

2.10 School Statistics ¹

2.10.1 Background

(1) Introduction

Modern management and administration depends heavily on access to good reliable, and up to date data and information. The continued and massive development effort to ensure universal 9 years of education can be maximized by a well developed and decentralized Education Management Information System (EMIS). The centralized and redundant data gathering, processing, analysis, reporting and dissemination systems need to give way to more decentralized and efficient information management systems in line with the current decentralization strategies.

The Indonesian national administration system, along with the recent change of the government has undergone significant changes, and the changes continue to occur. Decentralization process requires the central and regional administrators to find mutually beneficial roles in contributing to national development. Within this multifarious environment good, reliable information systems are a vital tool for monitoring, evaluation, planning and policy development. The devolution of authority and responsibilities from central to regional and local communities provides opportunities to establish highly efficient educational management information

¹ This chapter was completed at a time when the process of decentralization and the preparations of a new government in Indonesia were progressing at a rapid rate. The accuracy of this report is therefore limited by the situation as was evident at the time of writing, i.e. between March 7, and March 26, 2000. Much of the data and information gathering process for this report was based on the current existing terms that are still commonly used to describe departments. In this chapter the following terms are used as indicated.

- Central Office (Jakarta base of the respective Ministry - Pusat)
- Province Office (Provincial office of the respective Ministry - *Kanwil Propinsi*)
- District Office (District office of the respective Ministry - *Kandep Kabuapten/Kodya/Kotip*)
- Sub-district Office (Sub-district office of the respective Ministry - *Kancam Kecamatan*)
- Regional Office (either of the above –Province, District, Sub-district- except Central Office)
- Informatics Center (Pusat Informatika, new name: Pusat Statistik Pendidikan)
- Office of Research and Development (Badan Penelitian and Pengembangan - Balitbang Diknas)
- Directorate of Islamic Religious Teaching Supervision (Direktorat Pembinaan Perguruan Agama Islam)
- Directorate General of Islamic Religious Institution Supervision (Direktorat Jenderal Pembinaan Kelembagaan Agama Islam)
- Private Junior Secondary School (Sekolah Lanjutan Tingkat Pertama Swasta SLTPS)
- Public Junior Secondary School (Sekolah Lanjutan Tingkat Pertama Negeri SLTPN)
- Private Islamic Junior Secondary School (Madrasah Tsanawiyah Swasta MTsS)
- Public Islamic Junior Secondary School (Madrasah Tsanawiyah Negeri MTsN)
- Ministry of National Education MONE (Departemen Pendidikan Nasional - Depdiknas) formerly The Ministry of Education and Culture MOEC (Departemen Pendidikan dan Kebudayaan - Depdikbud)
- Ministry of Religious Affairs MORA (Departemen Agama)
- Directorate General of Basic and Secondary Education (Direktorat Pendidikan Dasar Menengah - Dikdasmen)
- Directorate of General Secondary Education (Direktorat Pendidikan Menengah Umum - Dikmenum)
- Local Statistics officer (Mantri Statistik)
- Local Compulsory Basic Education Team (Tim Wajar Dikdas 9 Tahun - Kecamatan)

systems. This chapter is prepared to examine the existing junior secondary EMIS, as is currently in operation under the relevant ministries, the MONE and the MORA. The chapter will identify the kinds of data that each SLTP or MTs routinely gathers and submits to the government, and review how the school data are processed at the respective government levels. Specifically it will examine the following areas and address problems that may present obstacles to the current data gathering process.

In terms of development direction, the current approach to educational planning is based on *participatory community education planning* in which all local stakeholders in the education process are to be involved in the management of schools and the promotion of good educational outcomes. Participants in the planning and management process include, 1) the parents of students, 2) principals and teachers, 3) local community leaders, and 4) government officials. The Indonesian concepts of *swakelolah* (community involvement in a government project, where the community act as implementers with government funding and collaboration) and *swadaya*, (in which the development process is undertaken wholly by the local community, from project decision to funding and eventual maintenance) form the foundations for school-based management in Indonesia².

Given the current direction of development, it will be necessary to make adjustments to the current National EMIS to reflect the data and information needs of school-based management while maintaining a centralized system for policy development purposes and geographical monitoring and evaluation. At the same time it is necessary to find ways to improve the coverage, response rates, and accuracy of data gathered in the system.

Data gathering for junior secondary schools is undertaken as a routine activity of the Informatics Center, at Office of Research and Development (Pusinfot Balitbang Diknas) at MONE. The data gathering is carried out in the form of a census, and has been ongoing for the last 15 years or so, since the advent of computers. The major objectives of this process is to gather data from junior secondary schools, as base material for the development of a database, from which a number of routine (school statistics publications) and ad hoc (policy research documents and situation reports) are derived on an on-going basis. The resulting publications and reports are used in research, planning, organization, management and general decision making with regard to education policy at central and regional levels of the national administration system. This activity includes all public and private junior secondary schools.

For the last two years, a project has also been underway to develop a data gathering system for junior secondary schools in MORA. This activity that operates through the Directorate General of Islamic Religious Institution Supervision aims to gather similar data from all schools operating under MORA. A questionnaire has been developed especially for Islamic schools (MT). In general the goals of this system are similar to the objectives of the data gathering systems at MONE.

² Takasawa, *Methodology for Participatory Regional Education Planning*, Working Paper V, REDIP, October 1999

In many ways these two separate systems, with apparently the same goals suggest that there is duplication of roles that introduces the possibility of inefficiencies. While the MONE system has traditionally operated in a very centralized manner, offering only regional data aggregates in routine manner, the system under the MORA has begun its development within the framework of school based management, however the processing system itself is highly centralized.

(2) Scope of the Survey³

The survey will include the data gathering process that applies to all junior secondary schools operating under MONE and MORA. This will cover all school based data/information system developments within the Directorate of General Secondary Education (Dikmenum), and The Directorate of Basic and Secondary Education (Dikdasmen). Since the Ministry of Home Affairs (MOHA) is currently only concerned with primary education, and Directorate of Secondary and Vocational Education (Dikmenjur) is concerned only with senior secondary education, information systems under these two organizations will not be discussed in this chapter.

The following areas will be examined:

- 1) **Data form/sheets:** the identification of all forms/sheets individual schools need to routinely fill in and submit related to all types of junior secondary school.

- 1) **The kinds of data gathered:** all questions will be examined to identify the variables routinely gathered according to group classification i.e. as the data relates to, among other things, schools, facilities, finance, the teaching/learning process, students, teachers or environment.

- 1) **Data gathering cycle:** Who is responsible for data gathering at school level. When does data gathering start, when does it finish, how often does data gathering take place, does it take place at the same time each year, or within each cycle. What regulations govern the process, i.e. is there a certain date by which all data forms must be submitted.

- 1) **Data forwarding:** How many completed forms are sent to which institutions. In what format is the data forwarded (digital or hardcopy). At which stage in the process is the data converted from paper based to digital. How long the conversion process takes.

³ The survey included visits to all of the relevant government offices, where key staff were interviewed with regard to the current structure and processes of the Junior Secondary Schools EMIS. The following sites were visited: At least one of each type of junior secondary school (Public and Private Junior Secondary Schools, Public and Private Madrasah Tsanawiyah) that regularly submit forms to the system, and local, district and provincial level government offices involved in the process. Visits were also made to the relevant staff/offices/directorates at central level. This included the Directorate of General Secondary Education (Dikmenum), and the Directorate of Basic and Secondary Education (Dikdasmen), and The Informatics Center (Pusinfot) at the MONE, The Directorate General of Islamic Institution Supervision and The Directorate of Islamic Religious Teacher Supervision at the MORA. A structured questionnaire/interview sheet was used to guide the interviewers, who were also familiar with information system processes. The questionnaire was also used as a checklist to ensure supporting evidence in the form of publications, data sheets, or other relevant material where possible was gathered at each point. A copy of the questionnaires is attached in the Annexes.

Individual schools maintain an archive of past completed forms or not. If so, how long they are stored for.

- 1) **Data processing:** Is the data processed at Sub-district (kecamatan), District (Kabupaten/Kotamadya), Provincial (Propinsi) and/or National (Nasional) levels. If so, how is it processed? Who/what department/section is responsible for data processing at each level, and what is the scope of processing, i.e. does processing include the entire form/sheet or does it only cover certain sections at the different levels. Is processing a regular/routine activity in every cycle, if so when is it undertaken. What is the duration of processing at each level, i.e. how long does each processing stage take? After processing, is the data forwarded to a higher level for further processing, or is it retained and utilized only at the local/lower level. Does data processing include publication of results at any level (analysis/policy recommendations or statistical reports/documents)?
- 1) **Dissemination and Feedback:** Are reports/analysis/statistical publications (RASP) prepared, if so, at what level/levels? What type of RASPs are prepared, and are they prepared regularly, are the RASPs distributed frequently, if so, when are they distributed, and who/what department/section receives copies of them. How are they utilized in the educational management and administration process?

It is expected that examining the processes and items as mentioned above will provide valuable insights into the current situation as applies to the National EMIS. The survey will help to identify bottlenecks within the overall process, search out the most prominent features of the current system and provide recommendations with regard to the most appropriate approach to be taken for further systems development activities within the framework of decentralization of education, especially that related to JSE.

(3) Data Form/sheets used in the Process

Only three questionnaires/data forms/sheets are used in the routine central data gathering process, one from the Informatics Center at the MONE, and two from the MORA. The MORA supplies two different forms, one for public schools, and one for private schools. Although the MONE only supplies one questionnaire, the system also makes use of three additional sheets in which data are compiled at district office level. The officials in the district offices fill in data summary sheets based on the KNS questionnaire and other sources.

- 1) MONE (Kuesioner Sekolah Lanjutan Tingkat Pertama dan Menengah: Code KNS99 (1999)
- 2) MONE (Rangkuman Data Sekolah Lanjutan Tingkat Pertama dan Menengah) RKSM (summary)
- 3) MONE (Rangkuman SLTP Terbuka) RSLTPT (summary)
- 4) MONE (Rangkuman Data Penduduk Usia Sekolah) RPdd (summary)
- 5) MORA (Formulir Statistik A1 Data Murid Madrasah Tsanawiya Negeri)
- 6) MORA (Formulir Statistik B1 Data Murid Madrasah Tsanawiya Swasta)

From the perspective of school-based management and decentralization of education, the important questionnaires/data forms-sheets are the KNS (99) form, and the two from MORA, Formulir Statistik A1, and Formulir Statistik B1. The additional summary forms used by the MONE, i.e. RKSM, RSLTPT, and RPdd will also need to be examined briefly. While this survey is concerned mainly with the KNS, Formulir Statistik A1, and Formulir Statistik B1, and their application to school based management, it will provide also a brief overview of the summary forms.

2.10.2 Current Information System at MONE

(1) MONE Data Gathering and Forwarding Process

The MONE and MORA data gathering process typically takes place from around July 20, until September 20, in any given year. In the MONE data system, the data gathering process covers all junior secondary schools including SLTP Terbuka, General Secondary Schools (SMU) Vocational Secondary Schools (SMK), Paket B and Islamic Secondary Schools (MT). The process begins at Informatics Center⁴. Five copies of the KNS questionnaire are sent to the principals of all public and private junior secondary schools. Three copies of the same questionnaire are sent to the principals of all public and private Islamic Junior Secondary Schools. The school principals are responsible for the accuracy and completeness of the data in the forms. Most principals generally delegate the actual work of filling out the form to the Heads of administration.

(2) The MONE Data Flow

There are two ways of data flow mechanism depending on the data form category.

KNS general data form

- Step 1: Distribution process from Jakarta to province
One set of five KNS data forms is sent from the Informatics Center in Jakarta to each of the MONE provincial offices (Kanwil Diknas).
- Step 2: Distribution process from province to district
One set of five KNS data forms is sent from the provincial office to MONE district office (Kandep Diknas).
- Step 3: Distribution process from district to school
One set of five KNS data forms is sent from the district office to schools.
- Step 4: Filling out process at the school accurately and fully⁵
Each school fills out five copies of the KNS data forms. A guide to filling in the forms, and a general guide to the data gathering process are also sent from central to province to district level along with the forms.
- Step 5: Forward process from school to district

⁴ Now referred to as the Center for Education Statistics (Pusat Statistik Pendidikan)

⁵ Often the data forms are not completely filled out nor accurately filled out. This is related to several problems including data "weary" school staff, and fear of transparency of the individual school management process.

One copy of the KNS data forms is kept at school and entered in the archive. This copy is stored for a minimum of three years. The remaining 4 copies are then sent to the respective Kandep Diknas.

- Step 6: Forward process from district to province and Jakarta

One copy of the KNS data forms is kept at Kandep for a minimum of three years. . Another three copies are sent to:

- Informatics Center, Office of Research and Development
- MONE Directorate of Basic and Secondary Education
- MONE Provincial Office

At the same time a letter is sent from the district office to the provincial office as notification that the data gathering cycle at district level has been completed.

Summary Data Form (RKSM, RSLTPT and RPdd)

- Step 1: Distribution process from Jakarta to district

One set of four summary data forms is sent from the Directorate General of Basic and Secondary Education in Jakarta to Kandep. A guide to filling in the forms, and a general guide to the data gathering process are also sent from central to province to district level along with the forms.

- Step 2: Filling out process at district

Based on the KNS data forms, Kandep fill out four copies of the summary data forms. The RPdd⁶ summary form is also filled out at this level based on local sources.

- Step 3: Forward process from district to province and Jakarta

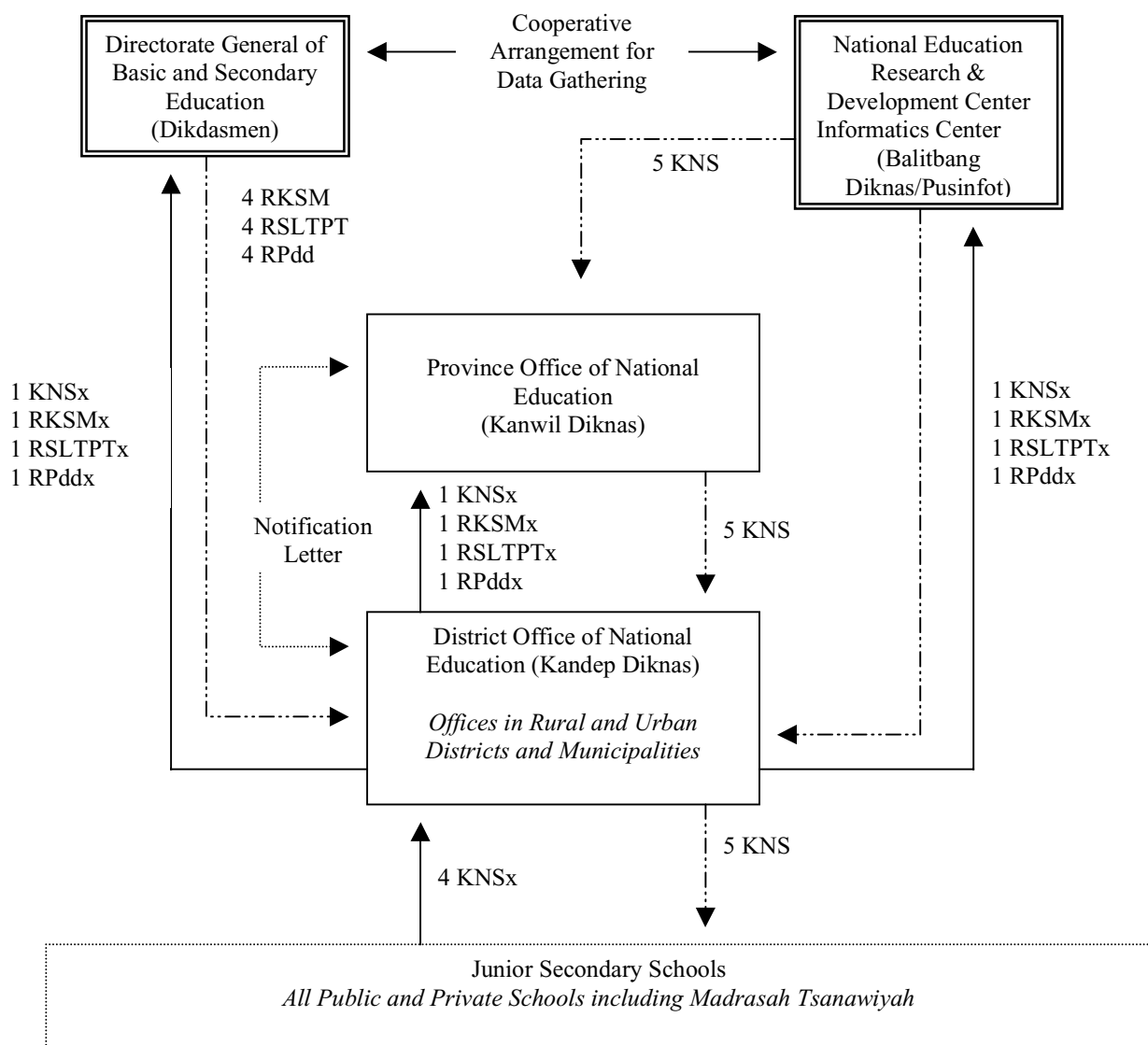
One set of three summary data forms is kept at district for a minimum of three years. Another one set of three forms are separately sent to:

- Informatics Center, Office of Research and Development
- MONE Directorate of Basic and Secondary Education
- MONE Provincial Office

An illustration of the data flow mechanisms is shown in **Figures 2-16**. It presents direction of flows, including the initial distribution of questionnaires/data forms-sheets, the return flow of completed questionnaires/data form sheets, and letters of instruction to notify the receipt of instruments and maintain integrity and coordination in the process⁷ where these exist. **Table 2-28** lists the reports that are used in MONE data collection.

⁶ RPdd summary is a table of population according to age group and sub district, a field is also provided to enter the area of the sub-district in KM²

⁷ The function of these letters is as a notification, for example, when a set of completed questionnaires is sent from province to central level, a letter is also dispatched to clarify that the provinces commitments have been met Presumably this is to assist with coordination.



Key:

- Data Flow
- - - - - Instrument Distribution
- ⋯⋯⋯ Coordination Letter

- KNS Main Questionnaire Format (Not yet filled out)
- KNSx Main Questionnaire/Data Form (Completed/Filled out)
- RKSM Public and Private Junior Secondary Schools Data Summary Sheet (Not yet filled out)
- RKSMx Public and Private Junior Secondary Schools Data Summary Sheet (Filled out)
- RSLTPT Open Junior Secondary Schools Data Summary Sheet (Not yet filled out)
- RSLTPTx Open Junior Secondary Schools Data Summary Sheet (Filled out)
- RPdd Summary of School Age Population (Not yet filled out)
- RPddx Summary of School Age Population (Filled out)

Source: *Pentunjuk Pendataan Sekolah Lanjutan Tingkat Pertama Dan Menengah, Tahun Ajaran 1997/1998* Departemen Pendidikan dan Kebudayaan, Badan Penelitian dan Pengembangan Pendidikan dan Kebudayaan, Pusat Informatika, June 1997, P.2.

Figure 2-16: The Data Flow Mechanism: Junior Secondary Schools (MONE)

Table 2-28: Kinds of Data Collected in MONE

No.	Name of Data Forms	Type of Information	No. of Data Requested	Distributed From	Filled Out By	Data Entry into Digital Database
1	KNS (Main data gathering instrument for JSS)	General	9 Sections, 56 Items	National Education Research and Development Center (Balitbang Diknas), Center for Informatics (Pusinfot), MONE Jakarta	All kind of JSSs	Directorate of General Secondary Education (Not routine responsibility)
2	RKSM (JSS data summary)	Summary	43 Items	Directorate General of Basic and Secondary Education (Dikdasmen), MONE Jakarta	District Offices (Kandep Diknas)	National Education Research & Development Center (Balitbang Diknas), Center for Informatics (Pusinfot), MONE Jakarta
3	RSLTPT (Open JSS summary)	Summary	10 Items	Directorate General of Basic and Secondary Education (Dikdasmen), MONE Jakarta	District Offices (Kandep Diknas)	
4	RPdd (School age population summary)	Summary	4 Items	Directorate General of Basic and Secondary Education (Dikdasmen), MONE Jakarta	District Offices (Kandep Diknas)	

2.10.3 Current Information System at MORA

(1) The MORA Data gathering Process

The MORA uses two types of questionnaires in the data gathering process. Each questionnaire is designed specifically for either private or public schools. The questionnaire consists of five sections about students, personnel, curriculum and teaching materials, existence and condition of facilities, and finance. The MORA statistical forms are based on the MONE KNS questionnaire. In the MORA EMIS data system, the data gathering process covers all MT including both public and private schools that operate under the supervision of the MORA.

The process begins at the Directorate of Islamic Teacher Supervision at the Directorate General of Islamic Religious Institution Supervision in the central office of MORA in Jakarta. One copy of the appropriate questionnaire, Formulir Statistik A1, or Formulir Statistik B1, are sent to the principals of all Islamic public and private junior secondary schools. The school principals are responsible for the accuracy and completeness of the data in the forms. Most principals generally delegate the actual work of filling out the form to the Heads of administration in each of the respective schools.

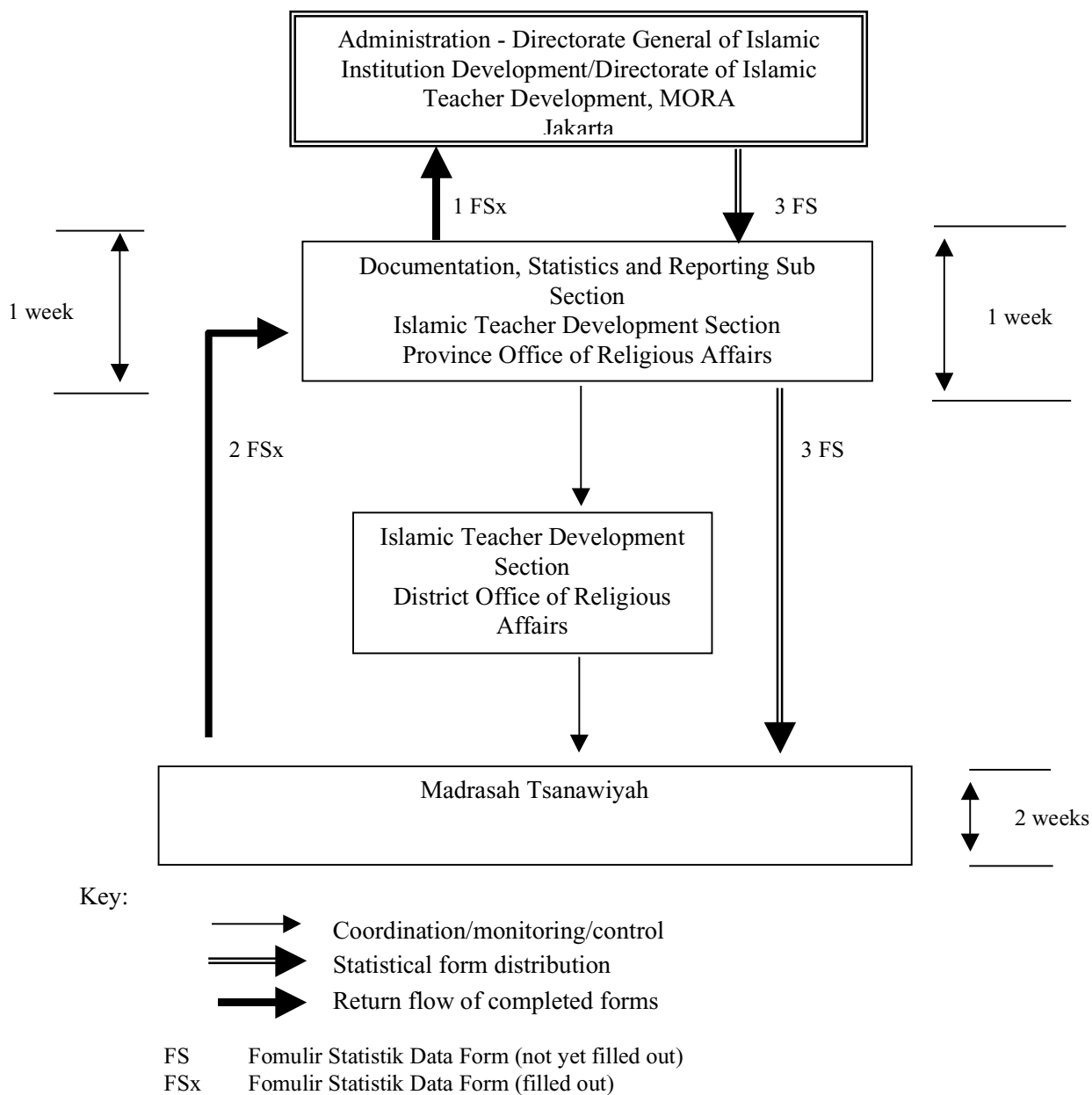
(2) The MORA Data Flow

In the MORA process, as with the MONE, all data forms/questionnaires are supplied from central level based on numbers of schools in each province and district.

- Step 1: Distribution process from Jakarta to province
One set of three Formulir Statistik is sent from the Directorate General of Islamic Institution Development and the Directorate of Islamic Teacher Development in Jakarta to province. The provincial offices also receive a list of schools to be included in the process from the central office. This list is updated according to the local data on schools before the distribution of questionnaires to schools takes place.
- Step 2: Distribution process from province to school
One set of Formulir Statistik data forms is sent from province to schools by postal service. It is expected that this process will be completed within one week of receiving the bundle from the central office.
- Step 3: Filling out process at the school
Schools fill out three copies of the Formulir Statistik data forms in reference to the instructions that are printed on the reverse side of each sheet. .
- Step 4: Forward process from school to province
On completion, the questionnaire is copied twice so that there are three copies of the questionnaire including the master copy. One copy is kept as an archive copy in the school files, and to refer to in filling out the questionnaire in the next gathering cycle (the following year). The remaining two completed questionnaires (the original and one copy) are then sent back to the province office.
- Step 5: Forward process from province to Jakarta
On arrival the forms are checked and then grouped according to district, packed into a carton, or bundle and sent to central level (MORA Jakarta). This process is to be completed within one week.

