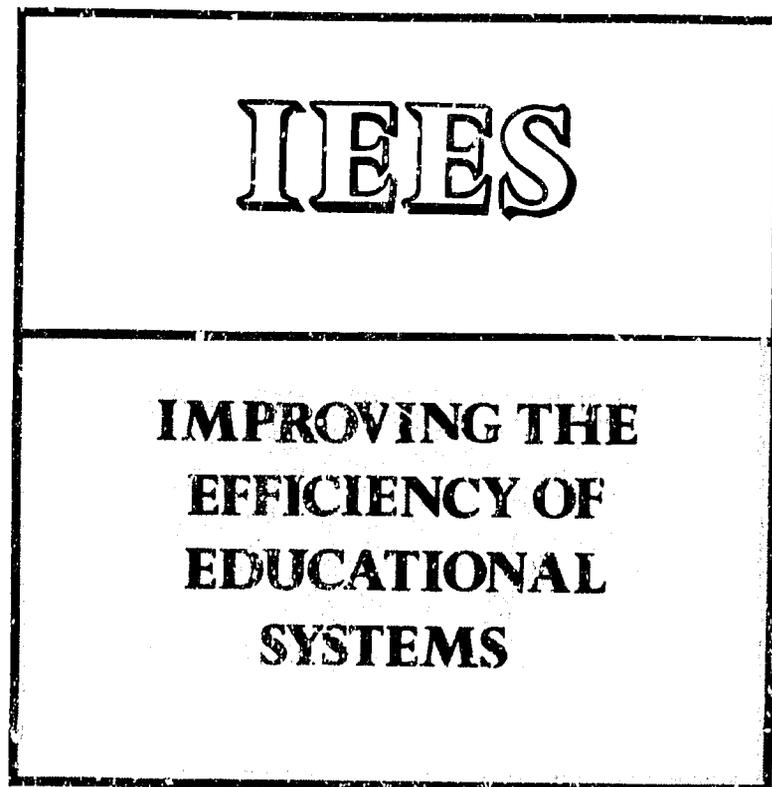


**INDONESIA
EDUCATION AND HUMAN RESOURCES
SECTOR REVIEW
April 1986**

**CHAPTER FOUR
POLICY ANALYSIS AND EDUCATIONAL DATA SYSTEMS**



Coordinated for the Government of Indonesia by the
Ministry of Education and Culture with USAID

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INDONESIA
EDUCATION AND HUMAN RESOURCES
SECTOR REVIEW

April 1986

Chapter Four:

Policy Analysis and Educational
Data Systems

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Ministry of Education and Culture with USAID

INDONESIA EDUCATION AND HUMAN RESOURCES SECTOR REVIEW

For the Ministry of Education and Culture

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4.0 Policy Analysis and Educational Data System

4.1 Introduction

This chapter, like the preceding, focuses on institutional capacity. It is included in this Education Sector Review at the specific request of the GOI and USAID/Jakarta. It responds to their concern for improving the capacity of the MOEC to collect, process, and utilize educational data as a tool for educational policy development. Ministerial capacity in research and development, data and statistics, and policy analysis and development has been the subject of considerable attention over the past 10 to 15 years. In recent years there has been special focus on developing an adequate, routinely collected (routinized) database to support policy research.

Consistent with the procedures of the sector review process, the initial section of this chapter is descriptive. First, current goals and strategies of the MOEC for enhancing the capacity of this subsector is described. Second, the annual and mid-term policy development and planning process of the GOI and the MOEC is described in order to identify the routine opportunities for input of policy analysis. Third, the current routine data collection and analysis activities of each of the units of the MOEC is reviewed. This last segment also examines the nature of the data collected, and briefly catalogues selected resources allocated to data collection and analysis.

The second section of the chapter is an analysis of five major issues facing the MOEC in its efforts to enhance its policy analysis and educational data system. These issues concern questions about (1) the use of information, (2) data quality, (3) the structure of the database,

(4) development of staff capacity and (5) organizational development. This analysis concludes with fourteen recommendations. The chapter also contains suggestions concerning three areas of research which would increase understanding of this subsector.

A variety of technical terms are introduced with the topics of this chapter. Whereas each of these terms has a specific meaning to most organizational participants, they are rarely used the same way by all participants. Therefore, it is useful to define these terms as they are used in this chapter.

This chapter focuses on the use of technical information as a tool in educational policy development within the governmental system of the country of Indonesia. The head of the MOEC Office of Planning has provided an excellent definition of technical information: "the product of explicit research characterized as involving systematically gathered data interpreted or translated according to some set of principles such as concepts, theories, models, rules of evidence, etc. It is distinguished from 'data', which are available somewhere in society, but which have not been translated into symbols that have meaning to potential users in a particular context." (Pogtuluran, 1980, p.34).

The distinction between information and data is critical. Data do not carry meaning of themselves. It is only when data are ordered into a conceptual context that meaning is attached to them. The same data may, therefore, take on different meanings to the same or different users when transformed through different conceptual filters. Likewise, statistics are a particular form of data which have no meaning apart from a conceptual context.

Planning and policy development are rational processes by which organizations establish guides for their future actions. Planning is a process of anticipatory decision making. When a decision receives authoritative backing it is considered a policy. Policy planning is therefore a process of preparing and analyzing possible alternative decisions for policy makers.

The process of planning and analysis is enhanced by a wide range of available technical information. This information must be derived from and supported by a data base, in this case a data base covering many aspects of the educational system and its local, regional and national context. Technical information can only be derived from such a data base, and policy planners must have an appropriate range of technical information to assess alternative courses of action possible to reach organizational goals. Without adequate and appropriate technical information, policies are likely to be based on choices among competing values and belief systems rather than on informed estimates of probable consequences of those choices. It should be acknowledged, however, that all policies also reflect choices among value and belief systems.

The preceding chapter has described a range of activities comprising organizational management. These include planning, policy development, policy choice and specification, policy and program implementation, and monitoring and evaluation. That chapter also distinguishes between management, administration, and planning.

Managers, as the key organizational policy makers, have the broadest span of organizational control and authority. Administrators are more narrowly concerned with their specific educational unit or

support function. Though planners do not exercise control, they have interests that are at least as broad, and probably broader, than those of the managers they serve. Each of these three organizational roles must have access to appropriate data and information to support their functions.

For an organization to function at optimal levels of efficiency, it must have available a comprehensive set of data as well as the capacity to transform that data into useful and relevant knowledge. These data must be available to managers, planners, and administrators, although not all data are needed by each group. A system for managing the collection, transformation, storage and retrieval of a set of data or information resources is known as an information system. This refers to the physical and structural properties of the process of organizing a specified data base for use. Information systems range in complexity from the filing system in a policy maker's desk drawer, to a data base on all educational personnel, or a national library system.

A management information system, on the other hand, refers to a system of data and information inputs that serves the management of an organization. It may serve one, many, or all aspects of an organization's various functions. Most frequently, management information systems begin by serving an organization's administrative functions. They may expand eventually to include data necessary for managers to monitor the organization's basic processes. They may grow to include a comprehensive set of routinely collected data about the organization's inputs, processes, outputs and outcomes so that technical

information can be generated routinely to support future planning and policy development needs.

A management information system, however, need not cover a wide range of data or uses nor utilize only a single information system if it grows to cover a wide scope of functions. Figure 4.1 illustrates this point

A management information system may draw its information from other information systems that serve various administrative or planning functions of the organization, as illustrated in the separate information systems in Figure 4.1. Alternatively, it may physically and conceptually integrate these databases in a fully interactive mode so that the various functions draw information from the same database. Any number of midpoint options are available, such as having some systems that stand alone and some that are integrated, or using an integrated approach without provision for internal interaction of data.

These options are available to the MOEC in organizing its management information system. The intent of this chapter is to make informed choices possible. It therefore begins with a review of current goals and strategies, information use activities, and information systems.

4.2 Status of Policy Analysis and Educational Data Systems

4.2.1 Goals and Strategies

The Indonesian Ministry of Education and Culture (MOEC) and the United States Agency for International Development (USAID) are jointly funding a project entitled the Education Policy and Planning (EPP) Project, which began July, 1984. USAID has pledged a grant of \$1

FIGURE 4.1

INFORMATION SYSTEMS OF THE MOEC

Primary Education
Junior Secondary Education
Senior Secondary Education
Higher Education
Raising Aptitude and Achievement
Community Education
Youth
Sport
Education System Development
Education, Culture, and Religion for Youth
Archaeology and Museums
Arts
Language, Literature, and Libraries
National Inventory of Culture
Religious Beliefs
Role of Women
Science and Technology
Research on Government Apparatus
Improvement of Statistics
Improvement of Efficiency and Supervision
Construction of Ministry Buildings

million and a loan of \$5.5 million to the project. The GOI has pledged \$3 million. Given the significant Indonesian investment in this project, it seems reasonable to conclude that the goals of the project reflect MOEC goals for this subsector. That goal is to

"...improve the quality of education in Indonesia through the formulation of better policies and long term plans based on more complete and accurate information and better analysis of that information" (USAID EPP Project Paper, June, 1984).

MOEC actions reinforce the importance of this goal. Decrees concerning role responsibilities, reorganization proposals, requests to subordinates for specific policy-related information, and other actions to emphasize the role and importance of valid, reliable data in policy

development indicate the priority given this goal within the Ministry.

It may be inferred that a major strategic element in the achievement of this goal is the role of top leadership in reinforcing its importance. This strategy is reflected, for example, in the proposal to reorganize Balitbang Dikbud, which proposes a center for policy research and development. The ministerial decree implementing a routinized annual planning process is another explicit manifestation of a strategy to reinforce the importance of information and specific information flows in policy development.

Other strategies to achieve this goal are stated explicitly in the EPP project paper describing the use of the \$9.5 million jointly pledged for this purpose. The strategy includes:

1. Increasing staff capacity for policy research and analysis;
2. Improving the internal management of the Agency for Educational and Cultural Research and Development (Balitbang Dikbud);
3. Conducting special policy studies of selected key issues;
4. Increasing the capacity of the Center for Information Systems (Pusat Informatika) to support an information system relevant to policy and planning needs;
5. Experimenting with planning and information systems at the provincial level.

These strategies will be elaborated over the remaining five year life (until September, 1990) of this project. The project will be carried out in two phases. Phase one, scheduled to last eighteen to twenty-four months (July, 1984 to January or July, 1986) be "largely a

period of investigation, experimentation, and formulation of detailed plans" (EPP Project Paper, June, 1984). Phase two "will consist of establishing and implementing the system and procedures which have been agreed upon" (EPP Project Paper, June, 1984). The five strategies stated above will guide the activities of both phases.

4.2.2 Policy and Planning Processes

In this section the formal planning processes of the MOEC will be described. However, the formal planning processes, while highly routinized, are not the sole means of formulating policy. At times they serve instead to legitimate or elaborate decisions made outside the formal process. No attempt is made here to describe these informal routes to policy development in Indonesia, as these are beyond the scope of this chapter. The issue is raised because, whatever policy analysis capabilities are eventually developed, these will succeed in influencing actual planning outcomes only if they are applied with awareness of both the routine and informal policy forums.

Since the New Order Government came to power in the late 1960s, the primary embodiment of the Government's development program planning has been the Repelita. The Repelita provides "directions of the intended development process and expresses scale of priority but does not specify in detail the blueprints of the operational execution of the programs and projects. Such details are spelled out in the Government Annual Budget" (Repelita IV, A Summary, May, 1984).

Planning for the Repelita is characterized in Indonesia as mid-term planning. Annual budget planning is considered short term. Long-term planning is widely referred to; however, we have not identified a

routinely published document or routine procedure at either the national or ministry levels which projects the Government's plans with specificity beyond the five year period covered by the Repelita. Within the MOEC, long term responsibility is formally assigned to Balitbang Dikbud. However, Balitbang does not have a formal organizational unit in which such a mission resides; it is diffused among the agency's centers. In the absence of formal procedures, this section will not deal with planning beyond the five year Repelita period.

This section first describes the process of Repelita development as it exists within the MOEC, then the annual planning process and, finally, other short term routine meetings. The first two processes present the primary formal avenues for the input of policy analysis information to the policy development process. They form the context for any attempt to impact policy planning process as their outcomes will be the formal manifestations of the results of such efforts.

4.2.2.1. Repelita Planning

The Repelita is a five-year plan and its production is best viewed over the timeline of the prior plan. Before describing the process, it is useful to examine the contents of the Repelita.

The Repelita is a four-volume document covering all sectors of Indonesian development. The document is divided into sectors, subsectors, and programs. The actual programs are then broken down, for budgeting purposes, into projects which are not detailed in the Repelita. The MOEC has 659 of these projects. They fit within four

sectors, seven subsectors, and twenty-one programs that are identified and described in the Repelita.

The four sectors into which the MOEC programs fall are:

1. Education, Youth, Culture and Belief in One God, divided into three subsectors and 16 programs;
2. Government Apparatus, two subsectors and two programs;
3. Research and Statistics, one subsector and one program; and
4. Social Welfare, Health and Women, two programs in one subsector.

Sectors and subsectors are cross-ministerial in scope. Programs and projects are contained within individual ministries. Table 4.1 lists the 21 programs of the MOEC. These 21 programs were a part of Repelita III and are a part of Repelita IV. Gaining a new program area is reported to be very difficult. Attempts to develop a new configuration of programs for Repelita IV were turned down at levels above the Ministry.

The MOEC has overall responsibility for development of the narrative description contained in the Repelita. Within the MOEC, ministerial decree assigns that responsibility to the Balitbang Dikbud. Within Balitbang, the responsibility for the development of Repelita IV (currently in its second year of implementation) was assigned to the head of the Pusat Informatika. This individual served as executive director to an ad hoc, cross-ministry, cross-agency group responsible for developing the MOEC section of Repelita IV. It appears likely that he will have the same role in the development of Repelita V.

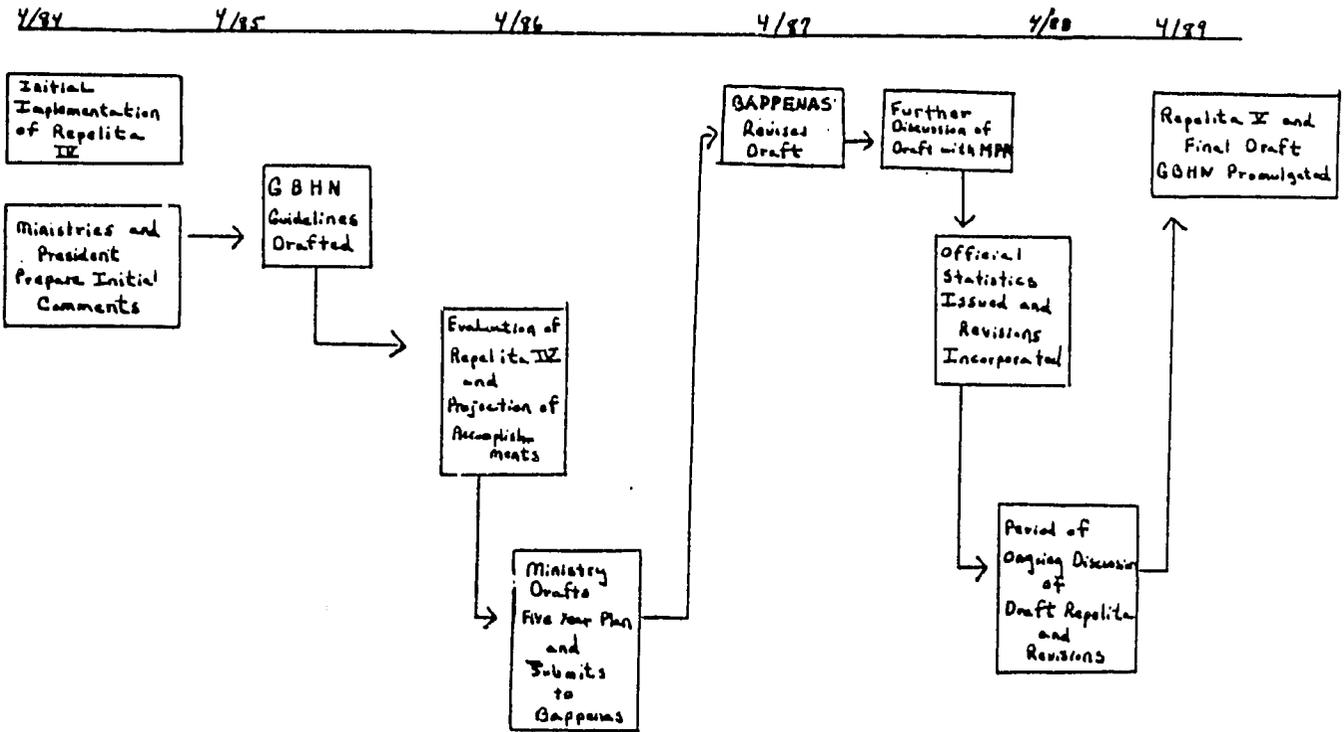
Figure 4.2 illustrates key events anticipated in the development of Repelita V. In the year prior to the development of Repelita IV,

TABLE 4.1

MOEC PROGRAMS IN REPELITA IV

Primary Education
Junior Secondary Education
Senior Secondary Education
Higher Education
Raising Aptitude and Achievement
Community Education
Youth
Sport
Education System Development
Education, Culture, and Religion for Youth
Archaeology and Museums
Arts
Language, Literature, and Libraries
National Inventory of Culture
Religious Beliefs
Role of Women
Science and Technology
Research on Government Apparatus
Improvement of Statistics
Improvement of Efficiency and Supervision
Construction of Ministry Buildings

FIGURE 4.2
 REPELITA V DEVELOPMENT TIMELINE



similar steps were followed, but MOEC inputs frequently were late because personnel were not sufficiently familiar with the process. While that period in MOEC operations may be past, improvements in the data and analyses supporting Repelita development are still being sought. It appears that the primary use of information during this process is to estimate quantitative achievement of data, to project quantitative outcomes to the end of the Repelita period, and to establish new quantitative targets. We are not aware of analysis that involves quality variables or polls of public demand or need, for example, or other such attempts to analyze alternative expansion scenarios. This does not mean such analyses have not been made, only that they were not described in any of our discussions. Certainly there is an awareness of the need to perform this type of work as part of the Repelita development process.

