients are based either on historical experience or policy decisions.

The traditional planning process does not ordinarily go very deeply into matters not related to expansion and extension (adding pre-primary or post graduate studies). It does not deal in detail with the objectives of improving quality, meaning basically that students learn more in the time they invest in

their schooling or that they learn more "relevant" things or even that they learn better how to learn.

Likewise, the traditional planning process does not speak very thoroughly to raising levels of efficiency. Internal efficiency might, for example, be addressed by introducing mastery learning (assuming the cost-saving aspects of that process are as great as they appear to be from preliminary assessments). External efficiency would be enhanced to the extent that enrollments in courses are regulated by labor market demands (a more specific aspect of "relevance").

Finally, for present purposes, the traditional planning model does not address questions of equity, except insofar as equity is served by expansionism, per se. In general, however, it seems that traditional educational systems do not serve well the children of the poorest of the poor; either they are not enrolled past primary levels, they drop out too soon or they fail to do well in examinations. At the same time, educational expansion is often associated with a hardening of the credentials structure, otherwise called educational upgrading or the "diploma disease." As credentials become more important in regulating

entry to good career paths, the children that the educational system casts aside can be made worse off from one period of time to the next. Hence, one cannot conclude automatically that simple expansionism, uninformed by goals of affirmative action, strengthens equity.

The Ministry of Education and Culture already has an information system to serve the requirements of the traditional planning models. Data are routinely collected about enrollments by grade, sex, and course stream (in junior and senior secondary school). Data are collected annually on repeaters, on new entrants to a given school, on completions by level, and on examination passes. Similarly, information is collected on teachers by sex, status, and formal qualifications and on school buildings and their condition. The data system is school-based, which is good, and the same data appear to flow upward from the schools both to the provinces, and directly to BP3K. Each school has a 12-digit I.D. number, making possible retrieval of data by school for past years. Both public and private schools are surveyed each year.

For purposes of conventional planning, we do not see any need for great improvement in the kinds of data that are

collected from the schools. (Of course, school data need to be supplemented by demographic projections, teacher salary data, building cost data, estimates of the rate of inflation, etc.) There are, however, some problems with the information system, even in terms of the rather modest requirements of conventional education planning.

First, there is too much hand manipulation of data being done. The student flow model, for example, is calculated by hand. This is grossly inefficient and allows little opportunity for consideration of alternative enrollment policies, much less for checking the accuracy of calculations. The data operations for the five-year and one-year planning cycles should be computerized.

There appears also to be virtually no checking of individual school returns for accuracy. Since the data used in the five-year and one-year planning cycles are presumably aggregated to the provincial level, one might say that individual errors will be averaged out and, hence, that the unsupervised process of data collection is of no concern. But if it is true that allocations of resources to districts and sub-districts are based, at least in part, on the school returns, there would be an

incentive to inflate the enrollment figures. Accordingly, the errors would tend to accumulate rather than cancel each other.

One way to handle the problem, if it exists, is to require that the supervisors check the returns on the site. Since the supervisors are already overburdened and short of transport, this is probably unrealistic.

Access to a computer, however, allows checking of returns in the same manner that the Internal Revenue Service in the U.S. checks tax returns. If individual returns are fed into a central computer, the machine could be programmed to identify all returns in which the annual rate of change in enrollments was in excess of, say, 10 per cent. These returns could then be sent back to the districts for on-the-spot audits.

Such improvements in the management information system as it now exists could be assisted through specific training and technical assistance and, as mentioned above, through provision of required computer equipment.

B. Suggested policy studies

All of these comments so far assume that the information system is meant to serve only traditional educational planning. We believe that this is an incorrect assumption, however, and that it would be better if the information system supported those kinds of analyses that would allow the Ministry of Education to address more significant and long-range problems--problems that will appear more and more important as the pressures for expansion begin to subside, and as enrollment targets are met and birth rates decline. Following are illustrations of the kinds of policy studies in these problem areas which BP3K should consider and for which training and technical assistance might be made available.

