



**USAID** | **INDONESIA**  
FROM THE AMERICAN PEOPLE

# HIGHER EDUCATION LEADERSHIP AND MANAGEMENT PROJECT

## **DELIVERABLE 1B**

**A REVIEW AND ANALYSIS OF THE IMPLEMENTATION OF DATA  
COLLECTION, REPORTING, AND ANALYTICAL PROCESSES IN  
SUPPORT OF DIKTI STRATEGIC INDICATORS AND ANNUAL/LONG-  
TERM PLAN**

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**Contract No. AID-497-C-12-00001**

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.



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## ACRONYMS

BAN-PT	Badan Akreditasi Nasional-Perguruan Tinggi (National Accreditation Agency for Higher Education)
BAPPENAS	Badan Perencanaan Pembangunan Nasional (National Development Planning Agency)
BLU	Badan Layanan Umum (a semi-autonomous higher education institution)
BHMN	Badan Hukum Milik Negara (State Owned Legal Institution)
BHP	Badan Hukum Pendidikan (an autonomous legal entity)
BidikMisi	Financial Aid (for disadvantaged students)
BINUS	Universitas Bina Nusantara
BPK	Badan Pemeriksa Keuangan: Supreme Audit Board (external auditing by the Government)
BPMA	Badan Penjamin Mutu (Academic Quality Assurance Board)
BPS	Biro Pusat Statistik (Central Bureau of Statistics)
BSNP	Badan Standardisasi Nasional Pendidikan (Board of National Education Standards)
CPR	Continuous Performance Review
DEPDAG	Department Agama (Ministry of Religious Affairs)
DEPDIKBUD	Department Pendidikan dan Kebudayaan (Department of Education and Culture)
DEPKEU	Department Keuangan (Department of Finance)
DIKBUD	Kementerian Pendidikan dan Kebudayaan (Ministry of Education and Culture)
DIKTI	Direktorat Jendral Pendidikan Tinggi (Directorate of Higher Education [DGHE])
DIPA	Daftar Isian Pelaksanaan Anggaran (budget line item)
DPR	Dewan Perwakilan Rakyat (Legislative Assembly)
ESC	External Stakeholder Collaboration
FM	Financial Management
GAAP	Generally Accepted Accounting Principle
GAL	General Administration and Leadership
GRA	Gross Enrollment Rate
HEI	Higher Education Institution
HELM	Higher Education Leadership and Management
HEMIS	Higher Education Management Information System
IKK	Indikator Kinerja Khusus (Specific Indicator)
IKU	Indikator Kinerja Umum (General Indicator)
IPB	Institut Pertanian Bogor (Agricultural University at Bogor)
ITB	Institute Technology Bandung
KAP	Kantor Akuntan Publik (Public Accounting Office)

KOPERTIS	Koordinator Perguruan Tinggi Swasta (Coordinator of Private Higher Education)
LAKIP	Laporan Kinerja Instansi Pemerintah (Government Unit Performance Report)
MWA	Majelis Wali Amanat (Board of Trustees)
PDPT	Pangkalan Data Perguruan Tinggi (Higher Education Database System)
PDSP	Pusat Data dan Statistik Pendidikan (Center for Education Data and Statistics).
POLMED	Politeknik Medan
POLNES	Politeknik Samarinda
Prodi	Program Studi (Study Program)
PT	Perguruan Tinggi (Higher Education)
PTAI	Islamic Higher Education Institution
PTN	Perguruan Tinggi Negeri (State Higher Education Institution)
PTS	Perguruan Tinggi Swasta (Private Higher Education Institution)
QA	Quality Assurance
RENSTRA	Rencana Strategis (Strategic Plan)
RIP	Rancangan Induk Pengembangan (Master Development Plan)
RPJP	Rancangan Pembangunan Jangka Panjang (Long-term Development Plan)
RPJM	Rancangan Pembangunan Jangka Menengah (Medium-term Development Plan)
S-2	Strata 2 (Master's Degree)
S-3	Strata 3 (PhD equivalent)
SABER	Systems Approach for Better Education Results
SAP	Standard Auditing Principle
SATKER	Satuan Kerja (Project Manager)
SIMAK	Sistem Informasi Manajemen (Management Information System)
SPM	Standar Pelayanan Minimal (Minimum Service Standard [MSS])
SPMI	Sistem Penjamin Mutu Internal ([HEI] Internal Quality Assurance System)
Swasta	Private
TPA	Tes Potensi Akademik (Academic Potential Test)
TUP	Tambahan Uang Persediaan (Additional Funding)
UGM	Universitas Gadjah Mata
UI	Universitas Indonesia
UNHAS	Universitas Hasanuddin
UNJ	Universitas Negeri Jakarta
UMM	Universitas Muhammadiyah Malang
UNM	Universitas Negeri Makassar
UNMUL	Universitas Mulawarman
USU	Universitas Sumatera Utara
UUPT	Undang-undang Perguruan Tinggi (Higher Education Law)

## HELM PROGRAM OVERVIEW

The five-year USAID/Indonesia Higher Education Leadership and Management Project (HELM), contract AID-497-C-12-00001, is a Cost plus Fixed Fee contract awarded to Chemonics International Inc. on November 28, 2011 to be completed on November 30, 2016. Chemonics International Inc. is the prime contractor for HELM and will implement the project with the assistance of its sub-contract consortium partners: JBS International Inc., Aguirre Division, University of Kentucky, and the Indiana University Alliance. HELM works in close collaboration with the Directorate General of Higher Education (DIKTI) and Indonesian Higher Education Institution (HEI) partners and under guidance from USAID.

HELM aims to support and sustain reforms in the Indonesian higher education sector which will result in, as stated by the sub IR “increased management capacity of Indonesian Higher Education Institutions (HEI).” Through collaboration with DIKTI, HELM will target increased capacity in four core management areas:

1. General administration and leadership;
2. Financial management;
3. Quality assurances; and,
4. Collaboration with external stakeholders.

HELM is designed to promote the reform process within the Ministry of Education and Culture (MOEC) as the Higher Education (HE) system moves toward increased institutional autonomy. Implementation of the newly developed Strategic Plan for 2010-2014 is underway. DIKTI has requested both assistance on improving their strategic plan as well as support for improved implementation of the plan at the HEI level. A new law governing HE is currently being debated in parliament and although the fate of the law remains unclear, all agree that it is a time of change and opportunity within the HE sector.

HELM is committed to programming that responds to needs identified by DIKTI as well as informing and advancing the reform process at the national level and among partner institutions. HELM goals will be achieved through a three-phase process:

1. The first phase will consist of an intense, collaborative effort to assess the current context across the higher education sector, including challenges and constraints to the implementation of the newly developed strategic plan. Integral to this is responding to needs identified by the DIKTI as well as informing and advancing the successful design of the implementation phase of the project.
2. The implementation phase will be the second phase of HELM; efforts will focus on improved implementation of reform efforts both within DIKTI and within partner HEIs.
3. The final phase is considered the institutionalization phase. Institutionalization will be a focus throughout the program but in the final program years an intensified effort will sustain best practices and improve channels for dissemination of reform efforts.

HELM phase one assessment activities are intended to better identify, define, and focus the program implementation that will form the foundation of the HELM project out-year activities, while simultaneously providing research to DIKTI. As such, HELM will apply approaches and methodologies deemed as global best practices while remaining mindful of the unique character of the contextual specificity in Indonesia.

HELM will coordinate closely with other donors and implementers working in the HE sector, and strive to learn from their experiences to build upon the successes of prior and existing projects. HELM will seek to complement existing work and create synergies with other programs working in the HE sector. Successes and lessons learned will be shared widely and will remain in the public domain in an effort to disseminate best practices for systemic improvements and to build support for reform within DIKTI and at across the HE sector as well as across a wider range of stakeholders. Recommendations will link the initial assessment report to future program implementation activities.

The deliverables for the HELM program, as outlined in the contract, are organized under the following five key components:

- A. Provide analytical support for strategic planning and policy analysis at DIKTI.
- B. Design technical assistance approaches to achieve effective implementation of key reforms across system, coordinating with DIKTI and maximizing opportunities to internalize best practice within HE system.
- C. Provide technical assistance to increase management capacity and improve performance at HEI—and disseminate best practices.
- D. Strengthen graduate level programs in Higher Education Leadership and Management.
- E. Support special initiatives by providing assistance to advance reforms and innovation within management of HEIs.

Much HELM's work during Year 1 is focused under Component A and will provide the analytical foundation to inform implementation in future HELM activities. The assessment described below is one among the group of assessments.

### **Overview of Component A**

The purpose of Component A is to provide analytical support for strategic planning and policy analysis at DIKTI. Based on discussions with USAID, DIKTI, and the Ministry of People's Welfare (*Menko Kesra*) several of the deliverables outlined under Component A were adapted to be more responsive to expressed need and current context.

In particular, DIKTI has identified the need to better understanding the constraints and opportunities within the fiscal regulatory environment. A wide range of data will be collected to illuminate the current legal and fiscal environment within the context of moving toward a system with more HEI autonomy. Data collected at the HEI institutional level and at the national level will be synthesized and analyzed in an effort to represent a range of different stakeholders and diverse data sets, and to fully understand the fiscal and regulatory context.

The overall approach to development of the assessments will include:

- Close coordination counterparts within DIKTI and other higher education stakeholders including other donors, implementers, and beneficiaries.
- Desk reviews of appropriate laws, regulations, available data, earlier studies, and other relevant documents to understand the DIKTI mission, the strategic vision for higher education in Indonesia and set forth in the strategic plan, the pending new law, and other factors.
- Presentation and dissemination of findings relevant to DIKTI and HEIs as well as with other HEI stakeholders at the first HELM discussion forum. This discussion forum will contain information and analysis of research to date related to:
  - Fiscal and cultural context for the implementation of particular components of laws governing semi-autonomous higher education institutions (BLU or *Badan Layanan Umum*) and recommendations to improve the system and process.
  - Prioritization of actionable points to inform the design and development of future HELM program activities related to financial management within the greater context of the pending law and the emphasis on movements toward autonomy.



# EXECUTIVE SUMMARY

## Introduction and Methodology

The principal focus of this assessment was to review the reporting systems as well as the quality and relevance of the indicators associated with the improvement of *implementation* of the Ministry of National Education's Directorate General for Higher Education (DIKTI) 2010-2014 Strategic Plan for Higher Education (*Rencana Strategis [Renstra] Direktorat Jenderal Pendidikan Tinggi, 2010-2014*). This review focused first on the indicators, and their quality, as a precursor to analyzing two aspects of implementation: (i) the data process systems used by DIKTI, and (ii) the available data on higher education and the quality of those data.

Using a methodology that combined an extensive desk review of Indonesian and international documents and publications, interviews with key officials in the higher education system, and analyses of currently available data on higher education, the following key research questions were addressed:

- *The Strategic Indicators.* What is their overall focus, and how might they be improved? What are the overall quality of the indicators in terms of how this affects data collection and reporting processes?
- *Frameworks for Analysis.* What other frameworks (national/international) have been used, or could be used, to analyze the indicators and the data reporting systems that support them?
- *The Data/Information Reporting Systems.* What is the various data collection and reporting systems currently being used in the Indonesian higher education system, how are they linked, and what are the weaknesses in reporting and analyzing data?
- *The Quality of Data.* What types of data and information are being collected in support of the indicators, what quality issues exist in these data and information, and if there are such issues, what can be done to address them?
- *Conclusions.* From this initial review, what conclusions can be drawn from the findings?
- *Capacity Building, Sustainability and HELM.* Linking the HELM project and DIKTI for indicator and data improvement should be viewed in terms of a capacity building paradigm. What capacities need to be built?

## Conclusions

The conclusions drawn from this review and analysis follow the principal divisions of the report:

### The Indicators

Using several analytical frameworks as guides for analysis, the indicators were seen for the most part to be measurable but whether all the required data can be collected, analyzed and reported

on a *timely* basis, useful for decision making at different levels, is open to question. A future examination of the relevance of certain items may be a useful topic for discussion as DIKTI prepares for future strategic plans. The need to collect more relevant data on the quality of learning presents one of the greatest challenges.

The conclusion from the overall analysis of the indicators was that a review of the indicators, perhaps as a capacity building exercise facilitated by HELM, could help strengthen relationships between the measures (the indicators) and the strategies and policies with which they are supposed to be associated.

In the process, the indicators might be better or more logically organized, using the tertiary section of SABER (World Bank's system "Systems Approach for Better Education Results") system using System Performance-Outcomes, and System Health-drivers of performance, as a model. An outcomes-oriented model also would be helpful because to inform policy, indicators need to identify outcomes and impacts, not just inputs and outputs. There is a need to consider both linear and non-linear perspectives, as well as qualitative approaches when thinking about the kinds of data that performance indicators might produce.

### **Implementation: The Data Systems**

Based on a review of documents and interviews with DIKTI personnel, the systems or pipelines for collecting and reporting data in higher education were found to be complex, perhaps not unexpected from such a large and far-flung nation as Indonesia. The systems, however, sometimes seem to be at odds with one another, producing redundant attempts to collect data. The major data reporting system, the Higher Education Database System (PDPT), managed by the DIKTI Secretariat, collects vast amounts of data, principally to provide institutional profiles of higher education institutions. At a higher level, PDS (the national education database) merges information from PDPT and other sources to produce select national level tables of data on all levels of the educational system.

PDPT is supposed to include quality assurance information. Meanwhile, external quality assurance information and data is also being collected by the National Accreditation Board (BAN-PT) which is mandated to pass on such information to DIKTI. The Directorate of Learning and Student Affairs, which is especially interested in quality assurance at the higher education institutions, is apparently in need of faster response from BAN-PT, and so is also collecting data itself. DIKTI senior officials are aware of this situation and recognize that it puts greater data demands on the higher education institutions than necessary.

### **The Implementation: DIKTI Data, Patterns and Quality**

DIKTI data, its management and quality, are like a jigsaw puzzle. The borders of data exist but there is a need to "fill in the middle" with puzzle pieces consisting of better data, and better analysis. Based on interviews and other information, and with the guidance of several data quality frameworks, doubts were expressed about the accuracy/integrity, completeness and timeliness of the data.

Related to the discussion of indicator quality, most data focus on inputs and outputs with little information on valuable outcomes or impacts. It was observed that there are hazards to aggregating data, and that important information may be lost by too much averaging of information. A need is seen for more and better qualitative data to support and enrich the quantitative emphasis. Most importantly, there seems to be a need to better identify and analyze the patterns and linkages in existing data. Better analytical skills among existing DIKTI staff, additional staff to carry what is obviously a large analytical load, and the decisions to make these changes happen, provide a way forward and entry points for capacity development through HELM.

### **Moving Forward: Capacity Development Steps**

The way forward to improving the implementation of data processes and the quality of data first needs further exploration to deepen the knowledge base about the data systems, particularly from the viewpoint of the higher education institutions. The way forward basically lies in the realm of “capacity development” (not just capacity *building*, which is more short-term).

#### *Data analysis strategy steps*

In terms of developing improved capacity for DIKTI in data analysis, the following data analysis strategy steps, are proposed, and are confirmed by other findings in this report. They become recommendations for general capacity development in data analysis improvement.

Step 1: Descriptive application of actual DIKTI data to USAID/HELM dialogue about Key Performance Indicators.

Step 2: Develop within DIKTI the capacity to use existing data sets to draw conclusions.

Step 3: Support DIKTI managers to better interpret implications from data for HE system functioning, management, and funding.

Step 4: Identify data that does not fit DIKTI expectations/experience, as a way of validating reporting/data entry. This is a lost opportunity if data are aggregated into Provincial/National Reports. Explore existing DIKTI collection/audit of its data sets to enhance data integration (in which returns that “look wrong” are reviewed).

Step 5: Clarify the ambiguity and double reporting of data between DIKTI and Islamic Education (PTAI 09/10 tables), and institutions “owned” by other Ministries.

Step 6: Develop capacity based on steps 1-5

Step 7: Analysis/reporting of HEI expenditures (not part of the existing data sets) so that DIKTI can demonstrate and improve operational efficiency.

Step 8: Use existing data sets to improve analysis/discussion of “HE access” and other issues (gender/poverty/distance/range of institutions and courses) that impact quality of the overall HE sector.

Step 9: Include qualifications/capacity of existing HEI academic staffing to improve learning outcomes, identify further research, and deepen knowledge of the systems and the constraints upon the whole higher education system (which is more centralized than other education agencies).