As Figure 4.2 illustrates, the process begins with input from the Presidents Office and from the ministries to the Guidelines for State Policy (GBHN). The GBHN is a document formulated by the People's Consultative Assembly (MPR), which is the highest sovereign body of the Republic. The document provides broad outlines of state policy and becomes the basis for formulation of the Repelita.

Generally, the GBHN permits a reasonable level of flexibility to the ministries. The level of detail frequently varies from section to section, and the policy formulation allows discretion in subsequent stages of development. The stage that is most influential and influenceable in the process comes in the actual drafting of the MOEC's Repelita submission. This is done by the ad hoc committee which draws

participation from across the major units of the MOEC as well as from BAPPENAS.

The ad hoc committee begins its work with input from an evaluation of the implementation of the prior Repelita. This evaluation is coordinated by Balitbang Dikbud but includes data gathered in all the major units of the MOEC, since each unit routinely collects reports on implementation of development programs. The evaluation also contains projections of accomplishments in the remaining period of the ongoing Repelita.

The skill with which the ad hoc committee meshes the interests of the various units within the MOEC, and presents them in a way consistent with Presidential concerns as reflected by BAPPENAS, will condition the level of revision made at the next stage. Therefore, this is the primary opportunity for data-based decision making to occur. To the degree that valid and reliable technical information concerning education progress and outcomes are available, this is the primary forum for its use and acceptance. If the information is well integrated with other nontechnical considerations, the results of this stage may endure to the end of the process. If not, BAPPENAS may make major changes in the draft of Repelita before it becomes the basis for further discussions with the People's Consultative Assembly.

As the Assembly provides its feedback on the draft, another important event occurs; the GOI Central Bureau of Statistics issues the official statistics of current Repelita accomplishments. Appropriate revisions in previous projections are then made in the draft Repelita. This is followed by a period of discussion of the draft Repelita and

final revisions are made. At the beginning of the fiscal year 1989, Repelita V and the final draft of the GBHN will go into effect. All annual planning and policies then will be derived from these documents.

4.2.2.2 Annual Planning

Annual planning in the Ministry of Education is coordinated by the Bureau of Planning (Biro Perencanaan) which is located in the office of the Secretary General (SekJen). The SekJen is the senior executive who coordinates the activities of the Directorates General. Besides the planning function, the SekJen is responsible for personnel, finance, law and public relations, and other administrative functions.

The annual budget of an organization is always the clearest expression of its policy. That is the case in the MOEC. If the Repelita is the major statement of mid-term policy, the annual budget of the MOEC is the clearest statement of short-term policy. The work of the Biro Perencanaan is to coordinate the preparation of both the annual routine and development budgets of the MOEC. Whether one considers planning or budget preparation, one is essentially considering the same process. In reviewing the budget preparation process we will identify the major annual opportunities to influence ministerial policy through the application of policy analysis technical information.

The annual planning (budgeting) process has been codified since June, 1982 when the Minister issued a decree establishing the annual planning cycle for the routine and developmental budgets (Decree No. 0209/U/1982, June 19, 1982). The plan is built around four critical events:

1. Input for the President's Annual August Address to Parliament, which is due in June;
2. A Proposed Total Annual Budget, which is due at the end of August;
3. A Proposed Budget for each project, which is due in December in support of a Presidential address in early January; and
4. Approved budgets for Development Projects (DIP) and for routine expenditures (DIK), which are received from BAPPENAS and the Ministry of Finance in March.

Figure 4.1 presents the flow chart which Decree No. 0209/U/1982 made official. Table 4.2, (Heneveld, August, 1984) summarizes the most critical stages of the process. The process is divided into four phases, beginning 15 months before the budget year. The first period, January through March, is one of preparation and planning. During this period, data concerning numbers of pupils to be served, and needed personnel, materials, and equipment are developed. This data development happens before budgets for the intervening fiscal year are available. Within this context, staff meet at the Kabupaten and Kanwil levels to assess progress to date, determine what is needed to meet the previous targets, consider local requests for more personnel, materials, and other resources, and determine how to resolve current problems during the next year. The results of these meetings are transmitted through reports and other meetings to the planning office of the Directorates General, and through them to the Planning Bureau of the Secretariat General.

The information that results from the local meetings is reported

TABLE 4.2

EXPECTED PROCESS OF ROUTINE BUDGET PREPARATION OF
THE MOEC (Excluding Higher Education)

<u>Activity</u>	<u>Actor</u>	<u>Product</u>	<u>Scheduled Completion</u>
Request for budget preparation	Finance Department	letter	January
Coordinative Budget Meeting	Central Units in P&K coordinative by Planning Bureau	-	
Request for budget preparation	Planning and Finance Bureaus (Sekjen)	letter	February
Provincial official meeting (RADIN)	all Provincial units (school sections, district offices) coordinated by planning sect.	distribution of forms A-F	
Completion of Forms	schools, sections, district offices	Forms A-F	end of April
National working meeting on budget policy (RAKERNAS)	Heads of Prov. Offices universities, and central units		
Forms reviewed edited and consolidated	Provincial Planning Section	Draft pra-UKOR	
Planning meeting to finalise draft budget requests (RAKER Perencanaaan)	all provincial planning sections coordinated by Planning Bureau, Sekjen	pra-UKOR	July
Preparation of draft total request to Finance Department	Planning Bureau Sekjen with help from Central units	BNK	August
Consultation on/and Approval of Budget request out line	Finance Department	Letter to P&K	October
Consultation of BAPPEDAS with BAPPENAS	BAPPEDAS	Inputs for BAPPENAS	October-November
Preparation of draft final budget request	Planning Bureau with help of central units	final budget request (UKOR/DUK)	
Approval of final budget request	Department of Finance and DPR	RAPBN	January
Preparation of draft final budget	Planning and Finance Bureaus, Sekjen	pra-DIK	
Consultation with Provinces	Planning and Finance Bureau	pra-DIK	Dec. Jan
Approval of final budget	Finance Department	DIK	
Announcement of budget for each work unit	Finance and Planning Bureaus	DIK	April
Review of DIK and consultation with centre as needed	Provincial Finance Sub-section	-	
Schools advised of approved budget	Provincial Finance Sub-Section	UUDP	MAY (?)

from the 27 Kanwil (MOEC provincial offices), the 45 state universities, and the 9 Kopertis (Offices of Private Higher Education Coordination). This reporting is coordinated at the regional levels by the Kanwil and Kabupaten planning offices.

A visit to a large Kanwil (West Java) illustrated the scope of the process. In that province, the process actually begins earlier than the flow chart indicates. The yearly meetings of the Kecamatan (subdistricts) are held in November. These meetings are coordinated at each Kabupaten by the policy unit, which is comprised of one unit head and at least three staff members. In West Java, 24 Kabupaten units convene meetings of the 432 Kecamatan. An initial budget proposal is composed. At the end of December, the 24 Kabupatens meet to communicate their requests to the Kanwil. The Kanwil planning office, (composed of 34 staff members), prepares its request and transmits it to the provincial level planning meeting held in February.

While there is organizational provision for planning units to be located at each Kanwil, and a subunit at each Kabupaten, staffing is often below allocated levels. This is particularly true at the Kabupaten level. Training of planners at the Kabupaten level has been a slow process, so that many of these staffs have little or no idea of their specific responsibilities. As of this 1986, there are also planning representatives in each of the 45 universities and 9 Koperits, but there are no permanent planning units at these levels. There is, therefore, variation across region in terms of the reliability and timeliness of this planning information.

The second phase of planning and policy determination (April-June)

is a period in which national guidelines are established for the budget year being planned. This is a major opportunity for policy analysis information to have an impact. The major event during this period is a national working meeting on budget policy (Rakernas). This is a meeting of the leaders of the major units of the MOEC (7 central units, 7 Kanwils, 45 universities, 9 Koperasi) and is coordinated by the Sekjen. As a result of this meeting, the Minister publishes a major policy statement to set the planning parameters for the fiscal year.

During the third phase (July-January), budget requests are submitted and national level budget ceilings and development targets are specified by the BAPPENAS and Ministry of Finance (MOF). During this phase, the policy guidelines established during the second phase are used to refine the previous budget requests and targets into a formal budget request. The national planning meeting (Raker Perencanaan) is held to draft this request. This is followed by a period of protracted negotiations at the local, ministry, and cross-agency levels as adjustments are made at each level to accommodate to the ceilings and targets received from BAPPENAS and MOEF in October. This negotiation stage of the third phase is an iterative period when policy decisions made earlier begin to take the form of budget allocations. During this period, earlier policy analysis input will affect the actual budget.

This process of budget adjustment continues into the fourth phase from January to March, when the actual budget authorization documents (DIP for development budgets and DIK for routine budgets) are prepared and project leaders are appointed. This phase is primarily a period of accommodation to policy rather than of policy initiation. It should be

noted that this Phase IV occurs while Phase I of the next planning cycle is also underway. This is a prime opportunity for policy analysis based upon some of the issues that surfaced during the third and fourth phase adjustment process, but its output would not influence the fiscal year about to begin.

What has been described here is a clinical version of the process. What has not been described are the current real-information-use practices within these processes. A few weeks on site and a visit to one province are insufficient to support a complete description, but investigations by other consultants and our own limited experience suggest that actors at each level of the process feel that those at higher levels do not pay attention to the information provided and do not use it to give the inevitable adjustments they themselves make to align budget with resource availability.

We are left with an image of budget requests traveling up on one track and budget allocations down another without anyone tending the switches. This is further compounded by lack of articulation between routine and development budgets. Development budgets, for example, require the building of more schools than routine budgets can reasonably equip and maintain in later years. In sum, data availability is less a problem than data use, but the attitudes concerning use will eventually erode the quality of data available.

The next section of this chapter reviews the data collection cycles which would support policy analysis activities. But first, we examine briefly other shorter-term opportunities for policy analysis activities to influence the development of education policy.

4.2.2.3 Other Routine Opportunities for Policy Formulation

Most organizations use routinely scheduled meetings of management officials as a device to monitor and control organizational procedures, problems, and progress. These meetings also provide an opportunity to review and adjust organizational policies to new environmental realities. Accordingly, the regularly planned meetings are occasions for policy analysis information to enter the policy development arena sooner than is provided for in the annual or five year planning cycles. Certain routine meeting of the Government of Indonesia and the MOEC provide just such an opportunity.

At the national level, there are two routine monthly meetings that merit notice. The Rokor Kessra, a committee of social affairs, meets during the second week of each month. This meeting is attended by the ministers of the social ministries. The Panjatap (permanent working committee) meets the first Monday of each month. This committee is comprised of the secretaries general of the social affairs ministries. These two meetings provide opportunities to coordinate routine operations of various ministries as well as for greater coordination of ministerial policy in the social sector. This routine coordination among ministers of social affairs permits projecting interagency impacts of proposed MOEC policy initiatives. These groups can discuss issues at a level closer to actual operations than the meetings of the President's Cabinet, a forum that provides opportunity for MOEC input to the highest policy development levels of government. The social ministers group meetings also permit "try out" of possible new policy

initiatives before they are discussed in relation to the full operation of government.

Within the Ministry of Education and Culture, there is a routine meeting of Eshelon I officials (RARAS) every Monday. This meeting covers both operational and conceptual matters. Within Balitbang, the meeting is preceded and followed by a meeting of all center heads. While we do not know whether such practices occur in other operational units, it is likely that routine high-level staff meetings mesh with the RARAS meeting.

In addition to these routine meetings, there are several other predictable routes of policy information flow. Two of these, annual and Repelita planning, have been discussed in detail above. Two others deserve mention.

Each year Parliament asked each minister to report on problems and achievements related to development plans. Formally, this is considered an annual assessment of the input of the Guidelines of State Policy (GBHN) which guides Repelita development. A similar request for progress reports comes from the national committee of the Ministry of Defense. These reports provide input to the national leadership for deciding what policy questions should be addressed in Parliament.

Each of the routine practices identified in this section provides an opportunity for results of policy analysis activities to move up the organizational hierarchy and command attention. Any attempt to integrate the flow of data and information in order to improve educational policy must attend to these channels of policy development, for they provide the major opportunities for such information to be

used. Data or information which come too late to inform these policy development cycles or which are not channeled to these routine meetings are unlikely to impact on policy. The next section of this chapter describes the current routine data collection activities of the Ministry of Education and Culture.

4.2.3 Information Systems

Many individual information systems are currently active within the operation of the Ministry of Education and Culture (MOEC). The complexity and function of these systems vary, but a great mass of information is systematically collected on an annual basis for the MOEC. The timeliness and availability of that information has improved recently. In part, this is the result of the increasing use of data-processing equipment; in part, it is the result of modifying data-gathering procedures. Problems with the timeliness of data availability have diminished, but there are still sets of data which are provided too late to serve the planning process. Issues of reliability still persist. Efforts to improve these aspects of data collection must be considered within the broader areas of need, data utility, and analytic capacity. Accordingly, this section examines these three areas. First, it will discuss the source and types of data that are routinely collected and processed within the Ministry, according to the organizational unit responsible for data collection. Second, it examines aspects of the resources allocated to the compilation and use of the data as a means of grounding future discussions of analytic capacity. Finally, it summarizes the planning and data collection activities and array the data collected according to the nature of the

organizational activity it reflects. That array will provide a basis for clarifying utility issues.

4.2.3.1 Planning, Analysis and Data Collection Activities

Within the MOEC four major program units headed by a Director General and the three major staff units, there are specific units with either a planning and/or a routine data collection responsibility which can serve policy analysis activities. Balitbang Dikbud has a major unit concerned with educational information, the Pusat Informatika. Each Directorate General has a unit located in its Secretariat with responsibility for planning. In addition, the Secretary General's office contains the planning bureau with responsibility for planning the department's annual routine and development activities. The Secretary General also has an office of personnel with Ministry-wide responsibilities. Each of the offices identified conducts routine data collection activities; together these comprise a relatively extensive set of databases on educational activity in Indonesia. Figure 4.2 identifies these organizational units, as well as others with data collection activities of a less routinized nature. The types of data collected by each of these offices will be described in the following pages. The work of the Directorate General of Culture is not included in this report.

4.2.3.1.1 Office of the Secretary General

The Ministry of Education (MOE) has about 1.5 million employees. Approximately 900,000 of these are primary school teachers. While the actual appointment of the primary school teacher is made by the

provincial governor, it is made under the authority delegated by the Minister of Education. Accordingly, the Office of Personnel of the (MOEC) is responsible for administration of the appointment of the entire 1.5 million personnel.

Given this responsibility, the office of personnel must have data concerning both the incumbent employees and the annual demand for new employees. The database required to perform this function is great. 93 units are directly monitored by the office. These units include the 27 Kanwils, 45 universities, 9 Koperasi, and various units within the Ministry. Annual meetings are held with the personnel directors of each of these units to determine personnel needs at the secondary teacher level and above, including all administrative personnel needs. In 1985, for example, 115,000 personnel openings were identified and recruitment for them was conducted. The recruitment process included an examination of applicants on general knowledge, differentiated by level of educational completion (primary, secondary, or university). The results of this examination constitute a source of data on educational attainment which has not yet been utilized for analytic purposes.

The personnel office compiling another database of information on every MOEC employee. The staff of the personnel department is now creating two files of employee records. These will merge with a third file from the Council of Civil Servants. That file contains the name, birthdate, sex, rank and date of rank, of each civil servant, each of whom is assigned an ID number coded by the employing Ministry. The file, however, simply lists each employee alphabetically without regard to subagency or job assignment. The personnel office has distributed a

questionnaire to each nonprimary school employee of the MOEC (approximately 600,000 individuals) to collect additional information related to job assignment. To date 45% of these questionnaires have been returned.

A third database is being developed through the employing organizational units. A questionnaire has been distributed through 93 personnel offices to each organizational unit down to the high school level. This questionnaire collects information about the organizational unit and about the specific work assignment of the employee, including hours worked, size of class taught or other indication of scope of responsibility, classes met per week, etc. To date about 5% of the questionnaires have been returned. Completion is expected by August, 1986.

When the three files are completed, they can be merged into a comprehensive database using the unique ID numbers. Priorities assigned for building the database are: 1) high school levels, 2) other MOEC organizational levels, 3) university staff, and 4) primary school teachers. A similar database for primary school teachers is planned beginning in 1987. These databases then will be updated every two years or whenever a school or organizational unit requests new personnel. The office would like to provide this data first to the provincial level and eventually to be able to prepare directories of employees at each level. The details of these feedback procedures remain to be planned.

When the database is completed, it will constitute a powerful analytical resource. Since it is meaningful to individual employees, for such purposes as compensation and promotion, it may be more reliable

than other data sources less important to local personnel. The triangulation resulting from the three separate files will also enhance reliability.