Quality. This is the hardest objective to relate to an information system; one might ask first, in fact, if it should be related. At present there are at least two approaches in the Ministry to quality control and improvement. One is the supervisory system. In countries where the supervisory system has fallen into disarray, the results appear to be bad. It cannot, therefore, be neglected. But since there is little political advantage to spending money on it, the system in

Indonesia, as in most countries, is short handed and short of transport. There are also unresolved questions of who is to supervise and what carrots and sticks the supervisors have to use beyond those which are largely symbolic.

The other approach is the package of items such as curricula reform, teacher retraining, manipulation of teacher incentives (merit pay), and changes in teaching methods (mastery learning). In our opinion, this package can be very powerful, but invariably there are problems of coordination, viz. the writing of large numbers of modules based upon texts that are now scheduled to go out of use. There is also the matter of unevenness in implementation, since some schools are surely more ready for improvement than others and since some innovations may make sense in one province or district and not in another. In other words, under the package of curricula reform, etc., some schools move ahead and some fall between the cracks.

There are two different types of policy studies based on an information system which can be related to quality control and improvement. One is to identify schools of superior performance in order to see what can be learned from them. The second is to identify schools that are doing badly, to see if they can be

helped to do better. The information system may be able to perform the identification function, but the information system itself is unlikely to give the answers as to what is to be done to help failing schools. These tasks call for the skills of educational psychologists and curriculum specialists and in-depth case studies of the selected schools. (See Annex I for recommendations concerning how these policy studies related to quality might be done.)

Efficiency. The connection between the availability of an information system and policy studies related to the improvement of internal efficiency of schools is not altogether clear. It is true that the capacity to draw samples of schools, and possibly samples of students, random or otherwise, is of enormous benefit to those who are doing basic research in education. This is important, but unfortunately basic research in education oftentimes produces findings that are contradictory one study to the next and that do not accumulate. Teaching is not as scientific as the practice of medicine, and the practice of teaching is not as closely tied to research as is the practice of medicine. None of which is to say that BP3K should not contract with university and IKIP faculty to follow up promising leads about how to improve classroom practice and to make the data base

available to these researchers (in lieu of the present reliance on field studies, which is excessive). Something good will happen but it is unlikely to be a major breakthrough in the internal efficiency of school operations.

Probably the nearest thing to a breakthrough one could imagine is such a degree of improvement in teachers' salaries that teachers become willing to teach longer and more diligently and that the profession attracts new teachers of greater intellectual calibre. Here the uses of data are to make a case for salary increases with the Ministry of Finance. Some material from the information system, such as the distribution of teachers by provinces, should be helpful.

About improving external efficiency one can be more optimistic. External efficiency is enhanced as the skills acquired in any given stage of education fit more closely with the skill demands of the next stage of education or the workplace (including home production). To measure change in external efficiency one needs to conduct what are called tracer studies in Indonesia and national longitudinal studies in the United States. One collects information about graduates. For example, one might collect information about the academic progress of

junior high schools students, regarding these persons as graduates of primary schools. The important thing is to relate the progress of individual students to the particular primary schools from which they were graduated. Some primary schools will thus be seen as more successful than others. Insofar as the less successful schools can be brought up to standard, then the external efficiency of primary education is raised. Or if this course is deemed impractical, one may suggest a change in channeling policy, to the end that the predictably unsuccessful students are directed toward a different junior high stream, apprenticeship, etc.

The process should be repeated throughout the stages of the educational system in order both to improve the external efficiency of all levels of education up to university and to validate admissions criteria. The process would also be useful in examining the external efficiency of the three main tracks now being discussed for the Indonesian educational system with regard to the success of students who transfer from one main track to another (the three main tracks are the conventional formal system, the "open" system, and the non-formal system). In a way, this process of examining the external efficiency of stages of the educational system is equivalent to a massive examination of the internal efficiency of the system as a whole.

A main use of tracer studies is to examine the usefulness of education in the pursuit of economic activities; this is what we think of primarily when we consider external efficiency of educational systems. Tracer studies can answer questions about how quickly graduates of different levels of the education system in the different provinces get jobs, what kinds of jobs they get, and how much income they receive. A tracer system extended to draw information from employers could solicit information about the employers' assessment of the quality of training received by the graduates.