### **Proposed Capacity Development Activities**

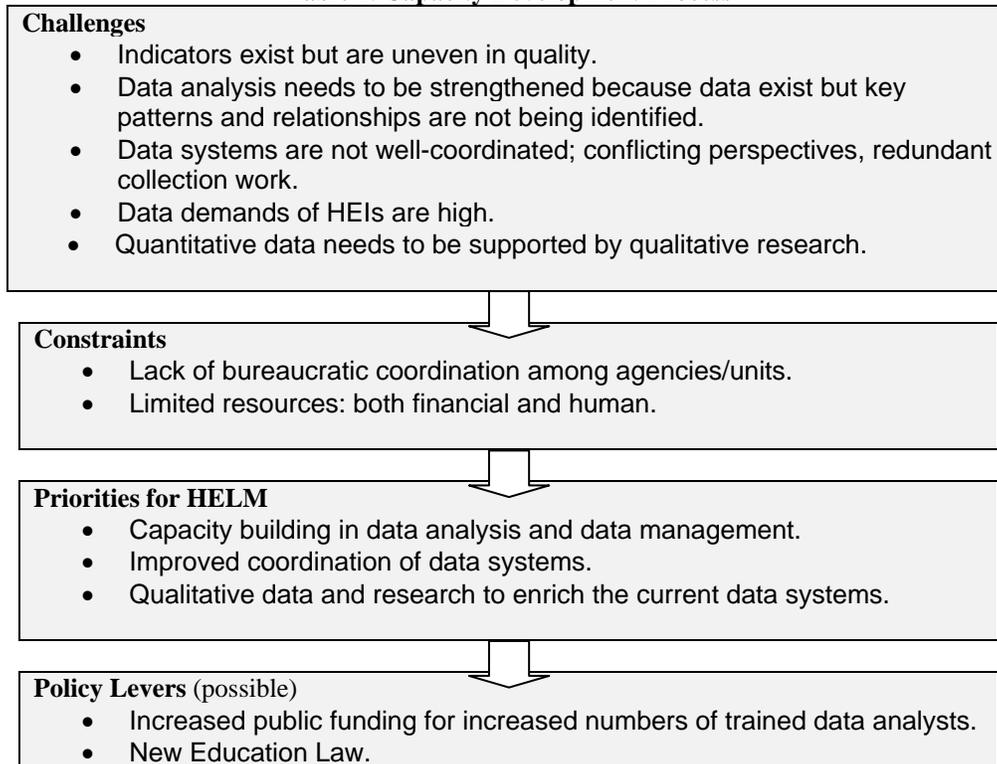
Keeping in mind the nine strategy steps outlined above, as well as the need for further exploration and review of the DIKTI data process systems, the following specific capacity development activities are proposed for discussion and possible implementation:

- Present/share findings and conclusions of this report in a HELM-initiated discussion forum with the objective of linking constraints in the data process system with related improvements.
- HELM facilitates a Technical Workshop on Data Analysis for relevant DIKTI staff.
- Hold discussions with USAID and DIKTI to explore how HELM might support qualitative research efforts, perhaps with the assistance of higher education institutions to balance and enrich the quantitative data collected by DIKTI.

### **The Jigsaw Puzzle: Putting it all Together**

The jigsaw puzzle is a good analogy not only for improving the quality of data and its analysis, but for improving the operation, the implementation, of the systems through which data and other information must flow. Finding the right shaped pieces to make the systems and the analyses operate to the highest standard will require vision, flexibility, participation, openness, patience, and the determination to move from challenges to action to results. In conclusion, the capacity development process, and putting together the puzzle, can be summarized as below:

**Table 1. Capacity Development Process**



# INDICATORS AND IMPLEMENTATION

## Introduction

### Context

The internal domestic challenges to higher education in Indonesia were outlined succinctly in early 2012 by Dr. Harris Iskandar, the Secretary of Directorate General of Higher Education<sup>1</sup> and presented below in Table 2.

**Table 2. Domestic Challenges to Higher Education**

- |  |
|--|
| <ul style="list-style-type: none"><li>• Rapid expansion of higher education, often with quality lagging behind</li><li>• Geographical and social disparity in access and equity</li><li>• Quality, relevance, efficiency needed</li><li>• Governance and management weak</li><li>• Disparity in quality (public-private, geographical)</li></ul> |
|--|

This report is an overview of the quality of one particular aspect of higher education: the quality of implementation of the data processes in support of the national strategic plan and its strategic indicators occurring within the Indonesian higher education system. Each of the domestic challenges outlined above requires “good” data on indicators that in turn leads to good analysis and, most importantly, good understanding for making management and leadership decisions at many levels. The indicators and implementation are, and should be, closely linked, and while this report will briefly review the strategic indicators and as requested make some suggestions for improvement, the main focus is on implementation within the data system.

### Objectives

The stated outcomes for this assessment focus on the improvement of the implementation of the strategic plan, including the DIKTI Long-Term Plan. This technical assistance, through the HELM project supported by USAID, supported this review of Annual Year targets, the identification of quality and relevance of indicators, and the lessons learned.<sup>2</sup> The principal focus of this assessment is to explore the reporting system(s); as well as the identification of the quality and relevance of indicators, with particular reference to Annual and Long-Term Plans. It is important to note that this activity is closely linked to HELM project Deliverable 1c which focuses on identifying constraints and proposing solutions to the implementation of the DIKTI strategic plan.

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<sup>1</sup> Dr. Harris Iskandar. “Policy Challenges in Strengthening Private Universities.” PowerPoint presentation. Jakarta, 2012.

<sup>2</sup> This work is the first of two original and linked USAID/HELM deliverables: (1b) “Assist DIKTI to complete strategic plan for higher education.” (this of course no longer applies in this form as the Strategic Plan has been completed, as have the strategic indicators that accompany it. Therefore the emphasis here has been principally placed on *implementation of the indicators*), which will link with assessment (1c) report “identifying constraints and propose solutions in implementing the strategic plan.”

## Limitations

The research for this report was seriously constrained by several factors. Gaining access to key DIKTI personnel proved to be difficult and only limited access was achieved. Since trying to understand the paths and quality of the data flow constituted an important element of this research, this was an important limitation. Originally the intent was that HELM staff might be able to work inside DIKTI, but this was not possible given the pending Higher Education Law at the time; even getting appointments was difficult. Nevertheless, meetings with DIKTI staff relevant to this assessment did occur (see list of persons met and contacted in Annex A) and proved to be informative.

## Methodology

### Problem Statement

The overall problem, as presented, is that the implementation of data reporting systems, in support of the strategic indicators, needs to be improved. While the DIKTI national strategic plan (RENSTRA) is in place, as are its indicators, an early in-country meeting with the head of planning and budgeting division left open the possibility of suggesting some additions or improvements to those indicators. More relevant, however, was determining how to improve the reporting of quality data in support of Annual and Long-term Plans. Two of the most crucial aspects of this perceived problem are (i) the quality of the whole data system; the flow of data itself, including its collection, analyses, reporting and use; (ii) the quality of the data itself. The challenge that emanates from these two aspects is: how, and in what ways can the HELM project assist in improving the situation.

Indonesian higher education is awash with numbers and statistics. The initial questions then are: What is relevant? Are these good quality statistics? Are the numbers being reported being presented accurately or is aggregation hiding important aspects of the higher education system? Are the right questions being asked; if not, why not? What is being done with this flood of information; who uses it, for what and when, and is it being used effectively and efficiently? Do the multiple, diverse systems really operate effectively and efficiently? How can this all be done better? This leads to a further series of research questions below.

Finally, as has been noted in the recent literature on “proofiness,”<sup>3</sup> the insertion of statistics tends to lend gravitas to presentations and documents. People, through online systems (as used in Indonesia and in many countries) or in paper documents, are impressed by numbers; the “proofiness” means that numbers and statistics *look* good. It looks like “proof” of something. This analysis, review and critique seek to dig beyond the *looks* into the *quality* of the numbers and the implementation in the system. There is a need also to go beyond the numbers into vital qualitative research and this too will be addressed.

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<sup>3</sup> Charles Seife. *Proofiness: The Dark Arts of Mathematical Deception*. New York: Viking Press, 2010.

## Key Research Questions

1. *The Strategic Indicators*: What is their overall focus, and how might they be improved? What is the overall quality of the indicators in terms of how this affects data collection and reporting processes?
2. *Frameworks for Analysis*: What other frameworks (national/international) have been used, or could be used, to analyze the indicators and the data reporting systems?
3. *The Data/Information Reporting Systems*: What are the various data collection and reporting systems currently collecting data on the Indonesian higher education system? How are they linked? What are the weaknesses (and strengths)? How is data reporting and analysis done?
4. *The Quality of Data*: What types of data and information are being collected in support of the indicators? What quality issues exist in this data and information? What can be done to address the issues?
5. *Capacity Building, Sustainability and HELM*. What capacities within DIKTI and at the HEI level need to be developed?

## Approach

The general approach to this complex task is two-fold:

- An extensive document and literature review
- Interviews: with:
  - Key personnel of DIKTI.
  - Others who know the Indonesian higher education system, consultants, World Bank staff and staff members of HELM.
  - Email contacts with professional educators.

These approaches were not, of necessity, neatly compartmentalized into specific time periods but rather consisted of an evolution and accretion of knowledge, documents and interviews over time. A bibliography and a list of persons interviewed may be found in the Annexes L and A, respectively.

## Data/Information Collection

In addition to information collected through interviews and documents, a preliminary review and analysis of statistics on higher education was conducted, available publicly online from the Government of Indonesia through its PDPT system and other GOI sources.

Data and related information was also collected via documents from the Asian Development Bank and particularly from the analyses available through the tertiary education sections (see

below) of the World Bank’s SABER system (Systems Approach for Better Education Results) and documents of the Bank’s I-MHERE project.<sup>4</sup>

#### *Analytical frameworks for reviewing indicator and data quality*

As part of the overall methodology of this analysis, several analytical frameworks have been chosen as tools for reviewing both the strategic indicators and the data quality. Each framework, while not intended for rigid use, is helpful in examining the implementation of the processes being used for the collection, analysis and reporting of data. As will be seen, there is a close relationship between indicator quality and data quality and therefore the analytical frameworks for examining indicator quality and data quality are also closely related.

Two analytical frameworks are presented for examining indicators. The first, *Ten Criteria for Assessing Indicator Quality*, is a tool used specifically for reviewing indicator quality. The second framework, *SABER-Tertiary*, from the World Bank, is used here more as an important model for what kinds of indicators should be included and monitored in national-level plans. It provides important lessons for data quality as well, chiefly by what it includes as a model. SABER is a major international effort at comparing educational systems and is given special and extended attention here because of World Bank’s recent (2012) efforts at reviewing tertiary education in East Asia, including Indonesia.

Indonesia’s higher education national plan, and its associated strategic indicators, is approved and in place, and therefore the indicators are not the principal focus of this analysis—rather the quality of the indicators is explored.<sup>5</sup> As such, a review of the indicators is an important first step in understanding the overall quality of the data processes.

#### *A framework for assessing indicator quality: ten criteria for assessing indicators*

Why does the quality of indicators matter? A reasonable answer would be that if the indicators are of high quality, there is the potential for higher quality implementation. If the indicators are weak, of low quality, implementation of data processes in service to the indicators is more likely to produce information that will be “weak” as well. What then do quality indicators, and weak indicators, look like? How can they be rated?<sup>6</sup>

Fortunately much thought has been given to the criteria for good indicators. One tool that can be used for an indicator review, the “*Ten Criteria for Assessing Indicators*,” has been chosen because of its completeness and provision of examples. It is presented here in an abbreviated form and will be used as a guideline to review the current strategic indicators in higher education.

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<sup>4</sup> For access to the SABER system files and the I-MHERE documentation, Ratna Kesuma of The World Bank Jakarta deserves special thanks.

<sup>5</sup> The Director of Planning at DIKTI has indicated that suggestions for additional indicators or improvements in the current ones are welcomed even though the Plan and the Strategic Indicators are firmly established.

<sup>6</sup> It is important to distinguish between two terms: an *indicator*, and a *measure*. They are closely intertwined but they are not the same. An indicator asks: *What is the observable milestone by which one knows the change has happened?* A measure asks: *What unit of change should be monitored to see if the milestone has been achieved?* World Bank Institute (2011)

**Table 3. Ten Criteria for Assessing Indicators**

<b>TEN CRITERIA FOR ASSESSING INDICATORS<sup>7</sup></b>	
<b>Indicator Selection Criteria</b>	<b>Examples (good and bad)</b>
<b>Measurable:</b> It can be quantified and measured using some scale. Quantitative indicators are numerical. When effective quantitative indicators are used, qualitative indicators can supplement with information that brings the program results to life.”	No! People’s feeling about the elections Yes! Percentage of population who voted.
<b>Practical:</b> Data can be collected on a timely basis and at reasonable cost.	No! Number of targeted population who understand their voting rights (a census) Yes! % of targeted population who understand their voting rights (representative sample, through a poll).
<b>Reliable:</b> Data can be measured repeatedly, with precision by different people.	No! Number of people receiving quality care and support services through workplace programs. Yes! Number of people who were tested for HIV at work in the last 12 months.
<b>Relevant:</b> Attributable at least in part to the program being monitored. A result is caused to some extent by program activities.	No! Agricultural production yield in the country. Yes! Agricultural production yield in the district where a program is being implemented.
<b>Useful to Management:</b> Information provided by the measure is crucial for decision-making.	Indicator example: Level of institutional capacity. No! Number of computers. Yes! Number of staff meetings.
<b>Direct:</b> The indicator closely tracks the result it is intended to measure.	Result: Increased variety in agricultural production, No! Number of types of agriculture seeds distributed. Yes! Volume of production by type of agriculture produced.
<b>Sensitive:</b> The indicator serves as an early warning of changing conditions.	No! Gross Domestic Product. Yes! Amount of rice consumed per household per year.
<b>Responsive:</b> What the indicator measures can be changed by program actions.	No! % of population unemployed. Yes! % of secondary school students who graduate with a passing grade of 60% or higher.
<b>Objective:</b> The measure is operationally precise and one dimensional. An objective indicator has no ambiguity about what is being measured.	No! Number of expanding and successful parent/teacher associations Yes! Number of parent/teacher associations experiencing annual increase in membership over 5%.
<b>Capable of being disaggregated:</b> Data can be broken down by gender, age, location or other category where appropriate.	Yes! Gender, age, location, ethnic group.

<sup>7</sup> Adapted from: McCoy, KL; Ngari, PN; and Krumpal, EE. 2005. *Building monitoring, evaluation and reporting systems for HIV/AIDS programs. PACT: Washington, DC. 41.* As presented in *Making Monitoring and Evaluation Systems Work* by Gorgens and Kusek. 2009. World Bank. 179-180.

### *SABER-Tertiary*

This is a sub-system of the SABER (Systems Approach for Better Education Results) program; a collaboration of UNESCO and The World Bank. Its stated goal, as an evidence-based program, is “to help countries systematically examine and strengthen the performance of their education systems.” An introductory brief to SABER-Tertiary (World Bank website; 2012) notes that previous efforts to measure the performance of tertiary education and to analyze “what works” were flawed because the focus was on individual institutions, with such rankings using the positions of countries’ top universities as proxies for country performance.

The first results of SABER’s East Asia pilot efforts have recently been published (2012; Patrinos) and offer initial insights not only into Indonesia’s tertiary system but also comparisons with other countries in the region. (Some specific outcomes and results for Indonesia from SABER-Tertiary will be reported later in this report.) This is a new and potentially valuable analytical tool; a tool that will become more valuable as its substance and range is expanded and deepened.

Jamil Salmi and Sunita Kosaraju, authors of *Tertiary Education*, one of a large set of essays that are part of the SABER-Tertiary East Asia publication, supply an analytical framework that makes a distinction between two perspectives (and two associated questions) in building their benchmarking tool for tertiary education. This framework for analysis is presented here because it provides an important definitional foundation for the review and critique of the indicators and implementation of data processes in the Indonesian higher education system.

- System Performance: the *outcomes* of a system. The question here is “*How well does the tertiary education system actually produce expected outcomes at the current time?*”
- System Health: the *drivers* of results. “*How well do the key inputs, processes, and enabling factors of the system reflect conditions that are known to bring about favorable outcomes?*”

Table 4, below, provides details.

**Table 4: System Performance**

**SYSTEM PERFORMANCE<sup>8</sup>**

Outcomes

**“Attainment:** refers to the stock of qualifications in a given population, measured by calculating the proportion of adults in the working age population who have completed a tertiary degree.

**Learning Achievement:** refers to the quality and relevance of the education and training experience of tertiary level graduates. This is one of the most difficult areas to measure in the absence of widely accepted metrics such as PISA (Program for International Student Assessment) and TIMSS (Trends in International Mathematics and Science Study).

**Equity:** refers to disparities in the results (attainment and academic trajectories) of disadvantaged groups (such as low-income groups, females, minorities, and people with disabilities).

**Research Outcomes:** refers to publications and advanced training, measured by the number of scientific journal citations relative to a country’s population and the capacity of the system to prepare PhD. Graduates.

**Knowledge and technology transfer** represent the contribution of tertiary education institutions to the development of the regions that they serve. Some ways to measure this include the number of patents registered by universities or the proportion of doctoral graduates working outside universities,

**Values, behavior and attitudes:** refer to the effectiveness of tertiary education in equipping graduates with positive values and citizenship skills. This is a very difficult area to measure, but the methodological challenges do not justify neglecting this important dimension of the role of education.”

**SYSTEM HEALTH**

Enabling conditions required for a tertiary system to produce outcomes and to improve and sustain its performance over time.<sup>9</sup>

**Macro environment:** the overall political and economic situation of a country, together with the rule of law and the enforcement of basic freedoms, which influences the governance of tertiary education institutions (the appointment of university leaders), their level of funding, their academic freedom, and safety in the physical environment.

**Leadership at the national level:** the existence of a vision and a strategic plan to shape the future of tertiary education and the capacity to implement reforms.

**Governance and regulatory framework:** the governance structure and processes at national and institutional levels that determine the degree of autonomy tertiary education institutions enjoy and how and to what extent they are held accountable. This is especially important for human resources policies and management practices that allow tertiary education institutions to attract and keep qualified academics.

**Quality assurance framework:** the institutional setup and the instruments for assessing and enhancing the quality of research, teaching and learning.

**Financial resources and incentives:** the absolute volume of resources available to finance tertiary education (mobilization of both public and private resources) and the way in which these resources are allocated to various institutions.

**Articulation and information mechanisms:** the linkages and bridges between high schools and tertiary education and among the various types of tertiary education institutions, all of which affect the academic characteristics of incoming students and their academic results within the tertiary system.

**Location:** the infrastructure and the economic, social and cultural characteristics of the geographical location of the institution, which determine its ability to attract outstanding scholars and talented students.

**Digital and telecommunication infrastructure:** the availability of broadband connectivity and end user devices to enable tertiary education institutions to deliver educational research, and administrative services in an efficient, reliable, and affordable way.