An illustration of the data flow mechanisms is shown in **Figures 2-17**. It presents direction of flows, including the initial distribution of questionnaires/data forms-sheets, the return flow of completed questionnaires/data forms-sheets, and letters of instruction to notify the receipt of instruments and maintain integrity and coordination in the process⁸ where these exist. The following **Table 2-29** lists the reports that are used in MORA data collection.

⁸ The function of these letters is as a notification, for example, when a set of completed questionnaires is sent from province to central level, a letter is also dispatched to clarify that the provinces commitments have been met Presumably this is to assist with coordination.



Source: *Formulir Pendataan EMIS Madrasah Tsanawiyah*, Proyek Perguruan Agama Islam Tingkat Menengah, Direktorat Jenderal Pembinaan Kelembagaan Agama Islam, Departemen Agama RI, 1999.

Figure 2-17: The Data Flow Mechanism: Junior Secondary Schools (MORA)

Table 2-29: Kind of Data Forms in MORA

No.	Name of Data Forms	Type of Information	No. of Data Requested	Distributed From	Filled Out By	Data Entry into Digital Database
1	Formulir Statistik A1	General	10 Items	Directorate General of Islamic Institution Development and Directorate of Islamic Teacher Development, MORA Jakarta	Public Islamic Secondary Schools (MTsN)	Directorate General of Islamic Institution Development and Directorate of Islamic Teacher Development, MORA Jakarta
2	Formulir Statistik B1	General	3 Sections, 30 Items	Directorate General of Islamic Institution Development and Directorate of Islamic Teacher Development, MORA Jakarta	Private Islamic Secondary Schools (MTsS)	Directorate General of Islamic Institution Development and Directorate of Islamic Teacher Development, MORA Jakarta

2.10.4 Data Entry

The data entry is undertaken in three central offices: The Informatics Center at the MONE, the Informatics section of Dikmenum, and the Directorate of Islamic Institution Development at the MORA. The officially recognized venue for data entry at the MONE (from hardcopy questionnaire to digital database) is the Informatics Center, however, due to the low capacity for data entry in this center, informal data entry activities are often undertaken through collaboration with the informatics section of Dikmenum and Dikdasmen or other departments depending on individual data needs.

Official data entry is undertaken through two separate and differing processes. At the Informatics Center data is entered from a summary (RKSM) produced by the MONE District offices. The summary is produced manually or by computer by district staff based on information in the MONE Data Form KNS. The reasons quoted for using this rather than the KNS questionnaire is related to lack of data entry capacity and the lower coverage of KNS in terms total number of reporting schools. Recent estimates indicate that the response rate to KNS is around 70-80% each year. The compilation of the RKSM summary also includes a process to ensure that data is available for every school regardless of whether a questionnaire (complete KNS) was received in the respective year. As part of the summary process, local staff makes data estimations based on past questionnaires that are available from previous years for the schools that have failed to submit a questionnaire on time, so that the resulting database can quote 100% coverage. The summary is used to compile the annual national statistics publications (e.g. Statistik Persekolahan SLTP Tahun 19XX/19XX and the annual Educational Statistics in Brief publications). The Informatics Center does not enter data from KNS format (individual school questionnaire).

Dikmenum sometimes enters the KNS format into a digital format, but this is not a routine responsibility although it has been regularly carried out during the past few years. Any individual school data entry and processing is generally done only in response to specific

requests or short term perceived needs. At the moment this activity is jointly funded through routine government budget and aid projects.

The data are used not for general school-based management per se, but rather for central planning and policy development in relation to school management. For school levels served by this department the funding arrangements and much of the management is still very centralized. The reasons quoted for using the KNS in this process is the need for specific data that is not included in the RKSM summary, and the fact that the KSM represents an "un-polluted" or unmodified data source direct from schools. In short the officials believe that they need to enter the KNS at central level in order to have the highest possible confidence in the resulting database.

At the Directorate of Islamic Institution Development MORA, data is gathered from school level, and is entered to a digital format based on individual schools at the Central office of the MORA. Although this activity has taken place from 1998 until the present time, it is not yet a consolidated capacity. It is still running as an assistance project (ADB Basic Education Project).

The scope of the statistical forms used in the MORA process is much narrower⁹ than the MONE KSM that reflects the current focus of interests of the data users. This makes data entry a much less time and fund consuming process than in the case of the MONE. It is also still running on a project basis and is not yet a completely consolidated information system. Its fate rests heavily on the willingness of the Government of Indonesia to back it up with routine indexed funding arrangements within the MORA.

Some duplication of data entry is also caused by the inclusion of MT in the MONE data and information cycle, which indicates that duplication of entry will definitely occur when two separate ministries gather data from the same schools. Unfortunately this will continue until either one or the other can present an ironclad guarantee that the respective data gathering process will supply the required data in a reliable and sustainable manner. The MONE is prepared to stop gathering data from MT, but due to past experiences are reluctant to do this, as they have become the last alternative for supply of information about MT.

The final problem is related to the data entry process for generation of the RKSM at district level. Some district offices, depending on availability of hardware, human resources or time, compile their summaries with computers, others while others must enter their data manually into the RKSM form. This also creates duplication of duties in that even though the summary in many cases has been entered into digital format at district level, ultimately, only the hardcopies are forwarded to central level where much of the entry work is repeated to create the national individual school database at central level.

Through the analysis of the current situation, several problems have become evident within the data entry process including significant levels of duplication at central level. The KNS questionnaire from individual schools is entered in its entirety into digital format in two separate

⁹ See the analysis of questionnaire content in the Annexes.

cases for different perceived needs, if those district office that use computers to formulate the RKSM summary is taken into account, along with MORA activities then the scale of repetition increases even further. Clearly this process could be made much more efficient and productive. Further problems are evident with lack of institutional capacity, and low levels of confidence in the data sources between the different departments and the related reluctance to trust systems that operate outside the respective departments to supply the needed data in a dependable manner.

2.10.5 Analysis of Questionnaires/Statistical Forms/Summaries

The MONE Data Form KNS99 or Junior Secondary Schools Questionnaire (Kuesioner Sekolah Lanjutan Tingkat Pertama dan Menengah) consists of 8 main sections.

- 1) School/Madrasah Identification and Characteristics
- 1) Students, Classes and National Examination Scores
- 1) Facilities
- 1) School Personnel/Staff
- 1) Finance
- 1) Electricity Consumption
- 1) Curricular and Extra Curricular Programs
- 1) Estimations for the Following Year

The statistical forms from the MORA data gathering process are based on the MONE KNS questionnaire. These forms consist of five main sections as follows:

- 1) Madrasah Identification and students
- 1) Madrasah Personnel/staff
- 1) Curriculum and Educational materials
- 1) Existence and Condition of Physical Facilities
- 1) Finances and Strategic Location

Translated versions of these forms, the summary sheets (RKSLTPT, and RPdd) and the summary of the data included in RKSM are also available in Annex.

(1) Compartmentalization of Systems and Duplication of Activities

In Dikmenum and Dikdasmen, there are some system developments that need to be mentioned here. The systems in these directorates are basically sub-systems of the overall EMIS. The major problem in the past has been the coordination of all data and information related activities under the Informatics Center that is in charge of all MONE data and information system coordination. Discussions with officials involved in the data and information process indicated that all present sub-systems have specific data needs, and although much effort has been expended in the past to coordinate the activities into a single integrated functioning system, it has only met with limited success. The most prominent reason is the lack of capacity for all sub-systems to fulfill individual commitments to the system. Different departments do not trust

the ability of others to supply them with accurate, reliable and timely data so the sectionalism tends to prevail.

(2) Administrative Data, District Office (Kandep) and School Workload

Apart from the routine data gathering operations undertaken to compile education statistics, there is also a number of different data gathering activities undertaken to satisfy administrative needs. In this chapter a brief examination of these activities is carried out to provide some insights into the current regional data gathering system. The actual processing and uses of the administrative data is currently unclear, however it is useful to shed some light on the current workload at district level.

Six questionnaires/data forms-sheets were identified in this survey in relation to public schools, and three concerning private schools. For public schools, this represents a data gathering workload of 20 reports per annum. A recent survey by Informatics Center indicated that a total of 64 reports are requested from schools from various government agencies and other organizations, more than one per week. This is one of the major problems within the data gathering process, i.e. data "weary" school staff. Although no data was available to support this assertion, the questionnaires identified during the short time of this survey indicates that this is likely to be an on-going problem. It likely contributes to the problems of late or non-submission of completed questionnaires from some schools and the under-fulfillment of information commitments from some regional areas.

Table 2-30: Data Forms Identified (Outside the Current School Statistics System)

Name	Requesting Agency	School	Number of Copies to be made	Annual Frequency
1. Laporan Statistik SMP/SMA	Dikmenum	Public	5/4 (x 12) 60	12
2. Laporan Caturwulan	MONE Provincial Office Jakarta	Public	5/4 (x 3) 90	3
3. Daftar Nilai Pengikut EBTA	MONE Provincial Office Jakarta	Public	3/2 (x 1) 3	1
4. Daftar Guru Tetap	MONE Provincial and District Offices	Public	3/2 (x 1) 3	1
5. Daftar Kepangkatan	MONE Provincial and District Offices	Public	4/3 (x 1) 4	1
6. Rencana Daya Tampung	MONE Provincial and District Offices	Public	3/2 (x 1) 3	1
7. Daftar Fasilitas	MONE Provincial and District Offices	Public	3/2 (x 1) 3	1
Total Forms/copies			26 (91)	20
Total Pages			166	
8. Laporan Statistik SLTP/SMU	MONE Provincial and District Offices	Private	5/4 (x 12) 60	12
9. Rencana Daya Tampung			2/1 (x 1) 2	1
10. Daftar Peserta Ebtanas			2/1 (x 1) 2	1
Total Forms/copies			7 (9)	
Total Pages			34	
Overall Total Pages			200	

The data forms identified for both public and private schools are shown in the following table (**Table 2-30**). If the regular school statistics data gathering commitments are added to this list, it becomes clear that the workload at schools and district offices in relation to the data and information process is extremely heavy. To fully appreciate this situation the process with regard to district offices needs to be viewed from the perspective of the overall MONE EMIS that must collect, enter, process, analyze and publish data for all schools. District level staff is responsible for data and information needs of basic, junior and senior secondary education. Clearly this represents a heavy load considering that not all offices and personnel have exclusive access to computers and other facilities that help in the process. Apart from this there are also other employment commitments that must be fulfilled, not just the specific data and information activities.

(3) Response Rates to Questionnaires and Data Validity

Discussions with officials involved in the current EMIS, such as staff of Informatics Center and Dikmenum, indicated that overall response rates were on average 80%. According to the response rates to annual school statistics data gathering efforts have been low in several areas, especially those where school finance is concerned. A research effort to identify problems in the gathering and entry of financial data, as a bid to improve response rates in 1996-97¹⁰ indicates that at the time of data gathering in 1995-96 useable data for junior secondary schools ranged from 71% of the universe for public schools, with only 8% of the universe being unusable due to non-response. For private schools only 20% of the data was usable data, and for private MT, only 6% was considered useable¹¹. For public schools, this is a reasonably low level of non-response, however, the fact that only 71% of the data are usable due to reasons of validity, i.e. data entry errors, and errors in reporting teacher salaries indicates that some work is still required. If response rates, reporting and key in errors are addressed cumulatively across the whole scope of the questionnaires, a significantly lower rate of usability may occur. This observation remains true for both private schools and MT, which have displayed rather dismal statistics in this respect. The fact that this survey was undertaken just prior to the economic crisis would also tend to indicate that given government budget cutting and the departmental turmoil that has resulted from the move toward decentralization, the situation with regard to response rates and useable data has likely got worse.

Low response rates may be attributed to attitudes that have developed which prevent the respondents from filling the data incorrectly, for example, they do not believe the data are important, or previous use of the data has put them in a difficult position, or simply that the management process is such that school records are incomplete at the time of reporting. Whatever the problem, it is important that all respondents understand the usage of the data and the importance of accurate and timely data for school-based management. Only when respondents understand this, will optimum response rates be achieved.

¹⁰ Korns, Alex, *Appendix K Improving Financial Data from the Annual School Survey*. in Indonesia Education Finance Study Final Report, Volume 2: Background Appendices, Government of Indonesia.

¹¹ *Ibid.*, P.102

(4) Role of the Informatics Center

A major problem in the operation of the Informatics Center was the scope of duties that was too broad and tended to overtax the resources of the center. The name of Informatics Center implied a broader role in the information technology (IT) field of MONE in which it had authority and responsibility for coordination of all IT activities:

- 1) *Formulate technical policies in relation to information management concerning education and culture*
- 2) *Carry out data and information gathering activities, for planning, policy formulation, streamlining operations, and documentation of MOEC activities and operations*
- 3) *Coordinate and organize education and culture management information including data and information processing, and overall data and information management in all units operating under the MOEC.*
- 4) *Formulate ideas and policies, and apply methods and techniques to make data and information management more efficient in the MOEC.*

Source: The role and functions of the Office of Research and Development Presidential Decree No. 45, 26 August 1974

In general, the Center was responsible for not only education statistics, but also the MIS function (administrative data systems) of all units. The Center has been renamed to the Education Statistics Center, which also offers a clue to the reduced scope of activities. Outside of education statistics, the new center is responsible only for identification, utilization and development of IT resources for the management of education of all types at all levels. The Education Statistics Center operates directly under the office of Research and Development and based on Ministerial Decree No. 010/0/2000. It is charged broadly with the implementation of educational statistics activities. As mentioned in Article 793, the functions are:

- To formulate technical policies for education statistics related activities
- To undertake activities related to educational statistics and presentation of data and information for planning, policy formulation, and improvement of implementation and documentation.

From the perspectives of JSE, the Center is also responsible for coordination of statistics related activities including data gathering, planning of administration, policy and implementation; formulating policy recommendations, and establish methods and procedures in the field of statistics. This indicates that the Center has the authority over all other units with regard to activities related to school statistics. This mandate is also reflected in Ministerial Decree 0222F/O/1980, which states that Informatics Center was authorized to improve the information support services, serve the overall information needs of the Minister and coordinate data/information throughout the different directorates.

(5) Official Perceptions of Systemic Problems

The following perceptions of problems within the current MONE data gathering system was gleaned from discussions with officials involved in the daily operations of the EMIS as key informants with regard to the gathering, entry, processing and analysis process

There are several problems that arise in relation to data entry within the MONE:

1) **Cumbersome Instruments:** The KNS questionnaire is a very rich data source which means it is also quite large, and requires a significant effort not only to fill out during the gathering process, but also to enter to digital format (computer). The major reason for this is that the data and information process is funded by several departments/directorates and therefore the instrument must reflect each ones specified needs.

2) **Incomplete Databases:** This problem occurs when questionnaires/data forms-sheets are not submitted in time to be included in the data entry process. It is generally related to the data "weariness" mentioned above, and also due to the fact that school principals and administrators are not always eager to supply information about their school.

3) **Data Conflicts:** Conflicting data occurs when data is entered for different reasons in different departments, and are entered from different questionnaires. Although the data are from official sources, they are sometimes entered into digital format and processed by different departments. For example, one institution or department may undertake a school survey using the "laporan caturwulan" or term report from provincial offices as a source, while another department will use the KNS form and enter data into digital format. The two resulting databases although gathered from the same schools in the same locations, with questionnaires of similar contents, will ultimately display conflicting results. This causes confusion among analysts and data specialists in determining which data most accurately reflects the current situation.

4) **Duplication of Duties:** Also related to the above mentioned process is duplication of duties. In many cases the contents of questionnaires are exactly the same or very similar. So the process is very inefficient, a significant amount of time and funding is wasted on gathering or entering similar data. A more efficient process would involve identification of all data requirements, and the development of a minimum number of instruments and processes, backed by data sharing for all purposes in digital format. Where questionnaires are similar, a single standardized questionnaire should be developed for all departments with similar roles and data needs.

5) **Insufficient Human Resources:** The current system lacks sufficiently skilled staff at regional level.

6) **Lack of Infrastructure:** The current system lacks sufficiently developed infrastructure at regional level.

7) **Lack of Feedback to Schools:** There is not enough feedback to individual schools. Apart from the fact that the routine data reports and analysis are produced only as national or provincial aggregates, or national, the staff at individual schools rarely have access to them. To be useful for school-based management, publications must be produced at lower regional levels rather than at central level. Provincial publications of course must still be produced at central level to provide insights into balanced regional development, but they also need to be supplemented with the analysis at the lower level.

8) **Scope of Work of the Informatics Center:** The current scope of work of the Center is too broad. Not only is the Center responsible for coordinating the data collection, and implementation of data entry for school statistics, but also is charged with the responsibility for the coordination of development of administrative data systems, and compilation and production of national statistics publications. In general, the administration data needs should be able to be satisfied by the individual departments and the Center should concentrate on school statistics (It is likely that this will occur along with the change of the structure of the Center¹²).

2.10.6 Conclusion

The National EMIS suffers from a number of problems including organization, coordination, lack of facilities and infrastructure, underdeveloped human resources, and an unreliable funding system. These overall problems are expressed across the whole spectrum of individual sub-systems within the MONE. With regard to JSE, to overcome funding shortfalls, currently the Informatics Center must share the workload with other sub-systems, which means their questionnaire must reflect the needs of all stakeholders. This introduces a problem in that the questionnaire becomes a major challenge for school staff to fill out fully, regularly and reliably. This is especially true when considering the many other requests for data that they must satisfy. This problem is compounded by the fact that many schools are also unwilling to supply the requested data. While the questionnaires that are completed and returned provide a rich data source, a complete database of schools is never attained. The sheer size and complexity of the questionnaire is such that the Informatics Center is unable to regularly enter the data due to the lack of processing capacity. The overall result of these problems has served to contribute to further problems where different data users with diverse needs attempt, either successfully or unsuccessfully to organize their own data and information system functions. A brief discussion of the major offshoots of this process in relation to JSS is presented next.

Three major individual school databases for JSE are currently compiled on an annual basis (MONE based on RKSM Summary, MONE based on KSM questionnaire and MORA MT database), most of which suffer from quality problems related to accuracy, coverage and timeliness. Currently, each database has its own set of unique problems and advantages, which makes each one necessary in its own right. The RKSM summary database provides a full coverage of schools in a manageable format that can be completed each year in a sustained manner. However, its disadvantages are that the accuracy of the data are called into question when considering that in order to provide a full coverage estimations and considerable editing and cleaning is likely to occur at district level, and the risk of human error in manual data calculations is high.

The other major disadvantage is that the full scope of variables in the KSM questionnaire is not available through the summary. The KSM questionnaire database provides what is considered to be the most accurate and comprehensive list of variables, but its weaknesses lay in the fact

¹² Minister for National Education Decree (Proposed) No. 010/0/2000 about the organization and working procedures of the MONE.

that it is not a full coverage of schools (current estimates put it around 70-80%). The data source instrument is so rich that the data entry process is dependent on outside funding assistance. Although this database is considered the most useable, it also requires some significant efforts devoted to the gathering and entry process to improve the reliability of the data. The MORA statistics system, on the other hand, appears to have a good coverage, and a reliable entry system, but accuracy and sustainability are areas of concern. A major weakness of these systems is also that they have not provided any regular feedback to individual schools with regard to schools performance.

Within this framework, the existence of the three partially integrated but at the same time compartmentalized systems with similar goals highlights the problem of duplication of duties. One of the core problems with the entire system is allocation of duties, responsibilities and functions. The dependency on a centralized data entry system has in the past been necessary to ensure data availability in the absence of regional capacity, and this was acceptable within the highly centralized school management environment. Since the decentralization of education is now progressing at a rapid rate, the decentralization of the EMIS will need to follow the same pattern. In the last few years, district offices have produced *Education Profile*¹³, which indicates that district offices have the capacity to gather, process, analyze and provide data for management. Within the framework of decentralization, the current system will need to delegate the information management functions to regional areas based on their perceived roles, authorities, and capacity. (See **Figure 2-18** for suggested framework.)

The major issue that needs to be addressed is that how the current system respond to the needs of districts and schools in the decentralization process. At present, there is no regular information dissemination strategy that supports the regions and schools for planning and management. Particularly the major share of further development will need to take place at district level where the reliable information management capacity including data entry needs to be developed. If the data is entered into digital format at district level, they can be disseminated to and used by individual schools/communities as a planning tool as well as monitoring and evaluation too to support school-based management. Some of the variables in the instruments can be modified in the on-going manner to reflect development priorities.

While this process would ensure good data to support school-based management, it is equally as important to develop a system that will allow for national development monitoring, managing balanced regional development, and education policy research and development. A system needs to be employed to coordinate and manage flows of data from regional to central locations. This would be applied in the most efficient manner through an integrated aggregation process, in which district offices forward the completed district database to the central level, to create the national database. This database could then be accessed, and queried for any research, reporting or policy needs at any regional level.

¹³ *Profil Pendidikan Tahun 1999-2000*, Kantor Kabupaten Cirebon, Kantor Wilayah Propinsi Jawa Barat, Departemen Pendidikan Nasional.

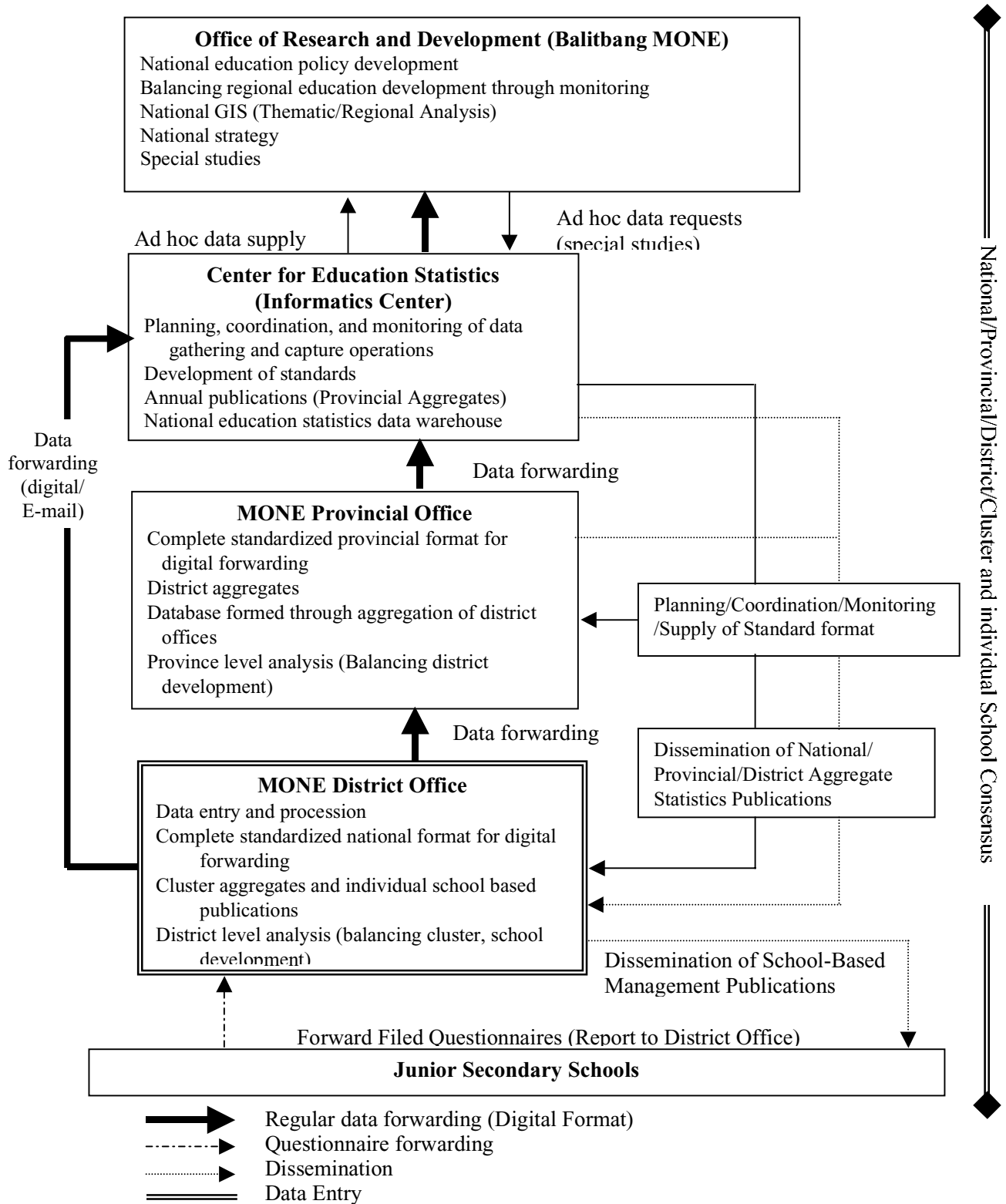


Figure 2-18: Distribution of Information Management Functions: School Statistics (JSE)

It is extremely important that consensus and a standard approach to systems development are gained from all stakeholders with regard to information statistics system development¹⁴. The departure point, therefore, for further development within the framework of decentralization would ideally be from a consolidated catalytic structure at central level. Further systems developments and institutional capacity building and improvement activities in the regional areas should follow this.

2.10.7 Recommendations

(1) A major effort should be undertaken within the MONE to bring the highly centralized EMIS in line with the current demands of decentralization, and school-based management.

This will be of foremost importance to ensure efficient management of the education system from local to national level, to lay the foundations for a sustained and efficient effort to boost human capital development. The Government needs to devote significant amounts of funding and resources to the development of a decentralized EMIS that can supply relevant and timely data, not only to several levels of government to manage balanced regional development, but also to individual schools as an important input in their management processes.

(2) Central planning and management capacity needs to be established.