4.2.3.1.2 Office of the Inspector General

The office of the Inspector General is responsible for conducting both administrative and technical inspections for the MOE. It serves as the primary compliance and control office of the Ministry. There are approximately 160,000 possible targets for a field inspection, including primary and secondary schools, universities, Kanwil, Kabupaten, and Kecamatan offices, technical staff, central ministry units, and development projects. During the 1984/85 fiscal year, a little over 1% of these units (1,762) were targeted for a field visit and 96% (1,673) of these targets were inspected. Selection of targets is a complex procedure designed to identify the most likely problem or noncompliance cases.

The field visits are conducted by a team of inspectors from Jakarta. This team now consists of 176 inspectors, although a recently approved reorganization will increase their number to 480. Inspectors spend 18 days in the field 6 to 12 times a year, depending on travel budget availability. During 1985 inspectors made only 6 trips; during 1984, 10 trips; and during 1983, 12 trips. With this level of intensity given the field inspection (at least 10 person-days per site on average), there is obviously a very comprehensive database available annually on 1% of the Ministry's operation. The field guides for these visits, are reported to be extensive. The Inspector General indicates

he is seeking input to improve their utility as a management and policy development tool.

As part of its input for selecting units to be field visited, the Office of the Inspector General has conducted major surveys of up to 10,000 organizational units. These surveys, conducted in 1979, 1980 and 1982, were prepared as in booklets for primary and secondary schools, universities, and departmental offices at subdistrict, district, and provincial levels. The booklets ranged in length from 34 pages for primary schools to 76 pages at the Kanwil level. They covered such topics as organization, administration, staffing, planning, curriculum, housekeeping etc. While their translation was beyond the scope of this review, a review indicated that they would yield valuable insights into the operations and outputs of ministerial operations. The Office of the Inspector General is now planning to reimplement these procedures and is currently revising the questionnaires. As the office is open to input in refining its survey questions, this provides an opportunity to collect data necessary for specific policy analysis purposes.

The Inspector General's office has conducted an analysis of these surveys and routinely does so in order to publish summary reports. While the reports are likely to be skewed on issues of compliance, it is probable that planners could ask somewhat different questions of the same data and develop some useful policy insights. At a minimum, they could provide sufficient material to develop hypotheses to be tested in targeted surveys.

A two-year-old project of the Inspector General also should be noted here. Within an office in the Secretariat which is concerned with

management and efficiency, a Rp.990,000,000 development project gathers routine data about secondary school management. The project allocates funds to each Kanwil to supplement their secondary school supervisor's travel budget. In exchange for these resources, the supervisor's (Pengawas) scope of oversight is expanded from technical (educational) matters to include a review of school management issues of concern to the Inspector General's office. Four times a year, the Pengawas complete a general report on their management reviews. The data are processed in the Secretariat and become input for the selection of targets for field visits. The data being collected merit examination by policy planners as a potential database for other analytic purposes.

The final data collection activity of the Inspector General's office to be discussed here concerns review of development project implementation. Both monthly and quarterly reports are filed with this office by every development project. The monthly reports monitor the realization of each measure of achievement and the budget consumed and available for that activity. They also require a specification of problems, the follow-up action needed and the agency responsible to assist. The quarterly reports summarize the financial data by month, asks for the same problem identification information and checks achievement of physical targets, financial targets, and overall objectives according to the planned schedule. These reports are used as input for the planned schedule and are passed as inputs to the Inspectorate General's inspection. They are also filed to the respective Directorate General planning office and to GOI agencies, a system which is designed to increase efficiency of program

implementation and compliance with policy and regulation. They thus become input to the field visit decision. In 1984/85, nearly 60% of development projects were field visited. This reflects the priority given the oversight of these projects by this office.

4.2.3.1.3 Office of Director General Primary/Secondary Education: Secretariat Planning Office

This office is responsible for program and budget planning for the Director General of Primary and Secondary Education. Its work is conducted by three units: One is responsible for data collection and processing; one for formulation of plans and progress; and one for monitoring programs and development. The data collection responsibility of this office is shared with Pusat Informatika, a unit in Balitbang. Pusat Informatika carries out the data collection and processing of elementary school data, while secondary school data are collected and processed by this office. The office is responsible for using the data provided by Pusat Informatika to project elementary school needs and plan budgets associated with equipment, books and teacher training. The responsibility for planning elementary school building construction rests with a cross-ministry committee. Pusat Informatika represents this office on that committee.

Secondary school planning is wholly the responsibility of this office. The office indicates that approximately 22,000 questionnaires were sent to public and private secondary schools in 1985/86. The questionnaire was to be returned on August 31, 1985, thus reporting first semester 1985/86 school year data. As of late September, response rates were expected to be in the 85% to 90% range. Until two years ago,

all processing of data from these questionnaires was done by hand. A new procedure has now been developed to use contracted computer services. When questionnaires are received, they are logged and the data they contain are transferred to a large card (approximately 16" x 20"). This transcription is done by hand since some judgment and interpretations must be made in the process. The transcription takes three to four months. Another two months is then required to keypunch and mount the data. A clean tape is expected to be ready by March, 1986. 1985/85 enrollment data will be available for input into the planning process for fiscal year 1987/88.

Since the unit began using a computer for data manipulation, the information system has become more reliable than in past years when all calculations were done by hand. This data base is also used for budget allocation. When final unit cost decisions are received from the central planning office, the computer uses questionnaire data to allocate budget to schools according to the most current enrollment data. In addition to their use for centralized planning, the data are also broken down by province and sent to each Kanwil for its use.

The data which are collected annually from the secondary school include:

1. Name, status, ownership of the school qualification to give exams
2. New versus anticipated enrollments by source (i.e., prior educational experience)
3. Numbers of classes by curriculum track by grade
4. Religion of students by grade
5. Number of dropouts by grade by sex

6. Number of repeaters by grade
7. Teachers name, sex, DOB, civil service status, salary level, degree, subject taught and data and type of inservice training received
8. Number and responsibility of nonteaching staff
9. Numbers registering for and passing final exam by sex and curriculum track
10. Facilities owned and rented by size and condition
11. Equipment by budget source.
12. Utility expenses

The Pusat Informatika assists this Directorate by handling the collection and processing of data concerning primary schools. There are two main databases. One is an annual database of elementary school building characteristics from an earlier attempt at school mapping. Because all Kecamatan take part in this earlier activity, the data were limited in usefulness, and Pusat Informatika sent out a questionnaire during the 1982/83 school year to collect basic data about the physical facilities housing each elementary school. These data include age of building, number of classrooms and numbers of students that can be accommodated. Each building was assigned a unique number coded by location so that, as each school also has a unique number, there are two ID numbers for each building. The data were updated by the Kecamatan in 1984/85. The database contains data on 98% of the buildings in the nation with responses from 96% of the Kecamatan. The data will be updated every five years and compiled in books at the provincial, district, and subdistrict level. To date, these books are available in eight provinces. Completion is anticipated this fiscal year. Each

Kecamatan will then be able to label and identify each elementary school building in its area.

The other database on primary education resulted from a questionnaire distributed at the opening of school each year. This questionnaire is comprised of four different forms, computed at ascending organizational levels. Form T is completed by the headmasters; Form RC compiles the form T data at the Kecamatan level; form RK compiles form RC data at the Kabupaten, level and Form PP compiles RF data at the Kanwil level. Balitbang receives 40% of the RC forms, 70% of the RK forms and 100% of the PP forms. With this procedure, data processing at Balitbang, which used to take up to two years, now takes only one week.

There are tradeoffs for this reduction of time and central staff burden. Since the RC, RK and PP forms are summaries, some basic data collected from Form T is unavailable for detailed analysis. As there are compilations at each ascending level, the sources of errors may not be uniform. Missing data is estimated, thus introducing another source of error. Nevertheless, when aggregate data from this source is compared with data from other sources, such as the building survey, the totals tend to be within 5%.

Under the current procedures, the forms are distributed as of August 31. They are received by Balitbang by October and are compiled shortly thereafter. They are entered on an Apple or Wang computer and prepared for publication in April, although they are available earlier for planning purposes.

The Form T, primary school questionnaire is printed on two sides of

one legal size sheet. The data collected from the 136,706 public and private primary schools include:

1. Name, address, status
2. Numbers registered for and passing final exams
3. Numbers of new applicants, number accepted, and number enrolled
4. Numbers of new first grade students by age
5. Total students by age, grade level, and sex
6. Religion of new students
7. Numbers of repeaters by grade
8. Numbers of nonteaching personnel by role and civil service status
9. Numbers of teachers by type, civil service status and degree held
10. Numbers of classrooms by ownership and condition

The data collected from elementary and secondary schools are used as inputs to the Repelita and annual planning process. They become the basis for projections of annual needs and of Repelita accomplishments to date. The data are available in time to serve the third phase of the planning process, where most negotiation of ceilings and targets takes place. However, we do not have enough information to describe the use of these data as they interact with the stream of data and requests that have traveled up the hierarchy as part of the planning process itself. This process of interaction remains an area for further examination.

The data are used by Pusat Informatika also as a basis for publishing annual summaries of school statistics. These summaries, published since 1974, are published in the year following the year for which data are collected (August 1983 data was published April 1985).

With the new procedures for processing elementary and secondary school data, they should be published in less time. In addition to the summary volumes, there are volumes published for each major type of school (SD, SMP, SKKP, ST, SMA, SPG, SPU etc). The Balitbang Dikbud is currently planning to make the data available at provincial, district, and subdistrict levels in separate books for each unit.

The unit responsible for monitoring programs and development in this Directorate's planning office maintains a routine reporting procedure for development project activities. These monthly and quarterly reports are used for planning future programs and for tracking accomplishments and problems. Other chapters of the sector review discuss monitoring development projects in greater detail. The reports are filed by the data collection and processing unit and used as input by the plan formulation unit.

4.2.3.1.4 Office of Director General Higher Education: Secretariat Office of Planning

This office has responsibility for planning in the Directorate General of Higher Education. Over the past five years, they have developed a highly rationalized concept of the process of program planning and development, program implementation, and program control. This process is codified and detailed in five volumes of procedures and data needs. These volumes, totaling nearly 350 pages, and directed to different types of institutions and organizational units, were issued by the Director General in July, 1984, and cover planning requirements for all levels and higher education units. A new volume, which describes the overall conceptual framework for the process and embeds it a concept

of university administration and function is now in draft form. This volume was written to clarify the function of universities in the planning process. It outlines a matrix of five functions: 1) education, 2) research, 3) community academic services, 4) alumni relations, and 5) public service by the administration categories of students, academic staff, administrative staff, curriculum, facilities, equipment and budget. The cells in this matrix identify the planning elements.

Beyond these guidelines, which serve as minimum requirements, each university, public or private, is required to develop a master plan to specify the physical facilities that will support the eventual academic program. This plan is developed by each university and reviewed centrally. From this master plan, three years of annual budget needs are projected. Each year, these budget needs become the basis for the operating plan. In public universities, after this operating plan is approved, it is reviewed according to a routine reporting format every month and every quarter for the development budget portion and every six months for routine budgets. Private universities report through the Kc;artis every six months. Response rates for private universities are estimated at 95% and at 100% for public universities.

Policy planning and development regarding academic or technical matters is the province of each of the substantive operational areas under the Director General (see the higher education chapter for details). The planning office deals solely with administrative planning (facilities, equipment, and personnel). Specific research projects are implemented by individual universities under the direction of the four

program directors. While Balitbang Dikbud is recognized to have higher education research within their portfolio, the primary research role is played within this Directorate General itself. This is also true of planning activities, although Pusat Informatika is actively involved in designing and analyzing the questionnaires described below.

In addition to the master plans, which include extensive data on facilities, campus layout, and such matters, the database in this office is comprised primarily of the semi-annual and annual reports from the public universities and Kopertis. These data concern faculty backgrounds and assignments and available physical facilities.

The data contained in this database are currently computer processed at Pusat Informatika, analyzed, and published in book form annually. The book contains analyses and provides tables of major data elements by university. The data for the 1984/85 year were published in April 1985. In August, 1985, basic data for the period 1974-1984 also were published.

4.2.3.1.5 Office-of Director General of Higher Education: Directorate of Academic Affairs

Though this office is not a source of routine data collection activity, a major database is currently being developed there, as shown in Figure 4.2. A major baseline study of higher education was conducted during the second half of the 1984/85 school year. Survey instruments covering a wide range of variables related to program, personnel, and facility were administered at all public and private institutions in Indonesia. A census of all faculty and all students was also conducted at this time. These surveys were directed to nearly 550 institutions,

50,000 faculty, and 1.2 million students. Reports of response rates vary, but may be as high as 78%.

The contents of this database are too complex to detail here. Data are currently being pulled together, and the preliminary results will soon be available. Analytical studies are ongoing. This significant data set should provide insight into the status, cost, and outcomes of higher education. It thus presents a major opportunity of higher education policy analysis.

4.2.3.1.6 Director General Nonformal Education, Youth and Sports: Secretariat Planning Office

The office of planning for the Directorate General of Out-Of-School Education, Youth and Sports has three subdivisions. One unit is in charge of data collection and processing, another responsible for program planning, and a third for monitoring program implementation. Like the offices of primary/secondary and higher education planning, this office relies on the Pusat Informatika of Balibang Dikbud for assistance in data processing and analysis.

There are two major sources of data for the planning process of the office. One source is the set of annual project document (DIP) monitoring reports; the other is the annual questionnaires about nonformal education activities, youth activities, and sports activities which are completed by the various Penilik at the Kecamatan level. These questionnaires come to this office for processing, but the analysis is shared with Pusat Informatika. The Balitbang computer is used for the analysis, since this office has neither a computer nor personnel trained to use one. Two staff will be trained in 1986/87.

There are problems associated with the data provided by these questionnaires. First, the vacancy rate among Penilik is high. The positions for nonformal education are reported to be 15% vacant. Those for youth and sports are 40% vacant. Second, because of the distances involved, it takes up to three months to receive the questionnaire back from the Penilik in the more remote Kabupaten. The response rates over the past three years were relatively low: 60%, 70%, and 80% respectively. Regulations require that the questionnaires go through the Kanwil. The Kanwil offices do not have the fiscal resources to transport the questionnaires to the Penilik. Although this office shares resources with Balitbang for data collection, there are not sufficient funds to overcome this problem. The Penilik returns the questionnaires directly using a stamped envelope provided by the planning office. After compilation in Jakarta, the data are reported back to the Kanwil.

The data are about two years old when published. Several factors contribute to this delay. First, the questionnaire for fiscal year ending in March is not sent until August. Second, there is a long delay in receiving final returns. These are then hand processed, which requires ten months. Finally, overload of the Wang computer in Balitbang delays processing further. The 1982/83 data were published February 1985. The 1983/84 data are still being edited and coded, and only 60% of the 1984/85 questionnaires had been returned as of mid-October, 1985.

The questionnaires on nonformal youth and sport activities collect

data based upon the event or activity as the unit of analysis. The questionnaires collect the following information:

Nonformal Education Activity

1. Name, sponsorship, location and duration of activity
2. Age and sex of participants
3. Attendance and source and sex of tutors and aides
4. Source of budget
5. Ease of transportation access to activity
6. Condition of facility
7. Literacy level of participants
8. Text availability and numbers

Youth Activity

1. Name, objective, sponsorship, and location of activity
2. Type of facility, ownership
3. Sex, educational level and source of participants
4. Ease of finding facilities
5. Expenditure by budget source
6. Youth organizations in region by status of sponsorship, sex of members, and type of activity.

Sports Activity

1. Type of activity, type of sports involved, location and numbers of events and organizing committees
2. Attendance by age, sex and origin
3. Facilities available and used
4. Source of expenditure by budget source
5. List of organizations in area and sex of personnel involved.

The other source of data for the activities of the planning office are the monthly and quarterly reports on DIP activities. Since about 90% of the budget of this Directorate is expended through DIP projects, these are a significant source of data. There are 96 DIP projects monitored by the office: 3 at each Kanwil (nonformal, youth and sports) and 15 in the central office. The forms used to monitor these projects are identical to those used by the Inspector General and other Directorates General. The data on the forms are compiled on large summary sheets by activity by month. These sheets carry annual data and permit monthly comparisons. There is one sheet per project. Data are then compiled into books for reporting to the directors and the Director General.

The major problem with this database is that it is considered a waste of time by the staff because it is received months late due to the vast distances and remote areas involved. Monthly reports for the far islands and remote sites may arrive two to three months late. The office thus cannot give timely consideration to the problems identified. The primary use of these data beyond routine monitoring is to support program planning by the four directors and the Director General. They also are used in the annual planning meetings held with the three relevant section heads of each of the 27 Kanwils.

4.2.3.1.7 Office of the Director General of Education and Culture Research and Development (Balitbang Dikbud)

The Balitbang Dikbud is the major unit in the MOEC and has the most diverse and least specific mission. It is expected to play significant roles in data collection, curricular development, testing, research and development, policy analysis and mid- and long-term planning. It also

is responsible for coordinating donor technical assistance to the Ministry and for leadership in developing the Ministry's contributions to the Repelita. It has been observed that this unit 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 the provincial offices, a source of up-to-the-date data and tested innovations; to the IKIPs, a source of funding and intellectual leadership" (Shaeffer and Benson, 1982).

Balitbang was established to permit a critical mass of individuals to concentrate on problems of educational development. The unit was established apart from the other Directorates to maintain a perspective on the system without day-to-day operational responsibilities. work includes investigation, clarification, exploration and leadership. Developing recommendations on alternative policy and operational procedures is the clearest task. The office is divided into four centers: Information, Testing, Curriculum, and Policy Research and Development. A fifth center, Education Communication and Technology, is organizationally responsible directly to the Minister and supervised on a day-to-day basis by Balitbang.