For DIKTI, the SABER system provides several useful concepts. First, as noted, there is the idea of dividing indicators between two dimensions: System Performance and System Health, with

<sup>8</sup> Jamil Salmi and Sunita Kosaraju. “Tertiary Education” in Patrinos (Ed) *Strengthening Education Quality in East Asia*” *SABER System Assessment and Benchmarking for Education Results*. UNESCO and The World Bank. 2012.

<sup>9</sup> Ibid. 108.

the focus being on outcomes and enabling conditions, respectively. This interesting dichotomy can be useful in analyzing indicators and data in Indonesia.

Second, there is the idea of “leading indicators” which may already be used in education in Indonesia but perhaps not so explicitly as in SABER. SABER, in a pilot effort, uses “leading indicators” to compare the tertiary systems of East Asian countries. Leading Indicators are defined as those that are “*used to detect or predict important changes that are likely to occur in a tertiary education system.*” Leading indicators, in condensed form, are described in Table 5.

**Table 5. Leading Indicators of Tertiary Education Systems**

SYSTEM PERFORMANCE	<b>Attainment:</b> Proportion of the population (25-44) with a tertiary degree
	<b>Equity:</b> Tertiary education attainment of females over attainment of males among the population (25+)
	<b>Research Output:</b> Number of citations per 100,000 inhabitants
SYSTEM HEALTH (Drivers of Performance)	<b>Expansion:</b> Tertiary education enrollment rate.
	<b>Equity:</b> Female/Male tertiary enrollment rate
	<b>Quality:</b> Proportion of accredited programs
	<b>Financing:</b> Total spending on tertiary education as percentage of GDP
	<b>Investment in Research:</b> Public funding on research as percentage of GDP
	<b>Governance:</b> Degree of autonomy of public universities
	<b>Preparation of Incoming Students:</b> Composite index of mean math, science and reading PISA scores

A negative side to this system, as noted by one of the contributors to SABER, is that “benchmarking” that focuses on ranking can lead policymakers to become too fixated on relative successes. SABER does show progress over time, however, which is useful. It is not static. SABER does make it easier to compare indicators within the region. SABER will also require more time and resources, and better data, to become fully viable; the SABER chapter on tertiary education was limited to describing just two of the leading indicators: research output and attainment. As described, however, the SABER-Tertiary analytical framework models the types of data that should be collected at the national level.

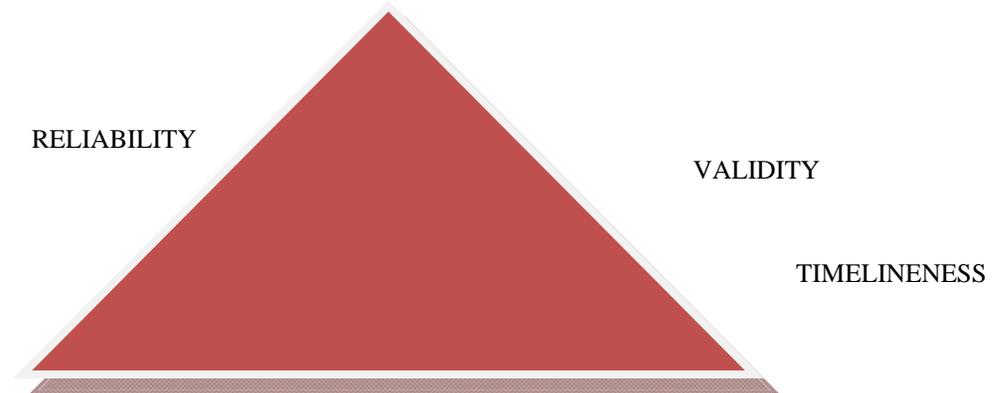
#### *Frameworks for assessing data quality*

Three analytical frameworks for examining data quality are briefly presented here: *S.M.A.R.T.*, *The Data Quality Triangle*, and a set of *USAID Operational Definitions of Data Quality*. It is important to note that in many ways they overlap but each has its utility.

The frameworks are not meant to be rigidly applied here, but they all provide important guidance in this analysis. Each has a place in thinking about objectives, indicators and data processes. The first and simplest of the data review frameworks, SMART, is known not only for its utility but also by its memorable acronym. The *Data Quality Triangle* offers a more thorough perspective on data analysis. Third, the USAID tool gives a useful set of operational definitions of data quality.

1. *S.M.A.R.T.* S.M.A.R.T. stands for: Specific, Measurable, Achievable, Realistic, and Time-bound. It is often used to critique program and project objectives and can be used here to begin thinking about some aspects of the data system in higher education.

2. *The Data Quality Triangle*. Kusek and Rist, in “Ten Steps to a Results-Based Monitoring and Evaluation System (2004) state that a data collection system for all indicators should have three criteria: (i) reliability, (ii) validity and (iii) timeliness. They say that “to the extent that any of those criteria are absent, credibility of the system will diminish.” Each of these terms is carefully defined and is useful in the analyses to be done in this report. This triangle is illustrated below.



- **Reliability:** The extent to which the data collection approach is stable and consistent across time and space.
- **Validity:** The extent to which indicators clearly and directly measure the performance intended to be measured.
- **Timeliness:**
  - *Frequency:* How often are data collected?
  - *Currency:* How recently have data been collected?
  - *Relevance:* Are data available frequently enough to support management decisions?

#### *USAID Operational Definitions of Data Quality*

Much as there are criteria for quality indicators, there are also criteria for quality data. Before examining some of the indicators for higher education that DIKTI currently uses, it is useful to review the six dimensions of data quality as provided by USAID (2007).<sup>10</sup> These are dimensions that must be considered when handling even the most routine types of data, as shown in Table 6.

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<sup>10</sup> Gorgens and Kusek 2009. *Making Monitoring and Evaluation Systems Work*. World Bank. P. 346

**Table 6. Operational Definitions of Data Quality**

<b>Dimensions of Data Quality</b>	<b>Operational Definition</b>
<b>Validity</b>	Valid data are considered correct: the data measure what they are intended to measure. Valid data minimizes error (e.g. recording or interviewer bias , transcription error, sampling error) to a point of being negligible.
<b>Reliability</b>	The data generated by a program’s information system is based on protocols and procedures that do not change according to who is using the data and when or how often it is used. The data are reliable because they are measured and collected consistently.
<b>Completeness</b>	Completeness means that an information system from which the results are derived is appropriately inclusive and represents the complete list of eligible persons or units and not a fraction of the list.
<b>Precision</b>	This means that the data has sufficient detail. For example, an indicator requires the number of individuals who received HIV counseling and testing, and received their test results, by sex of the individual. An information system lacks precision if it is not designed to record the sex of the individual who received counseling and testing.
<b>Timeliness</b>	Data is timely when it is up-to-date (current), and when the information is available on time. Timeliness is affected by: (1) the rate at which the program’s information system is updated, (2) the rate of change of actual program activities, and (3) when the information is actually used or required.
<b>Integrity</b>	Integrity is when data generated by a program’s information system is protected from deliberate bias or manipulation for political or personal reasons.

Just as there should be good Quality Assurance in education, there also should be “data quality assurance.” This should include a set of internal and external mechanisms and processes to ensure that data meets the six dimensions of quality outlined above. Such measures can include planning for quality, controlling quality, and implementing remedial actions to improve quality. Data auditing (verifying the completeness and accuracy of one or more data management processes) and supportive supervision (not policing) are just two of the ways that data quality assurance can be implemented.<sup>11</sup>

#### *Data Analysis: Recognizing Patterns*

Using currently available data in Indonesian higher education, comparisons and other analyses will be used to pull out patterns and trends that identify important factors hidden or missing in the data as presented, and to provide recommendations for how such data can better inform the strategic indicators and provide background for decision making. Using the frameworks briefly outlined above for guidance and analysis, indicators, and implementation are now considered.

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<sup>11</sup> Ibid.146.

## INDICATORS

### An Analysis of the Indicators

#### The RENSTRA (National Strategic Plan)

The RENSTRA (2010-2014) for higher education was approved in January 2010. The text of the Plan begins by outlining the growth of the country's student population: from 3.4 million in 2001 to 4.5 million in 2009. Despite this growth, the Plan notes, Indonesia lags behind other nations in the region including an admitted weakness in quality and relevance. Five strategic objectives for higher education are at the heart of the Plan:

- The development of the system of the Directorate of Higher Education (so that it can perform its duties and functions effectively and efficiently).
- The availability of Indonesian higher education that is of higher quality and relevant to national development needs, thereby contributing significantly to increasing national competitiveness.
- Affordability, equality, and the security of access to higher education.
- Autonomous and accountable universities, in line with Law No. 20/2003 about the national education system.
- Interaction between the university and the community college that reflects harmonious reciprocity and mutual benefits.

The Plan then outlines a set of policies to reach each of these goals. Accompanying the Plan is a detailed set of performance indicators delineated by strategic objective. The translated text of these indicators can be found in Annex B.

This report focuses on how, and how well, the data collection, reporting and analysis system is being implemented to supply reliable, valid and timely information for Annual Plans (and Long-term Plans and strategies (HELTS)).

#### A Preliminary Quality Review of the Strategic Indicators

Measurable, practical, reliable, relevant, useful to management, direct, sensitive, responsive, objective and, capable of being disaggregated are the *Ten Criteria for Assessing Indicators*; the framework as previously outlined. These criteria are used to begin to critique the indicators of the Strategic Plan. There is no intent here to change the Plan and its indicators, rather, this report will provide preliminary observations on how indicator quality might be improved as background for a deeper indicator and data analysis; a capacity development opportunity with which HELM might provide future assistance to DIKTI as the next Strategic plan is developed. These observations are framed for the most part in terms of indicator quality improvement, first using the ten criteria and then a set of more holistic perspectives.

## Preliminary Analysis: Using the Ten Criteria<sup>12</sup>

1. Measurable? It is clear that an effort has been made to state the performances in terms that can be measured. Whether these targets are realistic is difficult to judge at this point. It is important to note that these strategic indicators are based on planning targets covering each of the years from 2010 to 2014 so they are part of a planning document. No reference is made to the categories and measures under which these data are currently collected by the *Pusat Data dan Statistik Pendidikan* (PDSP).
2. Practical? “Data can be collected on a timely basis and at reasonable cost.” The Key Performance Indicators are numerous and will require data collection for each year of the Plan. Whether data collection on all these indicators can be done on a timely basis remains to be seen, and evaluated. For example, the key performance indicator on “waiting time to get a first chance to work” (in months following graduation) may have to rely on targeted, and carefully planned, tracer studies (such as has been proposed for the final year of the I-MHERE project) and other qualitative efforts.
3. Reliable? While many of the indicators can provide reliable data (“data that can be measured repeatedly, with precision, by different people”) there are some indicators that could be improved by defining them with greater precision, e.g. “PTN PT towards autonomy”.
4. Relevant? Relevance in these indicators can be looked at broadly and also through a more narrow definition. Most of the indicators as stated could, using the criteria offered here, be called relevant. More broadly, however, this set of key performance indicators (or a future set of such indicators) could be improved by asking whether it is relevant to use some of them (e.g. “number of planning documents, reports, performance of personnel” and “number of higher education exhibitions” are not necessarily important pieces of information). Relevance, more broadly, could be improved by moving past performance inputs and outputs to outcomes which is discussed below. More narrowly, on the other hand, measuring the quality of learning is one of the greatest challenges in tertiary education because tertiary education institutions produce multiple outputs and because there is no “universal metric” to address students’ academic performance. Only a few proxy indicators are present among the DIKTI indicators (e.g., completion rates, or “number of graduates as a percentage of the population”).
5. Useful in Management? “Information provided by the measure is crucial for decision-making.” “Crucial” is a strong word and while it is understood that there may be financial ramifications to many of the indicators being posed here, the strategic indicators can be (and should be for the future) reviewed as to the degree of utility each has to a decision-maker. (See “Utilization-based Evaluation” in Annex F).
6. Direct? “The indicator closely tracks the result it is intended to measure.” This also remains to be seen but, as noted, most of the strategic indicators are leading to “results” that are either inputs or outputs, not outcomes.

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<sup>12</sup> Annex 4 contains a complete list of the Strategic Indicators).

7. Sensitive? “The indicator serves as an early warning of changing conditions.” The sensitivity of the strategic indicators is closely related to the issue and criteria of relevance and usefulness to management. Some of these indicators may serve as early warnings in certain categories of performance (e.g., “provision of services”). Other indicators, such as those related to graduates and to measurements of learning, have greater implications for the whole higher education system, and deserve special attention, due to their sensitivity.
8. Responsive? “What the indicator measures can be changed by program activities?” Most of the strategic indicators would appear to be changeable by program activities.
9. Objective? “The measure is operationally precise and one dimensional.” While most of the indicators and their measures are reasonably precise, there are some that rest on sets of multi-dimensional assumptions. “Waiting time to get first chance to work,” for example, rests on assumptions about the national and international economies, location of the institution from which a student has graduated, and the field of study and its market relevance. “PTN PT percentage towards autonomy” assumes certain laws must first be passed.

### **Other Observations on the Preliminary Analysis**

In addition to the ten criteria of indicator quality, it is also useful to look at the strategic indicators with a wider lens. The following observations review aspects of the indicators and relationships among them that were not examined through the use of the Ten Criteria. The SABER-Tertiary model, previously introduced, provides additional perspective in these observations.

- **Indicator System Relationships.** The whole “indicator system” (indicators/ strategies/ policies) could be improved by a concerted effort at establishing and strengthening the relationships between the measures (indicators) and the strategies and policies with which they are supposed to be associated.
- **Outcomes.** Policy indicators also need to identify outcomes and impacts. The majority of the strategic indicators only rise to the level of inputs (“Number of foreign students in PTT”) or outputs (“opening of new programs”, “number of reports in accordance with SIMAK SATKER BMN”).
- **Organizing the Indicators:** The strategic indicators could be improved by organizing them more systematically and logically. One possibility would be to use, or adapt, the indicator dichotomy provided by SABER-Tertiary. This model divides indicators into two clearly defined categories (1) System Performance (Outcomes), and (2) System Health (enabling conditions). SABER also uses the concept of “Leading Indicators,” (also reviewed previously) in each of the two categories. This system of “outcomes” and “enabling conditions” sub-divided into leading indicators could serve as part of an organizing framework for DIKTI.
- **Data Relationships.** What is missing? The indicators could be improved by reinforcing links between data points. For example, clarifying relationships between student

enrollment, graduation data and institutional finance ( by source of funds and by expenditure category).

- **Aggregates and Disaggregation.** The indicators, and the Plan, could be improved by reducing the emphasis on aggregation (averages) of data through facilitating the ability to disaggregate data so that important sub-national diversities are revealed.
- **Worth.** It is important to ask if some of the specific indicators are worth being included. (see previous comments under Relevance). The key question might be: are they really “strategic?” Is it really important to collect that information?
- **Linear and Non-linear Perspectives and Reforms.** In the Strategic Plan the indicators tend to set 2014 as an arbitrary target year with outcomes proceeding along a linear, logical pathway from a 2009 baseline to 2014. A capacity-building experience (a technical workshop) could, however, also focus on non-linear reforms (e.g. after a reform is put in place, slow progress in year one as higher education institutions respond to DIKTI policy, major impact in years two and three and then perhaps a smaller impact in later years). The practical issue is what reforms institutions would put in place to achieve outcomes and the timing for those reforms.
- **Qualitative Approaches.** While it is “precise” in many senses to have an indicator and a measure leading to numerical data, as noted in the “Ten Criteria” indicator assessment, indicators that can be supported by qualitative information are not present and would be a valid and valuable improvement.

### **Other Indicators, Other Approaches**

DIKTI has other examples of indicators and data reporting systems that could be consulted for ideas and examples as it seeks to update and improve the existing systems. Some of those ideas can be found in the realm of basic education. There are also other models at work in Indonesia, an example being in the work of the “Basic Education Capacity Trust Fund (BEC-TF) and its *The Indonesia Local Education Governance Index (ILEGI): A Scorecard of 50 Local Governments.*”

### **Basic Education Capacity Trust Fund: Governance Matters to Education Outcomes**

This useful publication from the Basic Education Capacity Trust Fund or BEC-TF (which includes assistance from The World Bank) focuses on basic education but its premise, structure, and information on local governments can be of use to higher education. “Governance Matters to Education Outcomes” is a capacity assessment study conducted in 2009 of 50 targeted local governments and provides an analysis of education governance performance based on BEC-TF indicators. The Indonesia Local Education Governance Index (ILEGI) is a diagnostic tool to index performance of local governments which presents performance overviews of five output dimensions: (i) *transparency and accountability*, (ii) *education service provision*, (iii) *management control systems*, (iv) *management information systems*, and (v) *efficient resource use*. The primary data, based on a major local government survey is mostly quantitative, but is enriched by some qualitative information. Of particular interest to higher education is the work done on “Governance Matters to Educational Outcomes.”

This research, across the five dimensions, is interesting and candid, in particular because it focuses on educational outcomes. (A selection of tables presenting the indicators used, aggregated indicator scores, and the basic local governance review results, can be found in Annex D.) The education outcomes information on local governance in “Governance Matters” could complement data analysis which will be presented later in this report with a focus on higher education linkages.

### **From Indicators to Implementation**

This review and analysis of the current strategic indicators for higher education is intended to provide constructive suggestions and recommendations to DIKTI. As noted, these are preliminary observations but they can be used to stimulate further discussion and to improve the indicators for the next Strategic Plan. The strategic indicators, particularly the Key Performance Indicators, require the collection, reporting and analysis of large quantities of data, and that leads from an analysis of indicators to consideration of how, and how well, data is collected, and the quality of the data itself.