This is the first and foremost in national EMIS development, and possibly the single most important step in the establishment and development of a reliable JSE statistics system. Within the broad framework of decentralization, a central capacity for planning, management, data collection, procession, and dissemination is a primary requisite. The authority of the central unit should be grounded in consensus and established through sustained dialog with the regions¹⁵. From a dialog, different levels of authority will grow in, or be delegated to the different levels. For example, the planning, management and coordination of national data collection, entry and processing of national data should be undertaken by the central authority, while the content of questionnaires and standards for data forwarding formats should be determined through dialog with the regions. The data collection, management, entry and processing of district data should be the responsibility of the district offices. In this way, a smooth data flow from the region to the central can be established.

(3) A survey should be undertaken to determine the readiness of district offices.

The survey would be in the form of an institutional capacity assessment to see the availability of hardware support as well as human resources. Such information will be useful in planning EMIS development strategies.

¹⁴ See for example Fiske, Edward B., *Decentralization of Education, Politics, and Consensus*, Directions in Development Series, World Bank, Washington D.C. 1996.

¹⁵ A number of interesting case studies regarding the needs of central and regional balance are illustrated in Fiske, Ibid. 1996.

(4) A regular discussion on JSS questionnaires and information system developments should be fostered.

This should include MORA and MONE with a view to eliminating duplication of activities and setting data format standards. Ideally, the questionnaire would encompass elements of both existing questionnaires.

(5) District offices should establish centers that handle all information management in the regions.

This would enable a data update process to be developed at district level, in which only the changes are made to the existing databases.

(6) A digital data-forwarding network should be developed.

This will create a paperless data transfer system. For example, district level houses individual school database for district level analysis and the summary is then forwarded to the provincial offices. At the province level, the district summaries are made and forwarded to central level, which are used for making provincial summaries for national analysis. In this way, each regional level would have a valid database for its management.

(7) Increase the access and use of data, and dissemination capacities of information systems.

Currently, schools and district offices are mere information providers but and not benefited from the information system. Increasing the access and use of data will stimulate schools and management personnel to place more emphasis on quality, timeliness, and coverage of data.

(8) Information management training is necessary.

A data analysis and educational management training program, along with a social marketing program should be applied to district offices and principals in order to promote the appreciation for accurate and timely data. As indicated above, there is significant problem with non-response or reporting error of school statistics. They generally reflect a less than appropriate attitude of the staff responsible for supplying the data. For a number of reasons these staff may assign a low priority to the data collection process, however, the most common is likely to be, lack of time, basic misunderstanding of the use of the data, a fear of reporting, or simply that school management is not carried out optimally, so good school records do not always exist. All of these problems can be overcome by appropriate training programs.

2.11 EMIS-Linked GIS

2.11.1 Possible Benefits

The Educational Management Information System (EMIS) is the information processing activities to that clearly present the educational environment. EMIS has functions to collect, enter, store, analyze and present data focused on educational statistics. A Geographic Information System (GIS) is a spatial database. Geographic locations are stored as a set of longitude/latitude coordination or easting/northing coordination of specific map projection. Attribute information about the location, and school name, for example, is stored in tables that are linked to the location.

Different spatial information is stored in different files or layers, which can be viewed simultaneously. It is also possible to extract information from these layers through geographical spatial analysis. For example, the following information can be retrieved. Such information will assist educational decision-makers and planners to establish education plans.

- 1) What is the maximum walking distance to the school?
- 2) Which areas have a high density of students?
- 3) Where does the new school need to be constructed?
- 4) Which schools have to expand classrooms?

Another important function of GIS is map making. Ordinary maps printed on paper are just static ones. Maps stored into GIS, however, are in digital form. Therefore, we can quickly make maps of the various areas, with various scales, and for specific purposes. These maps are useful for education planners to understand the present educational situation. As mentioned above, EMIS-linked GIS can be a powerful tool to assist not only educational decision-makers and planners, but also teachers and parents.

2.11.2 Difficulties

The main difficulty is the lack of school location maps. Only Kabupatens in North Sulawesi Province have school location maps, which was funded by the ADB as a technical assistance. To use maps on the GIS, it is necessary to digitize paper maps into digital maps. Another difficulty is that no digital database exists. There is the KNS general school information collected by MONE, but this information is stored only partially into digital format, which makes it impossible to link existing EMIS and GIS at present.

2.11.3 Suggestion for an Alternative (Simplified GIS)

REDIP project collected data from Baseline Survey¹ from each of the schools in all pilot Kecamatan. Using these data, digitizing of maps was carried out both for the Central Java Province and the North Sulawesi Province. The map with the following layers was created:

- 1) Administrative Boundaries (Provincial, Kabupaten/Kotamadya, Kecamatan, and Desa)
- 2) Main Rivers

¹ The details of the Baseline Survey are described in **Chapter 4.3**.

- 3) Main Roads
- 4) Kabupaten/Kotamadya Centers, Kecamatan Centers, and Desa Centers
- 5) Existing Junior Secondary Schools (only in the North Sulawesi)
- 6) Residence Area of Students (only in the North Sulawesi).

Based on the availability of the above data, a simplified GIS for alternative of EMIS-like GIS can be introduced. The main purpose to establish the simplified GIS in REDIP is to present a prototype system to those who do not have experiences using GIS in education.

The following three principles are considered in designing the system.

(1) School-Based

Now in Indonesia, educational management is shifting from centralized system to a local community-based one. The existing education statistical system is centralized in the central government. From the perspective of school-based management and decentralization of education, it is important to establish a school-based education statistical system at the district level, which will be responsible of JSE administration.

(2) Link to the School Statistics

The MONE District Office keeps close relation with each junior secondary school and local community at the district level. This is good position from which to collect school-based education statistics, to enter data and to maintain a database. Staff at the district level can easily detect some mistakes in the data filled out by schools, because they have the background of these communities. Even when they do not, they can directly ask the principal or staff from the specific school to solve mistakes. This will assist in improving data accuracy of the school-based statistical system.

(3) Tool for Diagnosis and Planning

The main purpose of a simplified GIS is to utilize it as a tool for the diagnosis of existing educational situations based on the school statistics. Simplified GIS can easily make maps and graphs as visual media by non-GIS operators such as the staff of Kabupaten office. Therefore it is possible to present each item of school statistics in the visual media. Visual media can help people easily understand the existing situation of the school statistics. With this visual media, educational administrative staff can evaluate what kind of problems occurred in each community. Also the parents and community members can understand the quality of their education in the province.

Based on the above concepts, map data was created. Available data and Information are listed in **APPENDIX 2.2**

Simplified GIS is linked with the existing non fully computerized EMIS to utilize GIS technique. **Figure 2-19** shows outline of the designed system. The provincial office takes the

responsibility to execute data form distribution, data input, and data management and data analysis. Each school fills out data forms.

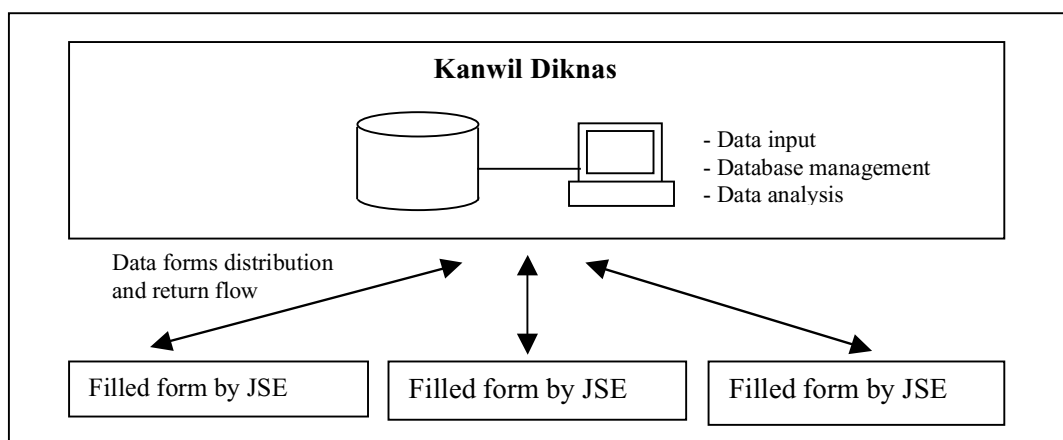


Figure 2-19: System Outline of Simplified GIS

One of the limitations of the current data is that map data and baseline survey data covers only two provinces, and the data collected in the baseline survey is not included in the KNS questionnaire gathered by MONE routine information gathering.

Table 2-31: List of Questionnaire Items in the Baseline Survey and KNS

Baseline Survey by REDIP		KNS by MONE	
Section	Items	Section	Items
	School/MTs Name and Address	A	School/MTs Identification
INPUT			
I	Non-School and Student Input		
I-A	Enrollment	B	Students, Classes and National Examination Scores
I-B	Student Body Characteristics	B	Students, Classes and National Examination Scores
		G	Curricular and Extra-Curricular Programs
I-C	Family		N/A
I-D	Community/Social Environment		N/A
I-E	Governments		N/A
II	School Input		
II-A	Facilities	C	Facilities
		F	Electricity Use
II-B	Furniture and Equipment	C	Facilities
II-C	Instructional Materials	C	Facilities
II-D	Principal and Supervisors	D	School Staff/Manpower/Employees
		I	Principals ID
II-E	Teachers	D	School Staff/Manpower/Employees
II-F	Teachers Characteristics	D	School Staff/Manpower/Employees
II-G	Non Teaching Professional and Sport Staff	D	School Staff/Manpower/Employees
II-H	School Finance	E	School Finance
	N/A	H	Estimations for Next School Year
PROCESS			
A	Classroom Interaction		N/A
B	School/Organization Process		N/A
C	Parent/School Interaction		N/A
D	Parent-Children Interaction		N/A
E	Community/School Interaction		N/A
OUTPUT			
A	Students		N/A
B	Predictors of Student Outcomes		N/A

2.11.4 Some Examples of GIS-Based Analysis

(1) Student-Class Room Ratio Map (Figure 2-20 to Figure 2-23)

This example is shown in **Figure 2-20** to **Figure 2-23**. Student-Class Room Ratio is shown in **Figure 2-20** and the summary by Kecamatan administrative area is shown in **Figure 2-21**. **Figure 2-22** and **Figure 2-23** are the summaries by Kabupaten administrative area. It is easy to find out how many ratios are indicated in each administrative area. Like this example, educational administrative staff can manipulate simplified GIS to indicate educational statistics

(2) 2.5, 5 and 7.5 km Buffer Area Around School and Community Center (Figure 2-24)

In this example, buffer area around the school is presented in Kecamatan Likupang, Kombi, Tombatu and Tenga, which is a part of selected pilot project sites. Following **Table 2-32** shows how many community centers are included in each buffer area.

Table 2-32: Number and Ratio of Community Center in Each Buffer Area

Kabupaten Name	No. and Ratio of Community Center (Desa)			
	2.5 km	5 km	7.5 km	More than 7.5km
Likupang	27	7	2	0
	75%	19%	6%	0%
Kombi	9	2	0	0
	82%	18%	0%	0%
Tombatu	13	1	3	1
	72%	6%	17%	6%
Tenga	16	0	2	0
	89%	0%	11%	0%

In this geographical analysis, more than 70% of the community centers are located within a 2.5km buffer area around the school. The community center is located in the most populated area, therefore, it can be assumed that most schools are located at a suitable distance for students.

(3) 5 km Buffer Area Around School, Population of 13-15 Ages and Community Center

Figure 2-25 indicates how many students at the age of 13 to 15 in each community (Desa) live in a 5km buffer area around school. Communities that have more than a 5km buffer area around school are only Gangga Satu and Pinerek. Population at the age of 13 to 15 in these Desas accounts for less than 25. Therefore, it can well be said that schools cover almost all students in a 5km buffer area.

2.11.5 Suggestions for Future Elaboration

(1) School location should be surveyed using Global Positioning System (GPS)

GPS is now very popular and an easy tool to collect a point coordinate location within a five-meters accuracy. This collection needs only one time until the school is closed or moved. Using GPS is the first step to introduce GIS technique for analyzing existing educational data. Existing educational data was collected by each school identified by the NSS (Nomor Statistik

Sekolah/Madrasah) code. It is possible to analyze the school location, when the necessary data such as longitude/latitude, or easting/northing prepared and assigned to each NSS code,

(2) School Location Map should be made on a scale of at least 1:50,000

The main objective of making school location maps is to present the geographical distribution of schools and the geographical relations between schools and residence areas. The map needs to be accompanied with the following descriptions:

- a) Administrative Boundaries (Provincial, Kabupaten/Kotamadya, Kecamatan, and Desa)
- b) Rivers and Bridges
- c) Main Roads and Public Transportation Routes
- d) Kabupaten/Kotamadya Centers, Kecamatan Centers, and Desa Centers
- e) Existing SLTP/MTs schools and Proposed SLTP
- f) Residential Areas

Figure 2-20: Student-Classroom Ratio Map in Central Java and North Sulawesi

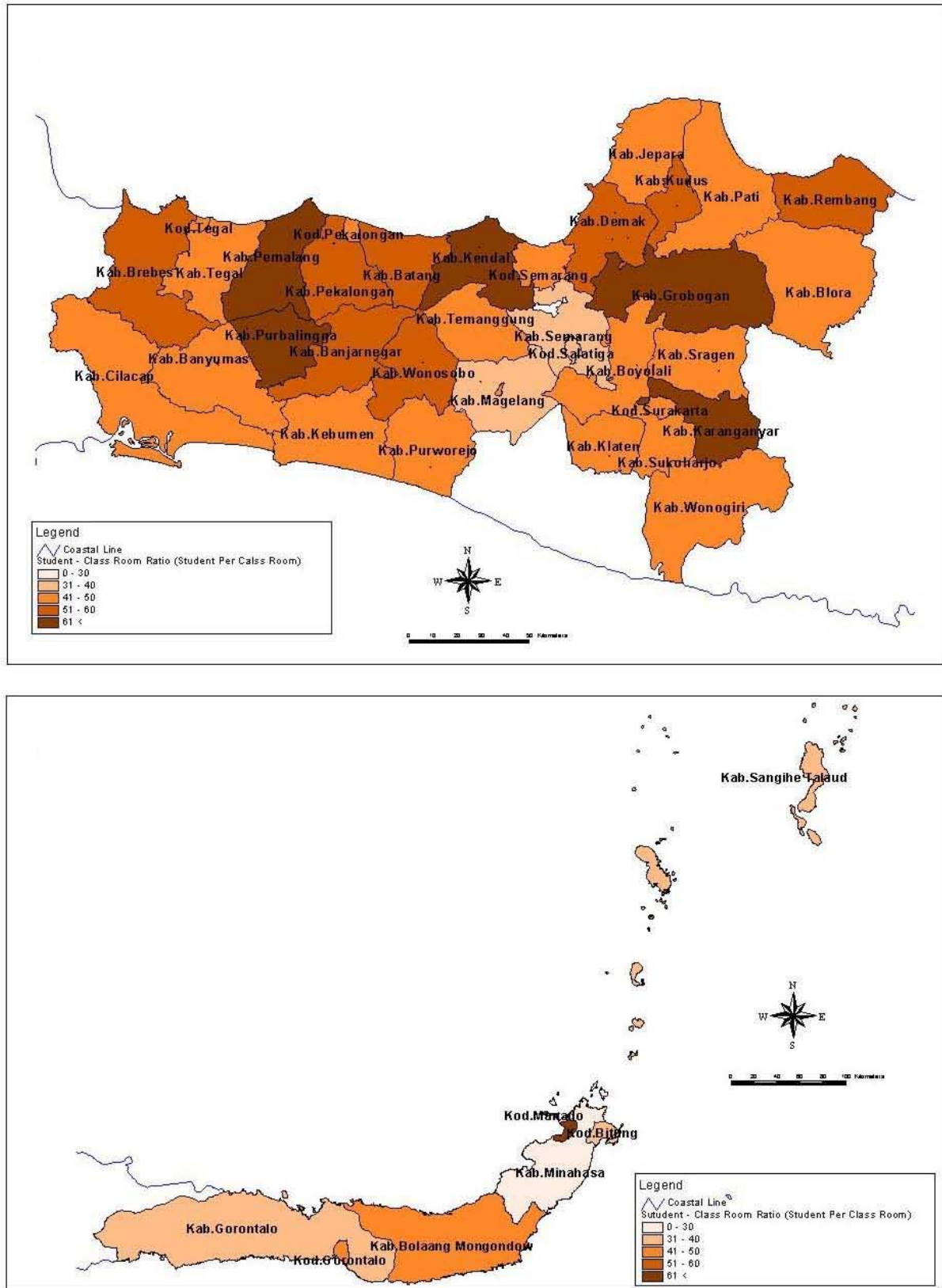


Figure 2-21: Student-Classroom Ratio Maps by Kecamatan in Central Java

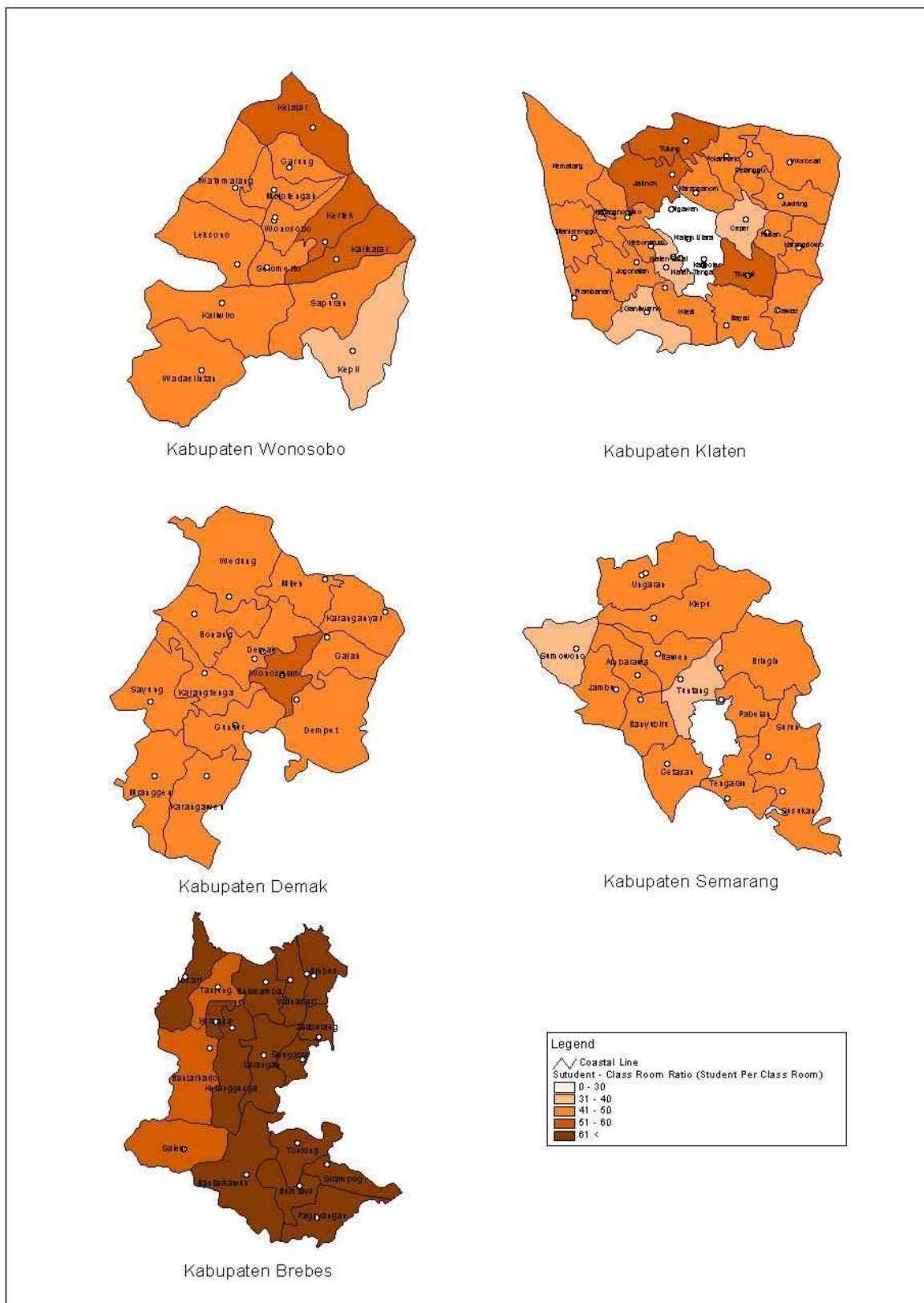


Figure 2-22: Student-Classroom Ratio Map by Kecamatan in Kabupaten Minahasa and Kotamadya Bitung, North Sulawesi

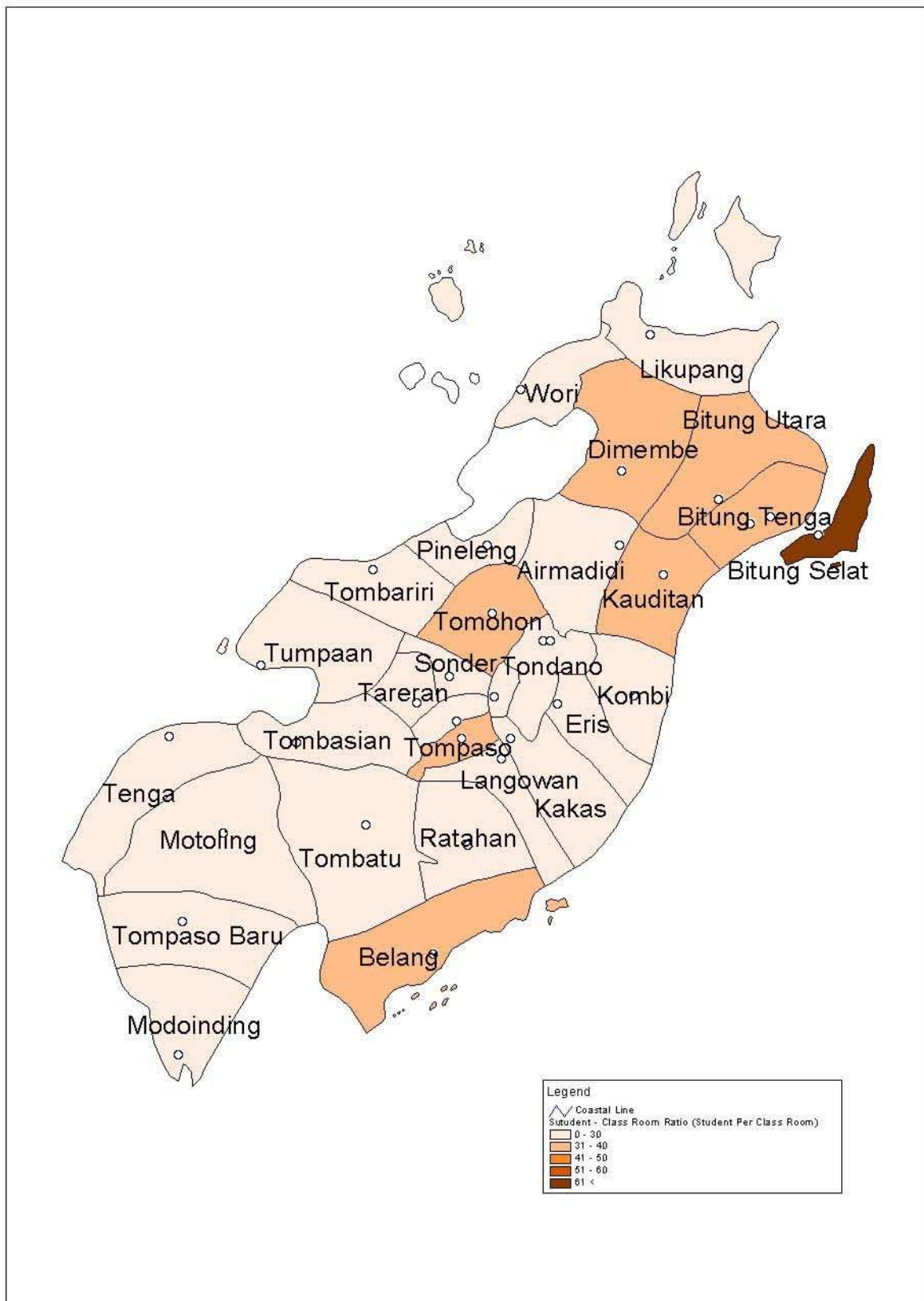


Figure 2-23: 2.5, 5, and 7.5 km Buffer Area Around School and Community Center in Kecamatan Tombatu, Tenga, Kombi, and Likupang)