Tracer studies should not be confined to the employer - employee relationship. Many graduates leave the educational system to start their own businesses, and so the success of the educational system in sponsoring entrepreneurship should be evaluated. Even more important, many graduates, especially of the lower levels of the system, pursue their careers as farmers, and it is important to know how well the schools contribute to farm productivity. Tracer studies carried on for five to ten years after graduation could provide a great deal of information on that question, perhaps the most important question of external efficiency that there is. Studies made to date emphasize the

relationship between education of males and farm productivity. Almost nothing is known about the contribution that educated, or at least literate, females make to the economic life of rural areas, and this is a crucial matter to explore.

In making tracer studies one faces a choice about magnitude. A large scale survey allows one to make statements about the performance of graduates of individual schools, not just about the performance of graduates of levels of the educational system in, say, the different provinces. But large scale surveys are expensive and, being expensive, are likely to be quite limited in the number of questions that are asked of individual graduates or employers. Small random samples in tracer studies are cheap and may allow more questions to be asked, but they do not yield a sufficient number of replies per school to allow statements to be made reliably about individual institutions. It is not necessary, however, to cover the schools in each province each year; a rolling survey could provide sufficient cases on a stratified random sampling basis to yield observations about types of schools in the different provinces periodically, all within a reasonable research budget.

Equity. The chief equity problem in education now affecting Indonesia appears to be the lack of access to good educational opportunities faced by rural children and youth, especially those children and youth who grow up in isolated villages. Tracer studies, as described above, would provide documentation of the extent of this inequity and could be used to reveal whether the problem is getting larger or smaller over time in the different provinces.

Documentation of this kind is useful in helping a government set its educational priorities, but it does not really tell a government what to do about the problem. However, it is almost surely true in such a diverse country as Indonesia that some groups in the country are themselves finding more imaginative solutions to this difficulty than are other groups. Here, then, enters the role of more refined policy research to examine successful local initiatives that could be extended province-wide or even nation-wide.

Disparities in access to educational opportunities ordinarily create a pressure for migration--in this case, from village to city. In some cases, migration produces not just a private return but a social return, meaning economic benefits for

the population generally. In other cases, migration may entail social costs. Insofar as the reduction of disparities in access to education reduces pressures for migration (though evening out educational opportunities may ultimately have the opposite effect!), it would be a good step in policy research to try to estimate the net benefits and costs of migration. The common technique in such investigations is cost-benefit analysis.

Other studies. Outside of these major areas of policy study, others also appear to be needed. There should be some practical studies made about teacher competence and teacher incentives. Teacher competence, especially in the lower grades, is now a matter of world-wide concern, but each country needs to fashion its own means of attracting higher intellectual talent into this crucial field. Our impression is that many teachers in Indonesia do not work very hard at teaching in the primary and secondary classes. Yet the Government appears unable or reluctant to grant raises large enough to increase the average income of teachers significantly in real terms. Some practical studies might reveal alternative measures, possibly more selective measures, to heighten teachers' commitment to teaching in publicly-supported schools.

Another area is vocational-technical education. If Indonesia becomes less rich in natural resources (not wholly unlikely), it will then need to compete with the technological wizardry of other "Pacific Rim" nations. A comparative study of how technological skills are created in Japan, Korea, Taiwan, Hong Kong, and Singapore might be useful in bringing vocational-technical education up-to-date in Indonesia.

Summary

BP3K in potential, though not in its present actuality, represents a rare and wonderful thing: a centre, within a Ministry of Education, that combines the functions of research, data collection, curriculum development, educational innovation, testing, and policy analysis. This is rare and wonderful, of course, only if these sections interact and learn from each other, and only if there are close ties to the provincial planning groups of Indonesia's many and diverse provinces.

BP3K is ideally constituted to become a planning and analytical unit which could make a rigorous approach to determining priorities for resource allocation in education: in other words, to move education and planning several steps beyond the mechanical projection of physical targets for expansion.

There are, however, serious problems within and without BP3K related to its structure, its current style of work, its communications and coordination with other units of the Ministry and with BAPPENAS, and its facilities and staffing. Many of these problems require high-level decisions regarding BP3K's future role in research, planning, and policy analysis. Until these decisions are made, we recommend the minimum program of external assistance described above. Only when conditions warrant should the more general program of assistance outlined in this report be implemented.