## **IMPLEMENTATION**

There are two major elements that will be examined under the rubric of implementation:

- The “systems,” and the people in them, that bring data from higher education institutions (HEIs) to the Directorate of Higher Education (DIKTI) and which are then shared, and
- The breadth and quality of the data as it is currently collected, reported and analyzed.

The first element focuses on the systems through which data flows, and the second focuses on the data itself. Understanding both elements remains a work in progress. Neither element, as reviewed here, touches on another linked and critical data pipeline: financial reporting, which is a critical and clearly linked data set, but beyond the scope of this assessment.

### **Understanding the System(s): An Overview**

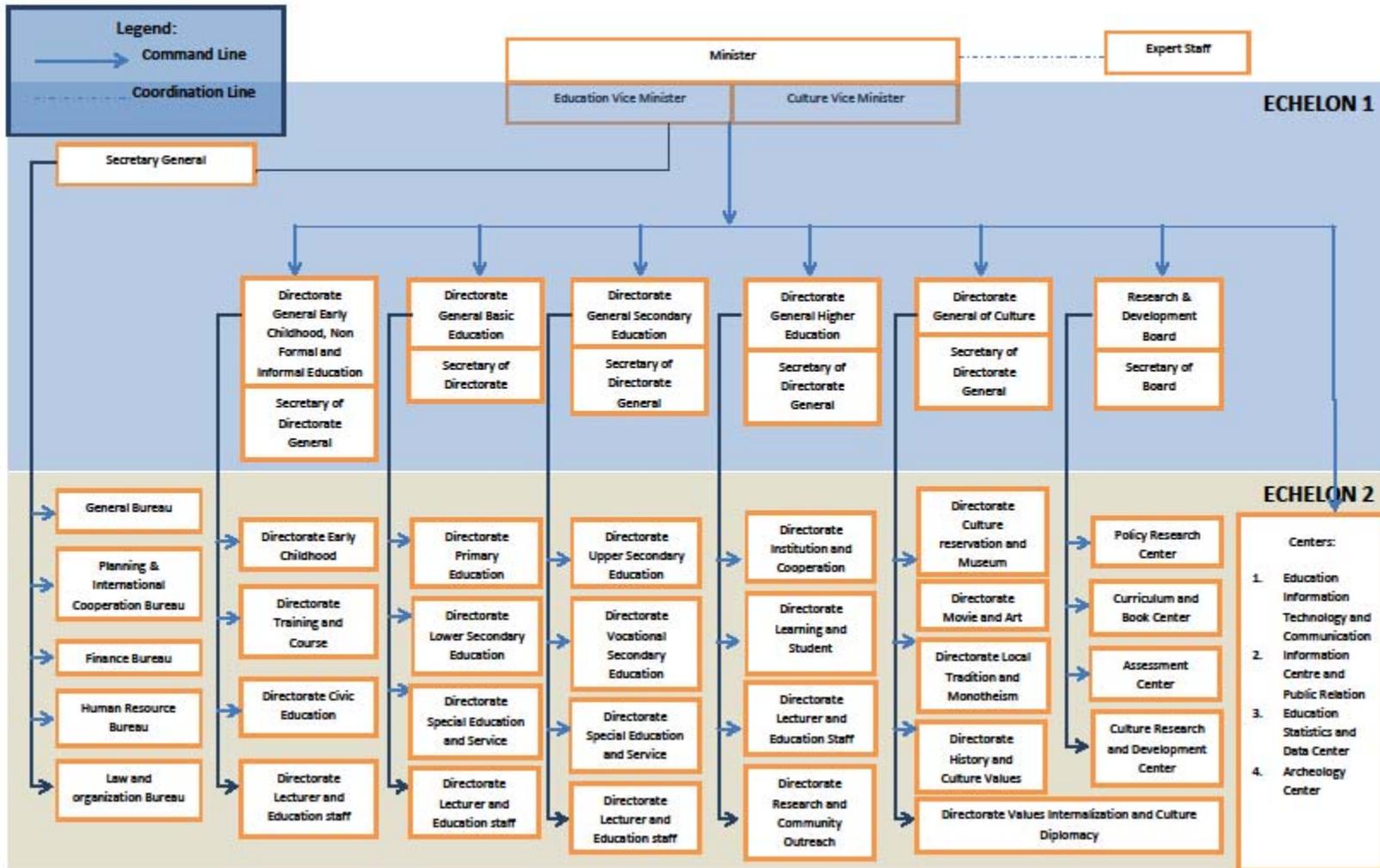
Of the two implementation elements, understanding the systems, and the data pipelines-- how the systems operate-- is the more difficult, but it is also a contextual precursor to understanding the data. For example, it is difficult to obtain clear organizational charts of DIKTI, illustrating the data systems. Translations of key sections of such charts are provided in this paper, where relevant but such charts represent how the systems are supposed to work, the ideal, rather than the reality.<sup>13</sup> This analysis has attempted to go below the surface of the ideals but it must be viewed as only a beginning exercise in understanding that reality.

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<sup>13</sup> Eko Cahyono, Research Coordinator of the HELM project, deserves special thanks and credit for his assistance in finding these organizational charts, and for constructing new charts/diagrams as necessary.

## **Higher Education within the Indonesian Administrative Structure**

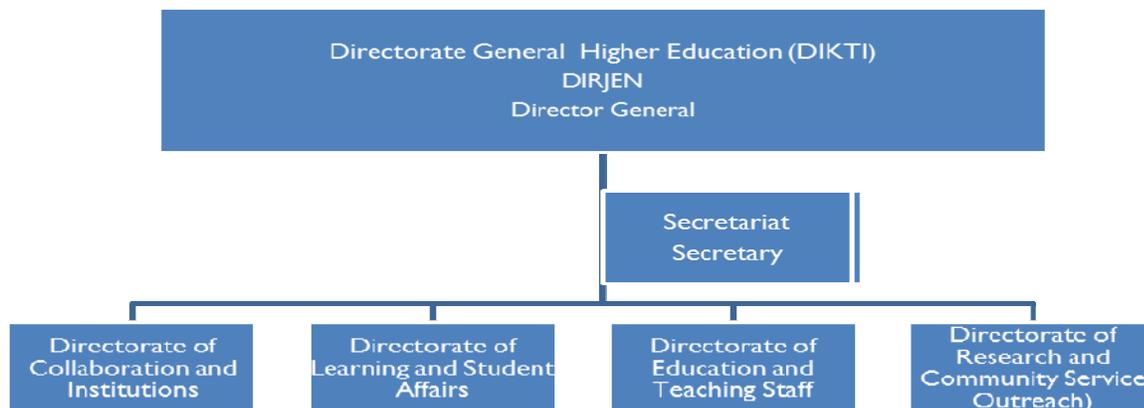
The educational bureaucracy in Indonesia is vast and complicated; it encompasses thousands of employees. Nevertheless, a first step in understanding the systems of data flow related to higher education is to understand where higher education fits within the total Ministry of Education and Culture (MOEC) system. A chart/diagram (see the following page) shows the many units and sections of MOEC. The first echelon focuses on the different levels of education, including Basic Education, Secondary Education, Informal and Non-Formal Education, and Higher Education.



The Higher Education section of the total administrative structure, DIKTI, is given special attention in the chart just below. The Office of the Secretariat, headed by a secretary, is an important and powerful operational unit within the Directorate General. There are four *Directorates* within the Directorate General; each of these is headed by a director (Direktur):

- Directorate of Collaboration and Institutions
- Directorate of Learning and Student Affairs
- Directorate of Education and Teaching Staff
- Directorate of Research and Community Service (Outreach)

Each of the Directorates prepares its own Strategic Plan (RENSTRA), and these RENSTRAs are incorporated into the Directorate General’s RENSTRA (using the vision and the mission of the Ministry). Each Higher Education Institution (HEI) is mandated to send its own RENSTRA, covering five years, to the Secretariat at DIKTI.



## HIGHER EDUCATION INSTITUTIONS (HEIs)

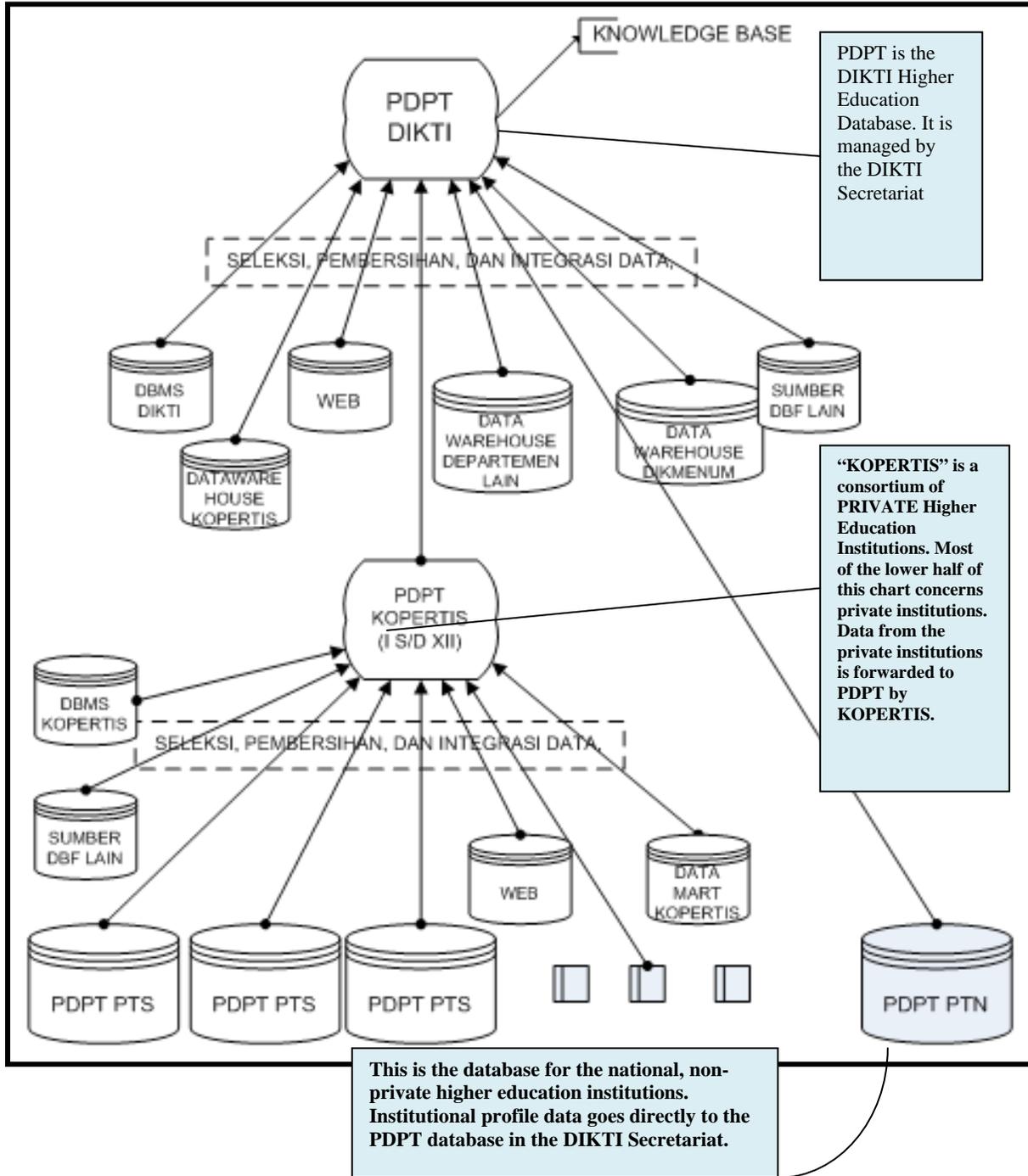
### The Data Collection Units and Pipelines

It would be easy to describe data collection, reporting and analysis in the higher education system if there was just one integrated “pipeline,” from the HEIs, but this does not seem to be. Instead the implementation of data collection depends on several pipelines. They include: (1) the Higher Education Database, PDPT, (2) the accreditation agency, BAN-PT, (3) the Quality Assurance systems IQA and EQA, and (3) Center for Education Data and Statistics , PDSP. Whether this has been deliberately planned to build in redundancy or has “just happened” is difficult to know. What is clear is that having these different systems adds complexity to gathering and reporting data.

### The PDPT System as Designed

Ideally, data collection is managed by the office of the *Secretariat* in DIKTI ,<sup>14</sup> (see chart above) through a data collection system— a Higher Education Database--known by its acronym PDPT. (See chart below).

<sup>14</sup> This is mandated in the Education Law, article 424, point “c” Permendiknas 36/2010.



Source: Sistem Penjaminan Mutu Perguruan Tinggi (SPM-PT) 2010. 290. Annotated.

The Higher Education Database (PDPT) began in 2006. It was envisioned as a national “data warehouse” with the goal of gathering Higher Education data with speed and accuracy for making decisions for program development, planning, monitoring, evaluation or other important management needs. The data encompasses student, academic, financial, management, social and other institutional affairs in higher education.

It is important to understand that PDPT is one of three elements of a total Quality Assurance System (System Penjaminan Mutu Pendidikan Tinggi (SPM-P)) for higher education. This overall Quality Assurance system also includes, in addition to PDPT:

- *Internal Quality Assurance system (IQA)* The internal system is mandated by government regulation which states that each (HEI) must develop its own internal quality assurance system; a system planned, implemented and controlled by the HEI itself, and an
- *External Quality Assurance system (EQA).*

PDPT is not limited to just basic structured data but also to documents, photographs, maps and videos (unstructured). At the institutional level, data is collected either directly from various stakeholders (e.g. students, lecturers, community groups) or through an online database system in which data is collected and sent from the various parts of an institution to a central data collection office at the institution. The data is then sent online (if possible) to the central PDPT “data warehouse” at DIKTI in Jakarta. This applies to “public” higher education institutions. Private institutions feed their data through a consortium of private universities called KOPERTIS, which in turn forwards it to PDPT in DIKTI (see the position of KOPERTIS in the chart above). All of this data is meant to feed into decision making for Annual and Long Term Plans.

### **The Operational Reality of the PDPT and the Quality Assurance System**

The above description of PDPT and other elements of the Quality Assurance system, outlines how the system is intended to operate; as it was designed. The operational reality is slightly different.

Based on the official description of the operations of PDPT, it would seem that data would and should go from the educational institutions to the PDPT, managed in the Secretariat. Based on interviews with DIKTI staff, data is flowing through each of the four Directorates described previously (Collaboration and Institutions, Teaching and Student Affairs, Education and Teaching Staff, Research and Community Service/Outreach) before being forwarded to the Secretariat, but it *appears* that individual Directorates are also collecting data for themselves that they each feel they need.

The Directorate of Teaching and Student Affairs is a case in point. It is important here because this Directorate is particularly concerned with quality assurance due to the fact that it must deal with another data pipeline at the accreditation agency, BAN-PT. To understand the operational data flow challenges of the Directorate of Teaching and Student Affairs, it is first necessary to discuss BAN-PT which has a data/information pipeline focusing on accreditation of HEIs.

*BAN-PT* was established in 1994 along with the Board of Higher Education (DPT) as consultative bodies representing stakeholders in higher education. Assessors are usually academicians recruited from well accredited institutions, and institutions are evaluated via seven standards, with 33 criteria, and other sub-criteria. The seven standards are:

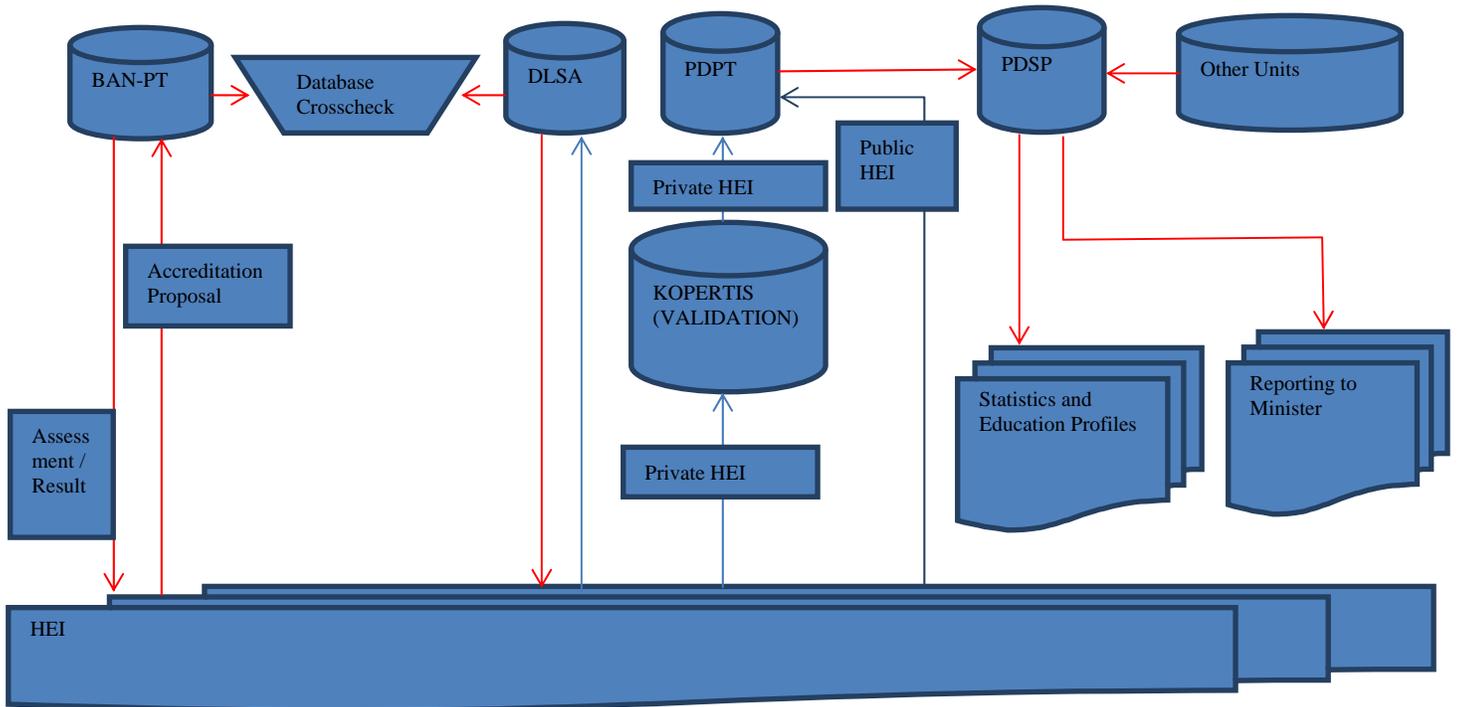
1. Vision, missions, and objectives of the institutions as well as a strategy to achieve the objectives.
2. Governance, leadership, management, quality assurance.
3. Students and graduates. This measures the learning process, output and outcomes. Student intake, retention, progression and graduates are evaluated, and the process can include tracer studies of graduates.
4. Academic and supporting staff; adequacy and competency of human resources in the teaching and learning process.
5. Curriculum, learning process and academic atmosphere. Aspects include not only transfer of knowledge but also “soft skills” of student development.
6. Infrastructure and support. This measures the adequacy of resources to assure that a quality education can be conducted.
7. Research, community service and collaboration. This standard encompasses the concept of “Tri-Dharma”: (education, research, and community service).