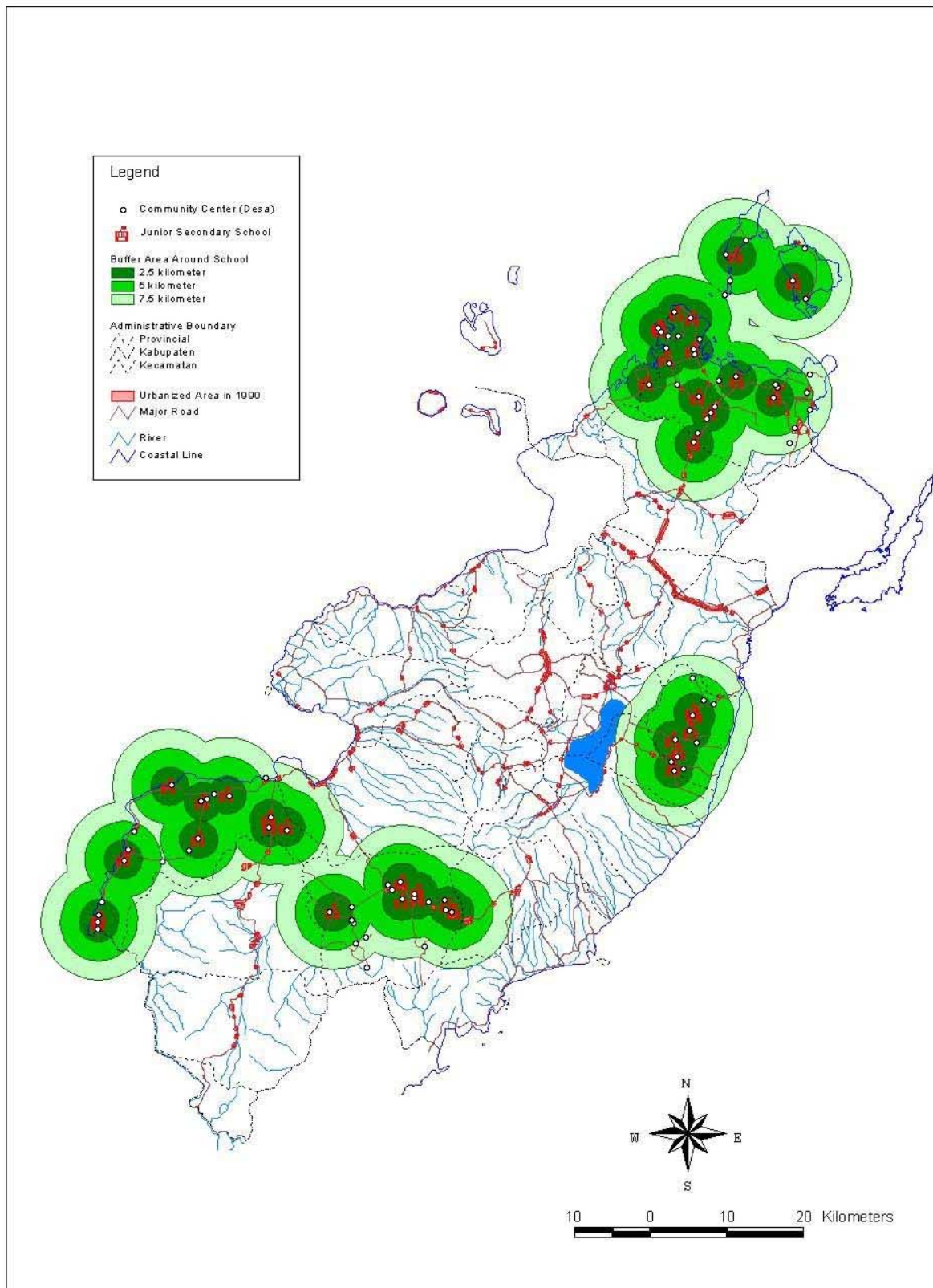
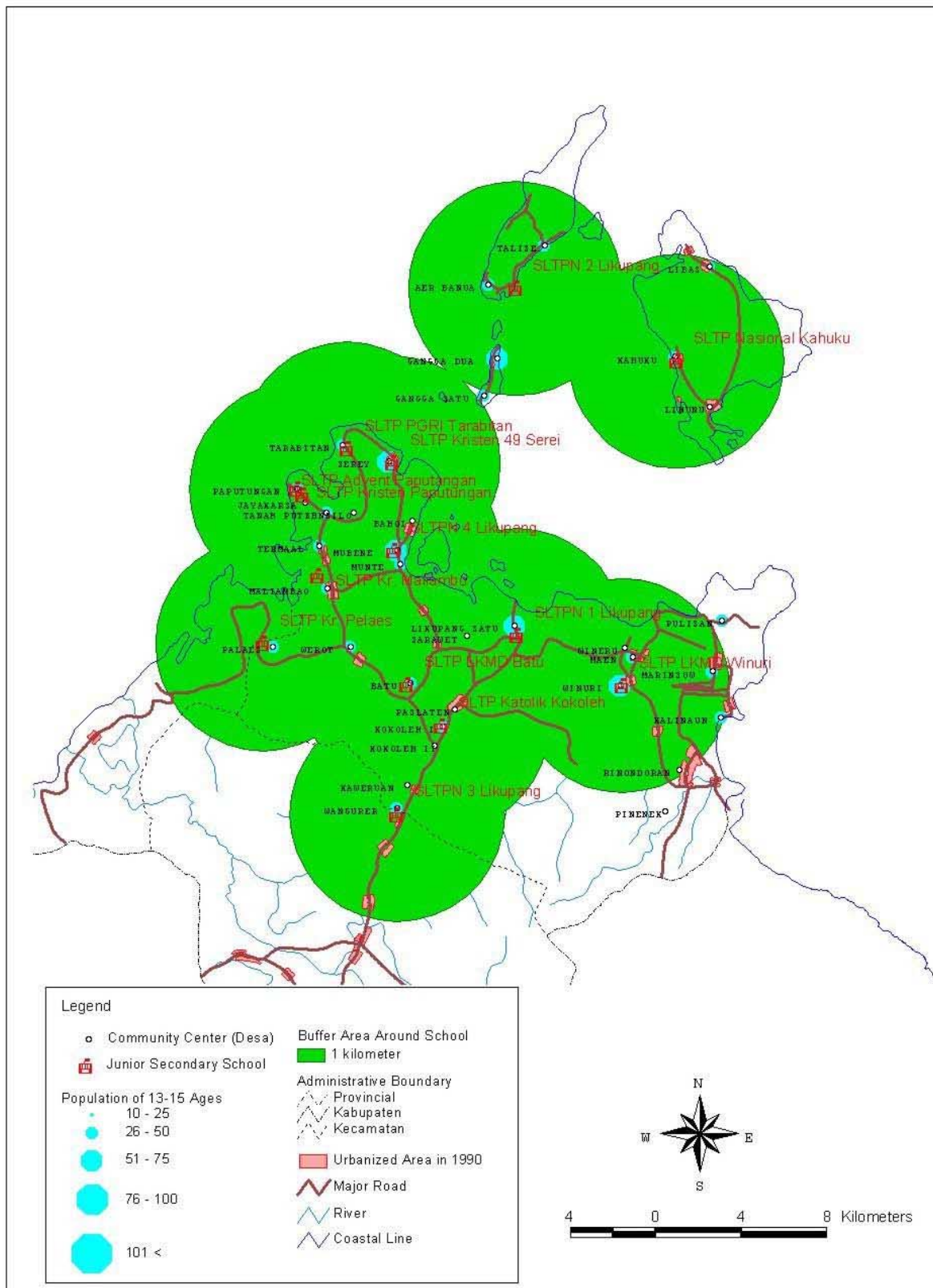


Figure 2-24: 5 km Buffer Area Around School, Population of 13-15 Ages and Community Center in Kecamatan Likupang



2.12 Demand Projection of Junior Secondary Education in Central Java and North Sulawesi¹

2.12.1 Introduction

The purpose of this projection is to estimate future demand for junior secondary education (JSE) in the selected two provinces of REDIP, (i.e. Central Java (CJ) province and North Sulawesi (NS) province), up to 2010, and to examine a possible educational resource shortage for JSE. The enrolment-ratio method is employed in the demand forecast, considering the scarce data availability and limited assignment period in Jakarta given to this task. The projection structure consists of 6 steps shown in **Figure 2-25**.²

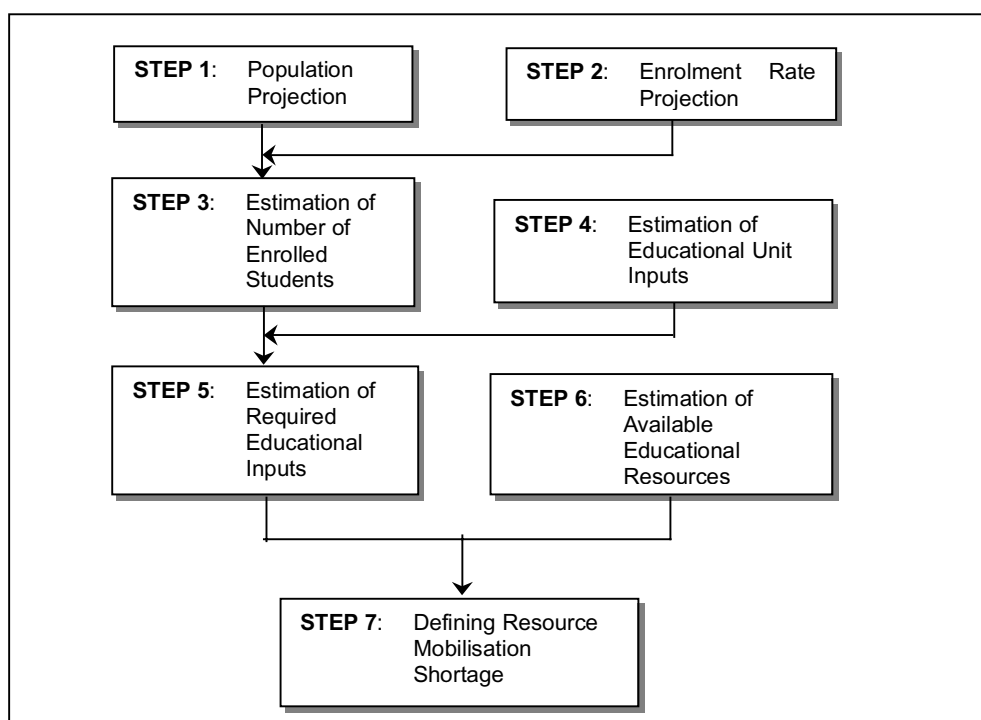


Figure 2-25: The Structure of the Projection

The projection covers public provision of -JSE in Indonesia, namely SLTP, SLTP Terbuka, Paket-B (under the MONE), and MTs (under MORA).

2.12.2 The Cases Studied

Three alternative projection cases have been prepared, namely base, optimistic, and pessimistic cases. The difference among the cases is the target year of achieving the universal JSE provision in respective provinces, which are shown in **Table 2-33** below, while other socio-economic and budgetary conditions set in the projection are shown in the Technical Notes.

¹ Data used in this chapter are from the central government education statistics. In some cases there are considerable discrepancies between the central government, provincial, and district figures. Readers are requested to be aware that the estimates would change if other data source were used.

² For the detailed configuration of the projection model, please refer to **2.11.6 Technical Notes**.

Table 2-33: Three Cases by the Year of Achievement of Universal JSE Provision

	Base case	Optimistic Case	Pessimistic Case
Central Java	2010	2005	2015
North Sulawesi	2010	2008	2015

While the cases are differentiated by the years of achieving universal provision of JSE, other variables in the projection are set as the conditions / assumptions to the projection model. Such variables include those regarding the issues listed below. The details of the assumptions and conditions set are described in **2.11.6 Technical Notes** to the projection.

- *Population increase*: JSE-aged population was forecasted by using BPS (1995). It is assumed that JSE-aged population in CJ and NS is expected to decrease in forthcoming 10-15 years.
- *Involvement of private sector in JSE*: Current level of private sector involvement is assumed to continue over the projection period.
- *Unit cost analysis*: Current level of educational unit cost per student is assumed to remain at the same level over the projection period.
- *Educational indicators*: Current level of teacher-students ratio, classroom-students ratios are assumed to remain at the same level over the projection period.
- *Socio-economic and budget situations*: It is assumed that correlation among GDP, governmental and regional education budgets in past 10 years will remain similar over the projection period. While a conservative GDP growth is set.

2.12.3 Projection Results

Tables 2-34, 2-35, and 2-36, and Figures 2-27, 2-28, and 2-29 in the following pages show the results of the projection.

Table 2-34: Budget Deficit/Surplus for the Central Java (Rp. Billion)

	Base Case			Optimistic Case			Pessimistic Case		
	Routine	Dvt.	Total	Routine	Dvt.	Total	Routine	Dvt.	Total
2000/01	-126	17	-110	-126	17	-110	-126	17	-110
2001/02	-127	35	-92	-139	4	-136	-123	45	-77
2002/03	-124	41	-83	-147	14	-133	-116	48	-68
2003/04	-111	46	-64	-143	23	-120	-99	50	-49
2004/05	-109	46	-62	-149	26	-123	-94	51	-43
2005/06	-88	46	-42	-136	28	-108	-71	53	-18
2006/07	-67	49	-18	-104	59	-45	-47	56	9
2007/08	-43	55	12	-70	63	-7	-20	61	41
2008/09	-44	56	12	-62	63	2	-19	62	43
2009/10	-18	62	44	-26	68	42	9	67	76
2010/11	10	68	77	10	73	82	39	72	111
Total	-847	521	-326	-1,094	438	-656	-667	583	-84
(JPY)*	-14	9	-5	-18	7	-11	-11	10	-1

*@00164 JPY/Rp.

Tables 2-34 and Table 2-35 show the summary of the estimated budget deficit / surplus during the 2000-2010 for CJ and NS, respectively, and they are expressed graphically as Figures 2-26 and 2-27. Then Table 2-36 shows the cumulative amount of budget deficit / surplus for the three cases in CJ and NS respectively, followed by Figure 2-28, which presents these figures in a bar graph.

Table 2-35: Budget Deficit/Surplus for the North Sulawesi (Rp. Billion)

	Base Case			Optimistic Case			Pessimistic Case		
	Routine	Dvt.	Total	Routine	Dvt.	Total	Routine	Dvt.	Total
2000/01	-15	9	-7	-15	9	-7	-15	9	-7
2001/02	-17	12	-5	-18	9	-9	-16	17	1
2002/03	-18	13	-5	-19	9	-10	-16	18	1
2003/04	-18	13	-5	-20	10	-10	-15	18	3
2004/05	-20	13	-7	-22	9	-13	-16	18	2
2005/06	-19	13	-5	-22	10	-12	-14	18	4
2006/07	-17	19	2	-21	15	-5	-11	23	12
2007/08	-14	21	7	-19	18	-1	-8	25	17
2008/09	-16	21	6	-21	18	-3	-9	26	17
2009/10	-13	24	11	-16	33	17	-5	28	23
2010/11	-10	27	16	-10	35	25	-2	31	29
Total	-176	185	9	-204	175	-29	-127	230	103
(JPY)*	-3	3	0	-3	3	-0	-2	4	2

*@00164 JPY/Rp.

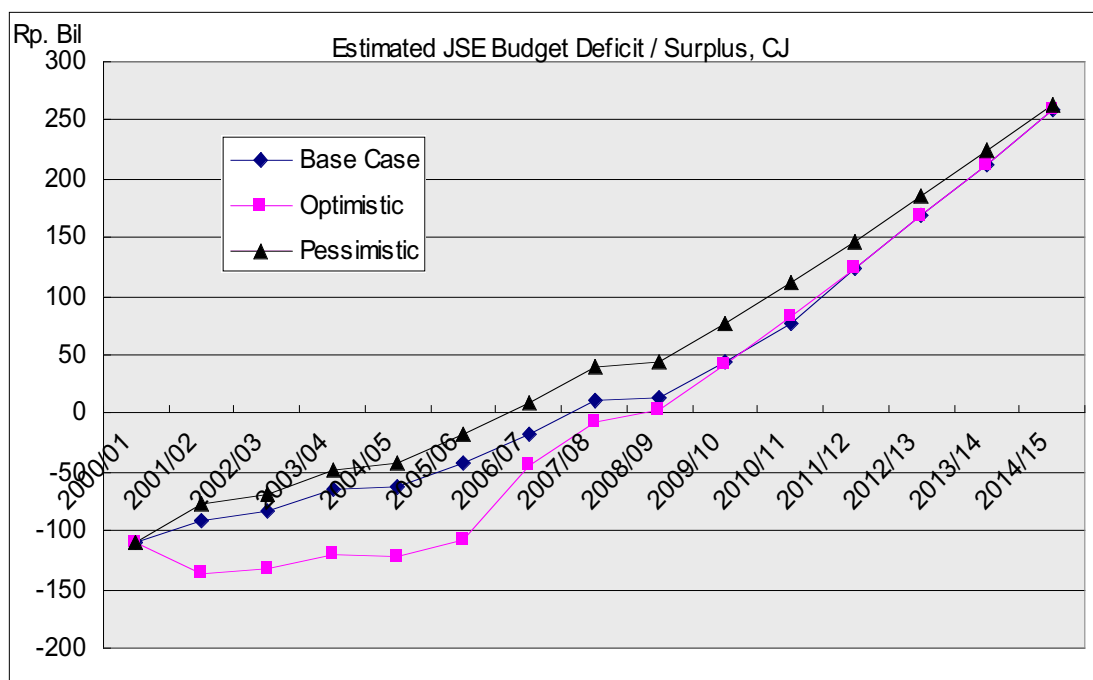


Figure 2-26: Estimated JSE Budget Deficit/Surplus, Central Java (Rp. Billion)

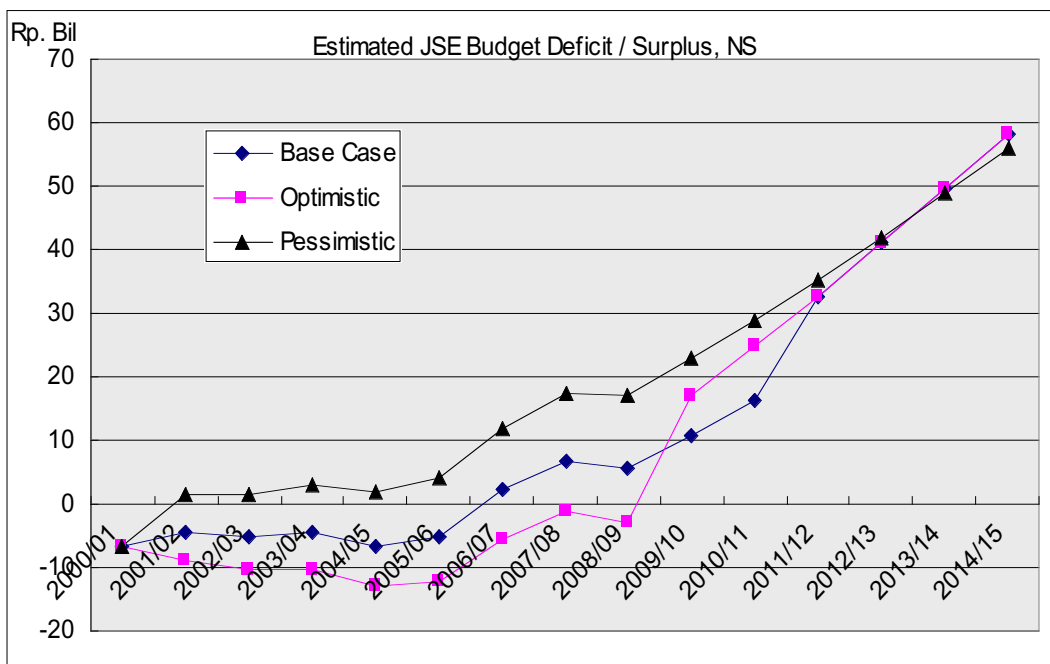


Figure 2-27: Estimated JSE Budget Deficit/Surplus, North Sulawesi (Rp. Billion)

Table 2-36: Projected JSE Budget Surplus/Deficit During 2000-2010 (Rp. Billion)

	Base Case	Optimistic Case	Pessimistic Case
Central Java			
CJ Routine	-847	-1,094	-667
CJ Development	521	438	583
CJ Total	-326	-656	-84
	(JPY Bil.) - 4	(JPY Bil.) -11	(JPY Bil.) -1
North Sulawesi			
NS Routine	-176	-204	-127
NS Development	185	175	230
NS Total	9	-29	103
	(JPY Bil.) 0	(JPY Bil.) -1	(JPY Bil.) 1

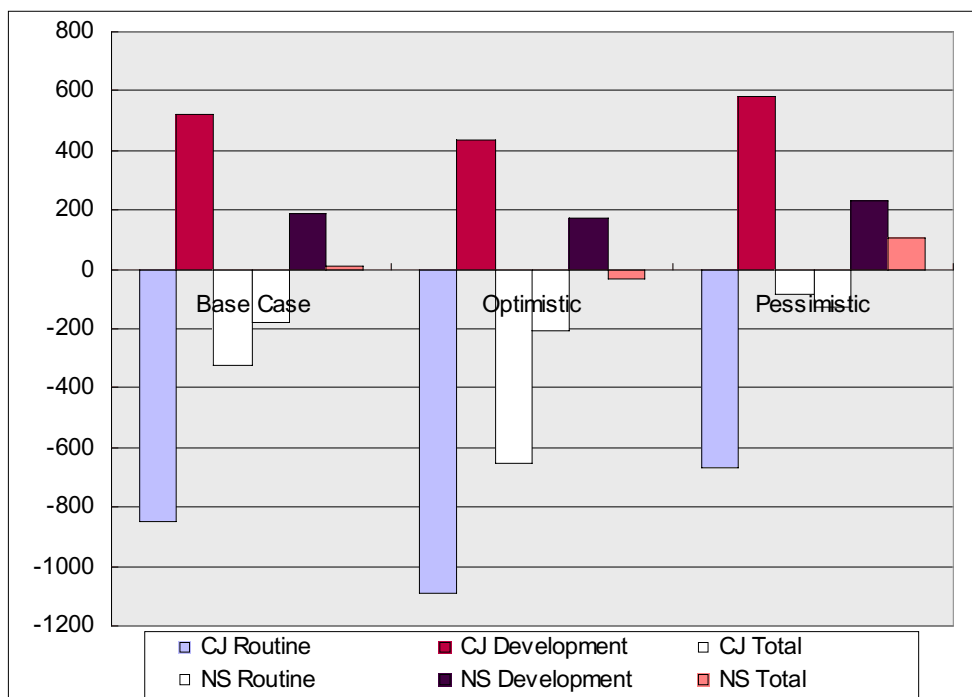


Figure 2-28: Project JSE Budget Surplus/Deficit During 2000-2010 (Rp. Billion)

2.12.4 Findings and Implications

As shown in the above tables and figures an obvious budget shortage is projected, especially in CJ. In addition to this, there are three issues to be noted:

- (1) Given the past trends in the public JSE budgeting, the routine (rather than development) budget would be insufficient, in all the cases.
- (2) Earlier achievement of universal JSE would require a larger budget burden. Thus optimistic case will claim more budget resources than the base or pessimistic cases.
- (3) Compared to NS, CJ is expected to face a more serious JSE budget problem. Figures for CJ result in deficit figures for all the three cases, while only the base case results in deficit figures for NS.

Practical implications of such findings are as follows:

- (1) It is suggested that the current budget distribution pattern of JSE is biased toward development budget, as the projection results suggests for all cases a serious shortage of routine budget in the future. Even a possible decrease of JSE-aged population in the near future, MONE may need to allocate more to the routine budget by reallocating the required amount from the development budget.
- (2) Certainly, a larger development budget would ensure wider provision of education; however, it should be remembered that developmental input does require routine input in the following years in order to continue functioning. In planning of JSE it is required that such dynamic aspects of development and routine budget be clearly

understood.

- (3) Earlier achievement of universal provision of JSE claims higher costs. For a policy maker in educational finance, this is a trade-off matter between required costs and lost education opportunity. For example, **Table 2-36** suggests by giving up the optimistic-case plan and employing the base-case plan, government would save approximately Rp. 330 billion, while approximately 1 million of JSE enrolment is estimated to be lost during 2000-2010. Is such an enrolment decrease worth Rp. 330 billion? These are issues that policy maker must address.

In examining the figures estimated above, it is worth recalling the following assumptions and reservations made in the projection (For detailed information, refer to **2.11.6 Technical Notes**).

- (a) Any population projection contains uncertainty. Also the NER-GER correlation curve may not accurately characterise the future pattern of NER-GER, thus it is fair to expect certain error span, say, GER 5% at NER 100%.³
- (b) The budgetary figures do not include the Regional JSE budget which is collected by each province, in both demand and supply side projection. The regional JSE budget is distinct from the national governmental JSE budget, and is equivalent to approximately 4% of that. This would under- or over-evaluate the budget surplus or shortage that appears in the tables above.
- (c) The supply side projection (STEP 6 in **2.11.6 Technical Notes**) is totally based on the trend analysis that assumes a moderate economic growth and fixed correlation between GDP and various educational budgets. Thus the projection made here would not be valid in a case of serious economic turmoil such has been affecting Indonesia during the last two years.

2.12.5 Possible Mobilization of International Assistance

One possible way of recovering such budget shortage would be to introduce international assistance. However, such foreign assistance is normally used for project finances, which may be regarded as developmental expenditures in the Indonesia MONE budget context. Therefore they cannot finance routine expenditures directly. Yet still it is worth recognising and comparing conditions of possible international loans. Following **Table 2-37** shows the outline of loan conditions potentially available to MONE.

³ For example, regarding 13-15 aged population, there is a 5% discrepancy between the population projection for 2000 done in 1990 (12,600,000) and the recent statistics for 1999 (13,262,000) (PI 1999). Though these data are not entirely comparable, this suggests that it is wise to anticipate a certain discrepancy in population projection, therefore, also in enrolment projection.

Table 2-37: Loan Conditions

	Interest Rate	Loan Period	Grace Period
JBIC	2.5% (Average)	30 Years	9 Years
ADB	5.96%	Various	Various
World Bank (IBRD)**	6.18%	15- years	5 Years
World Bank (IFC)***	1%	35-40 years	10 Years
JICA	Grant		

* Detailed loan condition is subject of loan agreement of particular proposed project

** available for countries with GDP/capita more than US\$1,505

***available for countries with GDP/capita less than US\$1,505

2.12.6 Technical Notes

The steps for the above demand projection are explained in this section.