In this section we describe the work of the four major Balitbang centers. While only one center maintains a database that could be considered an information system, the others are included in this review because their work products, and/or the information they generate in producing these, are potentially valuable inputs to a policy analysis database.

Center for Policy Research and Development

This center is responsible for conducting the policy-oriented research and development work of Balitbang Dikbud. The Center was created from two existing centers: the Center for Research and Development and the Center for Innovation. Its name has not yet been officially approved. While some of the Innovation Center's prior work was transferred to other Balitbang centers, its pilot projects were shifted to the Center for Policy Research and Development. At the same time that this center was created, a major policy shift affected the Balitbang Dikbud staff. Two years ago 60 staff conducted the work of the Research and Development and Innovation Centers. There are now only 30 staff in the new center. The current policy is that the research no longer be conducted by in-house staff, but conducted by the faculty and staff at the state universities and IKIPs as much as possible. This approach has resulted in major staff reductions in Balitbang.

The current workload managed by the center includes three DIP projects covering 22 activities. The project are: 1) policy research, 2) policy development, and 3) evaluation. The policy research project has 11 research activities. The policy development project has seven activities and the evaluation project has 4 activity streams. The policy research activities include such titles as:

- . Research on Basic Human Needs including Basic Education Needs
- . Research on the Teaching/Learning Process
- . Research on Organization and Personnel Management
- . Research on Inservice Training Institute
- . Research on Education Resources

- . Research on Educational and Cultural Planning
- . Research on Out of School Education
- . Research on Human Resources that may be utilized for Educational Development.

Although the titles of those studies seem too general to merit a policy research label, specific policy results are being investigated and alternative policy concerns are generated as a result of the work. The policy development activities are intended to provide input to the regulations required to implement the education law which will be considered by Parliament this session. Staff report that the data available from Pusat Informatika's routine data collection activities are insufficient for these purposes. They require data collection to meet the specific needs of the study being conducted.

The staff responsible for these studies are primarily holders of the Drs or Dra degree from Indonesian universities; five hold foreign Ph.Ds and three hold foreign Masters degrees. Approximately 70% of the work is actually conducted inhouse and 30% at universities. The databases needed to support the studies are particular to the study and limited in scope.

Center for Testing

The Center for Testing has worked in strengthening the nation's examination program, especially at the primary and secondary levels. Previously, most school-leaving exams were developed and conducted at local levels. Certification was required to give such exams, but these were locally developed. In 1985/86, school-leaving exams for Grade 6

(SD), Grade 9 (SMP) and Grade 12 (SMA) became national exams. Work to develop this program began in 1980. In 1985/86, 540 different subject matter exams forms covering 54 subject areas were administered during a two-week period in all schools across the nation. The exam forms were exchanged among local schools, corrected, and the scores reported to the students, within a three-week period.

In each exam, there were from 60 to 100 items. Ten of the items were developed and psychometrically evaluated by the Testing Center. The remaining items were developed by invitation by local schools and edited at the Testing Center. A larger percentage of items to be developed by Balitbang each year. Unfortunately, the tests themselves were not shipped to Balitbang, so this potentially valuable database on schooling outputs is not available for analysis. However, these tests could provide a rich source of policy analysis information in future years.

Center for Curriculum

The main function of this Center is to create a central curriculum at the school level based on national goals. While the center has responsibility for all levels, preprimary through university, the major focus is on primary and secondary education. The universities and nonformal programs undertake their own curriculum development. The Center works closely with the staff of the Directorate General where curriculum development is being conducted. They also seek advice from IKIP experts, school administrators, and teachers.

In 1982/83, the national curriculum was evaluated. Based on this evaluation, the entire curriculum of both primary and secondary

schooling was revised. Currently, new curricula are being implemented at the upper secondary level through teacher inservice activities. Revisions for other levels are ready, and the entire new curriculum will be implemented over the next two years. A policy directive by the new Minister, however, currently has this activity on hold.

In addition to consulting other ministries and members of the Indonesian society at large concerning curriculum changes, this Center's work is based upon their own research and development. They pilot new programs, and conduct evaluation and basic research in such areas as cognitive development, textbook use, and classroom practice. The outcomes of this work, which are published and deposited in the Pusat Informatika library as well as other places, may provide additional input to a policy planning database.

Pusat informatika

The Bureau of Planning was moved in 1973 from the Office of Education Research and Development (BP3K) to the Office of the Secretary General and was replaced by a new unit, Pusat Informatika. The Minister decreed that the Bureau of Planning was responsible for annual planning and the Office of Research and Development was responsible for development of the five year plan. As was noted earlier, that responsibility is currently delegated to the head of the Pusat Informatika. This responsibility is, in part, a reflection of the role this center plays as a repository for and coordinator of data and information.

The Pusat Informatika is responsible for collecting or advising on the collection of the basic statistical data necessary to measure progress and development in the Indonesian educational system. It also advises and provides data to other staff units of the MOEC. Since these data collection activities are described elsewhere in this review, they will not be repeated here. However, the resulting brevity of our description of this center must not be taken as a reflection of its involvement in data collection.

The Center is currently organized by major Ministerial areas of responsibility. Groups are responsible for primary, secondary, and higher education, out of school, and cultural data. Two other units are responsible for the Library and the Data Bank. A planned reorganization will reflect the Center's increasing emphasis on data analysis as well as data collection. Each of the areas which correspond to a directorate's responsibility maintains relationships with that directorate and assists in data collection.

There are five streams of data collection annually:

1. Data from primary school questionnaires are routed through each level of government to Pusat Informatika and then to the BAPPENAS, Dalam Negeri, Minister of Finance and Secretariate of Government Aid, as well as to other units in the Ministry of Education.
2. Secondary school data flow through Kabupaten and Kanwil levels to Pusat Informatika, as well as directly to the Office of Planning of the Director General for Primary and Secondary Education.

3. Public and Private Higher Education data flow directly to the Director General Higher Education Planning unit and from them to Pusat Informatika.
4. Nonformal education, youth and sports activities are recorded by the appropriate inspector at the Kecamatan level and flow directly to the planning office of the Director General for Nonformal Education as well as through the Kabupaten to Kanwil level planning office.
5. Cultural activity data flow from the inspector for culture at the Kecamatan level through the Kabupaten level and the Kanwil's planning division to the planning office of the Director General for Culture's planning office and also to Pusat Informatika.

Each of these reporting streams differs according to the agencies and levels involved. The role of the Pusat Informatika also varies according to the directorate involved. This unit thus plays a role in all major routine data collection activities (exclusive of those in the personnel office). The nature of that role is discussed in later sections of this chapter, and is described further here. It is apparent from this description that this unit plays different roles in the planning process according to the level of development of the process in the planning offices of the respective Directorates General. The role of this office is thus one of flexibility and support.

4.2.3.2 Resources for Planning, Policy Analysis and Data Collection

The purpose of this section is to identify the resources currently

devoted to data collection and policy analysis. Table 4.3 presents some selected measures of resources currently allocated to the planning, analysis, monitoring and/or data collection and processing function stratified by the key organizational units identified earlier as being involved in such activities. The table identifies 10 organizational units headed by echelon two or three level managers with clear planning, policy development, or research and data collection responsibilities. The number of units involved in these activities indicates both that these activities are significant within the MOEC and that they are diffused throughout the organization.

In the units concerned with planning and data collection activities, there are few staff having even basic university experience. This relatively low level of professional training has been identified by most managers as a problem in processing and using the data they collect. The table does not indicate the number of staff associated with planning activities at the Kanwil and Kabupaten level. However, in a typical Kanwil reviewed, the planning staff numbered 34 and each of the 24 kabupaten in their province had positions allocated for 4 planning staff. We have already noted the low level of training and high rate of vacancy among these units.

Table 4.3 also indicates a greater level of computer availability than previous reports on data collection activities indicated. Managers have consistently pointed to staffing problems as a constraint to effective use of the computer. Most staff have no familiarity with computer hardware or software and much of it is currently underutilized.

TABLE 4.3

SELECTED RESOURCES ALLOCATED TO PLANNING, ANALYSIS, MONITORING AND/OR
DATA COLLECTION AND PROCESSING BY ORGANIZATIONAL UNIT

Organizational Unit	Role of Subunit	Staff Available			Computer Capacity			Travel Budget (Rp.000)	Questionnaires		
		Profess.	Data Process	Secr. \Cler.	Main	Mini	Micro		Types	No. Sent Yearly	Pers/Days to Correlate
Secretary Gen. Planning											
Personnel	Tesp. Unit to Become Division Data & Info.	10	20	10	IBM 360		10 Term. 20 more planned	110,000			
Inspector Gen. Sekretariat		30	40	140				1,382,949			
Primary/Secondary Planning	Data Coll./Process Planning & Program Monitoring & Eval.	15	30	35	Share Pusat Informatik		Sharp on order or Contract	70,000	1	22,000	4,125
Higher Educ. Planning		15	10	15	Honywell		10 Casio Word Processors		2	1,100	2,200
Nonformal Planning		9	10	16	Share Pusat Informatik			8,000	3	1,047	2,094
Balitbang Dikbud Policy Research	Policy Research Policy Development	16		15				200,000			
Curriculum	Primary/Secondary Teacher Education Higher Educ. Aids	100		100							
Testing											
Informatik	Primary, Secondary Higher, NFE, Culture Databank; Library	20	20	40	IBM 360		2 Apple 10 IBM 5 Wang		1	140,000	53,182

Its existence does indicate that significant investments have been made. Whether the existing machines and software are compatible across units has not been determined.

Travel budgets limit verifying the accuracy of data and training noncentral staff in data collection, compilation and use procedures. The Inspectorate General is the main source of travel funds among these units. Fifty-five percent of their budget is allocated to regional travel under the special project to use the Kanwil's secondary school supervisors to collect management information.

The table does not show all donor funding of data collection-related-activities. However, the \$6.5 million USAID Grant to the Ministry to improve its data collection activities must be recognized as related to the scope of work covered by the table. In addition, the planning office is seeking a grant from the UN Development project (UNDP) to facilitate computerization of provincial level planning offices. The personnel office has obtained USAID funding under AID's Professional Resources Development program to support their computerization effort. The World Bank is also contributing 36 man-months of contracted consultant services in the area of personnel management. In addition, this office has received a pledge of Rp.350,000,000 from the Directorate of Elementary and Secondary Education to add 20 more terminals to their hardware networks. This will facilitate processing of appointments and promotions for personnel, the majority of whom work in elementary and secondary schools.

The final column of the table summarizes the information described earlier about questionnaire distribution. Using information from

principals interviewed as well as our own estimates of time required to complete the various forms, the total number of person-days involved in responding to questionnaires was calculated. If this number is added to personnel routinely involved in processing the data and an estimate of personnel time to transmit the questionnaire is included, the MOEC is probably devoting about 125 to 135 person-years to routine statistical data collection activities. When related to a personnel force of over 1,500,000 person-years, this level of effort is less than a .01% of the organization's resources. Even if our estimates are considerably off target, the order of magnitude of our estimate of resource expenditure for statistical information gathering to the scope of overall expenditure will not be significantly different. In our judgment based upon experience with other management, statistics and research and development agencies, this seems a relatively minor investment considering the necessity of gathering information to support planning, program development and justification for future resource allocations.

4.2.3.3 The Nature and Use of Available Data

MOEC routine data collection activities have been described at different levels of detail. Each aspect of each unit's data collection activities is repeated throughout the system of data collection. To lose this level of detail might result in the loss of data critical to the challenge of improving data-based policy planning, To sample this complexity conveys an idea of the difficulties involved in developing planning, administrative, and management databases, as well as the complexity of their integration. This section will summarize and

integrates the planning and data collection activities described and examine the nature of the data available.

The Repelita is the primary expression of national development plans. It specifies development objectives and priorities and provides targets, policies, programs, and projects for the five year period. Annual planning activities are designed to specify the details necessary to achieve the Repelita objectives. The annual plan provides a review of achievement and an opportunity to adjust and improve the plan in response to changing conditions. The annual budget and associated planning activities thus are driven primarily by the Repelita's objectives. This incident in the MOEC was 65%-70% of the annual funding of its operational units comes from the development budget. The agenda of the routine management meetings held throughout the year also are driven by discussion of progress towards annual Repelita objectives.

The outcomes of annual planning activities are budgets for all activities. These are transmitted from the highest to lowest levels of government via formal documents authorizing expenditures against approved lines. These authorizations come in two forms, the DIP for development budgets and the DIK for routine budgets. They provide authorization for funding routine school activities, such as teacher salaries, books, and paper, as well as development activities, such as nonformal education, school construction, books, and other material purchases.

Routine budget expenditures are monitored through monthly reporting activities to the SekJen finance office. Development budget activities are monitored through monthly reporting forms, which are sent to the

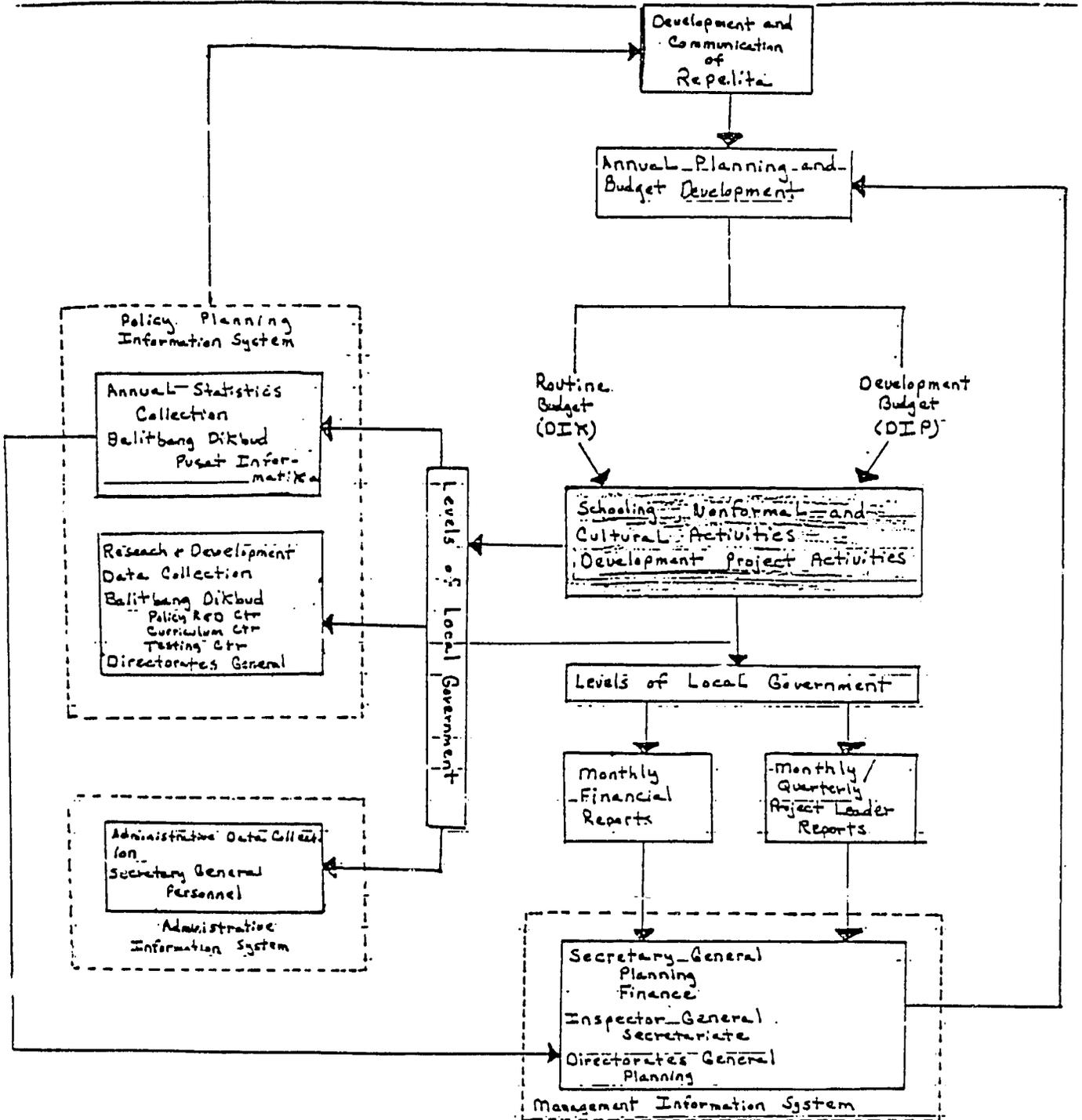
planning offices of the Directorate concerned, the Inspector General, and the Secretary General. These reports are the primary inputs to the present management information system.

In addition to these monthly reports of routine expenses and development budget activities and problems, there is another annual reporting activity; the gathering of statistics on educational and cultural activities by the concerned Directorate General assisted by Pusat Informatika. These statistics capture the combined results of major portions of routine and development expenditures. They indicate how many citizens receive services from education and cultural activities in which the government, through the MOEC, was financially involved. They give particulars about the recipients, the deliverers of service, the facilities in which services are rendered and, to some degree, the conditions under which they were rendered. The outputs of this data-gathering effort are interpreted primarily from the perspective of annual and Repelita objectives and become information inputs to the next cycle of annual and Repelita planning activities.

Additional data-gathering activities take place either in a nonroutine manner or do not cover the entire scope of activities funded. Specific research and development activities seek data from schools and other educational and cultural programs. Administrative offices seek data necessary to carry out their functions (i.e., personnel) and management officials monitor ongoing activities for compliance with rules, regulations, and procedures. Figure 4.3 illustrates this entire chain of mid-term and short-term planning, routine budget and statistical data-gathering, and nonroutine data collection activities.