The institution to be accredited submits to BAN-PT a set of accreditation documents consisting of self-evaluation, a set of standard accreditation forms, and a portfolio of study programs. Evidence is collected on each standard, through a desk review, followed by a site visit. These are reviewed then institutions are ranked as A-excellent, B-good, C-adequate, or D-inadequate.

### **The Directorate of Learning and Student Affairs and Data Flows: A Case in Operational Reality**

As noted, this Directorate has an important focus on “quality assurance.” Internal quality assurance (SPMI) is the responsibility of the individual higher education institutions, External quality assurance (SPME) is currently conducted through the organization BAN-PT as described above.

The following chart has been prepared, based on interviews in this Directorate as well with other individuals, to help visualize how data streams occur across the several systems described above. The four columns illustrate how the Directorate of Learning and Student Affairs (DLSA) fit into the overall data process system. The four columns, which could loosely called levels, encompass (1) BAN-PT, (2) the Directorate of Learning and Student Affairs, (2) the office of the Secretary General of the DIKTI Secretariat, and (4) Other Units including the Center for Educational Data and Statistics (PDSP).



The reality of this system is that the Directorate, in need of timely and accurate quality assurance data on higher education institutions, is not only receiving it externally from the BAN-PT but also attempts to collect it itself. The reason given for this is that quality assurance data cannot currently be collected or measured via the PDPT system, and because BAN-PT is apparently backlogged and information is coming too slowly from them. Therefore there are overlapping/redundant requests for information from the HEIs.

The thinking, voiced in interviews, is that if the PDPT system was working smoothly and various types of information (and the data systems) were better integrated, there would be no need to collect data through both BAN-PT and the Directorate. A single system would also ease the data reporting burdens of the HEIs. Senior officers in DIKTI are apparently aware of this problem; HELM may be positioned to play a facilitating role in addressing this challenge.

Closely related to the quality assurance efforts is the goal of “Continuous Improvement” of educational quality. The foci of such improvements, as outlined in the DIKTI document *Sistem Penjaminan Mutu Perguruan Tinggi* (Higher Education Quality Assurance System) (2010), include (i) facilities and infrastructure, (ii) development plans, (iii) interaction activities, (iv) academic involvement, and (v) development of ‘scientific personalities.’ Although presented as a

concept, the degree to which a “continuous improvement” of performance system is in place and in practice, and being specifically assessed, could not, as yet, be determined.

The previous description of the operational reality of data flows in the Directorate of Learning and Student Affairs also introduces yet another “data player,” the *Pusat Data dan Statistik Pendidikan* (PDSPP) or Center for Educational Data and Statistics.

### **Center for Educational Data and Statistics**

According to the educational regulation PERMENDIKNAS 36/210, and as renewed in 2012, all education units must submit selected data to the Center for Educational Data and Statistics annually. These data cover all levels of education. The PDPT system for higher education feeds into the PDSPP database. PDSPP supplies data to the Minister and other educational units.

These data are limited to that which can measure the Ministry’s Medium-Term Strategic Plan indicators, such as indicators measuring access through Gross Enrollment Rates (GER) and Net Enrollment Rates (NER), as well as some educational quality information (e.g. lecturers’ ratios and infrastructure ratios) and outputs. This type of information differs from that collected through the PDPT higher education system; PDPT focuses principally on “institutional profiles.”

The types of information that are published by PDSPP can be seen in the List of Tables that appears on the following sub-section on data quality.<sup>15</sup>

### **The Data Systems: Preliminary Findings**

The data pipelines or systems dealing with education and especially higher education are complicated, and sometimes seem to be at odds with one another. PDPT, managed by the Secretariat of DIKTI, collects and reports on institutional profiles supplied by the Higher Education Institutions. BAN-PT or the National Accreditation Board administers an institutional, external quality assurance system that also requires data for its operations.

Meanwhile, Directorates appear to be collecting their own data, possibly causing redundancy and/or overlapping data requests to the higher education institutions. PDSPP, at a higher level, takes data from the different levels of the educational system, including higher education, merges and analyzes data, and publishes sets of national access and output tables in support of strategic indicators agreed upon annually. The degree to which the concept of a “continuous improvement” system has been put into practice could not as yet be determined. How well and how many of the (many) national RENSTRA (Strategic Plan) Key Performance Indicators, reviewed earlier, have been and are being measured requires further review and perhaps the facilitation of discussions through HELM.

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<sup>15</sup> A “pipeline” not discussed here, simply because little information is as yet available about it, is a system called the “Integrity Ranking” of institutions. This system is supposed to be administered through the DIKTI Secretariat.

## **DIKTI Data: Examining Data Patterns and Quality**

### DIKTI Data: The Jigsaw Puzzle

Several frameworks for analysis of data quality were previously introduced. They include “*S.M.A. R. T.* (Specific, Measurable, Achievable, Realistic and Time-bound), the *Data Quality Triangle* (Reliability, Validity, and Timeliness, including frequency, currency, and relevance), and the six USAID *Operational Definitions of Data Quality*, covering Validity, Reliability, Completeness, Precision, Timeliness, and Integrity. As with the review of indicator quality, these frameworks will serve as tools for guidance.

Data within DIKTI has been likened to a jigsaw puzzle; the borders of the puzzle are there but “the middle” needs to be filled in. This applies to both the data and its analysis. As noted above, DIKTI and Indonesia are awash in data but this initial analysis shows that much could be done to make it more valid, reliable, timely, and usable (as well as the other data quality criteria) in making important management decisions. This is complicated by the fact, also noted, that DIKTI uses and supports not just one but several data “pipelines.” It is very important to note that these data pipelines do not always bring together information from the diverse kinds of higher education institutions available in Indonesia; e.g. medical, military, and religious institutions.

Before beginning to examine the borders of the data management jigsaw puzzle, and trying to see how the middle of the puzzle could be filled in, it is important to note at the outset that analyses such as these are focused on identifying “gaps” or problems. “Gap analyses” tend to look more at the gaps rather than what is going well. This is a legitimate approach if it provides positive feedback, recommendations and lessons learned; finding just the right jigsaw puzzle pieces that “fit” to produce a complete picture. It is important to acknowledge that DIKTI is doing many things right; data has been and is flowing through a set of systems and decisions are being made at various levels to move a huge higher educational system forward. It is a delicate balance. Nevertheless, with basic analysis, the current and publicly available DIKTI data sets reveal useful insights. These observations come by seeking linkages among available data sets and seeing not only “what is” but what is missing and what may be obviously “wrong.” Select sets of data will be examined. Comments and recommendations from these observations should be viewed as a beginning and a foundation for further discussion, and analysis.

The data about higher education is reported in a number of forms but a good place to start is to look at the types of data/information that is reported by the PDSP

### **The Center for Education Data and Statistics (PDSP) Report Tables**

Data being reported by PDSP is organized into 44 different tables and many of the tables are subsidiary data sets from larger sets. The lists are outlined in the babble below which has been modified to show the categories of data being reported. The purpose of reviewing this list is to identify types of data being reported / published about higher education at the national level.

The PDSP data are presented in seven categories. They include:

1. Overviews of the HE system and students, public/private, by fields of study and province.
2. Numbers of institutions, public/private, by type and province.
3. Number of applicants to the HEIs, public/private, by programs, gender, and province.
4. Number of new students, public/private, by type of institution, program, gender, and province.
5. Number of student enrollments, by types of institutions, province, programs, gender, and province.
6. Number of graduates, public/private institutions by province, by types of institutions, program, gender and province.
7. The number of lecturers, by type of institution, province, personnel status, highest certificate, and province.

The list also presents trends in five areas — all aggregated by province:

1. Trends of public and private institutions.
2. Trends in public and private new students.
3. Trends of public and private students (enrolled).
4. Trends of graduates in public and private education.
5. Trends of public and private lecturers.

The presentation of trends is positive and useful for planning and management. The trends presented in the tables cover three periods: 2007-2008, 2008-2009, and 2009-2010. The data for 2010-2011 and 2011-2012 are not yet available, in these tables.

## Center for Education Data and Statistics (PDSP)

### List of Tables, Indonesia Higher Education 2009-2010

2.	Overview of Public and Private Education Students by Field of Study
2A.	Overview of Public Higher Education by Field of Study
2B.	Overview of Private Higher Education by Field of Study
3.	Overview of Public and Private Higher Education by Province
3A	Overview of Public Higher Education by Province
3B	Overview of Private Higher Education by Province
4	Number of Institutions Public and Private Higher Education by Type and Province
4A	Number of Public Higher Education Institutions by Type and Province
4B	Number of Private Higher Education Institutions by Type and Province
5	Trend of Public and Private Institutions by Province
6	Number of Applicants Public and Private Higher Education by Type of Institution and Province
6A	Number of Applicants Public Higher Education by Type of Institution and Province
6B	Number of Applicants Private Higher Education by Type of Institution and Province
7	Number of University Applicants Public and Private Higher Education by Level of Program, Sex, and Province.
7A	Number of University Applicants Public Higher Education by Level of Program, Sex, and Province.
7B	Number of University Applicants Private Higher Education by Level of program, Sex, and Province.
8	Number of Public and Private Applicants by Province
9.	Number of New Students Public and Private Higher Education by Type of Institution and Province
9A	Number of New Students Public Higher Education by Type of Institution and Province
9B	Number of New Students Private Higher Education by Type of Institution and Province
10	Number of University New Students Higher Education by Level of Program, Sex, and Province
10A	Number of Public University New Students by Level of Program, Sex, and Province
10B	Number of Private University New Students by Level of Program, Sex, and Province
11	Trend of Public and Private New Students by Province
12	Number of Student Enrollments Higher Education by Type of Institution and Province
12A	Number of Student Enrollments Public Higher Education by Type of Institution and Province
12B	Number of Student Enrollments Private Higher Education by Type of Institution and Province
13	Number of Students by Level of Program, Sex, and Province
13A	Number of University Student Enrollments Public Higher Education by Level of Program, Sex, and Province.
13B	Number of University Student Enrollments Private Higher Education by Level of Program, Sex. And Province.
14	Trend of Public and Private Students by Province
15	Number of Graduates by Type of Institution and Province
15A	Number of Graduates Public Higher Education by Institution and Province
15B	Number of Graduates Private Higher Education by Institution and Province
16	Number of Graduates by Level of Program, Sex and Province
16A	Number of Graduates Public Higher Education by Level of Program, Sex, and Province
16B	Number of Graduates Private Higher Education by Level of Program, Sex and Province
17	Trend of Graduates Public and Private Higher Education by Province
18	Number of Lecturers by Type of Institution and Province
19	Number of Lecturers by Personnel Status, Highest Certificate and Province
19A	Number of Lecturers Public Higher Education by Personnel Status, Highest Certificate and Province
19B	Number of Lecturers Private Higher Education by Personnel Status, Highest Certificate and Province
20	Trend of Public and Private Lecturers by Province

Even before looking at the data presented in the tables themselves, several observations can be made about the types of data that are being collected and reported, or not. First, it is an impressive array of information in some important categories covering a vast country and some recent trends are presented. However, the emphasis is primarily on inputs and outputs. Outcomes are ignored, as are impacts. For example, there is no connection made to link graduates and their employment after graduation. Second, it would be very useful to dig down, below the level of the province to the kota and kabupaten (city/town and district) levels. Finally, there is very little that relates to quality assurance, even in its simplest form (e.g. academic publications)

Even though this is just a list of tables, and not an examination of the data itself, one of the operational definitions for data quality has to do with “timeliness” and it is difficult to know at this point when the next set of yearly data is to appear and how current it will be. Data presented here already indicate a lag-time that could impact data use for planning.

The “leading indicators” for tertiary education systems outlined by the SABER system, and divided into *System Performance* (attainment, equity and research output) and *System Health /Drivers of Performance* (expansion, equity, quality, financing, investment in research, governance and preparation of incoming students) would serve as a useful model for the additional categories that could be presented in the PDSP national level tables.

Two general sets of data, on higher education enrollments and lecturers, have been selected for review and analysis here.

### **Example: Enrollments: Data Perspectives and Quality**

Enrollments are the focus of two select data sets to be examined in this review of data quality and are presented on the following pages: one table is from the PDSP tables noted above, and the other from the analyst Geoffrey Howse. Using the operational definitions of validity, reliability, completeness, precision, timeliness, and integrity, a number of questions can be posed about the quality of data contained in the enrollment tables.

Opening the PDSP table, enrollments, is useful from an analytical point of view. (See below for the PDSP table described.) The most important thing to note in this table is the kinds of institutions selected for presentation: universities, institutes, “*sekolah tinggi*,” literally “high schools”), academies, and polytechnics. These are logical distinctions in the Indonesian context, but what may be missing (it is unclear whether they are) are the religious (agama) higher education institutions; an important category. It is said that these institutions are included in this national database but that remains unclear as presented below. Are military or medical institutions of higher education included? That too is unclear. Here the USAID “operational definition” or criteria for “completeness” is important and it is appropriate to ask whether the enrollment data is complete if certain types of institutions are not represented.

A second view on enrollments is presented on the following page. Here analyst Geoffrey Howse has presented mean enrollment data by province, and public/private institutions. An interesting comparison for the Indonesian context which appears at the bottom of this table between Java and non-Java enrollments.

## Distribution of 2009/2010 Higher Education Enrollments

TABEL / TABLE : 12 A

PT 09/10

JUMLAH MAHASISWA TERDAFTAR MENURUT JENIS LEMBAGA TIAP PROVINSI

NUMBER OF STUDENTS BY TYPE OF INSTITUTION AND PROVINCE

STATUS / STATUS : NEGERI / PUBLIC

PERGURUAN TINGGI (PT) / HIGHER EDUCATION (HE)

TAHUN / YEAR : 2009/2010

No.	Provinsi <i>Province</i>	Universitas <i>University</i>	Institut <i>Institute</i>	Sekolah Tinggi <i>Sch. of High. Learning</i>	Akademi <i>Academy</i>	Politeknik <i>Polytechnic</i>	Jumlah <i>Total</i>
1	DKI Jakarta	709,009	-	-	-	5,165	714,174
2	Jawa Barat	89,042	45,081	947	-	4,595	139,665
3	Banten	13,135	-	-	-	-	13,135
4	Jawa Tengah	109,182	1,160	-	-	3,458	113,800
5	DI Yogyakarta	89,640	2,445	-	-	-	92,085
6	Jawa Timur	129,577	16,512	-	-	9,293	155,382
7	Aceh	36,439	-	-	-	2,099	38,538
8	Sumatera Utara	55,948	-	-	-	4,277	60,225
9	Sumatera Barat	57,698	-	741	-	4,388	62,827
10	Riau	23,569	-	-	-	-	23,569
11	Kepulauan Riau	-	-	-	-	-	-
12	Jambi	11,047	-	-	-	-	11,047
13	Sumatera Selatan	24,759	-	-	-	4,044	28,803
14	Bangka Belitung	-	-	-	-	-	-
15	Bengkulu	11,020	-	-	-	-	11,020
16	Lampung	25,328	-	-	-	1,286	26,614
17	Kalimantan Barat	18,575	-	-	-	2,259	20,834
18	Kalimantan Tengah	11,062	-	-	-	-	11,062
19	Kalimantan Selatan	17,297	-	-	-	2,160	19,457
20	Kalimantan Timur	31,476	-	-	-	3,394	34,870
21	Sulawesi Utara	27,499	-	-	-	1,616	29,115
22	Gorontalo	12,936	-	-	-	-	12,936
23	Sulawesi Tengah	15,989	-	-	-	-	15,989
24	Sulawesi Selatan	52,588	-	-	-	2,744	55,332
25	Sulawesi Barat	-	-	-	-	-	-
26	Sulawesi Tenggara	14,656	-	-	-	-	14,656
27	Maluku	15,963	-	-	-	2,304	18,267
28	Maluku Utara	5,234	-	-	-	-	5,234
29	Bali	24,164	909	-	-	1,635	26,708
30	Nusa Tenggara Barat	16,457	-	-	-	-	16,457
31	Nusa Tenggara Timur	15,649	-	-	-	1,879	17,528
32	Papua	11,556	-	-	-	-	11,556
33	Papua Barat	3,876	-	-	-	-	3,876
	<b>Indonesia</b>	<b>1,680,370</b>	<b>66,107</b>	<b>1,688</b>	<b>-</b>	<b>56,596</b>	<b>1,804,761</b>