Annex I

The identification of schools is the first step. Here is a simple suggestion. Prepare a multiple regression model to predict a school's average performance on student achievement tests, grades 3, 6, 9, and/or 12. The independent variables should be variables basically beyond the control of the school: location (isolated rural, rural, urban) SES of parents, size, rate of growth in enrollment, etc.

To start the discussion, assume we have a relationship between average school achievement and social class of the student's family. In most countries the relationship is positive--the line slopes upward to the right. Diagram I also indicates that Indonesia relies upon the supervisory system to keep average quality from falling (arrow 1) and upon developmental activities, such as those sponsored by BP3K (arrow 2), to improve quality, i.e., to shift the whole line of regression upward.

Diagram I

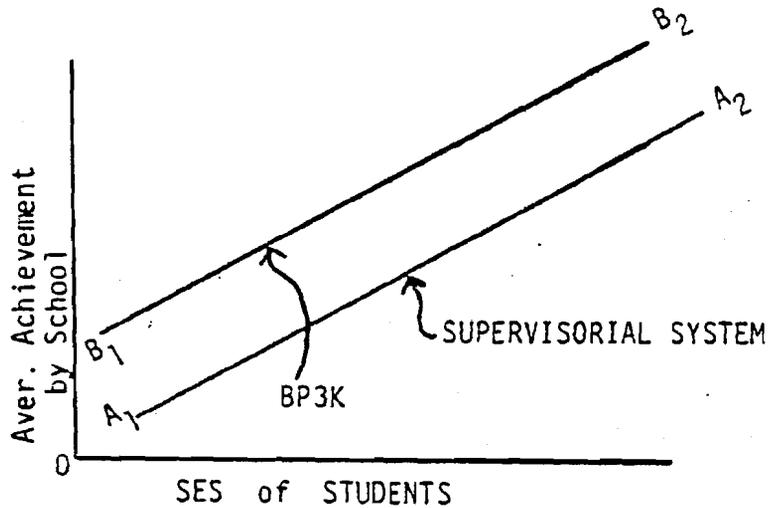
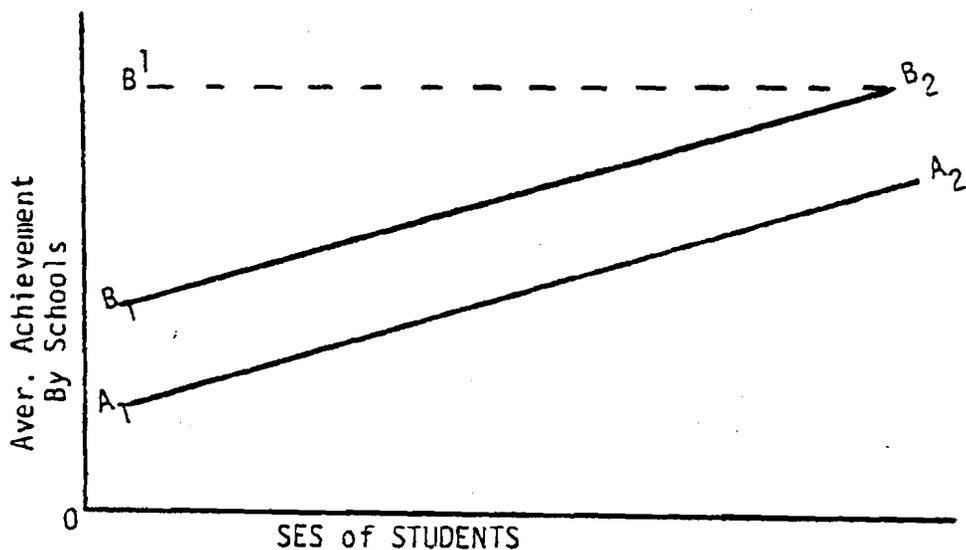


Diagram II indicates the results of an effort to improve quality of low performance schools, eradicating the effects of social class in average student performance. This result, if it could be achieved at no loss of quality in high achieving schools, would simultaneously serve the objectives of improving the average quality of education in Indonesia and raising the standard of internal efficiency (especially in low achieving schools) and equity (or social justice).