FIGURE 4.3

A FLOW CHART OF PLANNING, REPORTING AND DATA COLLECTION ACTIVITIES OF THE MOEC



As Figure 4.3 indicates, the various offices of the Ministry of Education and Culture have developed multiple data-bases to serve their particular operational responsibilities. There is sharing of data among the units, but these data bases remain independent of one another (sometimes their data elements are unknown to other units). In many respects, the theoretical structure in Figure 4.1 has been reflected in actual Ministry procedures. Administrative units have elaborated data-bases to serve their needs; research units develop their data bases as needed; management officials collect data to monitor ongoing activities and the planning units develop data-bases to support their specific planning functions. If the conceptual Figure 4.1 is superimposed on Figure 4.2, which charts the organizational units involved in data collection activities, the results would be as shown in Figure 4.3. Figure 4.3 illustrates the driving role the Repelita plays in the entire set of activities. The content of the data collection activities of the MOEC, and use of these data are best predicted by the content of the Repelita and the planning and budgeting process surrounding its development and execution. The use of the data and their specific content has been described in the section above. In concluding this status review, it may be informative to examine briefly the nature of the information found to be available for policy analysis activities. Table 4.4 identifies the type of data available by organizational unit. It also partitions these data by organizational element measured.

In taking a system perspective on organizational behavior, an organization may be viewed as processing environmental inputs with the intent of yielding specific outputs that are likely to result in certain

TABLE 4.4
NATURE OF THE DATA AVAILABLE WITHIN THE MOEC
BY SOURCE

Organizational Unit	Organizational Element Measured			
	Input	Process	Output	Outcome
Secretary General Planning		---To be determined---		
Personnel	Extensive descriptions of personnel in service		Possible measure of educational achievement by level of graduate	Possible measure of employability by level of graduate
Inspector General	Assess compliance with required inputs	Many indicators of organizational and managerial behavior - some technical process as well	Assess rates of graduation and exam passing	
Primary/Secondary Planning	Student faculty, equipment and facility measures		Rates of exam passing Rates of repeaters	
Higher Education Planning	Student faculty, equipment and facility measures		Graduation rates	
Academic Affairs	Extensive measures of most input variables	Some measures of student behavior - some measures of faculty time use	Presumably some measure of graduation rates Entrance and Exit exams	Will be possible as result of tracer studies to be conducted
Non Formal Planning	Participants, personnel, equipment, facility, accessibility, budget			
Belitbang Policy Research		--- on limited basis ---		
Curriculum				
Testing			Educational Achievement Levels of completors	
Informatika	All input measures attributed to DG Planning units above		Rates of graduation and exam passing	

outcomes in the broader environment. In theory, educational organizations use social resources to transform students (inputs) through certain curricular and instructional activities (process) into graduates (outputs) who exhibit certain socially desirable traits such as economic productivity, civic participation, and lowered rates of mortality and morbidity (outcomes). Society generally allocates resource inputs for educational process based upon the perceived utility of the outputs in attaining socially desirable outcomes. In recent times in the United States, for example, resource allocation has been questioned because the educational outputs were not perceived to be exhibiting the outcomes anticipated. In Indonesia, schooling outcomes have been questioned by parents who withdrew their children before primary school graduation because of the presumed greater rate of return of their agricultural labor over that of the educational process.

In considering the data available to support educational policy development, it is useful to array it against the organizational elements described. Table 4.4 displays such an array. As in most educational organizations, the emphasis of Indonesian data collection and analysis falls in the realm of inputs. These are the variables most accessible to measurement. They are also the variables of most immediate concern, because they reflect Repelita objectives, budget consumption, and availability of educational service. Finally, they are the variables most amenable to control.

These variables do not, however, provide information on what happens in schools or as a result of schooling. Without measures of educational process, no supportable assumptions can be made concerning

the treatment students received. When output or outcome measures raise concerns about the value of input, no policy alternatives can be realistically projected from manipulations of inputs alone. Most educational systems fail to measure process and Indonesia is no exception. Except for the data the field inspectors may collect through field visits or surveys, there is virtually no knowledge about what happens in Indonesian classrooms that is based on routinely collected factual information, kept current as a matter of routine procedure, and available for policy development or manipulation. This is a major data gap.

Some output measures are available at all levels of formal education. However the meaning of those data which are routinely available for primary and secondary students is difficult to judge because different local standards are applied. Until primary/secondary national exams are fully implemented and psychometrically evaluated, it will not be possible to draw significant inferences concerning educational achievement at pre-university levels. This is another major data gap, but one for which some significant movement toward resolution is already underway. University entrance, exit and certification exams are important aspects of such measurement, but the percentage of individuals involved is too small to be of much use in the absence of such data for broader segments of society.

As in all societies, the data base is weakest in terms of routinized measures of outcomes of schooling. Yet it is such measures that are the best justification for increased allocation of inputs to the system. We are aware of no data routinely collected by the MOEC to

measure the social outcomes of schooling in Indonesia. The Ministry's employment exams may provide an inferential source of such data, but there will be problems associated with its use for such purposes.

This discussion is not a criticism of Indonesian policies or procedures in the realm of data and policy analysis. Most of the more developed societies do little better in these dimensions. There are solutions to the problem of these data gaps available to the system. The purpose of this descriptive status section is to identify where the gaps exist. The analysis section to follow will turn to the discussion of the implications of these existing gaps for policy analysis activities.

4.3 Analysis of Policy Analysis and Data Systems

4.3.1 Introduction

The preceding section has described the midterm and annual policy planning activities of the MOEC as well as the data collection activities and roles that support these functions. That description forms the basis for the analysis of issues that follow in this section. Before moving to that discussion, however, some comments concerning the limitations of data quality on analysis are required.

Unlike other chapters in this report, the topic of this chapter is not a part of the preestablished sector review methodology. It is therefore, not guided by a predetermined set of data requirements and issues to investigate. Furthermore, since it concerns an area of organizational process rather than function, basic descriptive data about the topic do not exist in documented form and must be generated

through qualitative investigation. These facts underlie the limitations of data quality to be described.

First, data collection in this situation becomes an iterative activity rather than a search to fill specific data requirements. This study was undertaken without a preconceived outline and conceptual framework, preferring to let it emerge from the initial review of the subsectors basic systems. Once a framework was developed, another round of in-depth data collection activities began. At that stage however, as in other qualitative data gathering effort, the more we learned, the better we were able to identify our data collection needs. Therefore, a third round of data collection was. Ideally, this iterative process would continue to pursue hypotheses with further data. One limit of data quality is the effect of time on depth of knowledge.

A corollary of the limitation of time is the impact of time on the ability to gain first-hand knowledge of the planning and data collection activities of the various subnational levels of the Ministry, as well as the activities of other ministries with educational concerns. Although we met with officials from Kanwil, Kandep, and Kanram offices, as well as two Kepala Sekolah and a Dinas TK II official, these meetings can hardly be considered representative of the over 7000 such local government offices. To feel confident in our understanding of these activities, we have had to rely also upon national officials and reports of others who have looked at these areas.

Another limitation on data quality (which interacts with time available) is the limit on our ability to gather qualitative data in a language we do not speak. Despite the considerable English speaking

skills evident, this must be noted, given the complexity and subtlety of the topic under investigation.

A final limitation on data collection is the limit on access to top level officials. Few people understand the specifics and scope of the issues under review. The individuals who do also have significant responsibilities and are frequently out of the area. Access to some of them has been extremely limited. There are, therefore, gaps in our data. While we believe we understand the system well enough to move to analysis, there remains the danger that we may carry to it some errors of fact and perception. We have tried faithfully to reduce these to a level that will not affect the validity of our findings. Whenever possible, multiple respondents were sought to confirm our first impressions and beliefs. Triangulation and iteration were employed to reduce the likelihood of erroneous impressions, but limited access remains a real concern.

With these limitations expressed, we will review the needs, plans and constraints present in the policy planning and educational data systems subsector. We will then move to an analysis of the major issues facing the subsector: (1) the use of information, (2) data quality, (3) the structure of the data base, (4) the development of staff capacity, and (5) organizational development.

4.3.2 Needs

The primary need in the arena of policy analysis and data systems is to improve the quality, scope, and timeliness of available educational data while enhancing the capacity to transform improved data sets into policy relevant information which is linked appropriately to

the policy development process. All three strategic elements, improved data quality, enhanced policy analysis capability, and better linking of policy relevant information to the policy development process, require attention. The production of more and better data will not of itself inform policy choices, nor will analysis capacity unsupported by effective linkages to those in a position to use the information to inform policy choice. Similarly, establishing appropriate linkages to the policy development process without quality data and analysis does not itself assure that educational outcomes will be affected positively.

4.3.3 Plans

A need for basic improvements in this subsector has been recognized by MOEC officials and donors for sometime. Attempts have been to make improvement all three strategic elements identified above. Annual data collection and processing efficiency and timeliness have increased in recent years. The scope of research and development work has been reduced and has been focused on policy issues. Annual and midterm planning processes have become more routinized. The need to link them to each other and to improve linkages to other national-level agencies has been recognized and some efforts have been directed toward that end. Nevertheless, much remains to be done at the core of all three strategic elements: improving data quality, developing policy analysis capability, and linking outcomes to the policy development process.

The most significant manifestation of plans within this subsector is the \$9.5 million Educational Policy and Planning project (EPP). Detailed plans for this project, the objectives of which were cited in

an earlier section of this report, are being developed during the project's first phase now underway. Even in the absence of specific plans, it is clear that this major effort will be directed toward improving the capacity to use hardware to enhance data collection, processing and analysis efficiency, and improving analytic capacity generally. While the project's resources are targeted to emphasize the development of Balitbang Dikbud, it is not limited to that unit. Efforts to strengthen data collection and analysis capacity will include the directorates general and the Secretary General's planning office. Efforts also will be made to link central databases to the provincial level offices.

Another plan underway in this sector includes an effort by the personnel office to use electronic data processing procedures to allow it to change from paper processing activities to those concerned with effective development and management of MOEC human resources. Funds to support this effort are being accrued from a variety of sources including the World Bank, USAID, and the Directorate General of Primary and Secondary Education. The data base being developed is a potential component of any effort to improve the MOEC information and policy analysis systems.

The Office of Planning in the Secretary General's Office is currently seeking donor support for its plans to provide computer processing facilities to Kanwil and Kandep planning offices.

The Inspectorate General is also engaged in attempts to reorganize its management and technical oversight role to make it more efficient. They are seeking input and assistance in this effort and feel that

electronic data processing equipment is a necessary component; however, they do not yet have either specific plans for using such equipment or pledges of support to obtain it.

4.3.4 Constraints

Constraints on the development of this subsector have been recognized and are being addressed. The first concerns of the current level of development of Balitbang Dikbud's and other relevant units in the areas of (1) personnel, (2) organizational structure and (3) fiscal resources.

Staffing levels in the two centers most directly concerned with information management and policy analysis are relatively low, given the scope of the MOEC's program and responsibility. Thirty-five university trained personnel, relatively few of whom have Ph.D. level certification, are not sufficient to staff the scope of work necessary for the quality data collection and policy analysis operation to which Balitbang aspires. This staffing problem is compounded by the fact that key organizational executives have other responsibilities which prevent their full-time attention to Balitbang's mission. There is similar lack of staff capacity in other units with plans or assignments to increase their data processing efficiency. Few if any of the staff in those units have experience or training in using electronic data processing equipment or performing analysis using system outputs.

Even if staffing levels were different, it is not clear that current organizational structure would facilitate their effective use. Roles and responsibilities in the area of planning and policy analysis do not yet seem to be sufficiently defined either among the major units

involved or within them. Even within Balitbang Dikbud, organizational structure inhibits outcome. Centers operate independently with few mechanisms that facilitate either coordination or (more important) the emergence of a targeted and interrelated research agenda designed to inform long range and mid-term planning.

Fiscal resources to support information development and policy analysis activities are somewhat limited. For example, Balitbang Dikbud's entire budget constitutes only .5% of the MOEC budget and only about .25% of the national education expenditures. While this may be sufficient to perform an effective policy analysis role, the resources must be utilized in a well coordinated manner for optimum outcomes to be achieved. This is especially important as 90% of Balitbang's budget comes from the development budget, which is likely to decline in rate of growth--if not in actual value--in coming years. This means that existing resources must be used with increasing effectiveness in order to increase outcomes in this subsector and to meet the maintenance and operational costs of new donor-purchased equipment.

A second constraint on this subsector is the lack of prior organizational focus on performing an ongoing policy analysis role. While Balitbang Dikbud has impacted policy significantly in its lifetime, there is a difference between experience with individual incidents in which research and development outcomes have been relevant to particular policy decisions and the experience of maintaining an ongoing policy analysis capacity and operation. Organizations learn their role performance over time; this is especially true for service units such as Balitbang Dikbud or the levels of planning units within

the MOEC. Having no previous organization for performing its role in a focused manner acts as a constraint on its achievement. In the United States, for example, the failure of the National Institute of Education to achieve the ambitions held for it was not a function of its level of funding or staff quality, but of its inability from the beginning to define itself organizationally to make it possible to achieve a vital role in serving educational policy development. The resulting disenchantment eventually caused the agency to suffer budget and staff reductions and finally to become a victim of partisan politics.

The third constraint facing this subsector is much more subtle. The planning and budgeting process of the Government of Indonesia is both highly routinized and historically oriented to incremental, not major policy changes. This inherently conservative nature in the planning process, while not unusual, has implications for the use of policy analysis information. Simply put, it is reasonable to expect that a significant portion of information which implies a deviation from the current course will have no visible impact no matter how effectively it is presented, because technical information is not the sole input to decisions at the national level. Political considerations have their own priority, as they must. This itself is not a constraint. However, underutilization of policy research is likely to have negative consequences on morale in an organization in the process of developing its own policy analysis identity. If information is rejected initially at a high rate, the impact on morale could be a significant constraint on further effectiveness, unless this contingency is recognized and countervailing forces are activated.

4.3.5 Issues

The MOEC must consider five issues as it works to develop an effective policy analysis and educational data system. These are: (1) the use of information, (2) data quality, (3) the structure of the database, (4) the development of staff capacity, and (5) organizational development. Each of these areas and the relationship among them will be discussed below.

4.3.5.1 The Use of Information

Our review of the policy and planning processes of the GOI and the MOEC in particular reveals several factors that must be taken into consideration if information produced by a policy analysis and educational data system is to have impact. This section will discuss three questions related to these factors, (1) the purpose of the data system, (2) the audience for its outputs, and (3) the types of analysis most likely to meet the needs of that audience.

The purpose of the system is the first issue to confront in developing an effective educational data system. What organizational goals is it to meet? Ideally, an educational data system should provide the Ministry with the capacity to determine, summarize and report on the accomplishments, status and needs of the educational system in order to further the long term objectives of the Ministry and to secure additional resources to achieve its objectives. This will allow long and mid-term planning activities to progress and still take into consideration changes in the system and deviations from a projected path of development. Other related data collection activities should support shorter term management and administrative needs. The nature of the

data collected should reflect the scope of the planning considerations.

A review of current data collection and use activities in the MOEC reveals the force of the Repelita in driving data needs and information processing activities. Most data collected and processed are in the form of annual statistics on education in Indonesia. These statistics count inputs--students, teachers, buildings, desks, books--and associated characteristics of those inputs--age, sex, religion, civil service rank, etc. These counts reflect the stage of development of the entire system. Indonesia is building an educational infrastructure, and the available information does a satisfactory job of documenting progress, despite internal frustrations with its lack of timeliness and doubtful accuracy.

The question now is whether the available information is sufficient to direct resources primarily to infrastructure expansion. Primary school enrollments are approaching 100%. If Repelita junior secondary enrollment and building targets are reached, immediate demand for this level of education should be accommodated. The issues during Repelita V will shift in focus from counting inputs, in order to meet demands, to equating outputs to social investment needs or manpower requirements. This shift will take the form of debate on such issues as quality, efficiency, and the equity of the educational system. Such a shift in emphasis requires data and analysis different from that currently produced. Conversely, different data and analysis might influence Repelita development in ways that are beneficial to the long term growth and support of the education sector.

If the purpose of the data system is to support analysis of the

best ways to determine long term objectives of growth, quality, efficiency, and/or equity, then the next issue is audience. To whom should the outputs of the data and analysis system be directed and in what manner? The targets of the information generated must be the key decision makers, who control the resources with which to respond to the needs evident from the analytic outcomes. They must be persuaded by the information to make decisions consistent with the recommendations. However, all decisions are made in a broader context than most policy analysis can take into account. To be useful, the information produced must present alternatives which take into consideration relevant constraints and objectives. Options must be prioritized according to some scheme relevant to the situation, and the information must be timely and relevant to the scope of decision at hand.

A review of Indonesian planning and policy development processes reveals several factors to be considered in meeting the criteria for information with the greatest chance of being used. First, there is the role of the Repelita. If information is to have an impact on planning, it must be input to the process of developing each Repelita. Second, such information must be delivered beyond the boundaries of the MOEC, because the most critical decisions are made in arenas beyond those boundaries. Therefore, the information must be understandable and meaningful to decision makers whose view is broader than the education sector. Other supporting levels of information must be structured to reach key actors within the central ministry as well as at provincial, district and subdistrict levels. This need for diversity implies that multiple information are needed on any given issue or series of required

decisions. Actors at the top of the organization need information which causes them to take action. Actors at other levels need information to understand why they are being directed to act as they are, as well as information that enables them to execute the action effectively. Information output must therefore be meaningful at different organizational levels of the GOI and the MOEC. It must enable those responsible to plan and set the necessary targets, and it must be available at subnational levels to support implementation.