## Distribution of 2009-2010 Higher Education Enrollments (G. Howse 2012)

DISTRIBUTION OF 2009/10 HIGHER EDUCATION ENROLMENTS BY PROVINCE, PUBLIC/PRIVATE AND MEAN ENROLMENT																				
PID	Province	NS	Univ Enrol	Unis	Unl mean	Inst Enrol	Inst	Inst mean	STngl Enrol	Sec Tng	ST mean	Acad Enrol	Acad	Acad mean	Poly Enrol	Poly Techs	Poly mean	Total Enrol	All HEI	Mean Size
1	DKI Jakarta	N	709,009	3	236,258	-	-	-	-	-	-	-	-	-	5,165	2	2,581	714,174	5	142,80
1	DKI Jakarta	S	281,463	49	5,744	15,264	9	1,696	98,721	143	690	70,018	115	609	8,378	9	931	473,844	325	1,45
2	Jawa Barat	N	89,042	2	44,499	45,081	2	22,529	947	1	946	-	-	-	4,595	2	2,296	139,665	7	19,94
2	Jawa Barat	S	153,601	47	3,268	12,363	6	2,060	111,804	205	545	24,393	114	214	20,323	27	753	322,484	399	80
3	Banten	N	13,135	1	13,122	-	-	-	-	-	-	-	-	-	-	-	-	13,135	1	13,12
3	Banten	S	1,026	3	342	-	-	-	11,303	34	332	7,596	26	292	537	3	179	20,462	66	31
4	Jawa Tengah	N	109,182	4	27,289	1,160	1	1,159	-	-	-	-	-	-	3,458	1	3,455	113,800	6	18,96
4	Jawa Tengah	S	137,007	34	4,029	11,098	2	5,546	38,679	77	502	20,039	112	179	4,735	19	249	211,558	244	86
5	Yogyakarta	N	89,640	2	44,798	2,445	1	2,443	-	-	-	-	-	-	-	-	-	92,085	3	30,68
5	Yogyakarta	S	88,036	18	4,891	5,902	4	1,475	27,640	40	691	7,999	49	163	2,453	8	307	132,030	119	1,10
6	Jawa Timur	N	129,577	6	21,593	16,512	1	16,496	-	-	-	-	-	-	9,293	4	2,323	155,382	11	14,12
6	Jawa Timur	S	231,208	75	3,083	57,666	12	4,805	86,053	141	610	14,330	82	175	5,857	12	488	395,114	322	1,22
7	Aceh	N	36,439	2	18,210	-	-	-	-	-	-	-	-	-	2,099	1	2,097	38,538	3	12,84
7	Aceh	S	45,724	9	5,080	-	-	-	20,979	47	446	7,096	38	187	1,112	1	1,112	73,911	95	77
8	Sum Utara	N	55,948	2	27,960	-	-	-	-	-	-	-	-	-	4,277	1	4,273	60,225	3	20,06
8	Sum Utara	S	85,113	30	2,837	6,058	3	2,019	73,598	85	866	31,999	99	323	6,462	14	462	203,230	231	88
9	Sum Barat	N	57,698	2	28,835	-	-	-	741	1	740	-	-	-	4,388	2	2,193	62,827	5	12,56
9	Sum Barat	S	25,226	7	3,603	893	1	892	25,457	47	542	6,006	34	177	41	1	41	57,623	90	64
10	Riau	N	23,569	1	23,545	-	-	-	-	-	-	-	-	-	-	-	-	23,569	1	23,54
10	Riau	S	10,871	3	3,622	-	-	-	10,350	24	431	4,797	33	145	1,653	6	275	27,671	66	41
11	Kep Riau	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Kep Riau	S	10,280	5	2,056	-	-	-	2,346	6	391	923	7	132	929	1	928	14,478	19	76
12	Jambi	N	11,047	1	11,036	-	-	-	-	-	-	-	-	-	-	-	-	11,047	1	11,03
12	Jambi	S	6,228	2	3,112	-	-	-	12,876	15	858	3,312	16	207	158	1	158	22,574	34	66
13	Sum Selatan	N	24,759	1	24,734	-	-	-	-	-	-	-	-	-	4,044	1	4,040	28,803	2	14,39
13	Sum Selatan	S	34,489	12	2,874	-	-	-	30,561	54	566	5,540	28	198	1,292	7	185	71,882	101	71
14	Bangka Bel	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Bangka Bel	S	1,690	1	1,688	-	-	-	2,702	5	540	605	6	101	94	1	94	5,091	13	39
15	Bengkulu	N	11,020	1	11,009	-	-	-	-	-	-	-	-	-	-	-	-	11,020	1	11,00
15	Bengkulu	S	10,917	4	2,729	-	-	-	3,517	6	586	1,256	6	209	446	1	446	16,136	17	94
16	Lampung	N	25,328	1	25,303	-	-	-	-	-	-	-	-	-	1,286	1	1,285	26,614	2	13,30
16	Lampung	S	13,532	7	1,933	1,331	1	1,330	17,954	29	619	9,222	29	318	383	1	383	42,422	67	63
17	Kal Barat	N	18,575	1	18,556	-	-	-	-	-	-	-	-	-	2,259	1	2,257	20,834	2	10,41
17	Kal Barat	S	7,029	4	1,757	-	-	-	11,034	13	849	3,254	23	141	917	4	229	22,234	44	50
18	Kal Tengah	N	11,062	1	11,051	-	-	-	-	-	-	-	-	-	-	-	-	11,062	1	11,05
18	Kal Tengah	S	3,517	3	1,172	-	-	-	3,856	15	257	429	2	214	261	1	261	8,063	21	38
19	Kal Selatan	N	17,297	1	17,280	-	-	-	-	-	-	-	-	-	2,160	1	2,158	19,457	2	9,72
19	Kal Selatan	S	5,590	3	1,863	-	-	-	19,212	25	768	2,295	12	191	186	3	62	27,283	43	63
20	Kal Timur	N	31,476	1	31,445	-	-	-	-	-	-	-	-	-	3,394	2	1,696	34,870	3	11,61
20	Kal Timur	S	15,842	8	1,980	1,407	1	1,406	10,893	24	454	2,619	17	154	1,621	3	540	32,382	53	61
21	Sul Utara	N	27,499	2	13,743	-	-	-	-	-	-	-	-	-	1,616	1	1,614	29,115	3	9,70
21	Sul Utara	S	8,648	8	1,081	647	1	646	4,377	24	182	1,563	12	130	354	1	354	15,589	46	33
22	Gorontalo	N	12,936	1	12,923	-	-	-	-	-	-	-	-	-	-	-	-	12,936	1	12,92
22	Gorontalo	S	6,884	3	2,294	-	-	-	2,424	4	606	85	1	85	64	1	64	9,457	9	1,05
23	Sul Tengah	N	15,989	1	15,973	-	-	-	-	-	-	-	-	-	-	-	-	15,989	1	15,97
23	Sul Tengah	S	15,903	7	2,272	-	-	-	4,729	12	394	-	-	-	78	1	78	20,710	20	1,03
24	Sul Selatan	N	52,588	2	26,281	-	-	-	-	-	-	-	-	-	2,744	2	1,371	55,332	4	13,83
24	Sul Selatan	S	58,235	20	2,912	298	2	149	64,204	102	629	16,852	83	203	120	2	60	139,709	209	66
25	Sul Barat	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Sul Barat	S	1,124	2	562	-	-	-	2,296	8	287	1,991	5	398	-	-	-	5,411	15	36
26	Sul Tenggara	N	14,656	1	14,641	-	-	-	-	-	-	-	-	-	-	-	-	14,656	1	14,64
26	Sul Tenggara	S	14,174	6	2,362	-	-	-	3,944	10	394	3,191	19	168	88	1	88	21,397	36	59
27	Maluku	N	15,963	1	15,947	-	-	-	-	-	-	-	-	-	2,304	2	1,151	18,267	3	6,08
27	Maluku	S	9,379	4	2,344	-	-	-	4,826	16	302	196	1	196	-	-	-	14,401	21	68
28	Maluku Utara	N	5,234	1	5,229	-	-	-	-	-	-	-	-	-	-	-	-	5,234	1	5,22
28	Maluku Utara	S	4,699	2	2,348	-	-	-	3,283	5	656	735	4	184	744	4	186	9,461	15	63
29	Bali	N	24,164	2	12,076	909	1	908	-	-	-	-	-	-	1,635	1	1,633	26,708	4	6,67
29	Bali	S	16,738	10	1,674	1,704	2	852	8,944	27	331	490	8	61	167	4	42	28,043	51	55
30	NT Barat	N	16,457	1	16,441	-	-	-	-	-	-	-	-	-	-	-	-	16,457	1	16,44
30	NT Barat	S	12,326	8	1,541	5,364	1	5,359	16,788	24	699	1,023	13	79	-	-	-	35,501	46	77
31	NT Timur	N	15,649	1	15,633	-	-	-	-	-	-	-	-	-	1,879	2	939	17,528	3	5,84
31	NT Timur	S	16,226	10	1,622	-	-	-	5,084	13	391	1,355	8	169	-	-	-	22,665	31	73
32	Papua	N	11,556	1	11,544	-	-	-	-	-	-	-	-	-	-	-	-	11,556	1	11,54
32	Papua	S	9,731	6	1,622	721	2	360	8,311	24	346	1,279	13	98	257	2	128	20,299	47	43
33	Papua Barat	N	3,876	1	3,872	-	-	-	-	-	-	-	-	-	-	-	-	3,876	1	3,87
33	Papua Barat	S	4,824	2	2,411	-	-	-	3,986	10	399	-	-	-	353	1	353	9,163	13	70
INDONESIA			3,027,650	460	6,582	186,823	53	3,525	754,419	1,316	573	252,488	1,015	249	115,659	167	693	4,337,039	3,011	1,440
Negeri			1,680,370	48	35,008															

- On Completeness. “universities are not sending complete data.” “70 percent of the data forwarded by the universities was complete, but 30 percent submit only partial data.” “Data is often missing.”
- On Accuracy (integrity, validity). “The accuracy of the data is a question.”
- On Timeliness. “Some data does not arrive on time.”
- On Reliability. “At the university level, some study programs do not always send their data to the university.”
- On Reliability and Accuracy. “Data management at the university level is weak.”
- On Missing/Needed Data: “How do we count lecturers that teach in different fields?”

### **Enrollment Data Analyses: Missing Links and What Could Be Done**

The statistics presented by Howse in the second table contrasting the provinces of Java and the rest of Indonesia shows that Java accounts for 64 percent of all higher education students, 67 percent of new students, and 68 percent of graduates in 2009/2010.

As an example of what could be done with this existing data, some could be used to show progress over time as a baseline to be updated as new data become available. Further, an interesting analytical path would be to use unit record data (by institution) so that city/town versus district data could be compared. Still other analyses could include: (i) the number of institutions gives a measure of mean enrolment, (ii) mean intake and mean graduation numbers, and (iii) number of staff may give a limited measure of student/staff ratio, especially where both students and staff may be part-time (some equivalent full time measure may be required).

Connecting the various types of enrollment data with economic conditions would provide an important data linkage. A connection could be made between district poverty data to derive a “provincial” weighted average poverty rate and performance by the provinces, compared on (i) new students as a percentage of applicants, (ii) new students as a percentage of all students, and (iii) graduates as a percentage of all students.

Exploring these data relationships for enrollments, and others, demonstrates the value of collecting these data.

### **Higher Education Lecturers: Data Analysis and Quality**

A second set of data selected for analysis here focuses on the Higher Education lecturers. The official PDSP table (labeled as Table 20) is presented on the following page. It shows trends over three periods: (2007-2008, 2008/2009 and 2009/2010). It should be noted that none of the PDSP tables on lecturers (there are five of them) are presented by gender; an interesting missing link in equity information.

## Trend of Public and Private Lecturers by Province

TABEL / TABLE : 20

PT 09/10

### PERKEMBANGAN JUMLAH TENAGA EDUKATIF NEGERI DAN SWASTA TIAP PROVINSI

#### TREND OF PUBLIC AND PRIVATE LECTURERS BY PROVINCE

#### PERGURUAN TINGGI (PT) / HIGHER EDUCATION (HE)

TAHUN / YEAR : 2009/2010

No. Provinsi <i>Province</i>	2007/2008			2008/2009			2009/2010		
	Negeri <i>Public</i>	Swasta <i>Private</i>	Jumlah <i>Total</i>	Negeri <i>Public</i>	Swasta <i>Private</i>	Jumlah <i>Total</i>	Negeri <i>Public</i>	Swasta <i>Private</i>	Jumlah <i>Total</i>
1 DKI Jakarta	4,445	34,257	38,702	5,747	30,487	36,234	5,823	31,084	36,907
2 Jawa Barat	6,919	30,714	37,633	5,946	27,394	33,340	6,182	25,757	31,939
3 Banten	321	4,682	5,003	443	4,171	4,614	448	4,574	5,022
4 Jawa Tengah	6,136	23,947	30,083	5,863	21,358	27,221	6,887	18,404	25,291
5 DI Yogyakarta	4,983	13,832	18,815	3,831	12,352	16,183	3,860	11,537	15,397
6 Jawa Timur	8,406	27,495	35,901	7,666	24,418	32,084	7,772	15,624	23,396
7 Aceh	1,923	3,608	5,531	1,994	3,215	5,209	2,116	4,127	6,243
8 Sumatera Utara	3,000	9,777	12,777	2,879	8,740	11,619	2,881	10,614	13,495
9 Sumatera Barat	2,572	3,076	5,648	3,028	2,744	5,772	3,037	3,242	6,279
10 R i a u	1,102	1,792	2,894	1,019	1,604	2,623	1,025	1,977	3,002
11 Kepulauan Riau	-	1,232	1,232	-	1,090	1,090	-	1,103	1,103
12 Jambi	740	1,278	2,018	718	1,147	1,865	721	1,294	2,015
13 Sumatera Selatan	1,600	5,535	7,135	1,506	4,924	6,430	1,508	5,570	7,078
14 Bangka Belitung	-	505	505	-	453	453	-	493	493
15 Bengkulu	773	829	1,602	727	735	1,462	742	2,451	3,193
16 Lampung	1,341	2,738	4,079	1,285	2,441	3,726	1,353	1,695	3,048
17 Kalimantan Barat	1,264	934	2,198	1,182	841	2,023	1,187	1,174	2,361
18 Kalimantan Tengah	568	727	1,295	768	647	1,415	776	821	1,597
19 Kalimantan Selatan	1,230	957	2,187	1,232	812	2,044	1,548	1,524	3,072
20 Kalimantan Timur	1,187	3,041	4,228	1,236	2,711	3,947	1,252	2,762	4,014
21 Sulawesi Utara	3,267	791	4,058	3,115	700	3,815	3,125	1,296	4,421
22 Gorontalo	557	197	754	606	174	780	636	323	959
23 Sulawesi Tengah	1,164	937	2,101	1,145	833	1,978	1,173	1,137	2,310
24 Sulawesi Selatan	3,371	6,010	9,381	2,950	5,339	8,289	2,988	7,699	10,687
25 Sulawesi Barat	-	149	149	-	184	184	-	335	335
26 Sulawesi Tenggara	894	911	1,805	952	809	1,761	959	1,024	1,983
27 Maluku	782	430	1,212	1,195	382	1,577	1,426	797	2,223
28 Maluku Utara	466	907	1,373	434	804	1,238	490	792	1,282
29 Bali	2,660	520	3,180	2,499	474	2,973	2,502	1,859	4,361
30 Nusa Tenggara Barat	816	1,335	2,151	1,009	1,191	2,200	1,029	2,614	3,643
31 Nusa Tenggara Timur	1,110	750	1,860	1,287	669	1,956	1,327	1,613	2,940
32 Papua	541	1,313	1,854	490	1,160	1,650	498	1,649	2,147
33 Papua Barat	388	625	1,013	471	555	1,026	480	674	1,154
<b>Indonesia</b>	<b>64,526</b>	<b>185,831</b>	<b>250,357</b>	<b>63,223</b>	<b>165,558</b>	<b>228,781</b>	<b>65,751</b>	<b>167,639</b>	<b>233,390</b>

Relevant observations from analysis of the table above include:

- Almost three-quarters (72 percent) of Public Lecturers have Masters or Doctoral degrees (and only 5 percent of them are part-time).
- 95 percent of Private Sector Lecturers have only Bachelor degrees; only 5 percent have higher qualifications. 43 percent of these Lecturers are part-time. Private lecturers outnumber Public lecturers by a factor of three.
- Public Islamic Education institutions have 79 percent of lecturers have masters or doctoral level qualifications.
- Private Islamic institutions have 61 percent of lecturers with masters or doctoral level qualifications.

As with the enrollment data, there are important data linkages/relationships that should be made on a regular basis to improve the scope and relevance of data, and therefore data quality. The Islamic institutional data noted above is one such example. As with enrollments, the previous comments on completeness, accuracy, timeliness and other data quality criteria also apply to the data collected and reported on lecturers.