(1) Step 1: JSE-Aged Population Projection

Overview: The purpose of STEP 1 is to estimate the future population for the period of 2000-2015 in CJ and NS Province. **Figure 2-29** below shows the projection processes of STEP 1

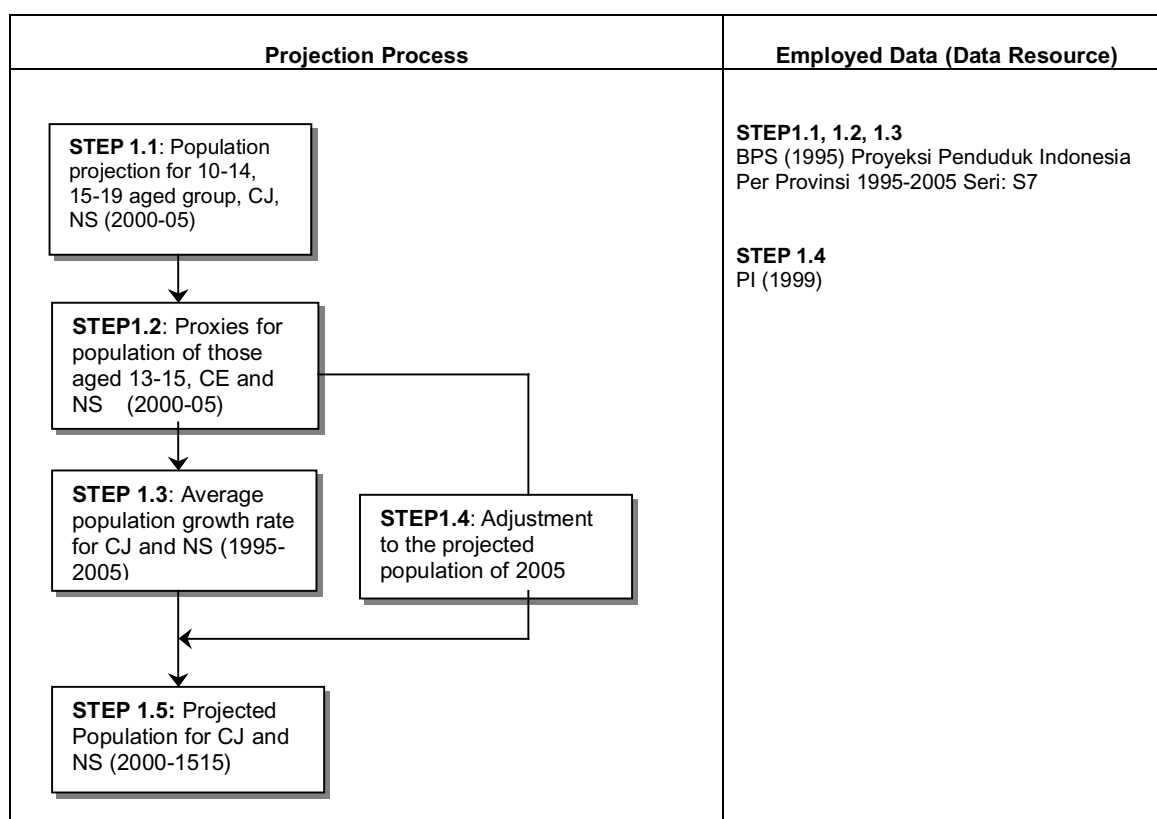


Figure 2-29: School-aged Population Projection (2000-2015) (STEP 1)

The projection: The most recent population projection available during the study period is BPS (1995). BPS projects provisional population with 5-year age groups for the period 1995-2005. In STEP 1, it is necessary to obtain JSE-aged population during year 2000-2010, for CJ and NS.

By using BPS (1995) (STEP1.1), JSE-aged population is estimated for 1995-2005 for CJ and NS (STEP 1.2)⁴, and the estimated JSE population was compared with another set of JSE-aged population stated in PI (1999).⁵ Growth rate for JSE-aged population during 1995-2005 are calculated from the time series projection (-1.44% and -1.25 % for CJ and NS respectively), and it is assumed that, during 2005-2010, JSE-aged population in CJ and NS will be increased/decreased at these rates (STEP 1.3). Thus by applying the growth rates to the 2005 data, JSE-aged population for year 2006-2010 was calculated (STEP 1.5); thus time-series data of JSE-aged population during the year 2000 —2010 is made available. **Table 2-38** below shows the estimated JSE-aged population for CJ and NS. As shown, the size of the 13-15 aged populations is expected to decrease in forthcoming 10-15 years.

Table 2-38: JSE-aged population (13-15 aged) for CJ and NS (,000)

Year	Central Java13-15	Growth Rate, CJ	North Sulawesi 13-15 Pop	Growth Rate, NS
(1998/99)	1,925		173.9	
2000/01	1,861	-2.71%	167.5	-1.74%
2001/02	1,825	-1.94%	165.0	-1.49%
2002/03	1,784	-2.23%	162.8	-1.37%
2003/04	1,742	-2.36%	161.0	-1.10%
2004/05	1,704	-2.15%	159.6	-0.83%
2005/06	1,677	-1.62%	159.0	-0.38%
2006/07	1,653	-1.44%	157.0	-1.25%
2007/08	1,629	-1.44%	155.1	-1.25%
2008/09	1,606	-1.44%	153.1	-1.25%
2009/10	1,583	-1.44%	151.2	-1.25%
2010/11	1,560	-1.44%	149.3	-1.25%
2011/12	1,538	-1.44%	147.4	-1.25%
2012/13	1,515	-1.44%	145.6	-1.25%
2013/14	1,494	-1.44%	143.7	-1.25%
2014/15	1,472	-1.44%	141.9	-1.25%
2015/16	1,451	-1.44%	140.2	-1.25%

Source: Estimation based on BPS (1995) and PI (1999)

(2) Step 2: Enrolment Rate Projection

Overview: STEP 2 is to set Enrolment Rate achievement schedule of the JSE in CJ and NS provinces during 2000-10. In doing so, target years of achieving universal provision of JSE are set (STEP 2.1), then formulas correlating NER to GER are manipulated by using past provincial Net Enrolment Rate (NER) and Gross Enrolment Rate (GER) data as sample data (STEP 2.2).⁶ Thus targeted NER and GER achievement during 2000-2010 will be obtained (STEP 2.3). The projection processes for STEP 2 is shown in **Figure 2-30** below.

NER and GER in Educational Demand and Supply Projection: In Indonesia, whose JSE is on a process of rapid expansion toward universal provision of JSE, 100% NER does not necessarily

⁴ Estimation here employs simple formula as follows:

$(10-14 \text{ aged population}) * 2/5 + (15-19 \text{ population}) * 1/5 = \text{JSE-aged population}$

⁵ And if there found substantial discrepancy, it is decided to employ greater figures.

⁶ Thus individual correlating formulas would reflect provincial disparities among provinces within CJ/NS.

mean 100% GER; statistics suggest that GER should go beyond 100% to achieve 100% NER⁷. Thus GER, rather than NER are critical figures in projecting the demand and supply of JSE. As basic education, primary and JSE should be provided to all those who demand it regardless of their age. It should be also remembered that education provision measured by NER/GER is quite diversified in Indonesia, thus such diversification should be considered in the projection.

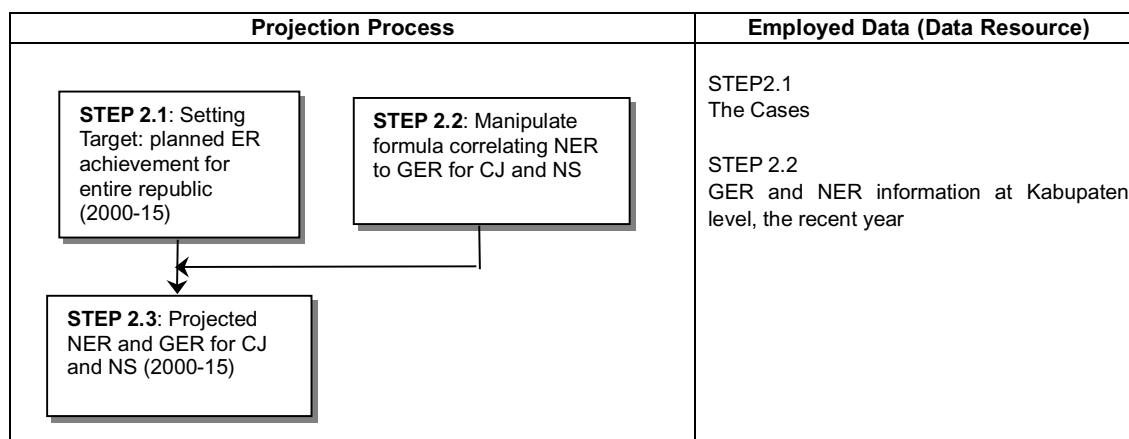


Figure 2-30: Enrolment Rate Projection (2000-2015) (STEP 2)

Target Setting: STEP 2.1 is one of the most critical sections in the projection as it will set the achievement target year, and this will differentiate the projection cases employed here. In this projection achieving universal provision of JSE is translated as achieving NER 100% for JSE. A series of discussion and consultation with the counterpart of REDIP was held to define three cases: namely, base, optimistic and pessimistic cases. The base case is in accordance with general governmental educational policy that declares the universal provision of JSE by 2010. The optimistic case supposes earlier achievement of the universal provision, in 2005 and 2008 for CJ and NS respectively. In contrast, the pessimistic case supposes delay: achievement of universal JSE provision in 2015 for both provinces. **Table 2-33** in **Section 2.12.2** summarises the years set in the respective cases.

Correlating NER and GER: In correlating NER and GER, there are two approaches considered; one is to employ time-series data of provincial NER and GER, while the other employs Kabupaten NER/GER data of each province for certain years. Both approaches can reflect the provincial differences; however, it is considered that the former is more beneficial to have a more precise projection as the samples employed may not be influenced by exceptional Kabupaten data directly. The correlation is analysed by applying the ordinary least squares method, using time series NER and GER in past 5 years in CJ and NS, respectively. All the available curve types are employed: namely, Linear, Logarithmic, Polynomial, Power, and Exponential, with curves that are not realistic being excluded. In fitting curves, however, the following judgement criteria are employed to have a more realistic correlation.

- (a) Digressive curve toward NER 100% is preferable to other types of curves, since generally

⁷ There are even some Kabupaten whose NER exceed 100%. This does not have direct implication with the rapid JSE expansion though careful attention should be paid.

the increment of GER decreases as NER approaches NER 100%.

- (b) GER must be more than 100% at NER 100%. Correlation analysis using Kabupaten NER/GER would provide a good reference on the extent of GER at NER 100%

Thus the following formulas are defined for each province.

Central Java: $y = 0.829\ln(x) + 1.1433$ ($R^2 = 0.8918$)

North Sulawesi: $y = 1.021x + 0.1573$ ($R^2 = 0.9876$)

Where x : NER (%)

y : GER (%)

Figure 2-31 and 2-32 show the correlation of GER and NER figured out for the projection.

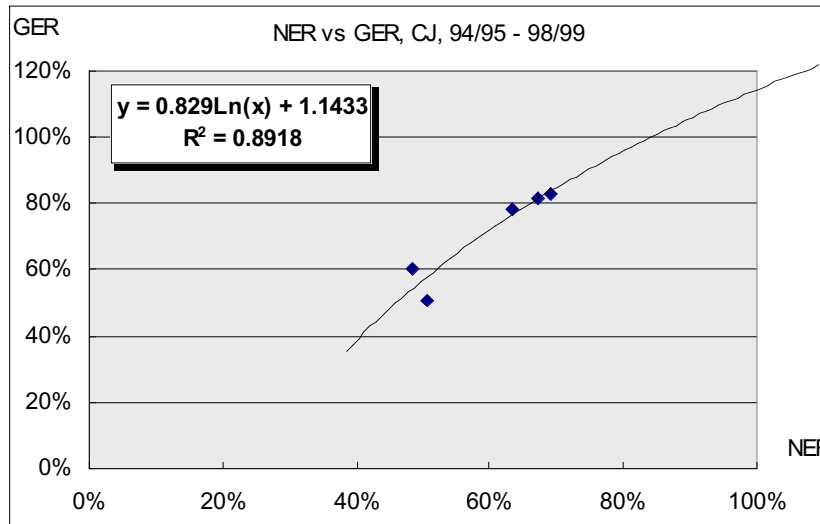


Figure 2-31: Correlation between NER and GER, Central Java province (1998/99)

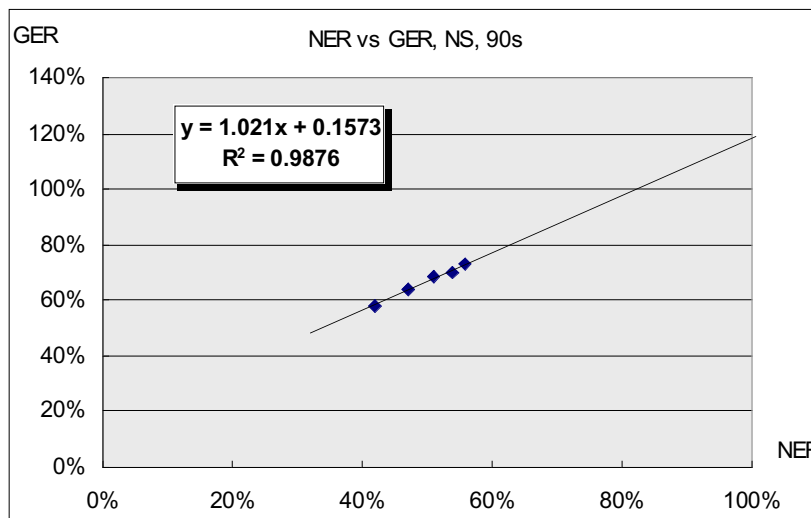


Figure 2-32: Correlation between NER and GER, North Sulawesi province (1998/99)

Applying the correlation formula above to the three previously defined cases (base, optimistic, and pessimistic cases), NER and GER for each case are calculated for the two provinces, as shown in **Table 2-39** and **2-40** below.

Table 2-39: NERs and GERs Set in the Three Cases, Central Java Province

	Base Case		Optimistic Case		Pessimistic Case	
	NER	GER	NER	GER	NER	GER
2000	74.20%	89.59%	74.20%	89.59%	74.20%	89.59%
2001	76.78%	92.43%	79.36%	95.17%	75.92%	91.49%
2002	79.36%	95.17%	84.52%	100.39%	77.64%	93.35%
2003	81.94%	97.82%	89.68%	105.30%	79.36%	95.17%
2004	84.52%	100.39%	94.84%	109.94%	81.08%	96.94%
2005	87.10%	102.88%	100.00%	114.33%	82.80%	98.68%
2006	89.68%	105.30%	100.00%	114.33%	84.52%	100.39%
2007	92.26%	107.65%	100.00%	114.33%	86.24%	102.06%
2008	94.84%	109.94%	100.00%	114.33%	87.96%	103.69%
2009	97.42%	112.16%	100.00%	114.33%	89.68%	105.30%
2010	100.00%	114.33%	100.00%	114.33%	91.40%	106.88%
2011	100.00%	114.33%	100.00%	114.33%	93.12%	108.42%
2012	100.00%	114.33%	100.00%	114.33%	94.84%	109.94%
2013	100.00%	114.33%	100.00%	114.33%	96.56%	111.43%
2014	100.00%	114.33%	100.00%	114.33%	98.28%	112.89%
2015	100.00%	114.33%	100.00%	114.33%	100.00%	114.33%

Table 2-40: NERs and GERs Set in the Three Cases, North Sulawesi Province

	Base Case		Optimistic Case		Pessimistic Case	
	NER	GER	NER	GER	NER	GER
2000	61.64%	78.66%	61.64%	78.66%	61.64%	78.66%
2001	64.22%	81.30%	66.80%	83.93%	63.36%	80.42%
2002	66.80%	83.93%	71.96%	89.20%	65.08%	82.18%
2003	69.38%	86.57%	77.12%	94.47%	66.80%	83.93%
2004	71.96%	89.20%	82.28%	99.74%	68.52%	85.69%
2005	74.54%	91.84%	100.00%	117.83%	70.24%	87.45%
2006	77.12%	94.47%	100.00%	117.83%	71.96%	89.20%
2007	79.70%	97.10%	100.00%	117.83%	73.68%	90.96%
2008	82.28%	99.74%	100.00%	117.83%	75.40%	92.71%
2009	84.86%	102.37%	100.00%	117.83%	77.12%	94.47%
2010	100.00%	117.83%	100.00%	117.83%	78.84%	96.23%
2011	100.00%	117.83%	100.00%	117.83%	80.56%	97.98%
2012	100.00%	117.83%	100.00%	117.83%	82.28%	99.74%
2013	100.00%	117.83%	100.00%	117.83%	84.00%	101.49%
2014	100.00%	117.83%	100.00%	117.83%	85.72%	103.25%
2015	100.00%	117.83%	100.00%	117.83%	100.00%	117.83%

Reservations: It should be remembered that such a GER/NER projection based on the correlation does not reflect micro issues, such as those issues employed as input and process items in the REDIP Baseline Survey. Such micro issues influence student/family decision-making of school enrolment and are important as demonstrated by UNESCO (1987).⁸ Another

⁸ In a regional comparison regarding causes of students dropout, UNESCO (1987) demonstrates variety of issues would influence students /parents decision making on schooling. Factors listed here include: physical distance, cost (financial/time, direct/indirect), enrolment criteria: age, sex, past education

reservation is about diversity within a province. Statistics suggest that there are big gaps within each province between, probably, urban and rural Kabupatens. Such diversification implies that equal intervention to Kabupatens does not secure equal education provision in the target year. Some affirmative interventions are thus required focusing enhancement of disadvantaged Kabupatens.

(3) STEP 3: Estimation of the Number of Enrolled Students by JSE Sectors

Overview: STEP 3 forecasts the number of actual enrolment for JSE for both provinces (STEP 3.1). It is estimated by applying the outcomes of STEP 1.5 (projected school-aged population for CJ and NS) to that of STEP 2.3 (projected NER and GER for CJ and NS). Then through STEP 3.2 to 3.5, the distribution of enrolled students among several JSE institutions is forecasted. The projection process for STEP 3 is shown in **Figure 2-33** below.

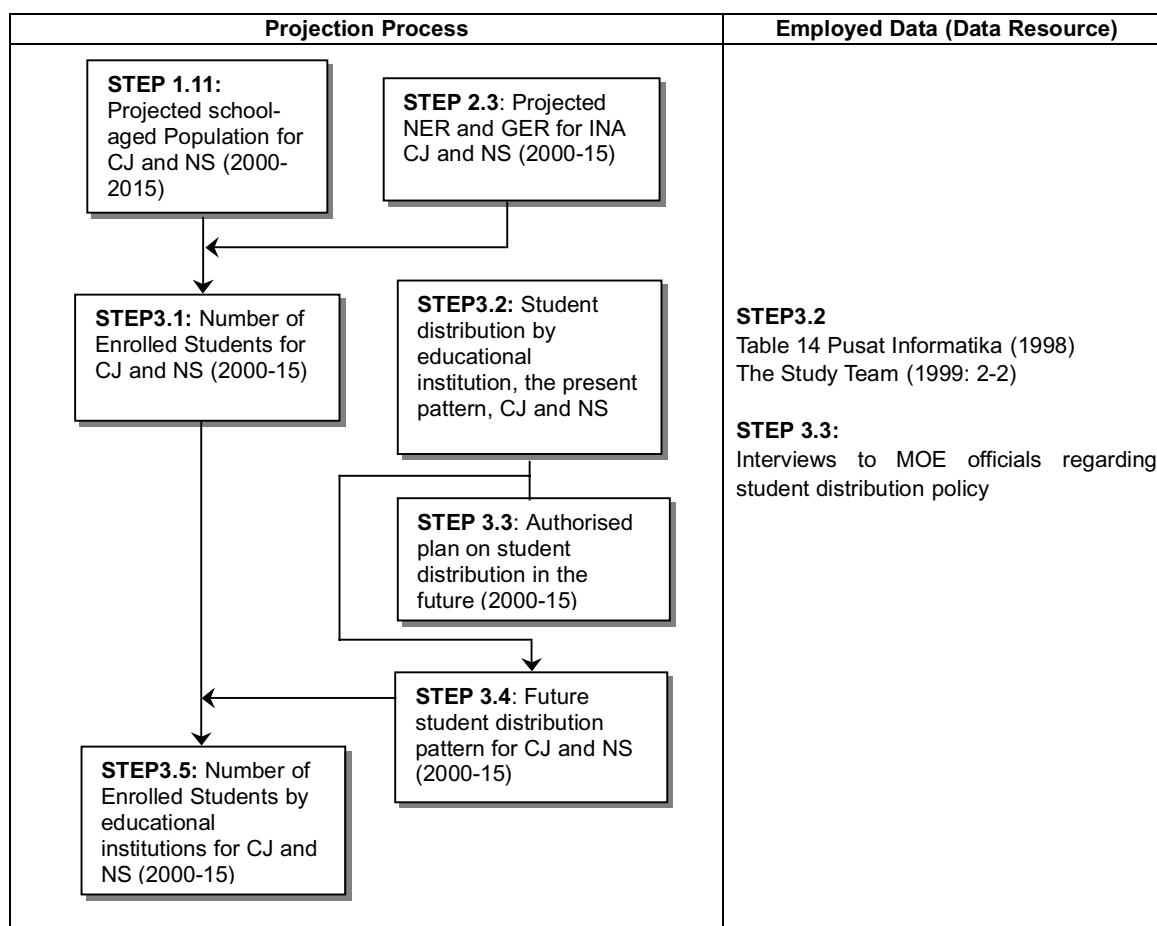


Figure 2-33: Estimation of the Number of Enrolled Students by Educational Institutions (2000-2015) (STEP 3)

Number of Enrolled Students (STEP 3.1): **Table 2-41** shows the estimated number of enrolled

experiences, topographic characteristics, climatic conditions, language, facility equipment, teacher/pupil ratio, relevance of curriculum, school schedule and calendar, supply of learning materials and textbook, examination and evaluation policies, teaching quality, bullying, cultural minorities, multilingual settings, and migration/mobility.

students by each case, namely base, optimistic and pessimistic cases.

Table 2-41: Estimated Gross Enrolment Demand for JSE, CJ and NS (2000 –2015)

Year	Central Java			North Sulawesi		
	Base Case	Optimistic Case	Pessimistic Case	Base Case	Optimistic Case	Pessimistic Case
2000	1,667,108	1,667,108	1,667,108	131,777	131,777	131,777
2001	1,686,511	1,736,506	1,669,472	134,159	138,506	132,710
2002	1,697,723	1,790,885	1,665,318	136,603	145,178	133,745
2003	1,703,934	1,834,277	1,657,734	139,346	152,066	135,106
2004	1,711,060	1,873,840	1,652,347	142,388	159,207	136,781
2005	1,725,160	1,917,154	1,654,780	146,033	187,369	139,052
2006	1,740,391	1,889,633	1,659,196	148,337	185,018	140,065
2007	1,753,711	1,862,506	1,662,585	150,560	182,696	141,030
2008	1,765,249	1,835,769	1,665,004	152,704	180,404	141,949
2009	1,775,122	1,809,416	1,666,510	154,770	178,140	142,823
2010	1,783,441	1,783,441	1,667,154	175,905	175,905	143,653
2011	1,757,839	1,757,839	1,666,984	173,698	173,698	144,439
2012	1,732,605	1,732,605	1,666,047	171,518	171,518	145,183
2013	1,707,733	1,707,733	1,664,386	169,366	169,366	145,885
2014	1,683,217	1,683,217	1,662,042	167,241	167,241	146,547
2015	1,659,054	1,659,054	1,659,054	165,143	165,143	165,143

Defining Student Distribution Pattern: There are two major institutions in charge of JSE under the governmental umbrella, namely, SLTP, (including SLTP Terbuka, and Paket B each under MONE) and MT (MORA). In Indonesian JSE, the involvement by the private sector is inevitable though some may point out its quality problems. Through consultation and discussion with the counterpart institution, it was found that the government does not have any particular policy on promoting or discouraging private sector in JSE; recognising their role to absorb the demand, rather MONE would maintain the existing level of private involvement. Considering these issues, an allocation factor to each JSE sector needs to be devised. Table 2-42 shows the average distribution pattern during 1994/95-1998/99.

Table 2-42: JSE Students Distribution by JSE Sectors (94/95-98/99)

	SLTP (incl. SLTP Terbuka, Paket B)			MT		
	Public	Private	Total	Public	Private	Total
Central Java	56.09%	25.67%	81.77%	3.52%	14.71%	18.23%
North Sulawesi	68.47%	24.29%	92.76%	1.46%	5.78%	7.24%

Source: PI (1999)

Since it is expected that the role of the public and private sectors would remain similar in the mid-term, it is assumed that the distribution pattern up to year 2010 will be remain the same as that of the past 5 years shown in Table 2-42. Table 2-43 to 2-48 show the projected number of students by each JSE sector for the three cases in CJ and NS.