If the purpose of a data system is to support analyses of how best to further long-term MOEC objectives and if those data and analyses have multiple audiences both inside and outside the ministry, what should the process of analysis entail to fulfill that purpose with those audiences? There are four steps to an effective policy analysis program. First, the audience for the analysis must be appropriately identified, as discussed above. Second, issues must be specified and agenda developed on the basis of actual discussion with those making the decisions (in this case, the President and his key advisors and advising agencies, the Directorates General, and local officials). Third, alternative policy options must be generated, and fourth, data-based analysis of these options must be pursued.

In reviewing MOEC practice, the current procedure does not clearly follow this four-step path. There are discussions of policy options among top MOEC leadership, but a routine procedure does not tie the specifics of those decisions to the researchers who plan and carry out the research agenda. One example of lack of discussion with consumers, or poor communication of the results of the discussion, is the rejection

of MOEC-proposed Repelita program changes by officials outside the MOEC. Early involvement of those officials in the analysis that led to the recommended changes increase the probability of a different outcome. The issue specification process of reading newspaper clips and Ministerial and other official speeches for insights into issues they express is not a direct method for obtaining the views of officials outside of the MOEC. As a result, research topics are either the outcome of the interest of an individual researcher or of a command from the top down. This may not be the case, but greater involvement of staff in the investigation preceding determination of agenda, together with opportunities to develop realistic estimates of time and resources needed to respond to the issues raised, will result in more effectively targeted analysis. Several individuals interviewed identified the generation of policy alternatives as an area in which further training was needed. However, this is an area in which less formal training is actually required. What is needed is practice in looking beyond the boundaries of current programs and procedures. Structures to encourage such divergent thinking should be a part of any effective policy analysis operation.

Finally, the process of policy analysis itself requires a range of skills, experiences, and disciplinary training. To some, policy analysis is simply the econometric modeling of different decision alternatives using data as representative of real world conditions as possible. However, to have data that are truly representative of real world conditions requires that each assumption of the model have associated with it a realistic range of probabilities of expected

outcomes. The development of these probabilities is more than an exercise in economics. It requires psychological, sociological, political, and anthropological expertise. It requires knowledge of actual education operations in the field and of regional variation in all the social dimensions. No one unit in MOEC currently has such broad range of expertise. If the Ministry is to move its range of policy analysis activities beyond projections of physical needs to analysis of returns on alternative educational investment scenarios, that range of expertise must be identified and the ability to tap it routinely must become a part of normal operation.

In summary, current information-use activities in the MOEC revolve primarily around responsiveness to Repelita objectives of expanding the infrastructure to meet social demand for education. Indonesia is close to entering a new phase of system development that must be more responsive to issues of quality, efficiency and equity. Development of a policy analysis and data system to support and lead such a shift must result from a recognition that the most effective use of policy analysis information will occur as a result of the production of relevant, timely, and targeted data and information analysis. Building the capacity for that requires attention to the other issue areas of data quality, system structure, staffing, and organizational development.

4.3.5.2 Data Quality

The issue of data quality should be considered in relative rather than absolute terms since the two major considerations involved are related to the information use issues discussed above. These

considerations are: (1) the nature and scope of data produced, and (2) its accuracy and timeliness, There is generally a trade-off between these considerations in any data collection situation. The trade-offs should be considered in the light of the use information that will be derived from the data collected.

Data collection often takes on a life of its own, especially as organizations move to the use of electronic data-processing equipment. Because this equipment reduces the person-hours of labor involved in converting raw data to usable form, there is a temptation to increase the frequency of scope of data collection. This increase will affect the accuracy of the data, as those who provide it grow impatient with repeated requests for information, or frustrated when the use of the information does not have results meaningful to them. This decrease in the accuracy of raw data delays processing and timeliness while accuracy is validated. This is evidence all of these problems in current MOEC operation.

These problems may be avoided if the question of data use is permitted to guide each instance of data collection. The remainder of this section will analyze current practice in each of four areas: (1) accuracy, (2) timeliness, (3) nature, and (4) scope from the perspective of the use of information.

Accuracy refers not only to the psychometric concepts of reliability and validity, but also to the simpler notion of people caring enough to be careful and honest in their reporting. There is considerable concern within the Ministry about this latter issue, but probably less recognition that the solution lies within the Ministry.

There are three possible sources of inaccuracy in the statistical data set. The first is reflected in the belief widely held by central officials that those completing the forms do so in a manner to benefit themselves. There is suspicion that the local officials inflate figures to garner additional resources or to indicate progress from earlier years. The primary reason for this suspicion is that counts by different agencies do not agree. Two equally simple and plausible hypotheses can also be advanced. Inaccuracies can result when organizations ascribe meanings to similar concepts; they can also be the result of hand manipulation of large amounts of data. There may be some truth in all three possibilities. Several points related to inaccuracy bear mention. First, the question of source of error is an empirical question resolvable by relatively simple field sample investigation. This should be done so that estimates of error can be introduced into analysis activities.

Second, the necessary level of accuracy of a database is a function of use. If the data are being used to allocate budget, they should be fairly accurate, or at least everyone should be distorting in equal proportion. If the data are used to measure need versus achievement in a situation where a need seems not even close to being met, accuracy is less important. If something is significantly beyond our financial grasp, we need not know the exact distance that lies between our financial capability and the order of magnitude of the cost of item. Further expenditure of scarce resources for additional data collection to achieve greater accuracy takes away disproportionately from resources available to be applied to meeting the need. From our review, it

appears that agreement across data sets is most frequently in the 5% range. That may be tolerable error for most MOEC uses and additional investment to reduce it may not be cost beneficial. Even a 10% discrepancy may be tolerable in some circumstances. For example, in reporting the percentage of an age cohort enrolled, how is it known that the other ministry's measure of numbers in the cohort is accurate? What appears to be 10% discrepancy may be an aggregation of two errors in opposite directions. The use of the data should be the deciding factor in determining the degree of accuracy necessary rather than an absolute standard.

Third, it is possible to resolve these errors by: (1) building in incentives for accuracy and reducing those for bias, (2) providing common definitions of data elements across and within agencies and (3) providing examples of what is meant by subjective terms such as good, fair, and poor. There are those who recognize this and are planning in this direction. This is a central MOEC, not field level, responsibility. These changes will significantly increase reliability.

The final point to be made is that until those at lower levels of the organizational hierarchy (1) have access for their own use to the data they provide and (2) feel that the data they provide are used in a meaningful way in decision making, there is little hope of achieving the levels of data validity aspired to. We have not yet seen these conditions being met.

Timeliness of data is also a function of use. Using two-year-old data to allocate budgets is not a necessary practice. Data processing technology is now available at very low cost. There are also other

alternatives. Expediting the process of primary school data is an excellent example. There is some sacrifice of interpretability due to the collapsing of categories, but sampling of original forms could open this option again later at relatively low cost if necessary. Some inaccuracy may enter the data due to the decentralization of compiling, but again the tradeoff for timeliness seems wise. This is the type of behavior should characterize all the approaches to data collection.

Another way to increase timeliness is to use exception reporting as a means of data collection. People are always being asked to provide data they have already provided earlier. Exception reporting asks them to provide only changes from previous submissions. In only one case have we seen only updates and changes requested. This was in Pusat Informatika's data collection activities concerning primary school building records. Exception or change reporting could increase the timeliness of data and reduce the burden on the reporters. It might also result in greater accuracy. For example, in the province we visited the Dalan Negeri requires each primary school headmaster to complete a monthly form recording the name, rank, serial number and date of next promotion the of teachers together with a count of chairs and desks and their condition. If this occurs in all 27 provinces, this task requires the equivalent of 150 person-years of effort annually to provide this data and an equal amount of time to process it. That data collection burden alone is about five times greater than that required by all the annual statistics gathering of the MOEC. Timeliness would increase with the reduced burden of exception reporting. Why such data are needed on a monthly basis should also be carefully reviewed.

The nature and scope of the data collection activity has been discussed earlier. The discussion of Table 4.4 in the status section indicated that the nature of the data collected is not sufficient to draw valid inferences related to quality improvements. The subsequent discussion of data use described the likelihood that quality issues will emerge more sharply as capacity approaches real need levels. It seems that from a responsive policy analysis perspective, current data collection activities will shortly be found inadequate. Expansion of data collection elements across the total system will probably be costly and will be resisted by those who already resist providing data because of lack of feedback and question about its use.

The answer to this problem of needing more data from an already overburdened system lies in a multifaceted strategy. First, the system needs economies in collecting statistical data. Processing can be handled electronically, but exception reporting and shifting compilation lower in the hierarchy should be employed more widely. Careful review of data elements and frequency of need is required. Levels of data availability are to be currently well beyond levels of use. If this is an accurate perception, better and more useful data could be collected and the frequency of collecting certain items could be reduced.

A second strategy is to introduce sampling procedures into the process more widely. There is no reason to survey everywhere for much of the data required. The intellectual and technological tools of sampling methodology are highly refined and applicable to many educational information need situations.

The third strategy is to recognize that many data relevant to

effective policy analysis are available outside the educational system. Outcome data particularly are rarely available within educational systems, but must be used by system planners in determining alternative policy options. The personnel office employment exams are the only source of educational outcome data we have identified as currently available within the Ministry. Other agencies may also give such exams. The other social ministries may have data on such elements as rates of morbidity and mortality, economic development, income levels, agricultural production rates, and employment statistics. All of these in concert with the rather comprehensive input data the MOEC has available from a 10-to-15 year period would offer rich material for insightful policy analysts to examine. The relationships between educational inputs and some of these variables (analyzed at subnational levels) could be determined. Where the correlations are not as expected, research agendas or corrective actions could emerge. Where they are as expected, additional claims to resources can be supportable by rate-of-return evidence.

In summary, achieving high levels of data quality begins with designing data collection activities from the perspective of the use to be made of the data. Tradeoffs across the dimensions of accuracy, timeliness, nature, and scope must be informed by the use to be made of the data. Current MOEC activities are not sufficiently guided by this approach. Many data are available which have not been converted to information used to guide policy decision. This perception exists at all levels of the system and impacts data quality adversely. Further, the nature of the data is insufficient to support policy analysis

necessary to determine how best to achieve improvements in quality, efficiency, and effectiveness. In order to increase the availability of a sufficient range of data, the scope of data collection should be altered by the use of sampling procedures and economies in frequency of collection. Assembling data collected outside the MOEC for analysis along with Ministry data also will enhance policy analysis outcomes.

4.3.5.3 Structure of the Data Base

There are two overriding considerations concerning the structure of the MOEC database. These issues concern: (1) levels of physical integration of the diverse data sets available, and (2) degree and form of access to data at subministry levels.

An idealized image for the system begins with a room with a large computer mainframe capable of handling all data available in the MOEC and enough terminals in each of the planning, management, and administrative departments to permit data manipulation to meet their particular information needs. In this ideal image, this capability extends to each Kanwil and Kabupaten office, which is also linked, possibly via satellite, to the same mainframe, where all data sets are partitioned at least to the district levels and may be further partitioned using unique building and school codes which identify subdistrict and village.

This image is technologically achievable. Whether it is realizable in the near term is doubtful. Whether it should be realized is another question. The principle holds that hardware should never drive use, use must drive hardware. Until there is a need to use such a data system to benefit the educational system, investments should be directed primarily

to building use capacity rather than to hardware. In the long run, some hardware inefficiencies may result, but the entire system will be established with greater efficiency.

To understand the order of magnitude involved in building such an integrated system, the efforts of the State of Florida in the United States, where such a system is currently under development. Final costs of development and early operation will be in the \$10 million range, although there are only 67 school districts in the entire state. Many of these districts have extensive computer capacity already. The system merely links the local systems together with one other and with the state education department. There is a distance of only 700 miles to cover, and existing telephone lines connect it all. There are only 90,000 teachers and 1.6 million students involved. Consider what it would cost to achieve a similar integration in Indonesia. Fortunately, MOEC officials of the also understand the issues in developing such a system.

This review of current activity in the MOEC reveals several operative systems of varying levels of sophistication. Plans for further development of these vary. At this stage, it seems reasonable to permit that growth to occur with in each system, rather than to try to integrate them physically. However, conceptual integration and coordination at this early stage of development can be achieved. The Educational Policy and Planning Project (EPP) is the ideal vehicle for this, particularly in light of the makeup of its working group.

Since compatibility across systems is a more important goal than physical integration, the working committee of the EPP project could

take several steps to assure that compatibility. They could (1) ensure that each data element has the same meaning across systems, (2) agree on unique identifying codes for personnel, facilities and activities, and (3) make sure that hardware and software are compatible. Current MOEC thinking is in this direction on all these counts.

It appears that IBM hardware is leading current investments. It is clear that IBM compatibility, if not IBM equipment, will become one element of an industry standard. Future hardware and software developments are likely, therefore, to be consistent with current MOEC investments and future investments.

Decentralization of database access, or of actual physical data base and manipulation technology to local levels poses a more difficult question. The first issue to confront is what use can be made of such technology. This question is a function of the resolution of broader social issues concerning decentralization of planning and decision making. The evidence we have to date suggests that requests made from the bottom up and targets, goals, and budgets set from the top down more frequently run on parallel, rather than serial tracks. If this is the case, localizing technology will not increase efficiency. If policy is to remain from the top down, the database and equipment may as well remain centralized. However, the inaccuracy issue will need to be resolved through more frequent validity checks and other such systems.

If the locus of decision making moves down the hierarchy, then responsible management principles suggest that all possible support be given to improving the efficiency and effectiveness of local decision making. This means that more than just data bases, hardware, and

training have to be available to local officials. A national program of educational research designed to inform decision making and local policy choice also is advisable. The research model should take the form; if faced with x under y conditions, z seems to be the optimal path. This type of research program is only affordable at the national level, but it requires a broad range of data which can be more readily supplied by local offices with trained employees backed by appropriate hardware.

In summary, decisions about database structure are best informed by knowledge about the use to be made of the information generated. At the current stage of development, the individual information systems being developed within MOEC are probably best left to continue their individual growth, tied together by coordination rather than physical integration. The issue of decentralization of system resources, hardware and software, and data is best coordinated within the resolution of this broader deconcentration, issue at other levels of government. If, as seems likely, the nation moves in the direction of deconcentration such movement is best supported by the availability of hardware and research information to guide decisions.

4.3.5.4 Staffing

In identifying constraints on the future development of the policy analysis and educational data systems subsector, the potential limitations of staff capability was discussed. Sufficient staff to provide the scope of policy analysis required may not be available. Two issues have emerged related to creating that capacity and merit discussion in review of the sector's current operations. One concerns

the source of that future capacity, the other concerns how to stage development of the system and its staffing.

There are several options to staffing for data processing and policy analysis capability. The MOEC can (1) train and promote from within, (2) import shorter term employees or consultants from the university system, or (3) hire newly trained personnel. There seem to be at least several disadvantages associated with each option.

Training people from within means reducing staff capacity while the trainees are away. Ironically, this occurs at a critical time if new structures and systems also are being implemented. Second, given the GOI procedures, those who are being trained lose time in position during that period, so their seniority is reduced. As a result they may not become the organizations leaders.

Several problems also exist if university staff are imported. First there is a dual allegiance which manifests itself particularly in terms of time commitments. Second, those academics who have limited government experience frequently do not have sufficient operational experience to choose the path of optimal outcome. Theoretically elegant solutions are some times not practical in the real world. It takes operational experience to recognize the need for pragmatism. The third problem is a corollary to this: it is easier to give than to implement advice. Short-term advisors can go back where they came from without having to implement the program design. This builds in lack of commitment to follow-through and also may result in elegant but impractical advice.

Hiring newly-trained individuals is a reasonable path to take, if

they can be attracted. In developing countries highly trained technological talent finds greater rewards in the private sector. Another problem with this approach is that newly-trained individuals also lack the operational experience necessary to understand real-world necessities.

The obvious solution to this dilemma is to employ a strategic mix of approaches. This raises the issue of staging system design, hardware installation, and training where a project is during development. Ideally, trained informed personnel determine the range of uses for the system, estimate the data needs, and select hardware accordingly. However, as in most situations, the "project" has a life of its own. In the case of the EPP project, institutional requirements that resources be spent at a fixed rate could compromise the unfolding of this ideal scenario. While significant intellectual progress has been made within the EPP project, that progress correctly has not been accompanied by large expenditures of resources. As funds build, there will be systematic pressure to spend. The result could be purchase of hardware first, system design next, and training last. This could mean a need to employ outside consultants and new personnel before trained MOEC staff can be available. The solution to this seems to be to recognize the potential problem now, assess its impact, and, if necessary, interrupt the "life cycle" at an early stage and design on appropriate and realistic implementation schedule that recognizes the planning choices optimal for long term development.

In summary, staffing needs may serve as major constraints on the development of an effective policy analysis and data system. This is

compounded in an environment where outside resources, an availability and there is pressure to produce visible outcomes. Those outcomes may take the form of physical products before their use can be effectively planned. Consideration of the probability of such an occurrence at an early stage in the project's life cycle and appropriate adjustments made then could yield significant long term benefits.

4.3.5.5 Organizational Development

In discussing constraints on the development of this subsector, the effects of limited prior experience with policy analysis on future growth of the capacity was noted. If this phenomenon is recognized early, it is possible to plan to overcome its effects. Consideration of two factors is helpful in such planning: (1) creating a critical mass of energized staff, and (2) creating a facilitative organizational structure.