### **Data and Data Quality: Findings**

The borders of the data jigsaw puzzle are there but exploring and filling in the pieces of the middle will be an ongoing process. Many of the observations and findings on indicator quality also are relevant to the data itself. The findings on data and data quality can be summarized as follows:

#### *Findings*

- **Data Quality Doubts.** While much data is collected and reported by DIKTI, doubts were expressed by DIKTI personnel and others as to the quality of the data including its accuracy and integrity, its completeness and timeliness.
- **Quality Assurance Data.** Quality Assurance information is intended to be included in the HE database, which in turn feeds into the national statistical database, but doubts were expressed as to the extent that this is true.
- **Inputs and Outputs.** The focus of existing data is mostly on inputs and outputs. Little data exists on important outcomes and impacts which is more difficult to collect and report but valuable.
- **The Hazards of Aggregation.** Aggregating data is a way of pulling together groups of data. The problem is that it averages information and in the process hides or disguises important diversity at the sub- level. For example, in Indonesia city/town and district performance data disappears when aggregated as provincial totals. Education systems have invested in EMIS systems that generate aggregate measures, but important information is lost in the process.
- **Analysis and Missing Linkages.** Important analytical relationships or linkages between data sets may be known (e.g. poverty data and education, lecturers and gender, data sets from below the provincial level) but the analysis is not evident. Whether this is occurring because of lack of analytical staff or time, because existing staff need upgraded analytical

skills, and/or because there is a need for decisions to make this all happen, requires further review.

- Qualitative Information. The emphasis is on quantitative information. There does not appear to be enough qualitative information, such as continuing research, including tracer studies, to both enrich and assist in the validation of the quantitative data.
- Different Sources, Different Systems. Data is coming to DIKTI via different data pipelines, which may affect data quality. The extent of coordination and overlap of these systems (PDPT, BAN-PT, and perhaps others) requires further review.

## CONCLUSIONS AND NEXT STEPS

### Conclusions

The focus of this report has been to assess the implementation of the data reporting system of DIKTI, as well as the quality and relevance of the strategic indicators for the national strategic plan or RENSTRA. The strategic indicators were first reviewed and analyzed, and then implementation of the data processes was explored in two parts: the data systems or pipelines, and the data itself and its quality. From the outset this endeavor has been seen as a preliminary effort that would lay the groundwork for further discussion and exploration.

In keeping with the Indonesian proverb *Jangan mengajari kodok bagaimana cara berenang* or “Do not try to teach a frog to swim” it is important to recognize that DIKTI has years of experience with data systems. In the process of learning about the operations of the data systems and the quality of data being produced, it is clear that while much is known and much data is collected, DIKTI could still learn to operate more effectively and efficiently. This can be seen in the summary of findings and conclusions presented here. These in turn provide a foundation for addressing possible next steps.

### The Indicators: The Strategic Indicators and Indicator Quality

Several analytical frameworks were used to guide the review and analysis of DIKTI strategic indicators, including a set of “Ten Criteria for Indicator Quality.” In general, the indicators were seen to be measurable but whether all the required data can be collected, analyzed and reported on a timely basis, and is useful for decision making at different levels, is open to question. A future examination of the relevance of certain indicators and systems may be a useful topic for discussion as DIKTI prepares for future strategic plans. The need to collect more relevant data, particularly on the quality of learning, presents one of the greatest challenges to providing supporting data for the strategic plan.

The conclusions from this analysis of the indicators include that a review of the indicators and the relationships between the measures (the indicators) and the strategies and policies with which they are associated would enhance the value of the data. In the process, the indicators might be better or more logically organized, for example, using the SABER model (Performance-Outcomes, and Health-drivers of performance). An outcomes-oriented model also would be helpful because policy indicators need to identify outcomes and impacts, not just inputs and

outputs. There is also a need to consider using both linear and non-linear perspectives, as well as qualitative approaches when thinking about the kinds of data that performance indicators might produce.

The indicators are important because they provide a model for data to be collected, reported and analyzed. Improving the indicators can improve the data quality as well.

### **Implementation: The Data Systems**

The systems or pipelines for collecting and reporting data in higher education are complicated, perhaps not unexpected from such a large and far-flung nation as Indonesia. The systems, however, sometimes seem to be at odds with one another, producing redundant collection of data. The major data reporting system managed by the DIKTI collects vast amounts of data, principally to provide institutional profiles of the HEIs. The system is supposed to also include quality assurance information. Meanwhile, external quality assurance information and data is also being collected by BAN-PT which is mandated to provide that information to DIKTI. The Directorate of Learning and Student Affairs, which is especially interested in quality assurance notes a need for faster response from BAN-PT, and so is also collecting data itself. DIKTI senior officials are aware of this situation which puts greater data demands on the HEIs than necessary. At a higher level, the national education database merges information from DIKTI and other sources to produce national level tables of data on all levels of the educational system.

### **Implementation: DIKTI Data, Patterns and Quality**

DIKTI data, its management and quality, has an overall structure but is missing critical internal pieces. Based on interviews and other information, and with the guidance of several data quality frameworks, doubts were expressed about the accuracy/integrity, completeness and timeliness of the data. Missing information is also affecting quality.

Related to the discussion of indicator quality, most data appears to focus on inputs and outputs (easier to collect) with little information on valuable outcomes and impacts. Furthermore, it was observed that there are hazards to aggregating data. Important information may be lost by too much averaging of information. Finally, a need is seen for more and better qualitative data to support and enrich the quantitative emphasis.

Most importantly, there seems to be a need to better analyze the patterns and linkages in existing data. Better analytical skills among existing relevant DIKTI staff, additional staff to carry what is obviously a large analytical load, and/or the decisions to make this happen, are all steps that are part of the way forward.

### **Moving Forward: Steps in Capacity Development**

The way forward in improving the implementation of data processes and the quality of data requires further exploration to deepen the knowledge base about the data systems, particularly from the viewpoint of the higher education institutions themselves. In the “GGs of T” (the Great Grand Scheme of Things), what has been reported here simply confirms what decision makers in DIKTI already know. The way forward, however, lies in the realm of “capacity development”

(not just capacity *building*, which is more short-term) and since capacity development has so many definitions, it is useful to end, and begin the next steps, with one definition, from UNDP, and the useful one page overview describing “*What is Meant by ‘Closing the Capacity Gap,’*” provided as Annex E.

### **Data Analysis Strategy Steps**

In terms of developing improved capacity for DIKTI in data analysis, the following data analysis strategy steps, are proposed, and are confirmed by other findings in this report. They become recommendations for general capacity development in data analysis improvement.

Step 1: Descriptive application of actual DIKTI data to USAID/HELM dialogue about Key Performance Indicators.

Step 2: Develop within DIKTI the capacity to use existing data sets to draw conclusions.

Step 3: Support DIKTI managers to better interpret implications from data for HE system functioning, management, and funding.

Step 4: Identify data that does not fit DIKTI expectations/experience, as a way of validating reporting/data entry. This is a lost opportunity if data are aggregated into Provincial/National Reports. Explore existing DIKTI collection/audit of its data sets to enhance data integration (in which returns that “look wrong” are reviewed).

Step 5: Clarify the ambiguity and double reporting of data between DIKTI and Islamic Education (PTAI 09/10 tables), and institutions “owned” by other Ministries.

Step 6: Develop capacity based on steps 1-5

Step 7: Analysis/reporting of HEI expenditures (not part of the existing data sets) so that DIKTI can demonstrate and improve operational efficiency.

Step 8: Use existing data sets to improve analysis/discussion of “HE access” and other issues (gender/poverty/distance/range of institutions and courses) that impact quality of the overall HE sector.

Step 9: Include qualifications/capacity of existing HEI academic staffing to improve learning outcomes, identify further research, and deepen knowledge of the systems and the constraints upon the whole higher education system (which is more centralized than other education agencies).

### **Proposed Capacity Development Activities**

Keeping in mind the nine strategy steps outlined above, as well as the need for further exploration and review of the DIKTI data process systems, the following specific capacity development activities are proposed for discussion and possible implementation:

- Present/share findings and conclusions of this report in a HELM-initiated discussion forum with the objective of linking constraints in the data process system with related improvements.
- HELM facilitates a Technical Workshop on Data Analysis for relevant DIKTI staff.
- Hold discussions with USAID and DIKTI to explore how HELM might support qualitative research efforts, perhaps with the assistance of higher education institutions to balance and enrich the quantitative data collected by DIKTI.

### **The Jigsaw Puzzle: Putting It All Together**

The jigsaw puzzle is a good analogy not only for improving the quality of data and its analysis, but for improving the operations, the implementation, of the systems through which data and other information must flow. Finding the right shaped pieces to make the systems and the analyses operate to the highest standard will require vision, flexibility, participation, openness, patience, and the determination to move from challenges to action to results.



## ANNEX A. PERSONS MET/CONSULTED

NAME	TITLE/POSITION	ORGANIZATION
Harris Iskandar	Secretary	Directorate General of Higher Education
Dadang Sudiyarto	Head of Planning and Budgeting Division	Directorate General of Higher Education
Prof. Ir. Nizam	Secretary	Board of Higher Education, Directorate General of Higher Education
Toto Setiyarto	Kepala Sub Bagian Pengolahan Data pada Bagian Informasi dan Pelaporan	Direktorat Jenderal Pendidikan Tinggi
Dr. Muh. Nurdin	Head of Secretary	Board of Higher Education Directorate General of Higher Education
Illah Sailah	Director: Directorate Pembelajaran dan Mahasiswa	Direktorat Jenderal Pendidikan Tinggi
Edy Siswanto	Kasubdit, Program dan Evaluasi	Direktorat Jenderal Pendidikan Tinggi, Direktorat Pembelajaran dan Mahasiswa
Kevin Marbun		Direktorat Jenderal Pendidikan Tinggi, Direktorat Pembelajaran dan Mahasiswa
Abdillah	Director	Politeknik Negeri Jakarta
Drs. Sri Wahyono M.Si	Wakil Direktur Bid. Akademik	Politeknik Negeri Jakarta
Ir. Kusuma Dradijad	Asosiasi Profesi	Politeknik Negeri Jakarta
Hermanto Siregar	Vice Rector for Resources and Development	Bogor Agricultural University (Institut Pertanian Bogor)
Dr. Ir.Fredinan Yulianda	Head of Quality Management Office	Bogor Agricultural University (Institut Pertanian Bogor)
Dr. Bedjo Sujanto	Rector	Universitas Negeri Jakarta
Dr. H. Suryadi	Pembantu Rektor Bidang Administrasi Umum	Universitas Negeri Jakarta
Dr. Fakhruddin Arbah	Vice Rector for Students Affairs	Universitas Negeri Jakarta
Geoff Howse	Consultant	
Muhammad Farman Izhar	Consultant, Financial Management	The World Bank, Jakarta
Ratna Kesuma	Operations Officer (Education)	The World Bank, Jakarta
Santoso	Consultant, Research Analyst	The World Bank, Jakarta
Aos Santosa	Consultant	



## ANNEX B. THE RENSTRA (NATIONAL STRATEGIC PLAN) INDICATORS

Translated version of DIKTI Strategic Plan indicators

### APPENDIX 1: PERFORMANCE INDICATORS BY STRATEGIC OBJECTIVES

#### Goal 1: The Founding of the Directorate General of Higher Education System Effective and Efficient

Policy	Key Performance Indicators (IKU)		Activities Performance Indicators (IKK)	
1. Realignment and reform the structure and function of the Directorate General of Higher Education 2. Setting up and perfecting the legal basis for development of the higher education sector that is conducive	IKU4.3	Number of Higher Education Finance Management of BLU (Public Service Entities)	IKK 4.1.1	Number of documents and budgetary policy planning
	IKU4.4	and/or BHP (Education Legal Entities) Number of Higher Education Institutions (HEIs) having Good Accountability opinion by Public Accountants	IKK 4.1.2	
			IKK 4.1.3	Percentage of Budget Line Items (DIPA) of working unit of Directorate General of Higher Education (DGHE/ DIKTI) revised by the central level
			IKK 4.1.8	
			IKK 4.1.9	Percentage of Public Higher Education Public Service Entity (PTN - BLU) proposed by DIKTI which set by Ministry of Finance (MOF) less than 6 months
			IKK 4.1.10	
			IKK 4.1.12	Percentage of Supreme Audit Agency (BPK) audit findings which can be completed less than 6 months
			IKK 4.1.14	
			IKK 4.1.16	Percentage of secretarial approval of Additional Reserve Fund (TUP) of working unit 100%
			IKK 4.1.17	
			IKK 4.7.7	Average of employee effective working days
			IKK 4.8.1	The number of services in implementing the e-service
			IKK 4.9.7	

Policy	Key Performance Indicators (IKU)		Activities Performance Indicators (IKK)	
				(GDLN)  The amount of information of higher education that have been published  Number of higher education exhibitions  Percentage of Public HE lecturer who are certified functional  Percentage Public HE Toward Autonomy  Number of HE which has a business incubator / industry

**Goal 2: Availability of Quality and Relevant Indonesian Higher Education**

Policy	Key Performance Indicators		Activities Performance Indicators	
1. To diversify HE credentials    2. Developing quality resources	IKU4.5   IKU4.6  IKU4.7	Number of Study Program accredited  Percentage of accredited HE Study Program minimal B  Number HE entering 500 of the world rank	IKK4.2.1  IKK4.4.5  IKK4.4.7  IKK4.4.8	Number of HE recipient of public funds  Number of center of entrepreneurship and productivity  Number of Study Program which implement quality assurance of learning  The waiting time to get a chance to have the first

Policy	Key Performance Indicators		Activities Performance Indicators	
<p>3. Encourage the process of education and student-centered learning to produce graduates who are intelligent, skilled, and character</p> <p>4. Improve alignment of HE output with the needs of the community.</p> <p>5. Enhance the entrepreneurship of HE graduates.</p> <p>6. Developing research-based center of excellence.</p> <p>7. Oversee the implementation of sustainable national strategic program</p> <p>8. Encourage and facilitate the internationalization of higher education</p> <p>9. Strengthening higher education quality assurance system</p>	IKU4.10	Percentage of teachers qualified S-2		job (month)
	IKU4.11	Percentage of teachers qualified S-3	IKK4.5.1	Vocational Study Program accredited minimal B
	IKU4.12	The percentage of certified lecturers	IKK4.6.1	Accredited health profession Study Program
	IKU4.13	Percentage of faculty with national publications	IKK4.6.2	Number of HE meets the quality standards of facilities and infra-structure
	IKU4.14	Percentage of faculty with international publications	IKK4.7.1	Percentage of Public HE lecturers with S2 qualification
			IKK4.7.2	Percentage of Private HE lecturers with S2 qualification
			IKK4.7.3	Percentage of Public HE lecturers with S3 qualification
			IKK4.7.4	Percentage of Private HE with S3 qualification
			IKK4.7.5	The percentage of Public HE certified lecturers
			IKK4.7.6	The percentage of Private HE certified lecturers
			IKK4.7.8	Number of lecturers who follow the academic training abroad
			IKK4.7.9	Number of lecturers who follow the academic training in the country
			IKK4.7.10	Number of HE organizing lecturer certification
			IKK4.8.3	Number Private HE closure
		IKK4.8.5	Number of foreign students at Indonesian HE	
		IKK4.8.6	Number of institutional cooperation	
		IKK4.8.7	Number of offices of international affairs in HE	

Policy	Key Performance Indicators		Activities Performance Indicators	
			IKK4.9.1	Percentage of faculty doing research
			IKK4.9.2	Number of lecturers with national publications
			IKK4.9.3	Number of lecturers with international publications
			IKK4.9.5	Percentage of HE that provides Internet access and e-journal
			IKK4.9.7	Number of HE which has a business or industrial incubator
			IKK4.9.8	Percentage of HE which have a cooperation with research and development industry
			IKK4.9.9	Percentage of HE which has cooperation with government and local government-based research and policy
			IKK4.9.10	Percentage of students who carry out the student creativity program
			IKK4.9.11	Number of lecturers who wrote a college textbook

### Goal 3: Affordability, Equity, and Security of Access to Acquire Higher Education

Policy	Key Performance Indicators		Activities Performance Indicators	
1. Increase accessibility of prospective students and students who have academic ability but are economically disadvantaged and/or students in the field of science that strategic	IKU4.1	Gross Participation Rate at HE and Religious HE ages 19-23 years old	IKK4.4.1	Percentage of Public HE students receiving government scholarships
2. Utilizing a variety of resources to improve the coverage of scholarships and tuition assistance	IKU4.2	The ratio of gender equality at HE	IKK4.4.2	Percentage of Private HE students receiving government scholarships
3. Improving equity of higher education for communities and regions that are under-represented	IKU4.8	Vocational student ratio: total vocational student and S-1	IKK4.4.3	Percentage of students receiving scholarships from business and other donors (CSR)
4. Optimization of the college held by the public			IKK4.4.4	The number of students in the Science Olympic medal winners who receive scholarships
5. Increasing the role of the public, especially the business community and local governments in expanding access and equity	IKU4.9	Gross Participation Rate natural science and technology study program (aged 19-23 years)	IKK4.4.6	The number of new students as the results of changes in learning model
6. Increasing the role of information and communication technology and distance education associated with the expansion of access to quality, training to enhance professionalism and continuing education.	IKU4.16	Percentage of students receiving scholarships	IKK4.8.2	Number of establishment/ change of state universities and the new private universities
			IKK4.8.4	Number of new Study Programs