Diagram II

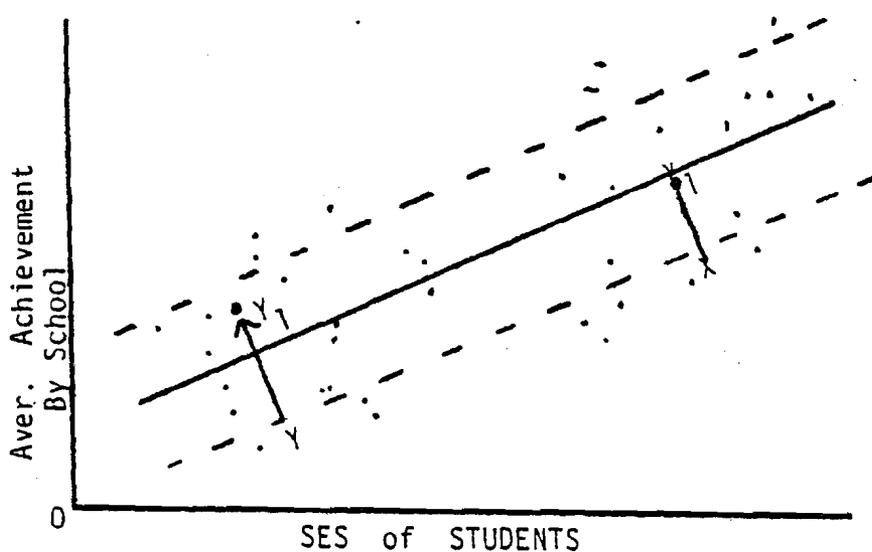


In other words, if the combination of efforts of the supervisory system and development activity could create a new regression line of B_1B_2 , lying above the old line of A_1A_2 and much flatter than the first-postulated line of improvement B_1B_2 but pivoted upward about the point B_2 , these three objectives would have been accomplished simultaneously.

Now, more to the point for the present exercise, assume one can account for a significant proportion of inter-school differences in average achievement by variables beyond the

control of the single school, such as SES, location, size, rate of growth, etc. We cannot, most likely, account for all of the variation, and we end up with a scatter about the line of relationship, as in Diagram III.

Diagram III



(One independent variable is used for convenience in diagrammatic exposition.) The points refer to the scores of individual schools. Let us next add two bands, upper and lower, about the regression line. These could be at a distance from the line of regression of plus or minus one standard error. Some schools,

those that are above the upper bound, are thus identified as schools of exceptionally good performance, and those that fall below the lower bound are schools in special difficulty. Those that are between the upper and lower boundary lines are regarded as displaying "normal" standards of performance.

The curricula reformers now have a closer identification of superior schools from which to learn about what works, and the supervisors have a closer identification of failing schools toward which improvement efforts can be directed. The outcome of the latter activity might be that a school like x in diagram III (below the line of normal activity) is moved to the level of the initial line of regression (x_1). A school such as y , characterized as low in terms of the predictor (or independent) variables and that is also outside (below) the expected band of performance, should, under the argument of Diagram II and if possible, be moved up above the line of regression to a position such as y_1 .

There appears to be shaping up a student-based information system in Indonesia that might be seen as related to the above exercises. It includes achievement test results, information on the student's family background, and information on the teachers

the student has had, the type of school attended , etc. - what we regard in the U.S. as a student-based data bank. These are large and expensive data operations to maintain. Their utility is found primarily in the capacity they create for researchers to draw almost any kind of sample desired, not in the fact that the entire body of data is available for use. In the development of the regression model of student achievement noted above, one most probably would use a stratified random sample of a size between 10,000 and 20,000 students.

All of the student data also have utility in informing headmasters and teachers about the progress of students in their charge. The danger is that relating present achievement to family background characteristics may set in the teachers' and administrators' minds an "achievement ceiling" for particular students. The use of the regression model described above carries a similar danger, i.e., the possibility that schools attended mainly by lower SES students will be labeled as low potential achievement schools, resulting in low expectations and little demand from teachers for hard work by their students. Thus, the relationship between SES and achievement could become a self-fulfilling prophecy.