Table 2-43: Estimated JSE Students Enrolment by JSE Sector, Central Java, Base Case

Year	Gross Enrolment	Enrolment SLTP			Enrolment MT			Increased Enrolment SLTP			Increased Enrolment MT		
		Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Distribution Factor		56.09%	25.67%	81.77%	3.52%	14.71%	18.23%						
1999*	1,620,000	908,718	415,924	1,324,642	57,082	238,276	295,358						
2000	1,667,108	935,143	428,019	1,363,162	58,741	245,205	303,946	26,425	12,095	38,519	1,660	6,929	8,589
2001	1,686,511	946,026	433,001	1,379,027	59,425	248,059	307,484	10,884	4,981	15,865	684	2,854	3,537
2002	1,697,723	952,316	435,879	1,388,195	59,820	249,708	309,528	6,289	2,879	9,168	395	1,649	2,044
2003	1,703,934	955,800	437,474	1,393,274	60,039	250,622	310,660	3,484	1,595	5,079	219	914	1,132
2004	1,711,060	959,797	439,303	1,399,100	60,290	251,670	311,960	3,997	1,829	5,826	251	1,048	1,299
2005	1,725,160	967,706	442,924	1,410,630	60,787	253,744	314,530	7,910	3,620	11,530	497	2,074	2,571
2006	1,740,391	976,250	446,834	1,423,084	61,324	255,984	317,307	8,544	3,910	12,454	537	2,240	2,777
2007	1,753,711	983,721	450,254	1,433,975	61,793	257,943	319,736	7,472	3,420	10,891	469	1,959	2,428
2008	1,765,249	990,193	453,216	1,443,409	62,199	259,640	321,839	6,472	2,962	9,434	407	1,697	2,104
2009	1,775,122	995,732	455,751	1,451,483	62,547	261,092	323,640	5,538	2,535	8,073	348	1,452	1,800
2010	1,783,441	1,000,398	457,887	1,458,285	62,840	262,316	325,156	4,666	2,136	6,802	293	1,224	1,517
2011	1,757,839	986,037	451,314	1,437,351	61,938	258,550	320,488	-14,361	-6,573	-20,934	-902	-3,766	-4,668
2012	1,732,605	971,882	444,835	1,416,717	61,049	254,839	315,888	-14,155	-6,479	-20,634	-889	-3,712	-4,601
2013	1,707,733	957,930	438,449	1,396,379	60,173	251,180	311,353	-13,952	-6,386	-20,338	-876	-3,658	-4,535
2014	1,683,217	944,179	432,155	1,376,334	59,309	247,574	306,883	-13,751	-6,294	-20,046	-864	-3,606	-4,470
2015	1,659,054	930,625	425,951	1,356,576	58,458	244,020	302,478	-13,554	-6,204	-19,758	-851	-3,554	-4,405

Source: Manipulation based on PI (1999) Perkembangan Data Sekolah Lanjutan Tingkat Pertama (SLTP) Repelita VI (94/95- 98/99)

* Estimation using 2000/01 estimation and actual figure of 1998/99 (PI 1999)

Table 2-44: Estimated JSE Students Enrolment by JSE Sector, Central Java, Optimistic Case

Year	Gross Enrolment	Enrolment SLTP			Enrolment MT			Increased Enrolment SLTP			Increased Enrolment MT		
		Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Distribution Factor		56.09%	25.67%	81.77%	3.52%	14.71%	18.23%						
1999*	1,620,000	908,718	415,924	1,324,642	57,082	238,276	295,358						
2000	1,667,108	935,143	428,019	1,363,162	58,741	245,205	303,946	26,425	12,095	38,519	1,660	6,929	8,589
2001	1,736,506	974,070	445,837	1,419,907	61,187	255,412	316,599	38,928	17,817	56,745	2,445	10,207	12,653
2002	1,745,037	978,856	448,027	1,426,883	61,487	256,667	318,154	4,786	2,190	6,976	301	1,255	1,555
2003	1,748,702	980,911	448,968	1,429,879	61,616	257,206	318,823	2,055	941	2,996	129	539	668
2004	1,753,546	983,629	450,212	1,433,841	61,787	257,919	319,706	2,718	1,244	3,961	171	713	883
2005	1,917,154	1,075,403	492,217	1,567,619	67,552	281,983	349,535	91,774	42,005	133,779	5,765	24,064	29,829
2006	1,889,633	1,059,965	485,151	1,545,116	66,582	277,935	344,517	-15,438	-7,066	-22,504	-970	-4,048	-5,018
2007	1,862,506	1,044,749	478,186	1,522,935	65,626	273,945	339,571	-15,216	-6,965	-22,181	-956	-3,990	-4,946
2008	1,835,769	1,029,751	471,322	1,501,073	64,684	270,012	334,697	-14,998	-6,865	-21,862	-942	-3,933	-4,875
2009	1,809,416	1,014,968	464,556	1,479,524	63,756	266,136	329,892	-14,782	-6,766	-21,548	-929	-3,876	-4,805
2010	1,783,441	1,000,398	457,887	1,458,285	62,840	262,316	325,156	-14,570	-6,669	-21,239	-915	-3,820	-4,736
2011	1,757,839	986,037	451,314	1,437,351	61,938	258,550	320,488	-14,361	-6,573	-20,934	-902	-3,766	-4,668
2012	1,732,605	971,882	444,835	1,416,717	61,049	254,839	315,888	-14,155	-6,479	-20,634	-889	-3,712	-4,601
2013	1,707,733	957,930	438,449	1,396,379	60,173	251,180	311,353	-13,952	-6,386	-20,338	-876	-3,658	-4,535
2014	1,683,217	944,179	432,155	1,376,334	59,309	247,574	306,883	-13,751	-6,294	-20,046	-864	-3,606	-4,470
2015	1,659,054	930,625	425,951	1,356,576	58,458	244,020	302,478	-13,554	-6,204	-19,758	-851	-3,554	-4,405

Source: Manipulation based on PI (1999) Perkembangan Data Sekolah Lanjutan Tingkat Pertama (SLTP) Repelita VI (94/95- 98/99)

* Estimation using 2000/01 estimation and actual figure of 1998/99 (PI 1999)

Table 2-45: Estimated JSE Students Enrolment by JSE Sector, Central Java, Pessimistic Case

Year	Gross Enrolment	Enrolment SLTP			Enrolment MT			Increased Enrolment SLTP			Increased Enrolment MT		
		Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Distribution Factor		56.09%	25.67%	81.77%	3.52%	14.71%	18.23%						
1999*	126,000	86,271	30,606	116,877	1,838	7,285	9,123						
2000	1,667,108	935,143	428,019	1,363,162	58,741	245,205	303,946	26,425	12,095	38,519	1,660	6,929	8,589
2001	1,669,472	936,468	428,626	1,365,094	58,825	245,553	304,377	1,326	607	1,933	83	348	431
2002	1,665,318	934,138	427,559	1,361,698	58,678	244,942	303,620	-2,330	-1,067	-3,397	-146	-611	-757
2003	1,657,734	929,884	425,612	1,355,497	58,411	243,826	302,237	-4,254	-1,947	-6,201	-267	-1,115	-1,383
2004	1,652,347	926,863	424,229	1,351,092	58,221	243,034	301,255	-3,022	-1,383	-4,405	-190	-792	-982
2005	1,654,780	928,228	424,854	1,353,082	58,307	243,392	301,699	1,365	625	1,990	86	358	444
2006	1,659,196	930,704	425,988	1,356,692	58,463	244,041	302,504	2,477	1,134	3,611	156	649	805
2007	1,662,585	932,605	426,858	1,359,463	58,582	244,540	303,122	1,901	870	2,771	119	498	618
2008	1,665,004	933,962	427,479	1,361,441	58,667	244,896	303,563	1,357	621	1,979	85	356	441
2009	1,666,510	934,807	427,866	1,362,673	58,720	245,117	303,837	845	387	1,231	53	221	275
2010	1,667,154	935,168	428,031	1,363,199	58,743	245,212	303,955	361	165	526	23	95	117
2011	1,666,984	935,073	427,987	1,363,060	58,737	245,187	303,924	-95	-44	-139	-6	-25	-31
2012	1,666,047	934,547	427,747	1,362,294	58,704	245,049	303,753	-526	-241	-766	-33	-138	-171
2013	1,664,386	933,616	427,320	1,360,936	58,645	244,805	303,450	-932	-426	-1,358	-59	-244	-303
2014	1,662,042	932,301	426,719	1,359,019	58,563	244,460	303,023	-1,315	-602	-1,917	-83	-345	-427
2015	1,659,054	930,625	425,951	1,356,576	58,458	244,020	302,478	-1,676	-767	-2,443	-105	-440	-545

Source: Manipulation based on PI (1999) Perkembangan Data Sekolah Lanjutan Tingkat Pertama (SLTP) Repelita VI (94/95- 98/99)

* estimation using 2000/01 estimation and actual figure of 1998/99 (PI 1999)

Table 2-46: Estimated JSE Students Enrolment by JSE Sector, North Sulawesi, Base Case

Year	Gross Enrolment	Enrolment SLTP			Enrolment MT			Increased Enrolment SLTP			Increased Enrolment MT		
		Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Distribution Factor		68.47%	24.29%	92.76%	1.46%	5.78%	7.24%						
1999*	126,000	86,271	30,606	116,877	1,838	7,285	9,123						
2000	131,777	90,227	32,010	122,236	1,923	7,619	9,541	3,956	1,403	5,359	84	334	418
2001	136,275	93,306	33,102	126,409	1,988	7,879	9,867	3,080	1,093	4,172	66	260	326
2002	140,777	96,389	34,196	130,585	2,054	8,139	10,193	3,083	1,094	4,176	66	260	326
2003	145,538	99,649	35,352	135,001	2,123	8,414	10,538	3,260	1,156	4,416	69	275	345
2004	150,576	103,097	36,576	139,673	2,197	8,705	10,902	3,449	1,224	4,672	73	291	365
2005	156,229	106,969	37,949	144,918	2,279	9,032	11,312	3,871	1,373	5,244	82	327	409
2006	160,419	109,837	38,967	148,804	2,341	9,274	11,615	2,868	1,018	3,886	61	242	303
2007	164,479	112,617	39,953	152,570	2,400	9,509	11,909	2,780	986	3,766	59	235	294
2008	168,411	115,309	40,908	156,218	2,457	9,736	12,194	2,693	955	3,648	57	227	285
2009	172,219	117,917	41,833	159,750	2,513	9,957	12,469	2,607	925	3,532	56	220	276
2010	175,905	120,440	42,729	163,169	2,566	10,170	12,736	2,524	895	3,419	54	213	267
2011	173,698	118,929	42,192	161,122	2,534	10,042	12,576	-1,511	-536	-2,047	-32	-128	-160
2012	171,518	117,437	41,663	159,100	2,502	9,916	12,419	-1,492	-529	-2,022	-32	-126	-158
2013	169,366	115,963	41,140	157,103	2,471	9,792	12,263	-1,474	-523	-1,996	-31	-124	-156
2014	167,241	114,508	40,624	155,132	2,440	9,669	12,109	-1,455	-516	-1,971	-31	-123	-154
2015	165,143	113,071	40,114	153,186	2,409	9,547	11,957	-1,437	-510	-1,947	-31	-121	-152

Source: Manipulation based on PI (1999) Perkembangan Data Sekolah Lanjutan Tingkat Pertama (SLTP) Repelita VI (94/95- 98/99)

* Estimation using 2000/01 estimation and actual figure of 1998/99 (PI 1999)

Table 2-47: Estimated JSE Students Enrolment by JSE Sector, North Sulawesi, Optimistic Case

Year	Gross Enrolment	Enrolment SLTP			Enrolment MT			Increased Enrolment SLTP			Increased Enrolment MT		
		Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Distribution Factor		68.47%	24.29%	92.76%	1.46%	5.78%	7.24%						
1999*	126,000	86,271	30,606	116,877	1,838	7,285	9,123						
2000	131,777	90,227	32,010	122,236	1,923	7,619	9,541	3,956	1,403	5,359	84	334	418
2001	137,891	94,413	33,495	127,907	2,012	7,972	9,984	4,186	1,485	5,671	89	353	443
2002	143,965	98,571	34,970	133,541	2,100	8,323	10,424	4,158	1,475	5,634	89	351	440
2003	150,267	102,886	36,501	139,387	2,192	8,687	10,880	4,315	1,531	5,846	92	364	456
2004	156,827	107,378	38,094	145,472	2,288	9,067	11,355	4,492	1,594	6,086	96	379	475
2005	164,014	112,299	39,840	152,139	2,393	9,482	11,875	4,921	1,746	6,667	105	415	520
2006	169,643	116,153	41,208	157,361	2,475	9,808	12,283	3,854	1,367	5,222	82	325	408
2007	175,106	119,893	42,534	162,427	2,555	10,123	12,678	3,740	1,327	5,067	80	316	395
2008	180,404	123,521	43,821	167,342	2,632	10,430	13,062	3,628	1,287	4,915	77	306	384
2009	178,140	121,971	43,272	165,242	2,599	10,299	12,898	-1,550	-550	-2,100	-33	-131	-164
2010	175,905	120,440	42,729	163,169	2,566	10,170	12,736	-1,530	-543	-2,073	-33	-129	-162
2011	173,698	118,929	42,192	161,122	2,534	10,042	12,576	-1,511	-536	-2,047	-32	-128	-160
2012	171,518	117,437	41,663	159,100	2,502	9,916	12,419	-1,492	-529	-2,022	-32	-126	-158
2013	169,366	115,963	41,140	157,103	2,471	9,792	12,263	-1,474	-523	-1,996	-31	-124	-156
2014	167,241	114,508	40,624	155,132	2,440	9,669	12,109	-1,455	-516	-1,971	-31	-123	-154
2015	165,143	113,071	40,114	153,186	2,409	9,547	11,957	-1,437	-510	-1,947	-31	-121	-152

Source: Manipulation based on PI (1999) Perkembangan Data Sekolah Lanjutan Tingkat Pertama (SLTP) Repelita VI (94/95- 98/99)

* Estimation using 2000/01 estimation and actual figure of 1998/99 (PI 1999)

Table 2-48: Estimated JSE Students Enrolment by JSE Sector, North Sulawesi, Pessimistic Case

Year	Gross Enrolment	Enrolment SLTP			Enrolment MT			Increased Enrolment SLTP			Increased Enrolment MT		
		Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Distribution Factor		68.47%	24.29%	92.76%	1.46%	5.78%	7.24%						
1999*	126,000	86,271	30,606	116,877	1,838	7,285	9,123						
2000	131,777	90,227	32,010	122,236	1,923	7,619	9,541	3,956	1,403	5,359	84	334	418
2001	134,121	91,831	32,579	124,410	1,957	7,754	9,711	1,605	569	2,174	34	135	170
2002	136,528	93,479	33,164	126,643	1,992	7,893	9,885	1,648	585	2,233	35	139	174
2003	139,234	95,332	33,821	129,153	2,031	8,050	10,081	1,853	657	2,510	39	156	196
2004	142,240	97,390	34,551	131,941	2,075	8,223	10,299	2,058	730	2,788	44	174	218
2005	145,849	99,861	35,428	135,289	2,128	8,432	10,560	2,471	877	3,348	53	209	261
2006	148,119	101,416	35,979	137,395	2,161	8,563	10,724	1,554	551	2,105	33	131	164
2007	150,309	102,915	36,511	139,426	2,193	8,690	10,883	1,499	532	2,031	32	127	159
2008	152,421	104,361	37,024	141,385	2,224	8,812	11,036	1,446	513	1,959	31	122	153
2009	154,456	105,754	37,518	143,272	2,254	8,930	11,183	1,393	494	1,888	30	118	147
2010	156,415	107,096	37,994	145,090	2,282	9,043	11,325	1,342	476	1,818	29	113	142
2011	158,302	108,388	38,453	146,840	2,310	9,152	11,462	1,292	458	1,750	28	109	137
2012	160,116	109,630	38,893	148,523	2,336	9,257	11,593	1,242	441	1,683	26	105	131
2013	161,860	110,824	39,317	150,141	2,362	9,358	11,719	1,194	424	1,618	25	101	126
2014	163,535	111,971	39,724	151,695	2,386	9,455	11,841	1,147	407	1,554	24	97	121
2015	165,143	113,071	40,114	153,186	2,409	9,547	11,957	1,101	390	1,491	23	93	116

Source: Manipulation based on PI (1999) Perkembangan Data Sekolah Lanjutan Tingkat Pertama (SLTP) Repelita VI (94/95- 98/99)

* Estimation using 2000/01 estimation and actual figure of 1998/99 (PI 1999)

(4) Step 4: Estimation of Educational Input Units (Technical and Financial Input)

Overview: STEP 4 is to define three fundamental input unit data required for the projection: unit cost of JSE per student, teacher-pupils ratio, and classroom-pupils ratio. Thus the projection of the three key features in this projection: required budget, teachers, and classrooms are possible. In this step, analysis will be processed separately for the respective features. **Figure 2-34** below shows the defining processes in STEP 4.

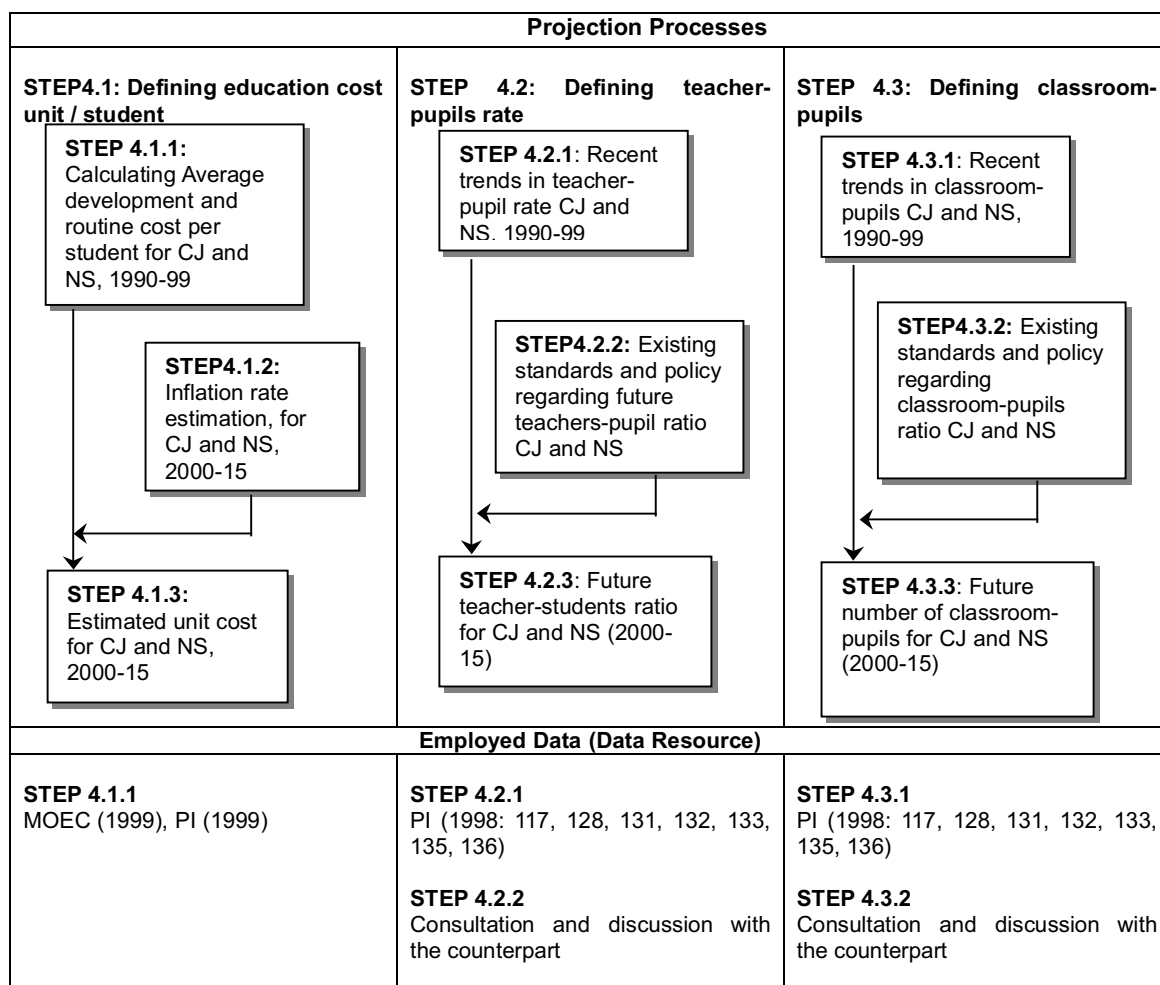


Figure 2-34: Defining Educational Input Unit (2000-2015) (STEP 4)

The unit costs: Generally, the educational unit cost is calculated by dividing the certain budget amount by the relevant number of students. Thus how to match a budget amount to a clientele group is key. In Indonesia, governmental budgeting, including education, employs routine-development criteria, and generally it is considered that development budget is for expansion of the system while routine budget is for maintaining the system. Such distinction is found to be applicable to education; in general; it would be reasonable to assume that the educational development budget is to expand the educational provision, therefore it would serve for new entrants to the system, while the educational routine budget is to maintain the existing enrolment. Based on such an assumption, unit costs for this projection are defined as shown in **Table 2-49**.

Table 2-49: Types of Unit Costs Employed

Unit Cost	Budget	Clientele	Mean of the Unit Cost	Calculation
JSE Development Unit Cost	Development Budget	Increased number of student enrolment	Average cost to get a new JSE entrants	(Number of increased students) / (development budget of previous year)
JSE Routine Unit Cost	Routine Budget	Maintained number of enrolment	Average cost to maintain an existing number of enrolled students.	(number of enrolment) / (routine budget)

For the unit cost calculation, data on student enrolment and consolidated routine/development budgets during 1994/95 - 99/00 were made available to the projection. **Table 2-50** shows the relevant data in calculating the unit costs.

Table 2-50: JSE Budget and Enrolment, CJ, 1994/95-99/00

	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
Central Java						
Routine (Rp Mil.)		156,426	176,271	196,117	216,512	288,636
Development (Rp. Mil)	39,298	43,183	49,900	66,195	60,935	46,265
Total (Rp. Mil)	39,298	199,609	226,171	262,312	277,447	334,901
Gross Enrolment (Public)	674,771	742,512	801,595	843,853	855,684	908,718
Gross Enrolment (Public+Private)	1,008,346	1,093,198	1,167,614	1,212,865	1,229,870	1,324,642
Increased Gross Enrolment (Public)		67,741	59,083	42,258	11,831	53,034
Increased Gross Enrolment (Public+Private)	-	84,852	74,416	45,251	17,005	94,772
North Sulawesi						
Routine (Rp Mil.)		27,584	31,157	34,730	37,419	50,362
Development (Rp. Mil)	9,079	9,467	13,300	17,821	16,752	43,599
Total (Rp. Mil)	9,079	37,051	44,457	52,551	54,171	93,961
Gross Enrolment (Public)	70,490	78,617	83,408	79,165	72,899	107,150
Gross Enrolment (Public+Private)	97,639	106,694	112,898	106,091	97,694	145,163
Increased Gross Enrolment (Public)		8,127	4,791	-4,243	-6,266	34,251
Increased Gross Enrolment (Public+Private)	-	9,055	6,204	-6,807	-8,397	47,469

Source: MOEC (1999), PI (1999)

Then the available data shown in **Table 2-50** were applied to the calculation formula that appeared in **Table 2-49**, for which estimated unit cost are shown in **Table 2-51**.¹

¹ As suggested, unit JSE costs may be quite different by each province. There was not sufficient time available to investigate more on this issue, however this would be a subject in the mid-term plan to be proposed in Phase III of REDIP. Possibly, consideration of economy of scale in education can provide

Table 2-51: Estimated Unit JSE Cost, 94/95 – 99/00

	Central Java	North Sulawesi
Unit JSE Routine Cost (Rp.)	249,006	430,283
Unit JSE Development Cost (Rp.)	1,109,273	1,811,765

There are at least two factors that would influence the unit cost: user-charges and inflation. The estimated unit costs above reflect the current degree of user-charges, and it should be examined if such current situation will be still valid in the future. In this case, the degree of user-charge in JSE is assumed to remain the same for the coming 10 years, thus there is no adjustment to the estimated unit cost in this regard. In turn, inflation is not considered here as the projected data are applied to estimate required financial resource during 2000-2010, thus the estimated figure should be regarded in current Rp. value.

Teacher-pupils ratio and classroom-pupils ratio: In this projection, teacher-pupils ratio and classroom-pupils ratio are used to indicate the outline of required human and physical input to maintain existing enrolment and to cope with the increased demand for JSE in the two provinces. Ratios to be applied for the projection are identified through past trends in the respective provinces, while comments and opinions of several officials have been considered. **Table 2-52** shows the past trend of the ratios, with the standards set by MONE.

Table 2-52: Educational Indexes, 92/93 – 96/97

Indicators	1996/97			Average					
	Public	Private	Average	92/93	93/94	94/95	95/96	96/97	
Central Java Province									
students/school	658	260	445	343	368	401	430	445	
students/class	44	40	43	42	42	43	43	43	
students/teacher	22	16	20	16	16	18	18	20	
Classes/school	14.91	6.47	10.39	8.32	8.6	9.4	9.97	10.39	
Classes / owned classroom	1.08	0.95	1.05	1.04	1.01	1.01	0.99	1.03	
North Sulawesi Province									
students/school	328	102	208	178	184	185	200	208	
students/class	33	28	31	31	30	30	31	31	
students/teacher	15	12	14	12	12	12	13	14	
Classes/school	10.04	3.58	6.6	5.82	6.19	6.14	6.37	6.6	
Classes / owned classroom	0.99	0.98	0.98	0.98	1.01	0.99	0.94	0.98	

Source: PI (1998: 117, 128, 131, 132, 133, 135, 136)

As shown, in terms of pupil-teacher and pupil-classroom ratio, there is no significant difference observed between public and private schools, while sizes of schools are different; generally public schools are 2 to 3 times bigger than private schools. The right side of the table shows the time-series trend of the indicators, and suggests that students-teacher and students-classroom ratio remain rather stable. Along with these data, data from discussions and consultations with the counterpart have been taken into consideration. It was found that MONE does not have an intention to modify MONE standards regarding students-teacher and students-classroom ratio

useful implications for the planning.

until the country achieves the universal provision of JSE. Considering all these issues, it is assumed in the projection that the pupil-teacher and pupil-classroom ratio will be maintained at the same level of 1996/97, which is the latest data available, as shown in **Table 2-52**.²

(5) Step 5: Estimation of Required Educational Inputs

Overview: STEP 5 is to estimate required educational inputs, namely budget, number of classroom and number of teachers, for JSE in CJ and NS. Again, calculations will be conducted separately for the three types of inputs. The projection processes are shown in the **Figure 2-35** below.