First, staff training may be approached with organizational as well as individual development in mind. Frequently, people are sent out of country for training. In developing systems management and analysis and policy analysis capabilities, a number of people from across several organizational units may require training. This provides an opportunity to build a sense of community, challenge and esprit de corps, as well as a network of similarly-minded individuals. This can happen within both long term and short term training situations. Two prior Indonesian models for this behavior can be referenced. In several agencies of the GOI there are young leaders who were educated at the University of California at Berkley and who now occupy important positions in several agencies which regularly interact. They constitute a "network" that

allows faster movement than is possible where traditional bureaucratic lines of communication are the only paths to follow. As there are complementary data systems being developed or planned for development simultaneously, long-term training assignments should be structured with this effect in mind.

Short term training can produce a similar effect. In the late 1960s, two systems analysis seminars, each lasting about nine months, were held in Paris (BCEOM) and Santa Monica, California (RAND) for Balitbang staff. The participants in these seminars eventually became the key leadership group in the agency, and led it to its most significant accomplishments. This model of creating a critical mass of organizational initiative can be replicated under the EPP Project.

Beyond reviewing the organizational development aspects of staff development, it is useful to focus directly on organizational structure. Some limits of the current organizational structure have already been mentioned as constraints. This review has avoided in-depth discussion of the relationships among the various planning units, the Secretariat General, Kanwil, and Directorates General, because we do not yet know them well enough. The following comments focus primarily on Balitbang Dikbud and the mid-term and long term planning role they are assigned. Structuring for the short-term planning role is a topic for another investigation. That structure will, however, be enhanced by improved outcomes from the mid- and long-term process.

Balitbang, to be viewed as effective, must produce timely, relevant, and useful information. Several steps in that direction have been taken to organize Balitbang to achieve this goal. There is greater

communication with other directorates. The research agenda is more focused. Even greater focus may be required, as the policy issue identification process would benefit from refinement and broadening. The coordination of agenda across units needs increased attention. The Testing and Curriculum Centers are sources of both data and research expertise and must have a policy awareness, though it need not and should not dominate their work. A sense of a policy-related mission must evolve throughout Balitbang, and it must direct the work of all units.

Outcomes may also be enhanced by reviewing performance of three support functions critical to organizational outcomes: (1) external substantive coordination, (2) internal substantive coordination and (3) administrative coordination. These functions must be performed on a day-to-day basis to assure that the volume of work underway results in effective outcomes. The organization must maintain an external focus in order to relate its work to the needs of various consumers outside the MOEC. The consumer's needs must be translated into a viable program of work. Next that program must be substantively overseen on a routine basis to assure that the work is conducted and coordinated effectively. Finally, administrative activities must provide the support the agenda requires. Our experience is obviously insufficient to evaluate whether the performance of these functions is optimal. However, as policy analysis activities become more established a review may be a valuable step.

In summary, if each of the issue areas discussed here are dealt with, there remains the need to structure for the organizational

development of the units responsible for converting data to useful information products. This requires attention to using training opportunities as a tool of organizational development, not solely individual enhancement; to structuring the Balitbang Dikbud in a manner complementary to its mission, and to assure the range of roles necessary to support the mission are addressed organizationally.

4.4 Conclusions

The issues discussed in the preceding analysis form the framework for four conclusions regarding the future development of the policy analysis and educational data systems subsector. These conclusions lead to a series of specific recommendations which will form the final section of this chapter.

Conclusion 1

Multiple and relatively autonomous data collection and information systems currently support the mid-and long-term planning, short-term planning, management and administrative functions of the MOEC. These systems are at various stages of development toward efficient, effective collection of data and provision of necessary information for the organizational functions they support. Long-term growth in this sector is likely to be greatest of for the present the growth of these systems as relatively independent entities continues.

Immediate attempts to integrate these systems into a single management information system would probably be premature, given (1) current levels of staff training, and (2) current levels of specification of the information needed to support effective organizational

functioning. The Ministry's ability to transform data and develop technical information which is useful as a basis for management and policy decisions, would be more effectively served at this stage by coordinating the development of the various systems than by their physical integration. While each system continues to identify its information and data needs and plan efficient and effective means of meeting these needs, overall subsector development should be guided by centralized coordination and review of these activities.

Conclusion 2

The nature of the policy development and articulation process of the GOI is such that Repelita targets condition major routine and development-related policy decisions that follow. However, the Repelita itself does not specify strategies to achieve its objectives. Therefore, the MOEC's ability to reach targets and objectives is best served by allocating highest priority to developing the data and information system which supports the MOEC's Repelita contributions. This system should be enhanced to consider alternative policy strategies based on an analysis of information as part of the process of proposing and choosing targets.

Data needs derive from information needs, which are in turn derived from policy development and policy implementation needs. Therefore, in large measure, the needs of the management, short-term planning and administrative information systems logically flow from the outcomes of the mid-term and long-term planning process. If these planning outcomes are specifically and clearly articulated and strategic choices, the other information systems are better able to direct their data

collection and analysis activities toward supporting achievement of the MOEC objectives. There is an opportunity to achieve a multiplier effect by according priority to enhancing the capability of the mid term planning process to effectively develop Repelita targets and strategies and to communicate the strategic implications of those Repelita targets for other organizational activities. This level of specification would also make it possible to determine measures of achievement on which to base evaluation of Repelita development. This evaluation responsibility should also be placed with the mid term planning unit so that data necessary for future Repelita planning are available.

Conclusion 3

The nature of current data-collection activities reflects an emphasis on the expansion of the education system infrastructure. While the input data this emphasis requires are necessary, they are not sufficient by themselves to answer the questions of quality, efficiency, and equity which are likely to be raised with increasing frequency as development resources decline and system infrastructure development reaches levels sufficient to satisfy immediate demand.

A contradiction of the data collection system is that, though its current activities strain the capacity of staff to process and analyze data and the willingness of local officials to supply accurate data, the nature of the data collected are inappropriate to the policy analysis needs faced by the system. Opportunities to expand the nature of data available for policy analysis work are not unlimited, but exist in a zero sum context.

Conclusion 4

There is a common perception that the depth and scope of the MOEC's current staffing is not sufficient to meet the goals of developing a productive and useful policy analysis and educational data system capacity. Attempts to enhance that capacity would be maximized if related organizational development strategies are employed concurrently.

Staff with computer and electronic data processing - related skills and staff with policy analysis training, though available within the MOEC, may not be sufficient in number or most effectively utilized at present. It would seem timely to review the level and use of these two major areas of staff capacity, as well as to review the organizational structure designed to support them in the coordinated application of their skills to the MOEC's objectives in this subsector.

4.5 Recommendations

4.5.1 Policy Recommendations

In this section recommendations concerning policy analysis and educational data systems are discussed in relation to the major conclusions presented in the preceding section.

4.5.1.1 First Priority - Supporting and Prioritizing Information System Development: Recommendations 1-5

Recommendation 1. Utilize coordination as a strategy to maximize existing opportunities to enhance the development of the multiple information systems currently supporting MOEC operations.

Discussion

At this stage in the development of Ministry information capacity, attempts to integrate all information functions would probably impact the overall growth of this sector adversely. However, their individual development should be guided by a common vision of a long-term development strategy and goal.

Implementation Alternatives

Several actions to enhance the various information systems currently operative are in different stages of implementation. These efforts should be prioritized, coordinated, and pursued. For example, the Personnel Office has designed a system structure and supporting hardware configuration. This office currently has the resources to implement their hardware choices. They require resources to support training of 20 staff members. There seems to be a high state of readiness to make effective use of such resources. Another opportunity lies in the Inspectorate General, which is reorganizing in order to conduct the management oversight function more effectively. They recognize the need for electronic data processing assistance in that function, but lack expertise to determine and implement the most effective application strategy. Small levels of assistance here may yield high returns, as this office is a major source of personnel and resources for the routine collection of first-hand data on school processes. Another opportunity is in the Planning Bureau's pursuit of donor support for computerized capability in its subordinate planning structures. Assistance in obtaining such support may enhance the development of this already heavily human capitalized operation.

Finally, Conclusion 2 has already expressed the value of allocating priority to Balitbang Dikbud's mission in Repelita development. This should be considered most urgent.

Recommendation 2. Coordinate information system development across the dimensions of (1) data element definitions, (2) unique identification of subjects, (3) systems compatibility and (4) data collection clearance.

Discussion

There are several specific activities a coordinating body could pursue that would result in a de facto integration of information systems without the necessity of physical integration and the management burden and limits that would impose.

Implementation Alternatives

There should be a dictionary of terms and related definitions common to all information systems, so that separate data files can be cross-analyzed. Unique identifiers for schools, buildings, personnel, etc., should be used in common throughout the Ministry (and beyond if possible). Both equipment and software used in any Ministry-supported information system should be compatible in order to handle exchange and cross-analyze data as well as to deal with the inevitable machine breakdowns. Finally, serious consideration should be given to developing centralized procedures for the approval of questionnaires and data items as a means of protecting respondents from unnecessary burden.

Recommendation 3. Utilize the Education Policy and Planning (EPP) Project's Working Group as an Information Systems Coordinating Body.

Discussion

This project working group and the associated project steering committee is representative of all the major Ministry units with information system activities. The group has been in operation for at least a year and has established an effective working relationship. The goals of the EPP project are consistent with the idea of coordinating system development. This group seems the logical starting point for elaborating the specific coordination activities described under Recommendation 2 above.

Implementation Alternative

The group could specify a timeline for achieving ongoing activities within each action area developed, identify the staff and other necessary supporting resources, and oversee its implementation. These activities then could become a part of the work plan of the EPP project and receive project support and resources.

Recommendation 4. Utilize the process by which future policy issues and research agendas are determined to develop wide ranging ownership in their outcomes.

Discussion

The process of specifying the policy analysis agenda provides an opportunity to support high rates of information use. Policy

issue specification procedures give consumers of information an opportunity to anticipate their information needs and look forward to receiving research outcomes.

Implementation Alternatives

Such procedures could include use of the routine meetings at National and Ministry levels to review and guide alternative research agenda choice. Routine discussions with key BAPPENAS officials also would assure that these concerned parties express the policy future as they understand it. The Directorates General and their individual directors could meet routinely with key Balitbang officials to exchange views on pressing problems of policy and strategy. Each of the groups mentioned is a potential consumer of Balitbang Dikbud policy analysis outcomes and therefore should be viewed as clients. This perspective implies consulting periodically with them concerning research agendas and progress in executing those agendas. In this way, a receptivity to the outcomes is built in all through the research process and higher rates of utilization are likely to follow.

Recommendation 5. Design policy analysis and research activities to support the development of multiple information products targeted to the various stages of policy implementation.

Discussion

Different actors in a chain of policy actions have different information needs. Decision makers need concise specifications of options and anticipated outcomes. Their advisors require technical backup to evaluate the recommendations. First-level implementers need

guidance on writing regulations. Line officers need to understand the basis of the policy so they can interpret their context within the mandate communicated to them.

Implementation Alternatives

Policy research, therefore, should be structured to produce information products to meet these various needs or to allow for their production by others. The products need not be produced simultaneously, but as decision steps are taken. However, the background for multiple information products must be prepared during the initial stages in the research. Otherwise policy implementation could be needlessly delayed. Writing papers to guide those who will write regulations for the new Education Law even before the law is passed is one example of such foresight. Balitbang could routinely elaborate the operational implications of their policy recommendations as a precursor to further products. They could take specific steps as a routine part of the analytic process to obtain input on recommendations from those in the field who must implement them. They can, at that time, determine the information a line officer would need to implement a given policy action successfully.

4.5.1.2 Second Priority - Expand the Nature of the Data Available for Policy Analysis: Recommendations 6-10

Recommendation 6. Utilizing the outputs of the sector review together with the procedures identified in Recommendation 5, determine the need, source and required scope of process, output and outcome data to support policy analysis in preparation of Repelita V and beyond.

Discussion

The range of data that are routinely available is not expected to be adequate to the policy analysis needs facing the MOEC. The recommendations for research and policy issues identified by the sector assessment provide a starting point for specifying the policy analysis agenda to support preparation of the next Repelita.

Implementation Alternatives

The EPP project working group should synthesize those reviews and determine from them what data are needed to support effective policy analysis. Following this, simple, cost effective alternative research strategies should be determined. Policy analysis is better served by simple, executable designs than by elegant, long-term, complex strategies that cannot be completed in a manner consistent with the policy development schedule. Strategies such as small-scale survey research, polling research, field observation and reanalysis of existing data sets should all be part of the policy analysis operation. Using these research models, inventories should be made of available data representative of the organizational element to be analyzed. Alternative opportunities to obtain missing data should be determined. Finally, sampling protocols that are likely to yield sufficiently representative data should be developed. Wherever possible, existing data from other sources should be used. While this exercise is targeted to immediate pressing needs, those data elements likely to be needed later should also be identified and targeted as components of future routine data collection activities.

Recommendation 7. Review the MOEC's current needs for data concerning inputs to the education system.

Discussion

Current routine data collection activities are at a saturation level. Without some reduction of data elements, there is little hope of collecting additional data items from an already burdened system.

Implementation Alternatives

The first step is to review the actual use that has been made of each data item collected over the past three to five years. Simple publication in a book of tables does not constitute use. A study of necessary data items was conducted in 1980. Evidently it has had little use. This study could be reviewed to determine whether it remains valid; if it does, it could guide future actions. Finally, for those items that are used, the frequency with which they should be updated should be determined. This exercise should take place with the involvement of both the concerned directorates and the individuals who have to provide the data. The information needs of local MOEC officials would also be examined to provide guidance on overall data requirements.

Recommendation 8. Determine ways to reduce the burden and increase the timeliness of data reporting.

Discussion

The burden of data reporting is borne by both local respondents and the central Ministry units responsible for data collection.

Opportunities should be sought to replicate recent steps taken in collecting primary education data.

Implementation Alternatives

Reporting only exceptions to data previously reported would greatly reduce respondent time. The reported effect of such approaches on the accuracy of data should be examined in the literature and field tested. This approach would be greatly facilitated by the use of optical scanning equipment, which should be under consideration as a support to the national examination process as well. Its use for statistical data collection alone is probably not justified, although IBM cards could be used as an alternative to optical scanning. Compilation of data at lower levels of the organizational hierarchy is also an effective way of reducing central staff burden. It has the side benefit of providing local offices with data concerning their region in a most timely manner. However, such an approach to the compilation of data must be taken only when safeguards of reliability are built into the process. One such safeguard that is facilitative rather than punitive in nature is to provide guidance in the use of these data for local planning and other purposes. This approach attempts to increase data accuracy by building in a sense of ownership and utility in the process.

Recommendation 9. Take steps immediately to increase the accuracy of routinely collected data.

Discussion

There are routine procedures that can be built into the data collection activity to reduce the actual or perceived local burden and

increase data accuracy. A major source of inaccuracy is probably the perception that data are not used or reported back.

Implementation Alternatives

To combat this, future data collection instruments could be accompanied by a report on the findings of last year's data collection. This report could also contain instructions designed to increase accuracy. Direct appeals from the Minister for assistance in obtaining accurate information also could be included. A newspaper format actually printed on newsprint works well for this purpose and is relatively low in cost. Reducing the need of intermediate organizations to estimate data or having them report such estimates separately would also reduce a major source of inaccuracy. Another approach would be to conduct a research study to determine whether the way data are used in practice or the way respondents for data use act as an incentive to respondents to distort the data provided in certain predictable directions. For example, are budget allocation procedures causing inflation or deflation of estimates of equipment availability? Does the Inspector General's role in the DIP monitoring and reporting stream somehow impact statistical data obtained in other data reporting activities?

Recommendation 10. Determine accuracy of routinely collected data.

Discussion

There are serious concerns within the MOEC over the accuracy of current data. The basis for this concern seems to lie in the disagreement

of data sets that are collected and compiled through different channels. A formal determination of the degree of inaccuracy as well as its source is needed.

Implementation Alternatives

All the data sets should be compared and the present disagreements determined. Data collection procedures related to the areas of disagreement should be reviewed to determine possible sources of error. Field studies should be implemented to confirm or disprove these as sources of error. If sources of error in MOEC routine data collections are found, small scale samples of differentiated field situations should be taken to develop an estimate of the range of error. Finally, the use of the data should be reviewed to determine if the error range is acceptable. If it is not, then alternative strategies to establish accuracy should be developed. One strategy includes mounting an educational census which could be used as a baseline from which to determine and adjust future reports. This is an expensive solution, however, to a problem whose seriousness remains to be fully ascertained. It should therefore be used only as a last resort.

4.3.1.3 Third Priority - Increase Staff and Organizational Capacity to Produce Useful Policy Analysis Outcomes: Recommendations 11-14

Recommendation 11. Review skills and, as necessary, train existing MOEC staff as the primary strategy to develop needed staff capacity supplemented if necessary by new hires and the use of short-term assistance.

Discussion

Prioritizing the development of staff capacity in this manner is likely to yield the greatest long-term organizational development effects. If staff capabilities need to be supplemented, turning first to those already in MOEC service rewards those who have demonstrated their commitment to the Ministry and also assures that new staff have field experience. However, this strategy need not and perhaps should not be carried out using only Jakarta-based staff.

Implementation Alternatives

Sending staff from provincial levels for training would help alleviate the situation that arises when a unit's staffing is reduced by training needs during implementation of a project. This approach may also overcome the problem of losing time in position if a promotion to the central office is seen as a reasonable trade off. New GOI personnel regulations may also permit different salary structures for research personnel which would allow greater earnings without assuming management responsibilities. The applicability of these regulations to Balitbang's policy analysis mission should be investigated.

Recommendation 12. Design any future training experiences from the perspective of organizational as well as individual development.

Discussion

The primary reason for staff training is to support the organization's need. Approached from this perspective, training can offer opportunities to build networks, a shared sense of community and

esprit de corps. In an organization moving to a new stage in conducting its mission, this is especially important.