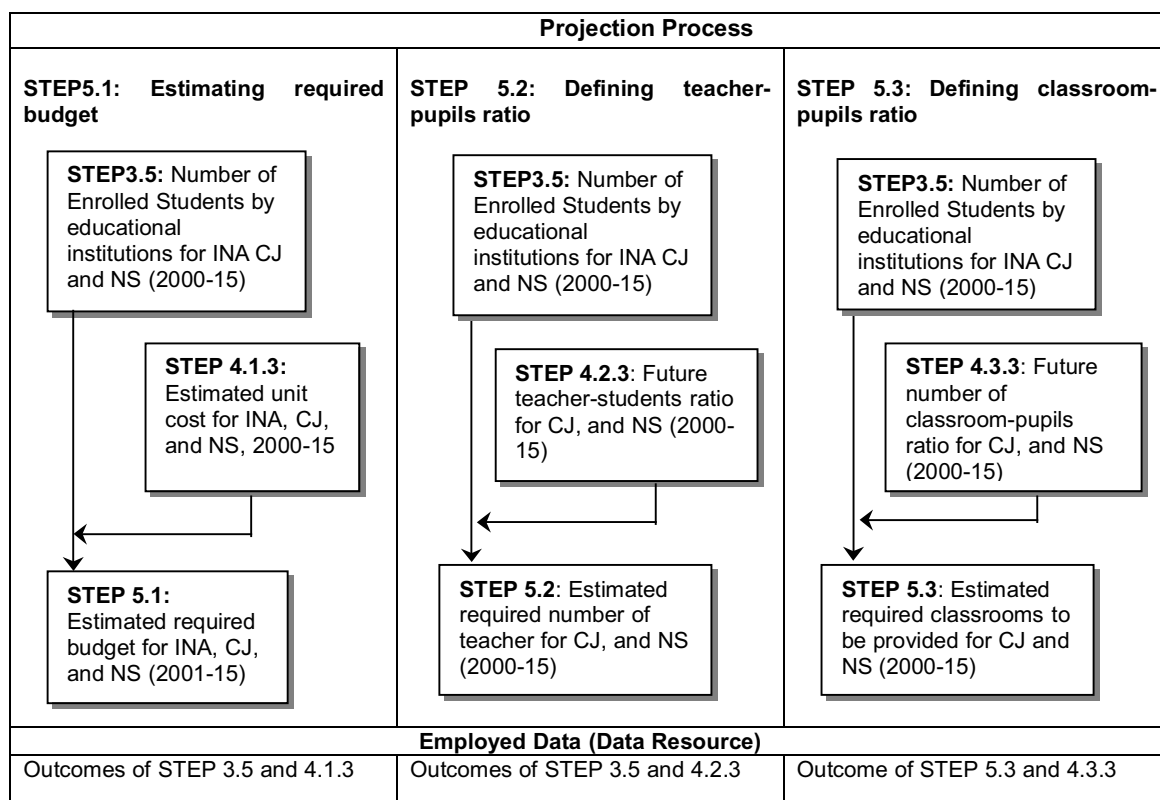


Figure 2-35: Estimation of Required Educational Input (2000-2015) (STEP 5)

Tables 2-53 to 2-56 in the next two pages show the projected required financial (budgetary) human (teachers) and physical (classroom) inputs using the (a) estimated number of enrolment (STEP 3, **Table 2-41**) with defined (b) unit cost, (c) students-teacher ratio, and (d) students-classroom ratio (STEP 4, refer to **Tables 2-51 and 2-52**).

² Such an assumption is consistent with comments provided by several MOE officials during the study period. According to them, MOE would attempt to maintain the ratios at current levels and provide the required number of teachers and classrooms until universal provision of JSE is achieved. Then once it is achieved, the number of enrolled students is expected to decrease due to the JSE-aged population decrease.

Table 2-53: Projected Required Budget for JSE (SLTP + MT), Central Java (Rp. Mil)

	Base Case			Optimistic			Pessimistic		
	Dev.	Routine	Total	Dev.	Routine	Total	Dev.	Routine	Total
2000	403,390	42,729	446,118	403,390	42,729	446,118	403,390	42,729	446,118
2001	415,120	17,599	432,719	415,120	62,946	478,066	415,120	2,144	417,264
2002	419,951	10,170	430,121	432,400	49,324	481,724	415,708	0	415,708
2003	422,743	5,634	428,377	445,941	39,358	485,299	414,674	0	414,674
2004	424,290	6,463	430,753	456,746	35,885	492,631	412,786	0	412,786
2005	426,064	12,790	438,854	466,597	39,287	505,884	411,444	2,207	413,651
2006	429,575	13,815	443,390	477,383	0	477,383	412,050	4,005	416,055
2007	433,368	12,082	445,449	470,530	0	470,530	413,150	3,073	416,223
2008	436,685	10,465	447,149	463,775	0	463,775	413,993	2,195	416,188
2009	439,557	8,956	448,513	457,117	0	457,117	414,596	1,366	415,962
2010	442,016	7,546	449,562	450,555	0	450,555	414,971	584	415,555
Total	4,692,759	148,246	4,841,005	4,939,555	269,528	5,209,083	4,541,882	58,303	4,600,185

Table 2-54: Projected Required Budget for JSE (SLTP + MT), North Sulawesi (Rp. Mil)

	Base Case			Optimistic			Pessimistic		
	Dev.	Routine	Total	Dev.	Routine	Total	Dev.	Routine	Total
2000	59,075	18,035	77,110	59,075	18,035	77,110	59,075	18,035	77,110
2001	61,091	14,041	75,132	61,816	19,085	80,901	60,126	7,316	67,442
2002	63,110	14,054	77,163	64,538	18,959	83,497	61,205	7,513	68,718
2003	65,244	14,862	80,106	67,364	19,673	87,037	62,418	8,448	70,865
2004	67,502	15,724	83,226	70,305	20,480	90,784	63,765	9,383	73,148
2005	70,037	17,649	87,685	73,526	22,435	95,961	65,383	11,268	76,651
2006	71,915	13,078	84,993	76,050	17,572	93,622	66,401	7,085	73,486
2007	73,735	12,673	86,408	78,499	17,051	95,550	67,383	6,836	74,218
2008	75,498	12,276	87,774	80,874	16,540	97,413	68,329	6,592	74,921
2009	77,205	11,887	89,092	79,859	0	79,859	69,241	6,352	75,594
2010	78,857	11,506	90,363	78,857	0	78,857	70,120	6,118	76,238
Total	763,267	155,785	919,052	790,763	169,829	960,591	713,445	94,945	808,390

Table 2-55: Required Educational Incremental Input (SLTP + MT), Central Java

	Base case		Optimistic Case		Pessimistic Case	
	Teacher	Classroom	Teacher	Classroom	Teacher	Classroom
2000	1,305	642	1,305	642	1,305	642
2001	537	264	1,922	946	65	32
2002	311	153	1,506	741	0	0
2003	172	85	1,202	591	0	0
2004	197	97	1,096	539	0	0
2005	391	192	1,200	590	67	33
2006	422	208	0	0	122	60
2007	369	182	0	0	94	46
2008	320	157	0	0	67	33
2009	273	135	0	0	42	21
2010	230	113	0	0	18	9
Total	4,527	2,228	8,231	4,050	1,780	876

Table 2-56: Required Educational Incremental Input (SLTP + MT), North Sulawesi

	Base case		Optimistic Case		Pessimistic Case	
	Teacher	Classroom	Teacher	Classroom	Teacher	Classroom
2000	271	123	271	123	271	123
2001	211	96	287	130	110	50
2002	211	96	285	129	113	51
2003	223	101	295	134	127	58
2004	236	107	307	140	141	64
2005	265	120	337	153	169	77
2006	196	89	264	120	106	48
2007	190	86	256	116	103	47
2008	184	84	248	113	99	45
2009	178	81	0	0	95	43
2010	173	78	0	0	92	42
Total	2,339	1,061	2,549	1,157	1,425	647

(6) Step 6: Projection of Future Educational Resources Available to JSE

Overview: STEP 6 projects the extent of availability of governmental (STEP 6.1) and international (STEP 6.2) financial resources to be allocated to JSE in CJ and NS provinces during 2000-2010. For the governmental sector, budget allocated to the MONE and that of its authorised regional education institutions are projected. The projection employs a conventional trend analysis method, and it is assumed that future patterns would follow that of the past; it employs past correlation trends among GDP, GOI entire budget, GOI educational budget, GOI JSE budget, and provincial JSE budgets. For the international sector, currently planned educational development projects in the two provinces are reviewed to sort out available financial resources from them (STEP 6.2). The projection process for STEP 6 is shown in **Figure 2-36** below.

Factors used: As implied in the diagram, the projection employs several correlating factors/formulas manipulated from the analysis of the past trend, which includes:

- GDP and government budget (Step 6.1.2)
- entire and educational government budget (Step 6.1.4)
- entire education and JSE (central) governmental budget (Step 6.1.6)
- central governmental and provincial JSE budget (Step 6.1.8)
- development and routine JSE budget (Step 6.1.9)

These factors are very influential on resource supply to be projected, when being applied, all of them are defined in a way that they would contribute to “conservative” results as shown in **Table 2-57** and **2-58** below, together with estimated GDP and various budget figures³.

³ Apart from those subsidised from the MOE, each province has its own budget available for JSE. According to statistics during 84/85-96/97, such regional JSE budget is, on average, equivalent to approximately 4% of the national JSE budget. In this projection, however, such provincial JSE budget for CJ and NS are not counted because respectively time series data was not available during the study period, thus there is a possibility for the projection to underestimate the available budget allocation by, approximately, 4 %. All of such possibility of under- and overestimation will be reviewed in the final section of this paper.

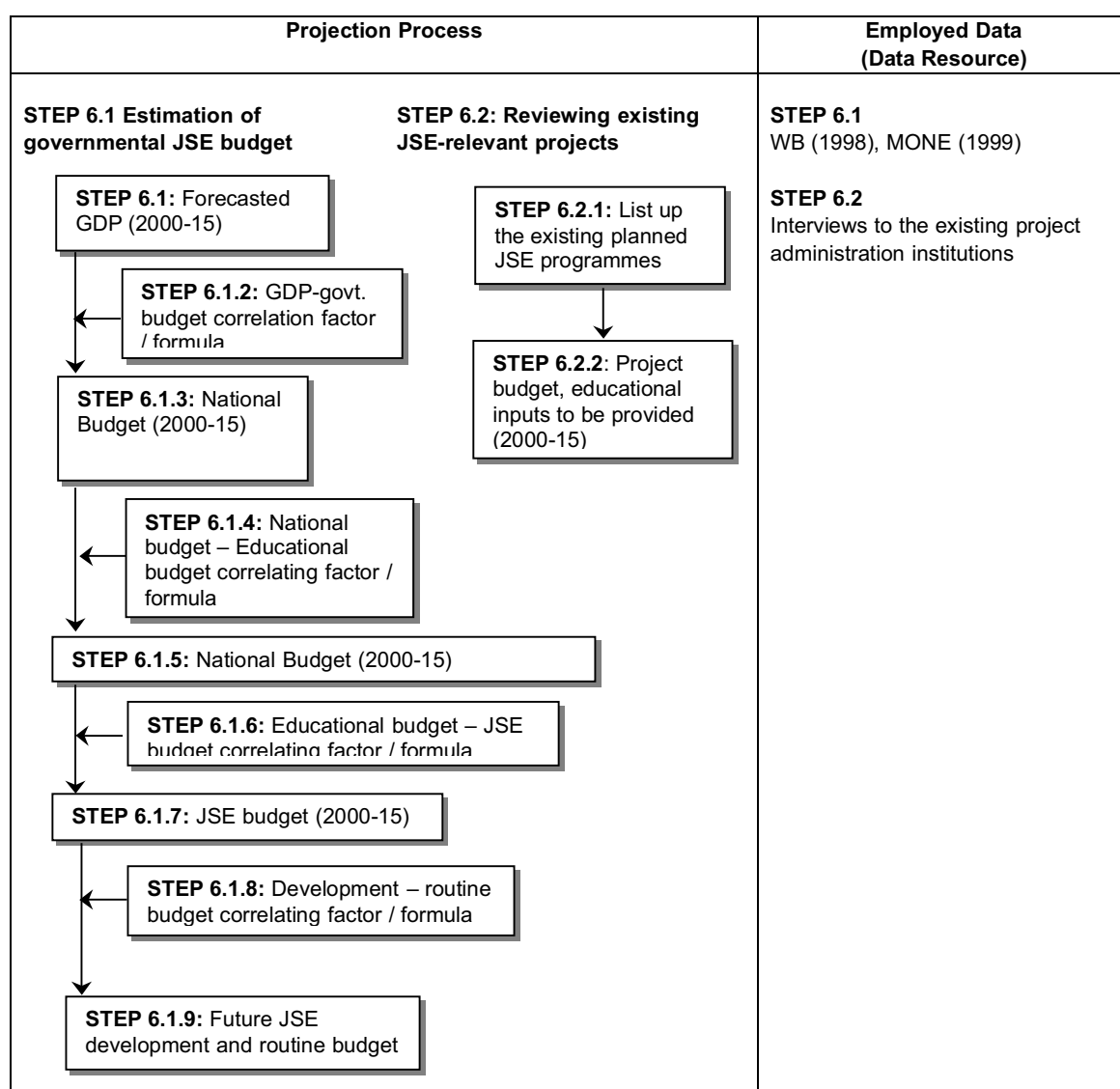


Figure 2-36: Projection of Educational Resources Available to JSE (2000-2015) (STEP 6)

Table 2-57: Governmental Educational Expenditure Projection (2001-15)

	GDP (Bil. Rp) (a)	GDP Growth	Govt. Exp. (b)/(a)		Gov. Edu. Expenditure % share to (b)	
			(Bil. Rp) (b)	(b)/(a)	Total (Bil. Rp) (c)	(c) / (b)
2000/01	505,271	1.5%	85,896	17.00%	12,884	15.00%
2001/02	512,850	1.5%	87,185	17.00%	13,078	15.00%
2002/03	523,107	2.0%	88,928	17.00%	13,339	15.00%
2003/04	549,263	5.0%	93,375	17.00%	14,006	15.00%
2004/05	590,457	7.5%	94,473	16.00%	14,171	15.00%
2005/06	634,742	7.5%	101,559	16.00%	15,234	15.00%
2006/07	681,713	7.4%	109,074	16.00%	16,361	15.00%
2007/08	732,159	7.4%	117,145	16.00%	17,572	15.00%
2008/09	784,875	7.2%	117,731	15.00%	17,660	15.00%
2009/10	841,386	7.2%	126,208	15.00%	18,931	15.00%
2010/11	900,283	7.0%	135,042	15.00%	20,256	15.00%
2011/12	961,502	6.8%	144,225	15.00%	21,634	15.00%
2012/13	1,024,961	6.6%	153,744	15.00%	23,062	15.00%
2013/14	1,090,559	6.4%	163,584	15.00%	24,538	15.00%
2014/15	1,158,173	6.2%	173,726	15.00%	26,059	15.00%

Table 2-58: Provincial JSE Expenditure Projection (2001-15)

	National Governmental JSE Budget						Central Java JSE Budget					North Sulawesi				
	Total JSE Gvt. Bdgt (Bil. Rp) (d)	(d) / National Edu. Bgt.	Routine (Bil. Rp) (e)	Dvt. (Bil. Rp) (f)	Routine % share to (d)	Dvt. % share to (d)	Routine (g)	(g)/(e)	Dvt. (h)	(h)/(f)	Total	Routine (i)	(i)/(e)	Dvt. (j)	(j)/(e)	Total
2000/01	3,221	25.00%	2,255	966	70.00%	30.00%	289	12.8%	46	4.8%	335	50	2.2%	44	4.5%	94
2001/02	3,269	25.00%	2,289	981	70.00%	30.00%	293	12.8%	47	4.8%	340	51	2.2%	44	4.5%	95
2002/03	3,335	25.00%	2,334	1,000	70.00%	30.00%	299	12.8%	48	4.8%	347	52	2.2%	45	4.5%	97
2003/04	3,502	25.00%	2,451	1,050	70.00%	30.00%	314	12.8%	50	4.8%	364	55	2.2%	47	4.5%	102
2004/05	3,543	25.00%	2,480	1,063	70.00%	30.00%	317	12.8%	51	4.8%	368	55	2.2%	48	4.5%	103
2005/06	3,808	25.00%	2,666	1,143	70.00%	30.00%	341	12.8%	55	4.8%	396	60	2.2%	52	4.5%	111
2006/07	4,090	25.00%	2,863	1,227	70.00%	30.00%	367	12.8%	59	4.8%	425	64	2.2%	55	4.5%	119
2007/08	4,393	25.00%	3,075	1,318	70.00%	30.00%	394	12.8%	63	4.8%	457	69	2.2%	59	4.5%	128
2008/09	4,415	25.00%	3,090	1,324	70.00%	30.00%	396	12.8%	63	4.8%	459	69	2.2%	60	4.5%	129
2009/10	4,733	25.00%	3,313	1,420	70.00%	30.00%	424	12.8%	68	4.8%	492	74	2.2%	64	4.5%	138
2010/11	5,064	25.00%	3,545	1,519	70.00%	30.00%	454	12.8%	73	4.8%	527	79	2.2%	69	4.5%	148
2011/12	5,408	25.00%	3,786	1,623	70.00%	30.00%	485	12.8%	78	4.8%	562	85	2.2%	73	4.5%	158
2012/13	5,765	25.00%	4,036	1,730	70.00%	30.00%	517	12.8%	83	4.8%	599	90	2.2%	78	4.5%	168
2013/14	6,134	25.00%	4,294	1,840	70.00%	30.00%	550	12.8%	88	4.8%	638	96	2.2%	83	4.5%	179
2014/15	6,515	25.00%	4,560	1,954	70.00%	30.00%	584	12.8%	94	4.8%	677	102	2.2%	88	4.5%	190

Defining inputs by internationally financed JSE projects: Currently MONE receives nine JSE projects financed internationally (REDIP Study Team 1999). During the study period, it was identified that The Central Indonesia Junior Secondary Education Project (World Bank, 1997-2001) and Junior Secondary Education Project II (Asian Development Bank, 1996-2001) still have certain project budget to be allocated to the two REDIP target provinces beyond year 2000, as shown in **Table 2-59** below.⁴

Table 2-59: JSE Financial Input Prospects by Internationally Financed Projects
(Rp. Mil.)

	Central Java JSE (WB) Inputs to CJ	JSE II (ADB) Inputs to NS
2000/01	31.7	126.1
2001/02	16.2	96.9
2002/03		62.8

Source: Unpublished project documents

(7) Step 7: Defining JSE Resource Shortage

Overview: STEP 7 compares outcomes of STEP 5 (required JSE resource) and STEP 6 (available JSE Resources) to define probable educational financial shortage for the JSE in the CJ and NS provinces during year 2000-15. The comparison process in STEP 7 is shown in **Figure 2-37**.

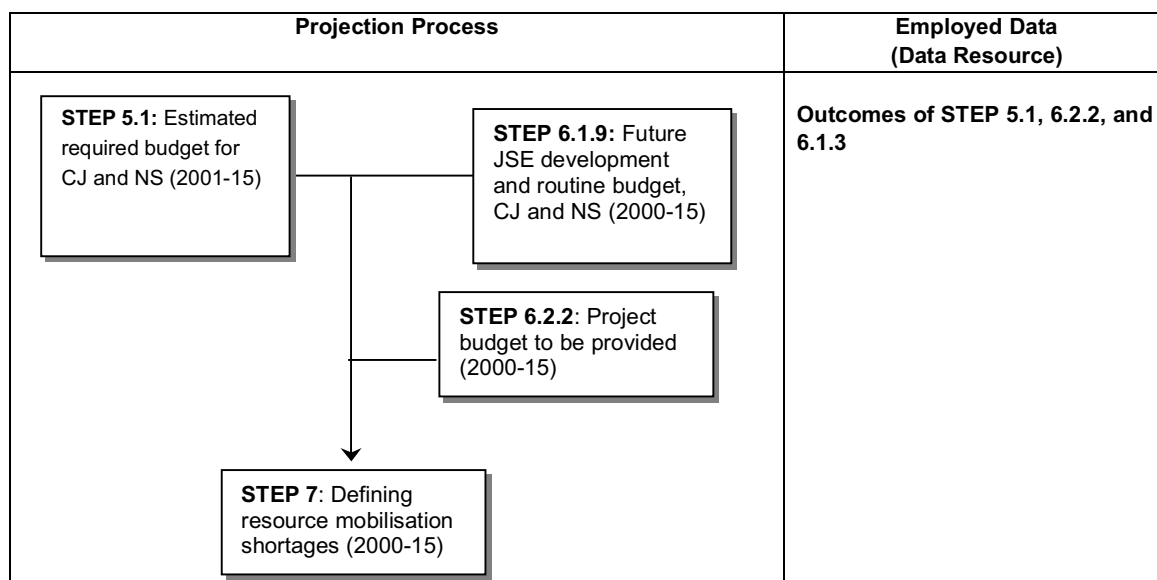


Figure 2-37: Estimation of Available Budget Allocation to JSE (2000-2015) (Step 7)

Financial resource shortage/surplus (2000-2010): Based on the estimated required JSE budget

⁴ For a brief review of existing internationally financed projects, refer to REDIP Study Team Interim Report (1999).

for CJ and NS (STEP 5.1: **Table 2-53** and **2-54**) and estimated financial budget available to JSE (STEP 6.1.9: **Table 2-58**), the expected budget resources shortage/surplus is estimated as shown in the **Tables 2-60** and **2-61**.

Table 2-60: Budget Deficit/Surplus for the Central Java (Rp. Bil)

	Base Case			Optimistic Case			Pessimistic Case		
	Routine	Dvt.	Total	Routine	Dvt.	Total	Routine	Dvt.	Total
2000/01	-126	17	-110	-126	17	-110	-126	17	-110
2001/02	-127	35	-92	-139	4	-136	-123	45	-77
2002/03	-124	41	-83	-147	14	-133	-116	48	-68
2003/04	-111	46	-64	-143	23	-120	-99	50	-49
2004/05	-109	46	-62	-149	26	-123	-94	51	-43
2005/06	-88	46	-42	-136	28	-108	-71	53	-18
2006/07	-67	49	-18	-104	59	-45	-47	56	9
2007/08	-43	55	12	-70	63	-7	-20	61	41
2008/09	-44	56	12	-62	63	2	-19	62	43
2009/10	-18	62	44	-26	68	42	9	67	76
2010/11	10	68	77	10	73	82	39	72	111
Total	-847	521	-326	-1,094	438	-656	-667	583	-84
(JPY)*	-14	9	-5	-18	7	-11	-11	10	-1

*@00164

Table 2-61: Budget Deficit/Surplus for the North Sulawesi (Rp. Bil)

	Base Case			Optimistic Case			Pessimistic Case		
	Routine	Dvt.	Total	Routine	Dvt.	Total	Routine	Dvt.	Total
2000/01	-15	9	-7	-15	9	-7	-15	9	-7
2001/02	-17	12	-5	-18	9	-9	-16	17	1
2002/03	-18	13	-5	-19	9	-10	-16	18	1
2003/04	-18	13	-5	-20	10	-10	-15	18	3
2004/05	-20	13	-7	-22	9	-13	-16	18	2
2005/06	-19	13	-5	-22	10	-12	-14	18	4
2006/07	-17	19	2	-21	15	-5	-11	23	12
2007/08	-14	21	7	-19	18	-1	-8	25	17
2008/09	-16	21	6	-21	18	-3	-9	26	17
2009/10	-13	24	11	-16	33	17	-5	28	23
2010/11	-10	27	16	-10	35	25	-2	31	29
Total	-176	185	9	-204	175	-29	-127	230	103
(JPY)*	-3	3	0	-3	3	-0	-2	4	2

In examining the above two tables, it is worth recalling that the following assumptions and reservations have been made so far in the projection.

- i) Any population projection is not perfect. Also the NER-GER correlation curve is not perfectly characterise the future pattern of NER-GER, thus it is fair to expect certain error

span, say, GER 5% at NER 100%.⁵

- ii) The budgetary figures do not include the Regional JSE budget which is collected by each province, in both demand and supply side projection. The regional JSE budget is distinct from the national governmental JSE budget, and is equivalent to approximately 4% of that. This would under- or over-evaluate the budget surplus or shortage that appears in the tables above.
- iii) The supply side projection (STEP 6) is totally based on the trend analysis that assumes a moderate economic growth and fixed correlation between GDP and various educational budgets. Thus the projection made here would not be valid in a case of serious economic turmoil such has been affecting Indonesia during the last two years.

⁵ For example, regarding 13-15 aged population, there is a 5% discrepancy between the population projection for 2000 done in 1990 (12,600,000) and the recent statistics for 1999 (13,262,000) (PI 1999). Though these data are not perfectly comparable, this suggests that it is wise to anticipate a certain discrepancy in population projection, therefore, also in enrolment projection.

CHAPTER 3 DECENTRALIZATION, SCHOOL-BASED MANAGEMENT AND COMMUNITY-BASED APPROACH

3.1 Introduction

The objective of this chapter is to identify appropriate medium- to long-term strategies for Indonesian education on which REDIP should base its design and implementation. Education in Indonesia, despite its respectable achievements in various aspects, is still faced with a number of problems.¹ One comprehensive analysis concisely summarizes them into eight key problems (Task Force, Ministry of Education and Culture 1999):

- 1) Democratization (i.e., universalization or equal access) yet to be achieved;
- 2) Low relevance;
- 3) Low accountability;
- 4) Low professionalism in education practices and management;
- 5) Lack of efficiency and effectiveness in budget allocation and management;
- 6) Uniformity;
- 7) Decentralization of education management yet to be achieved; and
- 8) De-bureaucratization of education management yet to be achieved.

The ultimate problem, however, is not listed above perhaps because it is too obvious and regarded as a tautology. The ultimate problem is that **children do not learn** as much as they should do. Education, after all, is to develop a child. All policy options, resources and apparatus are there to achieve this simple but ultimate objective. If in reality they are not up to this task, then that is *the* problem. The eight key problems are problems because they all prevent children from learning--good learning.

What REDIP should do is to join in and contribute to the Indonesian efforts to overcome this situation. It is **not** REDIP's objective, however, to tackle those problems all at once across the country. Even though the problems are closely interrelated and any single solution will require solving them simultaneously, REDIP should focus sharply on its target problems and on the strategies effective to tackle them, given the scope and timetable as specified in the Scope of Work.

¹ Literature abounds on the general situation and problems of Indonesian education. In fact education appears one of the best surveyed and documented sectors in Indonesia. Limiting them to recent publications, we can still list several good references. Among them are: Ministry of Education and Culture (1997), World Bank (1997), Clark et al. (1997), Research Team, Balitbang (1997), Hirakawa (1998), World Bank (1998), MOEC, BAPPENAS, World Bank and ADB (1999).

3.2 Decentralization

Decentralization had been a major policy issue of the Indonesian government for quite some time² and its drive was accelerated after the presidential handover in May 1998. One landmark achievement in this respect is the new Local Government Law enacted in May 1999.³ The Law stipulates that education, together with a host of other sectors, should be a responsibility of the *kabupaten/kota* government (Article 11). The timetable for the transition is so set that all relevant ministries and agencies should start their fully decentralized systems in April 2001. Thus decentralization of the educational administration has now become an immediate obligation to MONE and MORA. Viewed this way, decentralization or reorganization of educational administration is no longer a strategy to adopt but a policy background already set in place.

The question then is how. Two prominent recommendations exist with respect to this. One is made by the World Bank (1998) and the other by Task Force, BAPPENAS (1999b). The World Bank recommendation shows that which body should be responsible for which function. With respect to junior secondary education, the primary change proposed there is a substantial shift of responsibility from *kanwil* MONE to *dinas P&K II*.

The other recommendation appears in a conference paper written by a Task Force which was formed jointly by BAPPENAS and MOEC officials (Task Force, BAPPENAS 1999b). This recommendation is concrete with a diagram of the proposed new structure of educational administration, descriptions of responsibilities of each unit, and a set of strategies (short-, medium- and long-term) for transition.

Since the latter paper closely reviews the World Bank report cited first, its recommendation is basically consistent with the World Bank framework. Thus, REDIP was to take these two recommendations together as its frame of reference for its implementation, particularly when designing the pilot projects. In other words, assuming that the proposals will be put into effect in the near future, REDIP would act accordingly to support and facilitate a smooth transition of the system.

² The Law No. 5 (1974), or Undang-Undang No. 5 Tahun 1974 Tentang Pokok-Pokok Pemerintahan di Daerah, which provides the legal basis for the Indonesian administration at the sub-national level, explicitly states that decentralization is one of the three main principles of regional administration (decentralization, deconcentration and co-administration). Furthermore, the law stipulates that the focus of regional autonomy should be on the *daerah tingkat II*, i.e., on *kabupaten* and *kotamadya* level (Article 11). The implementation of the principle, however, has been slow for various reasons. For detailed accounts see Rohdelwohld (1995), Ch. 3 in particular.

³ Undang-Undang Republik Indonesia Nomor 22 Tahun 1999 Tentang Pemerintahan Daerah.

Table 3-1: Strategies for the Implementation of Education Decentralization

Aspect	Short-Term (Year 1-3)	Medium-Term (Year 4-6)	Long-Term (Year 7-10)
1. Political will	<ul style="list-style-type: none"> Enforcement of regulations and policies related to the implementation of autonomy in province, districts / municipalities Regional autonomy is starting to be implemented 	<ul style="list-style-type: none"> Improvement of regional autonomy implementation in provinces, districts and municipalities 	Regional autonomy is fully implemented
2. Institutional and manpower	<ul style="list-style-type: none"> Study about profiles concerning institutions and manpower Development of the institutional concept Development of the concept of occupational competency standards Try-out of appointing officials Retraining (managerial, professional and communication skills and leadership) and technical assistance Preparation and restructuring of new institutes 	<ul style="list-style-type: none"> Consolidation of personnel based on the occupational competency standards Evaluation of the implementation of new institutional application 	<ul style="list-style-type: none"> Overall consolidation of Dikbud management decentralization Enhancement of the occupational competency standards
3. Financial			
a. DIK	<ul style="list-style-type: none"> Allocated straight to districts / municipalities through one door (no Inpres and SBPP) Teacher salaries from Pusat to regions in accord with the numbers of teachers 	<ul style="list-style-type: none"> Only salaries of teachers provided from Pusat to districts / municipalities based on minimum teacher / student ratio 	<ul style="list-style-type: none"> All funding (DIK and DIP) provided as block grant and macro policy by Pusat, subsequently allocated to schools by districts / municipalities
b. DIP	<ul style="list-style-type: none"> DIP for SD, SLTP from sector straight to district / municipalities through the new Dinas Dikbud institutions DIP in the form of the special block-grant allocated straight to districts / municipalities in stages 	<ul style="list-style-type: none"> Incentives provided in the form of block grants to teachers with good performance and for the salaries of teachers on honorarium / contracts Disincentive (decreased block grant) for teacher surplus 	
c. Block Grants	<ul style="list-style-type: none"> Bupati / Walikota submitting program proposals based on allocations from Pusat and in the form of block grants through the MOF straight to districts / municipalities 		
4. School facilities and infrastructure	<ul style="list-style-type: none"> Identification and rearrangement of school facilities / infra-structure School facilities and infrastructure are provided in districts. / municipalities 	<ul style="list-style-type: none"> Provision of school facilities / infrastructure is done at schools 	<ul style="list-style-type: none"> Development and consolidation of school facilities / infrastructure in school
5. Community participation	<ul style="list-style-type: none"> Establishment of LP2K by Governor or Bupati in accord with the ability and requirement of regions with membership comprising following <ul style="list-style-type: none"> - Universities / institutes of higher education -The business sector -Prominent community members - NGO -Education foundation, etc. 	<ul style="list-style-type: none"> Development of NGO in the field of education 	<ul style="list-style-type: none"> LP2K and educational NGO in full swing

Source: Task Force, BAPPENAS (1999b: 27-28)

3.3 School-Based Management

REDIP adopts school-based management as a strategy to accompany the decentralization processes and substantiate the intended improvement on junior secondary education. There should not be any confusion between decentralization and school-based management. The two concepts are not synonymous. “SBM (school-based management) often begins with decentralization,” (Dornseif 1996: iii) but decentralization *per se* does not necessarily call for school-based management. School-based management is just one of the many possible patterns or means of decentralization that educational administration can employ.⁴

School-based management is a concept that originated in the U.S. to reform its public school systems. During the past decade, it has been put into practice in a number of countries, developed and developing ones alike. The concept is defined, for instance, as “a delegation of certain powers from the central office to the schools that may include any range of power--from a few, limited areas to nearly everything” (Dornseif 1996: 1). This definition is neutral enough to be applied to the Indonesian context but, generally, practices of school-based management are highly conditioned by culture, history or the level of development of society. American models, or whichever country’s for that matter, may or may not be a good example for Indonesians to imitate.⁵ Due caution is necessary in prescribing appropriate forms of school autonomy for Indonesian schools.

Why school-based management in Indonesia? Task Force, BAPPENAS (1999a: 9) beautifully argues that:

School-based management . . . is intended to improve efficiency, quality, and equity of education. School efficiency improvement is achieved through greater autonomy in managing resources, community participation, and streamlined bureaucratization system. Meanwhile, quality improvement is achieved through participation of parents, flexibility of school management and teaching-learning process, professionalism of principals and teachers, and an incentive and disincentive model. The equity improvement can be achieved by the increase of community participation, which gives opportunity to the government to concentrate more to the low capacity schools.

A host of practical questions arise in pursuing this strategy. Just to name major categories:

- Which authority and responsibility should be given to the school and which

⁴ To cite from The World Bank (1998: 77): “Decentralization can be defined as the transfer of some degree of authority and responsibility to other local government entities not part of the central ministry, or ultimately to the individual schools or network of schools” (emphasis added).

⁵ Even in the U.S. not all schools have been successful in managing themselves. In Japan, whose educational administration has been decentralized for the past 50 years, one major policy issue of late is school-based management. The public schools in Japan are under tight control of the Local Education Board, an administrative body within the local government, and the school principals have little discretion even in school finance--a situation which in a sense resembles the Indonesian case (for details, see REDIP Working Paper to be published soon). Given criticisms mainly from the education circles, high-level policy dialogues are under way, initiated by the Ministry of Education, to find out appropriate formula for the new practice and build a national consensus (Mombusho 1998).

- should not?
- What management system should be installed at the school?
 - How should “new” *dinas P&K II* be organized to adapt to school-based management?
 - How should the budgetary system be amended at the provincial and the *kabupaten/kota* levels?
 - Given that most people are totally unfamiliar with this practice, how should the transition to the new system be planned?

A set of well-thought-of answers is given in Task Force, BAPPENAS (1999a: 20-26). They are reproduced here as **Table 3-2**. As is seen, while the Table gives a comprehensive bird’s-eye view of the relevant issues to be addressed, it is still short of concrete designs of respective “parts.” This task will partly be carried out by REDIP, though on an experimental basis, when pilot projects are designed and implemented.

Table 3-2: Implementation Strategy of School-based Management at Basic Education Level

Aspect	Short-Term (Year 1-3)	Medium-Term (Year 4-6)	Long-Term (Year 7-10)
A. Personnel			
1. Principal	<ul style="list-style-type: none"> • A Number of Principals representing all categories of schools including MI and MTs are selected to attend the training of SMB principles and school finance management based on SBM principles • Training are carried out gradually covering as many as principals 	<ul style="list-style-type: none"> • Advanced training for trained principals and regular training for those who are not trained. • School principals have flexibility in managing schools (e.g. managing finance, developing local content curriculum) 	<ul style="list-style-type: none"> • Greater autonomy for principals within national education policy. • Principals are selected by school councils considering their competencies (skills, experiences, leadership, capability to attract community participation and be proactive)
2. Teachers	<p>SD:</p> <ul style="list-style-type: none"> • Selection and appointment at province, the placement at kabupaten/kota. <p>SLTP:</p> <ul style="list-style-type: none"> • Selection at Center, appointment and placement at province 	<p>SD:</p> <ul style="list-style-type: none"> • Selection at province • Appointment and placement at kabupaten/kota. <p>SLTP:</p> <ul style="list-style-type: none"> • Selection at province • Appointment and placement at kab/kota • Selection is based on competencies • Placement according to school need • Incentive/disincentive is implemented to schools that have over/under supply of teachers • Teacher incentive according to their performance • Teacher should master SBM principles 	<ul style="list-style-type: none"> • Selection, appointment, and placement at kab/kota. • Selection based on competencies • Teacher placement according to school need • Incentive/disincentive is implemented to schools with over/under supply of teachers • Teacher incentive according to their performances • Teacher should master SBM principles.

Table 3-2 (continued)

Aspect	Short-Term (Year 1-3)	Medium-Term (Year 4-6)	Long-Term (Year 7-10)
3. Supervisors / superior and staff of Dinas Dikbud) new educational Institution)	<ul style="list-style-type: none"> • Training about SMB principles • Professionalism improvement of supervisors superior and staff of Dinas Dikbud 	<ul style="list-style-type: none"> • Further or post training for SBM • Professionalism improvement for supervisor / superior and staff of Dinas Dikbud 	<ul style="list-style-type: none"> • Further or post training for SBM • Professionalism improvement for supervisor / superior and staff of Dinas Dikbud
B. Finance			
1. DIK	<ul style="list-style-type: none"> • The same as current mechanism, namely from routine budget • Arrangement of budget allocation for provincial level based on central decision of the limit of budget allocation 	<ul style="list-style-type: none"> • Arrangement of budget allocation for district level based on central decision of the limit of budget allocation (salary for educational personnel only) 	<ul style="list-style-type: none"> • DIK allocated in the form of block grant to district level • District level allocates DIK to school according to the number and rank of teachers
2. DIP	<ul style="list-style-type: none"> • The same as current mechanism, namely: DIP for school operation, building, lab is allocated in the provincial level for SD and in central level for SLTP • Special block grant directly given to school • Government grants for private schools are in accordance with financial capability of government 	<ul style="list-style-type: none"> • Budget is in the form of block grant which is given directly to school • School has flexibility to manage the budget under cooperation of BP3 with its function is improved • Finance management will be followed by intensive inspection • Block grant for private schools is in accordance with financial capability of government 	<ul style="list-style-type: none"> • Budget is in the form of block grant which is directly given to school • School has flexibility to manage the budget under control of school council • Finance management will be followed by intensive inspection • School with poor management capacity will get more budget allocation than those of schools with medium management capacity • School with medium management capacity will get more budget allocation than those of high management capacity. • Block grant for private schools is in accordance with financial capability of government

Table 3-2 (continued)

Aspect	Short-Term (Year 1-3)	Medium-Term (Year 4-6)	Long-Term (Year 7-10)
3. Budget from parents and community	<ul style="list-style-type: none"> The same as current mechanism, where some parents are still obliged to pay tuition to school 	<ul style="list-style-type: none"> There should be a democratic agreement between parents and school to decide how much to pay. While voluntary contribution depends on the available resources in community Such budget can be different from one school to another Even, school with poor management capacity may not have such kind of finance resource (so, parents may be free from such kind of tuition) Management of this kind of budget should be under cooperation of BP3 which its function has been improved 	<ul style="list-style-type: none"> There should be a democratic agreement between parents and school to decide how much to pay. While voluntary contribution depends on the available resources in community Such budget can be different from one school to another Even, school with poor management capacity may not have such kind of finance resource (so, parents may be free from such kind of tuition) Management of this kind of budget should be under cooperation of school council, and such management should also be accompanied by inspection from inspector in district level
C. Curriculum			
1. Content	<ul style="list-style-type: none"> The same as current curriculum, namely <i>local content</i> (20%) curriculum developed by local offices and <i>national curriculum</i> (80%) developed by central office. 	<ul style="list-style-type: none"> <i>Core curriculum</i> (80%) is developed by Central office to be implemented all over Indonesia. Schools may be flexible in allocating time of learning, meaning that the number of hours spent for a certain subject may be decreased to increase/replace another subject considered by the school <i>Local content curriculum</i> (20%) is developed in school level based on local condition or is developed by district office for school, which are not capable of developing it. Content of the curriculum may differ from one school to another 	<ul style="list-style-type: none"> <i>Core curriculum</i> (minimal competence standard, among others to maintain the quality of education and unity of the nation) is arranged at the Center to be implemented all over Indonesia. Number of study ours may be increased but not decreased <i>Elective curriculum</i> (including local content). Guidelines are developed at central level, the subject matter decided/selected at district level by taking local condition into consideration. Learning hours may be decreased to increase the implementation for core curriculum.

Table 3-2 (continued)

Aspect	Short-Term (Year 1-3)	Medium-Term (Year 4-6)	Long-Term (Year 7-10)
2. Examination	<ul style="list-style-type: none"> The same as current practice, namely guidance and test blueprint developed by central office, test items developed in provincial level for SD. Meanwhile guidance, test blue-print, and test items are developed in central level for SLTP 	<ul style="list-style-type: none"> Guidance, test blue-print are developed at central level, and test item is developed at provincial level for both SD and SLTP 	<ul style="list-style-type: none"> Guideline, test blue-print for minimum standard competencies are developed at central level, while guideline, test blue-print, test item for elective curriculum are developed at provincial level for both SD and SLTP
D. School facilities	<ul style="list-style-type: none"> Identification and rearrangement for school facilities School facility provision is carried out at district level 	<ul style="list-style-type: none"> Provision for facilities at school level 	<ul style="list-style-type: none"> Provision for facilities at school level
E. Community Participation	<ul style="list-style-type: none"> Socialization of SMB principles to community through mass media and other forum Community participate is still in the form BP3 as is currently administered 	<ul style="list-style-type: none"> Community participating through BP3 which its function is improved as follows: <ul style="list-style-type: none"> - together with school develop local curriculum - supervise school budget allocation and management (in addition to its current function) 	<ul style="list-style-type: none"> School council consists of community leader, expert, school principal, teacher representatives, education district staff, parents, and representative from business Duties of school council are: <ul style="list-style-type: none"> - select school principal - organized contribution from parent and community - supervise management of school finance - participate in developing or selecting curriculum or learning material - assist and supervise teaching-learning activities

Source: Task Force, BAPPENAS (1999a: 20-26)

3.4 Community-Based Approach

The community-based approach (to educational management and finance) is another term which is closely linked to decentralization.⁶ In line with the recent drive towards decentralization, community participation in education is also gathering momentum. However, community participation is no novel notion to Indonesians. The government since the early 1970s has tried painstakingly to develop and install various institutions at local or village level. (LKMD is a typical case. Another example is the P5D process in which the annual government budgeting starts nationwide from the thousands of village meetings called *musbangdes*.) The results are at best mixed; some have successfully taken root while others remain nominal or defunct. Nevertheless, it should be noted and stressed that, whatever the motive, the Indonesian government has maintained a strong orientation toward the bottom-up approach.⁷ Given this background, it is rather a puzzling fact that community participation has been kept minimal in basic education, particularly junior secondary.

One reason why community participation is being sought after in education is that it has been nonexistent so far. Clark et al. (1997), based on their analysis of education finance, conclude that Indonesian public schools are actually “government schools” receiving little financial contributions from the local community. Non-monetary contributions are equally rare. There are two implications in this fact. One is that, viewed from the school side, community resources are not mobilized. The other, viewed from the community side, is that the school is not utilized as a valuable resource of knowledge or as a center of community activities.

Furthermore, community-school interactions are crucial to achieve universal nine-year basic education on the one hand and better educational quality on the other. This is so because, after all, demand dictates supply even in education. Demand for education or for better-quality education can only come from society. It is therefore imperative to change the popular perception of basic education in order to develop and improve junior secondary education. Community participation is a very effective means for that purpose.⁸

To summarize, the community-based approach is particularly needed in Indonesia for the following three reasons:

- 1) To mobilize community resources for basic education;
- 2) To offer the school as a resource available to the community; and
- 3) To make people more appreciative of education and its quality.

But how can community and school relate to each other? There are many possible ways for

⁶ The concepts, however, are not equivalent, either: decentralization does not necessarily call for community involvement.

⁷ To be precise, particularly keen about bottom-up have been the Ministry of Home Affairs and, later, BAPPENAS (as exemplified by the IDT program and the *Kecamatan* Fund Project).

⁸ A case in point is Yogyakarta, which was very successful in achieving 100% gross enrollment of junior secondary education ahead of other provinces. Reportedly, a main factor behind this accomplishment was active involvement and initiative of *bupati* and *camat* in the community campaign (Hirakawa 1998).

their interaction as listed in Rugh and Bossert (1998: 141):

- Advocating enrollment and education benefits
- Ensuring regular student attendance and completion
- Constructing, repairing, and improving facilities
- Contributing in-kind labor, materials, land and funds
- Identifying and supporting local teacher candidates
- Making decisions about school locations and schedules
- Monitoring and following up teacher and student attendance
- Forming village education committees to manage schools
- Attending school meetings to know about children's work
- Providing skill instruction/local culture information
- Helping children with studying
- Garnering more resources from and solving problems through the education bureaucracy

In view of the Indonesian context, these 12 types of activities listed above appear all relevant. Some other activities may be possible, too. To pursue them, a two-tier system of community involvement is recommended. At the individual school level, BP3 should be reformed and strengthened. At the *kecamatan* level, a new across-the-schools institution (e.g., committee) should be established where all junior high schools in the *kecamatan* are represented by the principals as well as by the BP3 representatives. The *Kecamatan* should also be involved there; possibly, the *camat* may sit as chairman of the institution.⁹ In this respect, prior experiences by the COPLANER project and the COPSEP project are quite relevant and contain many lessons.¹⁰

⁹ Note that this new institution may carry out similar functions as LP2K in Figure 4.1 does. However, LP2K will be organized only at the provincial and *kabupaten/kota* levels. Membership composition may also differ. More similar will be the CFED (Community Forum for Education Development) set up in the COPLANER and the *Kecamatan* Education Committee organized in the COPSEP.

¹⁰ Basic references include Triantoro et al. (1992), *Bagian Proyek Peningkatan dan Pengelolaan COPLANER Manado* (1995), Papasi et al. (1993), Nurhadi and Abdullah (1996) on COPLANER and Takasawa (1997), Directorate General of Primary and Secondary Education, MOEC, and JICA (1998), Departemen Pendidikan dan Kebudayaan and JICA (1998) for COPSEP.

3.5 Problems and Strategies: REDIP's Perception

3.5.1 REDIP's Perception

As its title indicates, REDIP has a prominent regional orientation. The term, region, implies a few perceptions that shape the project's basic characteristics:

- Region as opposed to the center: the project aims at the local and community levels rather than the central level.
- Region as the environment of the school: the project looks outside the school as well to develop and improve education.
- Region as the socio-economic entity: the project sees education as embedded in the social and economic settings.

With these particular perceptions given, REDIP identifies the problem of **lack of decentralization** as the most relevant "entrance point" or "handle" to the whole range of problems (see Box 4-1). REDIP will thus approach the development and improvement of junior secondary education in the two provinces primarily through various measures to promote and achieve decentralization.

How is decentralization achieved? Three distinct strategies exist in the Indonesian context:

- 1) **Reorganizing the government system of educational administration and finance;**
- 2) **School-based management;** and
- 3) **Community-based approach.**

They will be briefly described in the following sections. However, two notes are necessary in passing. First, the three concepts are not synonymous or interchangeable, though related closely. Second, none of them is a panacea; as some rightly caution, decentralization, school-based management or community-based approach does not solve all the problems.¹¹ There are limits to what they can achieve. Excessive decentralization may turn out equally harmful, only disrupting the stable functioning of the school system or increasing inequity.¹² The same caution also applies to school-based management and community-based approach.

¹¹ See, for example, Supriyoko (1999). He cautions the education circles against the too naive and optimistic view that the centralized system has ruined Indonesian education and that decentralization will cure all the ill.

¹² Fiske (1996: 28), citing the former Chilean Minister of Education, writes that decentralization can lead to increased inequalities and therefore, even in a decentralized system, the center must both ensure minimum levels of quality for all schools and provide disadvantaged schools with special support.

Box 3-1: Overly centralized system adversely affects junior secondary education

The educational administration of Indonesia is highly centralized. This is particularly the case with junior secondary education. SLTPs are basically under the direct control of the central government. In fact, MOEC and MORA plan and finance practically the whole budget; *kanwil* and *kandep* only carry out instructions from the respective ministries; local governments' involvement is virtually none either at the provincial or the *kabupaten/kota* level. Such an overly centralized system has adverse implications even to the quality of education. As Research Team, Balitbang (1997: 50) succinctly notes:

In the centralized environment, the existence of schools is essentially an extended hand of the central authorities while the span of control appears too long. Only the central authority is regarded as a stakeholder for whom the school is accountable. Consequently, in the lack of sufficient knowledge on performance and problems at the micro levels, the stakeholder has never been able to exercise an adequate reward and punishment system. This unclear accountability system appears to be the major factor contributing to difficulties in school quality efforts. Despite receiving financial contribution from parents, schools do not feel responsible to parents as stakeholders or payers, and as a consequence students' parents do not have access to exercise control over the quality of school system. In a centralized environment the quality effort is oriented more to the provision of educational inputs rather than to improve school performance.

High centralization can also be an obstacle to the universalization of junior secondary education. As is widely acknowledged, the successful universalization of primary education in Indonesia owes much to its decentralized management (Task Force, BAPPENAS 1999b: 3). If junior secondary education is to follow suit, its administrative system must undergo fundamental changes in favor of local governments, individual schools and communities.

3.5.2 REDIP's Role

REDIP's project duration (April 1999-March 2001) just coincides with the period during which Indonesian government prepares for decentralization. This coincidence highlights REDIP's role as an experiment to improve junior secondary education from the bottom. More specifically, REDIP's role in this critical period is to try out various measures for education improvement in line with and in support of the three strategies identified above.

Its outcomes can be beneficial in two ways. First, we will be able to distinguish effective measures from ineffective ones. This knowledge will help the government formulate follow-up projects which sharply focus on the effective measures. Second, through the implementation of experiments, a number of people will gain some first-hand experience of participation and self-management. In any case this experience will prove valuable when the whole system is recast in the mold of decentralization.

3.5.3 Pilot Projects as Strategy Experiments: REDIP's Approach

As was explained in the Inception Report (April 1999), about 15 pilot projects are at the core of REDIP. One pilot project covers one school cluster, which is taken as *kecamatan* for the sake

of simplicity and convenience. Actual content of each pilot project has yet to be decided. Based on the results of baseline survey, a list of possible interventions will be prepared; intensive discussions will follow with provincial and *kabupaten* officials and, possibly, with school principals to select interventions appropriate for the respective sites. Since the projects need not be identical, 15 or so different projects can emerge as the pilots.

These pilot projects are meant to be experimental. They are experimental in two senses. First, they test something: interventions in the schools and new institutional arrangements in and outside the schools. Second, they don't assume all tests should yield good results; some may succeed while others may not. One important purpose of an experiment is to know what caused that difference and this axiom applies to the REDIP pilot projects, too.

It should be stressed that what the pilot projects test are not only interventions but institutional arrangements as well. As reviewed in the previous sections, there already exists a broad consensus in the education circles about which strategies to pursue. The remaining question is how (as is often the case). The comprehensive proposals summarized above on how to implement decentralization or school-based management do not elaborate all institutional details necessary to field-test them. Such details are left for experiments like REDIP to micro-design and give a try. To avoid arbitrariness, REDIP will strictly stick to the three strategies adopted as its medium- to long-range guidance (administrative reorganization, school-based management and community-based approach) when designing the pilot projects and their institutional mechanisms. In light of this, the REDIP pilot projects can also be viewed as experiments in which the strategies themselves are the objects: they are strategy experiments.

As a social experiment, REDIP cannot escape one moral question: How can we justify an experiment which involves people who are not necessarily willing participants? It can never be fully answered as long as some involuntary involvement is unavoidable. A partial answer, however, would be that REDIP could be justified if measures to be tested were only those beneficial to the people and if the institutional mechanisms were so designed that they would likely be institutionalized later as part of the larger system. It follows from this that a very careful design of institutional setups is crucial. If this is successfully done, a good byproduct of REDIP is that it will familiarize people with a "new game" ahead of other people in the rest of the country.