Implementation Alternatives

Training experiences, both long-and short term, should be structured to result in a critical mass of talent that has already developed the interpersonal relationships and mutual understanding necessary to work together effectively. This strategy should be applied both within Balitbang Dikbud, the Inspectorate General, the Sekeitarik General, and across the set of information systems. In this manner, a network of computer specialists can be developed who will help to integrate systems conceptually if not physically.

Recommendation 13. Review the organizational practices of Balitbang Dikbud to assure that the functions necessary to effectively support a policy analysis mission are well elaborated.

Discussion

Policy analysis has only recently become a role of Balitbang Dikbud. While a proposed reorganization will facilitate that role, additional steps may be necessary to structure the role.

Implementation Alternatives

Increased levels of ongoing substantive coordination among the missions of the individual centers is likely to be required, since there are probably not sufficient resources to isolate a policy analysis mission solely in one center. This need not imply abandonment of other missions, but rather attempts at interrelatedness and interdependence.

In addition to substantive coordination, administrative coordination and strong external substantive communication is required. To fulfill these needs, additional practices or procedures may be necessary as well as special roles within the centers or elsewhere in Balitbang. The outcomes of the review should be structured so they do not require formal reorganization. That process is too time-consuming, and the present structure should support such a mission.

Recommendation 14. Use the recommendations of this chapter as well as other policy related recommendations of the sector review as a basis to review the timelines and plans of the EPP project and revise as necessary.

Discussion

This project is well into the Phase I timeline. However, this sector review may surface new inputs to the planning process. This is an appropriate opportunity, therefore, to review current progress, sector review recommendations and achievable goals.

Implementation Alternatives

There are several recommendations of roles and/or activities for the EPP Project that would constitute significant progress (data dictionary, hardware specification, etc.). These should be built into the project plan and viewed as important products along the path to its long-term objectives. This is the time for review, before pressures to spend available resources cause action out of synchronization with logical patterns of system development.

4.5.2 Recommendations for Further Research

Three recommendations for further research have emerged from our review of activities related to policy analysis and educational data systems in the MOEC. These concern (1) the role of local organizational units in the policy planning and implementation process, (2) the relationship between local budget requests and central response and their joint relationship to Repelita's goals and (3) the accuracy of routinely collected statistical data. Each of these is discussed briefly below.

Local Units

The role of Kanwil, Kandep and Kancam offices in both supplying and using data and educational information remains an area for further research. The data-related roles of these units can best be determined by a study of their current behavior and scope of real authority. At this stage, we have suspicions that much educational decision-making occurs at two extremes beyond the MOEC: at the Presidential office level, because many decisions must reflect issues beyond the scope of educational matters alone, and at the Desa level, for the same reason. Further investigation into the validity of this hypothesis and the relationship of information to such decisions would help inform the design of MOEC information systems. This ties directly to the concerns over data accuracy and the role of these levels in enhancing or decreasing accuracy.

Budget Relationships

An related issue described concerns the process of information use

of local budget development from the time of the promulgation of Repelita and central response. There is not a smooth relationship among these which supports efficient and effective program development. The problem, may lie along the information communication channels down the hierarchy or across the short-term and mid term planning units of the MOEC or possibly in some combination of these. This is another area of further research.

Data Accuracy

The question of data accuracy has received considerable discussion in this chapter. Some empirical work should be done on this matter. Just how much do what data set disagree? There is much discussion about discrepancies, but the evidence should be assembled. If there are routinely serious discontinuities in current data sets, field work should be undertaken to estimate error and determine its source. This is discussed in greater detail in Recommendation 11 above.

Each of these studies could be effectively made a component of the planning phase of the EPP project for their outcomes have implications for the long-term development of an effective policy analysis role in the MOEC.

ANNEX A

LIST OF INTERVIEWEES

Akbar, Yunus, Head, Planning Division, Nonformal Education Department,
MOEC
Bachtiar, Harsya, Head, Balitbang Dikbud, MOEC
Boediono, Head, Pusinfot, Balitbang Dikbud, MOEC
Djazuli, Achmad, Dikdasmen, MOEC
Guyub, Heriyanto, Staff, Planning Division, Dikdasmen, MOEC
Hardja Kusumah, Giwangan, Staff, Inspectorate General, MOEC
Hutahuruk, Director, National Institute of Administration
Moegiadi, Secretary, Balitbang Dikbud, MOEC
Moelyadi Ety, Head of Puslit, Balitbang Dikbud, MOEC
Pongtuluran, Aris, Head, Planning Bureau, MOEC
Rumondor, Alex, Staff Inspectorate General, MOEC
Syihab, Abdullah, Head, Planning Division, Higher Education, MOEC
Tjptosasmito, Waskito, Head, Personnel, MOEC

ANNEX B

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ANNEX C
TERMS AND ACRONYMS

	<u>ENGLISH</u>	<u>INDONESIAN</u>
ADB	Asian Development Bank	Bank Pembangunan Asia
AKTA I	Tertiary Level Teacher Training Certification: Primary	Program AKTA I
AKTA II	" " Jr. Sec.	Program AKTA II
AKTA III	" " Sr. Sec.	" AKTA III
AKTA IV	" " University	" AKTA IV
AKTA V	" " University	" AKTA V
APBN	Gov.t Expenditure & Revenue Budget	Anggaran Belanja Negara
APDB I & II	Local Gov.'t Budgets	Anggaran Pembangunan Daerah I & II
BAKN	National Personnel Office	Badan Administrasi Kepegawaian Negeri
Balitbang Dikbud	Office of Education and Culture Research and Development	Badan Penelitian dan Pengembangan Pendidikan & Kebudayaan
Bappeda	Regional Planning Office	Badan Perencanaan Pembangunan Daerah
Bappenas	National Development Planning Board	Badan Perencanaan Pembangunan Nasional
Biro Perencanaan	Bureau of Planning	Biro Perencanaan
PLKI	Vocational Training Center	Pusat Latihan Kejuruan Indonesia
BP3	Parent Teacher Assoc. Fee	Beaya Pungutan Persatuan Orang Tua dan Guru
BPM	Regional Training and Material Center	Badan Pembangunan Masyarakat

BPG	Teacher Education Center	Badan Pendidikan Guru
BPKB	National Training and Activity Center	Badan Pusat Kegiatan Belajar
BPS	Office of Statistics	Biro Pusat Statistik
Bupati	Head of District	Kepala Kabupaten
BUTSI	Indonesian Volunteer Service Corporation	Badan Tenaga Sukarela Indonesia
Camat	Head of Sub-District	Kepala Kecamatan
Dalam Negeri	Ministry of Home Affairs	Departemen Dalam Negeri
Dati I and II	Local Gov.'t levels	Daerah Tingkat I & II
DepKeu	Ministry of Finance	Departemen Keuangan
Dept. Agama	Ministry of Religion	Departemen Agama
DGB	Directorate General of the Budget	Direktorat General Anggaran
Dharma Pertiwi	National Org. of Wives of Army Officers	Persatuan Istri ABRI
Dharma Wanita	National Org. of Wives of Civil Servants	Persatuan Istri Pegawai Negeri
DIK	Budget Document	Daftar Isian Kegiatan
Dikdas	Direktorate of Primary Educ.	Kantor Pendidikan Dasar
Dinas	Regional Office	Dinas
DIP	Project Document	Daftar Isian Proyek
Ditjen PDM (Dikdasmen)	Dir. Gen. of Primary & Secondary Educ.	Direktorat Jendral Pendidikan Dasar & Menengah
Ditjen PT (Dikti)	Dir. Gen. of Higher Education	Dir. Jendral Pendidikan Tinggi

Ditjen PLSP0	Dir. Gen. of Out-of-School Education Youth & Sport	Dir. Jen. Pendidikan Luar Sekolah, Pemuda, dan Olah Raga
Ditjen Kebudayaan	Dir. Gen. of Culture	Dir. Jen. Kebudayaan
Dosen	Lecturer	Pengajar
DUP	Project Proposal Document	Daftar Usulan Proyek
D1	Teacher training Certificate: Primary	Program Diploma 1
D2	" " Jun. Sec.	" " 2
D3	" " Sen. Sec.	" " 3
EBTANAS	Primary School Finishing Examination	Evaluasi Belajar Tingkat Nasional
FKIP	Faculty of Education in University	Fakultas Keguruan Ilmu Pendidikan
GBHN	Guidelines for State Policy	Garis-Garis Besar Haluan Negara
GDP	Gross Domestic Product	Pendapatan Dalam Negeri
GOI	Government of Indonesia	Pemerintah Indonesia
IAIN	State Institute of Islamic Religions	Institut Agama Islam Negeri
IBM	International Business Machines	International Business Machines
IBRD	International Bank for Reconstruction and Development	Bank International Pembangunan & Rekonstruksi
IGGI	Inter-Governmental Group on Indonesia	Group Antar Negara untuk Indonesia
IIEP	International Institute for Education Planning	International Inst. for Educ. Planning
IKIP's	Teacher Training Colleges	Institut Keguruan Ilmu Pendidikan

Inpres SD	Primary School built under Presidential Decree Funds	Sekolah Dasar Inpres
Inspector Jendral	Inspectorate General	Inspektor Jendral
IPA	Science	Ilmu Pengetahuan Alam
IPB	Institute of Agriculture at Bogor	Institut Pertanian Bogor
IPS	Social Studies	Ilmu Pengetahuan Sosial
ITB	Institute of Technology at Bandung	Institut Teknologi Bandung
Kancam	MOEC Sub-District Office	Kantor Kecamatan P & K
Kandep	MOEC District Office	Kantor Departemen P & K
Kanwil	MOEC Provincial Office	Kantor Perwakilan P & K
Kas Negara	MOF Regional Office	Kas Negara
Kasi Dikmas	Head of Community Education Section	Kepala Seksi Pendidikan Masyarakat
Kasi SD	Head of Prim. School Section	Kepala Seksi SD
KBKM	Vocational Skills Training	Kursus Belajar Kejuruan Masyarakat
Kejar Paket A	Basic Education	Kelompok Belajar Paket A
Kejar PD	Community Education Out-of-School Learning Group	Kelompok Belajar Pendidikan Dasar
Kejar Usaha	Income Generating Learning Group	Kelompok Belajar Usaha
Kewajiban Belajar	Universal Compulsary	Kewajiban Belajar

Primary Education

KKG	Teacher Work Group	Kelompok Kerja Guru
LKMD	Village Development Program	Lembaga Ketahanan Masyarakat Desa
KPUA, B, C	Pre-Primary Teacher Training	Kursus Pendidikan Umum A, B, C
LIPI	Research Foundation of Indonesia	Lembaga Ilmu Pengetahuan Indonesia
LNG	Liquified Natural Gas	Gas Cair Natural
Madrasah Ibtidaiyah	Islamic School (Primary)	Madrasah (Tingkat SD)
MenPan	Ministry of Administrator Reform	Menteri Aparatur Negara
MOEC	Ministry of Education and Culture	Departemen Pendidikan dan Kebudayaan
NFE	Nonformal Education	Pendidikan Luar Sekolah
NTCC	National Technical Coordinating Committee	Koordinator Bantuan Tehnis Luar Negeri
ODA	Overseas Development Assistance	Lembaga Bantuan Luar Negeri
Patjar	SD PAMONG Out-of School site	Tempat Belajar
Pancasila	State Ideology	Pancasila
PEDC	Polytechnic Education Development Center	Pusat Pengembangan Pendidikan Politeknik
Pengawas	Supervisor	Pengawas
PENMAS/Dikmas	Community Education	Pendidikan Masyarakat
Penilik	Education Supervisor in Kancam	Penilik Tingkat Kancam
Penilik TK/SD	Supervisory for Pre-Primary and Primary	Penilik TK/SD
PGA	Religious Teacher Training	Pendidikan Guru Agama

Pimpro	Development Project Leader	Pimpinan Project
Pusinfot	Office of Information (Balitbang)	Pusat Informatik
Puslit	Office of Research (Balitbang)	Pusat Penelitian
Pusisjian	Office of Testing (Balitbang)	Pusat Pengujian
Puskur	Office of Curriculum (Balitbang)	Pusat Kurikulum
PTPG	Higher Education Institute for Teacher Training	Perguruan Tinggi Pendidikan Guru
P3D	Primary School Development Project	Proyek Pengembangan Pendidikan Dasar
P3GTK	Technical Teacher Training Unit Center	Pusat Pengembangan Pendidikan Guru Taman Kanak2
PKK	Family Life Education Program	Pendidikan Kesejahteraan Keluarga
PKG	In-Service/On Service Teacher Training Program	Pusat Kegiatan Guru
PKG	Teacher Activity Office	Pusat Kegiatan Guru
PMP	Civics	Pendidikan Moral Pancasila
Pola Tinggi	Integrated Public /Private Higher Education	Pendidikan Tinggi Terpadu
PPPG	Teacher Education Development Office	Pembinaan & Pengembangan Pendidikan Guru
PPSP	Development School Project	Sekolah Pembangunan

Pramuka	Scouts	Pramuka
Proyek Buku Terpadu	Integrated Textbook Project	Proyek Buku Terpadu
PSPB	Indonesian Political History	Pendidikan Sejarah Pengembangan Bangsa
PU Wajar	Office of Universal Compulsary Educ.	Pendidikan Umum Wajib Belajar
RADIN	Meeting of Provincial Officials for Budgeting	Rapat Dinas
RAKERNAS	National Working Meeting of Budget	Rapat Kerja Nasional
RARAS	MOEC Echelon I Officials Meeting	Rapat Teras
REPELITA	Five Year Plan	Rencana Pembangunan Lima Tahun
Raudhatul Athfal	Pre-primary Religious (Moslem)	Taman Kanak Kanak Islam
Sakernas	National Labor Force Survey	Survey Tenaga Kerja Nasional
Sanggar	World Bank In Service On Service Teacher Training Center	Sanggar
SBPP	Government Subsidy to Primary School	Subsidi Bantuan Pemerintah untuk Pendidikan
SDLB	Integrated Schools for Handicapped	Sekolah Dasar Luar Biasa
SD-Negeri	Public Primary School	Sekolah Dasar Negeri
SD PAMONG	Primary Education by Parents Teachers, and Community	Pendidikan Dasar oleh oleh Masyarakat, Orangtua dan Guru
SD-Swasta	Private Primary Schools	Sekolah Dasar Swasta
Sekjen	Secretariate General	Sekretaris Jendral

Sekneg	National Secretariat	Sekretariat Negara
SGA	Religion Teacher Training Secondary School	Sekolah Guru Agama
SGB	Teacher Training Primary School	Sekolah Guru Bantuan
SGTK	Pre-Prim Teaching Certificate	Sekolah Guru Taman Kanak Kanak
SGO	Sports Teacher Training Secondary School	Sekolah Guru Olah Raga
SIAP	Unexpended funds	Sisa Anggaran Pemerintah
SIPENMARU	University Selection Examination	Sistim Penyaringan Mahasiswa Baru
SKB	District Training & Material Center	Sanggar Kegiatan Belajar
SKKP	Home Economy Junior Secondary School	Sekolah Kejuruan Kependidikan Putri
Skripsi	Undergraduate thesis	Karangan Ilmiah Mahasiswa
SLB	Schools for the Handicapped	Sekolah Luar Biasa
SLB Terbuka	Open Schools for the Handicapped	Sekolah Luar Biasa Terbuka
SMA	General Senior Secondary School	Sekolah Menengah Atas
SMEA	Commercial Senior Secondary School	Sekolah Menengah Ekonomi Atas
SMKK	Home Economy Senior Secondary School	Sekolah Menengah Kesejahteraan Keluarga
SMP	General Junior Secondary School	Sekolah Menengah Pertama

SMP Terbuka	Open Junior Secondary School	SMP Terbuka
SPG	Teacher Training Senior Secondary School	Sekolah Pendidikan Guru
SPGLB	Teacher Training Senior Secondary School for Special Education	Sekolah Pendidikan Guru Luar Biasa
SPP	Gov.'t Subsidy to Secondary School	Sumbangan Pemerintah untuk Pendidikan
ST	Vocational Junior Secondary School	Sekolah Teknik
STM	Technical Senior Secondary School	Sekolah Teknik Menengah
STTB	Primary School Graduation Certificate	Surat Tanda Tamat Belajar
Subdit Monitor	Sub-directorate for Monitor	Sub-direktorat Monitor
S1	Bachelor's Degree	Sarjana Muda
S2	Master Degree	Sarjana Lengkap (Pasca Sarjana)
S3	Doctoral Degree	Program Doktor
SUPAS	Intercensal Population Survey	Survey Penduduk Antar Sensus
SUSENAS	Economic & Social Survey	Survey Ekonomi dan Sosial
TK (Taman Kanak Kanak)	Pre-Schools	Taman Kanak-kanak
TTUC	Technical Teacher Upgrading Center	Pusat Upgrading Guru Teknik
UDKP	Village Development Unit	Unit Kerja Pembangunan Desa
UGM	University of Gajah Mada	Universitas Gajah Mada

U.I.	University of Indonesia	Universitas Indonesia
Ujian Persamaan	Primary School Equivalence Examination	Ujian Persamaan
UNAIR	University Airlangga at Surabaya	Universitas Airlangga
UNDP	U.N. Development Program	U.N. Development Program
Universitas Terbuka	Open University	Universitas Terbuka
UNPAD	University of Pajajaran at Bandung	Universitas Pajajaran Bandung
USAID	U.S. Agency for International Development	U.S. Agency for International Development
WB	World Bank	Bank Dunia
Yayasan	Private Institutes	Yayasan