#### Goal 4: Achieving a higher education Autonomous and Accountable

Policy	Key Performance Indicators		Activities Performance Indicators	
1. Reposition and transform the structure and function of the Directorate General of Higher Education	IKU4.3	Number of Financial Management Public Service Entity (PK BLU) HE or Higher Education Legal Entity (BHP) status	IKK 4.1.4	Percentage of the budget blocked in the current year DIPA
2. Encourage the development of institutional systems of independent colleges			IKK 4.1.5	Percentage of working units with its financial statements in accordance with statutory regulations and timely
3. Strengthening and toning college education legal entity	IKU4.4	Number of HE with good accountability opinion from the Public Accountant office	IKK 4.1.6	Percentage of manual accounting statements of working units in accordance with Unit Accounting System
4. Strengthening Higher Education Quality Assurance System			IKK 4.1.7	The number of work units BLU implement financial statements in accordance Financial Accounting System and Gov Accounting System
			IKK 4.1.8	Percentage of Supreme Audit Agency (BPK) audit findings which can be completed < 6 months
			IKK 4.1.11	Number of state inventory working unit reports in accordance with Management Information System and State Inventory Accounting System
			IKK 4.1.13	Percentage of working units implementing e-procurement> 50% packet PBJ
			IKK 4.1.14	Number of HE incorporated in the INHEREN (GDLN)
			IKK 4.1.15	Percentage working units with absorption> 95%
			IKK 4.7.7	Percentage teachers certified functional PTN
			IKK 4.8.1	Percentage Public HE Toward Autonomy
			IKK 4.9.7	Number of HE which has a business incubator / industry

**Goal 5: Higher Education Interaction with the Public which Reflects Harmonious and Mutually Beneficial Reciprocal Relations**

Policy	Key Performance Indicators		Activities Performance Indicators	
<ol style="list-style-type: none"> <li>Empowering communities to contribute in the development of higher education</li> <li>Increase the contribution of higher education in community development and the achievement of the MDGs</li> </ol>	IKU4.15	Number of Intellectual Property Rights generated	IKK4.9.4 IKK4.9.6	Number of Intellectual Property Rights generated Percentage of lecturers who do community services



## ANNEX C. POLICY DIRECTION

Policy Direction	Program
1. Realignment and reform the structure and function of the Directorate General of Higher Education	<ol style="list-style-type: none"> <li>1. Organization and governance reforms in Higher Education environment</li> <li>2. Organization and governance reform regional office / regional</li> <li>3. Business process reengineering including the relationship with PTS</li> <li>4. Strengthening semi-government institutions</li> <li>5. Development of information systems to support policy making</li> <li>6. Higher capacity building</li> <li>7. Strengthening the capacity of Higher Education to coordinate cross-ministerial</li> <li>8. Strengthening the capacity planning</li> </ol>
2. Setting up and perfecting the legal basis the development of higher education function that is conducive	<ol style="list-style-type: none"> <li>1. Preparing Law colleges are autonomous and accountable</li> <li>2. Perfecting the operational rules</li> <li>3. Do the harmonization of regulations and policies across ministries.</li> <li>4. Policy formulation and regulation of higher education funding.</li> </ol>
3. Diversifying the mandate and mission of higher education	<ol style="list-style-type: none"> <li>1. Mapping the needs of local and national channels, types, levels, and higher education fields of science.</li> <li>2. Syncing Indonesian National Qualification Structure (KKNI)</li> <li>3. Formulate a system of Aluh Jalur Alih Jenjang</li> </ol>
4. Encourage universities to achieve the position and role of best	<ol style="list-style-type: none"> <li>1. Mapping quality higher education as a basis for determining the current level of development and database development planning and determination of its mandate.</li> <li>2. Mapping the strength of college-based development of knowledge on the basis of development planning and determination of its mandate.</li> <li>3. Applying the pattern of development, enhancement, and college-based funding mandate (maps a and b).</li> <li>4. Establish centers of excellence and facilitate national, regional</li> </ol> <p>(Based on the island), and the province.</p>
5. Develop resources and facilitate college academic programs	<ol style="list-style-type: none"> <li>1. Developing a competitive funding system.</li> <li>2. Facilitate the development of quality teachers and educational staff.</li> <li>3. Facilitating investment of resources in order to implement the college's strategic programs nationwide.</li> <li>4. Facilitate the college to utilize the resources together in terms of education and research facilities</li> <li>5. Facilitating interconnection between libraries in all universities in Indonesia in an effort to improve the utilization of shared learning resources.</li> </ol>

Policy Direction	Program
6. Develop a healthy college	<ol style="list-style-type: none"> <li>1. Develop a legal framework for the establishment of a sound governance PT</li> <li>2. Facilitating academic programs support the competency</li> </ol>
7. Improve alignment with the needs of the college community	<ol style="list-style-type: none"> <li>1. Develop information systems that bridge the supply and demand.</li> <li>2. Mapping the needs of college graduates and other products at the local, national, regional, and international.</li> <li>3. Synergize and synchronize academic programs with the needs of both stakeholders Research Institute of Non-Departmental (Officials), Research Department (LPD), a variety of Research &amp; Development unit in the industry which is expected to enrich the learning development, research programs, and community service.</li> </ol>
8. Encourage education and learning processes that are conducive to producing graduates who are intelligent, skilled, and character	<ol style="list-style-type: none"> <li>1. Build an institution that upholds the academic atmosphere in college healthy and enlightening.</li> <li>2. Encourage student activities that lead to increased intelligence, skill, and character (academic freedom, honesty, law-abiding, moral, and become good citizens, just and impartial in the public interest).</li> <li>3. Encourage the creation of systems that meritocratic and inclusive society (religion, ethnicity, culture, etc)</li> <li>4. Developing quality learning and educational processes that build character</li> </ol>
9. Improving Entrepreneurship Graduates	<ol style="list-style-type: none"> <li>1. Encourage and facilitate the formation of centers of entrepreneurship in the PT</li> <li>2. Capacity development</li> </ol>
10. Developing research-based center of excellence	<ol style="list-style-type: none"> <li>1. Play active role developing the national innovation system.</li> <li>2. Facilitate the development of science and technology-based advantages of local resources (natural, social, cultural, human) having high competitiveness through incentives.</li> <li>3. Encourage and facilitate strategic alliances between universities to build quality (academic and research) higher education in synergy.</li> </ol>
11. Oversee the implementation of sustainable national strategic program	<ol style="list-style-type: none"> <li>1. Strengthen HE programs relevant to national interests.</li> <li>2. Supporting higher education program that has national strategic value but less enthused by the public (astronomy, agriculture, Mathematics and Science, literature and culture of the region).</li> </ol>
12. Encourage and facilitate the internationalization of higher education	<ol style="list-style-type: none"> <li>1. Facilitate the exchange of students and faculty mutually</li> <li>2. Encourage and facilitate the internationalization of study programs in a dignified way (through the recruitment of qualified foreign students with cooperation scheme, the process of benchmarking with a higher quality study programs abroad, international accreditation, and international research collaborations, facilitating cross cultures, and an increase in English proficiency and other international languages).</li> <li>3. Streamlining administration of immigration process associated with provision of students and or staff's visas.</li> </ol>

<b>Policy Direction</b>	<b>Program</b>
	4. Encourage and facilitate the opening of higher education programs, especially arts and culture abroad.
13. Strengthening Higher Education Quality Assurance System	<ol style="list-style-type: none"> <li>1. Develop a data base of higher education (PDPT) as the basis for accountability of higher education quality.</li> <li>2. Facilitate the growth and functioning Internal Quality Assurance Standard (SPMI) of higher education.</li> <li>3. Ensure alignment of the National Standard for Higher Education and National Qualifications Framework Indonesia</li> <li>4. Ensure alignment of instruments that BAN PT refers to the National Standard for Higher Education in conducting accreditation courses and colleges.</li> </ol>
<b>Strategy 2</b>	<b>Description of Proposed Strategy</b>
1. Increase accessibility of scholarships and tuition assistance for prospective students and students who are economically disadvantaged and / or students in the field of science that strategic	<ol style="list-style-type: none"> <li>1. Department of Education encourages prospective students to ensure empowerment of the poor achievers.</li> <li>2. Ensuring the availability of funds scholarships and tuition assistance for students in accordance with BHP Law.</li> <li>3. Build an accountable and transparent system for allocating scholarships and tuition assistance for students are on target, time, number, and programs.</li> </ol>
2. Utilizing a variety of resources to improve the coverage of scholarships and tuition assistance	<ol style="list-style-type: none"> <li>1. Facilitate the college to be able to calculate the unit cost of higher education significantly refers to the National Standards for Higher Education.</li> <li>2. Encourage universities to run a policy of giving scholarships and tuition assistance pro-achieving students from poor communities.</li> <li>3. Encourage universities to establish a scholarship system and tuition assistance for students are on target, time, number, and programs.</li> <li>4. Encourage accountability from donors receiving scholarship funds by colleges and establish sustainable funding for scholarships and tuition assistance.</li> <li>5. Encourage partnerships with various stakeholders to improve the quantity and quality of scholarship and tuition assistance for students</li> </ol>
3. Improving equity of higher education for communities and regions that are under-represented	<ol style="list-style-type: none"> <li>1. Identify the availability of access to higher education for communities and regions that are under-represented.</li> <li>2. Encourage and facilitate colleges in the area to increase access to higher education for communities and regions that are underrepresented by prioritizing the opening of the relevant study program and its graduates can be absorbed very well by the business at the local level.</li> <li>3. Together with Ministry of Home Affairs, do further study on the role of local governments in financing higher education.</li> <li>4. Encourage the business community and society in general to contribute in improving access to higher education for communities and regions that are under-represented.</li> </ol>
4. Optimization of the college held by the public	<ol style="list-style-type: none"> <li>1. Expansion of access by the PTS should only be done by considering the quality of academic programs are</li> </ol>

Policy Direction	Program
	organized (accredited A / B) or with guidance by PTN / PTS / BHMN / BHP / BHPM quality. 2. Right sizing the PTS through the merger process (merger) 3. Facilitate the PTS to prioritize opening of courses that graduates can be absorbed very well by the business at the local level.
5. Increasing the role of the public, especially the business community and local governments in expanding access and equity	1. Encourage and facilitate the business world and society in general to contribute in improving access to higher education by prioritizing the opening of courses that graduates can be absorbed very well by the business concerned.
7. Increasing the role of information and communication technology and distance education associated with the expansion of access to quality, training to enhance professionalism and continuing education	1. Develop a road map distance education development, especially for in-service training, continuing education. 2. Encourage Open University to improve the quality of graduates. 3. Improve utilization of information and communication technology to improve the quality of education.
Strategy 3	Description of Proposed Strategy
1. Transform the structure and function of the Directorate General of Higher Education in the context of autonomy PT.	1. Determining the level of autonomy of higher education associated with the implementation of the National Education Law and Law on the autonomy of HE 2. Aligning organizational structure, main tasks, functions, responsibilities, and authority directorates and units of work and existing functional based on the principles of effectiveness and efficiency. 3. Developing higher education funding system effective, efficient, transparent and accountable. 4. Harmonization of legislation relating to higher education. 5. To increase the ability of human resources and management of the Directorate General of Higher Education system. 6. Improving coordination and synergy among intensive-and inter-ministerial and internal DG DIKTI. 7. Increase the utilization of ICT for public information and management of higher education.
2. Encourage the development of independent institutional system 3. Fostering and healthy college education legal entity 4. Strengthening Higher Education Quality Assurance System	1. Setting the blueprint / road map to encourage establishment of independence independent agencies established by governments or societies in the development and quality assurance of higher education 2. Perform initiation in developing and improving the capacity and integrity of the independent agencies established by governments or professional associations to be independent in decision-making system. 3. Intensive coordination with the Ministry of Manpower, Ministry, Ministry of Industry, Ministry of State Apparatus in improving the absorption of higher education graduates and products by other ministries, local governments, and community 4. Increase participation of professional associations to be more active in the development and quality assurance of higher education. 5. Increase the community's role in maintaining and improving the quality of higher education through an active process control. 6. Facilitate the transformation of higher education into BHP

Policy Direction	Program
	7. Develop a network of cluster colleges coaching and discipline.
Strategy 4	Description of Proposed Strategy
1. Empowering communities to contribute in the development of higher education	<ol style="list-style-type: none"> <li>1. Together with relevant agencies, encourages tax exemption policy (tax exemptions) and tax deductions (tax reduction) for donors to improve access and quality of higher education.</li> <li>2. Encouraging people to love the products of education and research in the country</li> <li>3. Encourage businesses to build a university-based industrial R &amp; D.</li> </ol>
2. Increase the contribution of higher education in community development (economic, socio-cultural, health, education, welfare) and the achievement of the MDGs	<ol style="list-style-type: none"> <li>1. Encourage greater moral force in directing college and pro-sustainable development in the public interest.</li> <li>2. Encourage policies that are institutional Tridharma; and not individually included in the system of sanctions and rewards to the faculty.</li> <li>3. Policies to encourage universities did not become an ivory tower.</li> <li>4. Encourage universities to carry out community service in institutional long-term and sustainable in accordance with the needs, uniqueness, and local excellence.</li> <li>5. Facilitating academic programs that lead to the achievement of the MDGs.</li> <li>6. Encourage universities to stream information and education outcomes research to the public.</li> <li>7. Encourage universities to open the clinic application of knowledge that can be used easily and inexpensively by the community.</li> <li>8. Encourage universities to establish and enable a business incubator center.</li> </ol>



## ANNEX D. TARGET KEY PERFORMANCE INDICATORS AND ACTIVITY

CODE	PROGRAMS/ACTIVITIES	IKU/IKK		INITIAL CONDITIONS (2009)	TARGET				
					2010	2011	2012	2013	2014
4	HIGHER EDUCATION PROGRAM	IKU 4.1	PT and PTA GER THN AGES 19-23 *)	21.6%	22.8%	25.1%	26.7%	28.6%	30.0%
		IKU 4.2	GENDER EQUITY RATIO PT	116.7%	111.8%	107.9%	104.6%	104.5%	104.0%
		IKU 4.3	NUMBER OF PT PK BLU / BLU (BHP)	0	20	27	35	45	60
		IKU 4.4	NUMBER OF PT opinion WTP KAP	6	11	20	22	26	30
		IKU 4.5	PERCENTAGE Study Program Accredited	73.0%	56.8%	62.7%	69.0%	75.0%	81.0%
		IKU 4.6	Study Program PT PERCENTAGE OF MINIMAL B accredited	64.8%	49.6%	50.0%	51.0%	52.0%	53.0%
		IKU 4.7	NUMBER OF HIGHER EDUCATION IN THE WORLD TOP 500	3	3	5	6	8	11
		IKU 4.8	RATIO vocational MHS: MHS vocational TOTAL AND S-1	17.2%	19.0%	21.0%	24.0%	27.0%	30.0%
		IKU 4.9	Prodi GER NATURAL SCIENCE AND TECHNOLOGY (AGE 19-23 YEARS)	3.6%	4.1%	5.0%	6.0%	8.0%	10.0%
		IKU 4:10	MINIMUM PERCENTAGE OF LECTURER QUALIFY S2	61.5%	65.0%	70.0%	75.0%	85.0%	90.0%
		IKU 4:11	PERCENTAGE OF LECTURER QUALIFY S-3	10.10%	12.5%	13.5%	16.0%	19.0%	21.5%
		IKU 4:12	LECTURER PERCENTAGE OF CERTIFIED	16.0%	23.5%	37.5%	50.0%	62.5%	75.0%
		IKU 4:13	PERCENTAGE OF PUBLICATION OF NATIONAL LECTURER DG	4.2%	5.0%	5.2%	5.4%	5.5%	5.7%
		IKU 4:14	PERCENTAGE OF LECTURER WITH INTERNATIONAL PUBLICATION	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%
		IKU 4:15	IPR AMOUNT GENERATED	65	75	95	110	130	150
		IKU 4:16	PERCENTAGE OF STUDENTS SCHOLARSHIP RECIPIENT	6.0%	9.4%	15.0%	20.0%	20.0%	20.0%
4.1	SUPPORT THE IMPLEMENTATION OF TASK MANAGEMENT AND OTHER TECHNICAL	IKK 4.1.1	DOCUMENT NUMBER OF POLICY PLANNING AND BUDGETING	-	6	6	6	6	6

CODE	PROGRAMS/ACTIVITIES	IKU/IKK	INITIAL CONDITIONS (2009)	TARGET					
				2010	2011	2012	2013	2014	
		IKK 4.1.2	Percentage SATKER DIPA Directorate for Higher Education REVISED LEVEL CENTER	-	57%	50%	35%	25%	15%
		IKK 4.1.3	Percentage of Higher Education PROPOSED SET OF BLU PTN Kemenkeu LESS THAN 6 MONTHS	-	-	80%	85%	90%	95%
		IKK 4.1.4	BUDGET IN THE PERCENTAGE Block DIPA CURRENT YEAR	-	2.3%	2.0%	1.5%	1.0%	0.5%
		IKK 4.1.5	SATKER PERCENTAGE OF FINANCIAL STATEMENTS IN ACCORDANCE WITH REGULATION legislation and TIMELY	97.0%	99.0%	100%	100%	100%	100%
		IKK 4.1.6	Percentage ACCOUNTING REPORTS MANUAL IN ACCORDANCE SAI SATKER	85.0%	87.0%	90.0%	92.0%	95.0%	97.0%
		IKK 4.1.7	TOTAL BLU SATKER APPLYING APPROPRIATE FINANCIAL STATEMENTS AND SAK SAP	6	14	25	27	32	37
		IKK 4.1.8	Percentage of CPC AUDIT FINDINGS BE FINALIZED RESULT LESS THAN 6 MONTHS	-	77%	85%	89%	92%	95%
		IKK 4.1.9	Percentage APPROVAL TUP SATKER SECRETARIAT 100%	-	80%	85%	90%	95%	100%
		IKK 4.1.10	Average EFFECTIVE EMPLOYEE WORKING DAY	232	233	234	235	236	237
		IKK 1.4.11	NUMBER OF REPORTS IN ACCORDANCE SIMAK SATKER BMN BMN	91	95	95	95	95	95
		IKK 1.4.12	SERVICES IN THE AMOUNT OF APPLYING E-SERVICES	A	A	A	4	8	12
		IKK 1.4.13	APPLYING THE PERCENTAGE OF E-PROCUREMENT SATKER> 50% PACKAGES PBJ	0%	0.05%	0.18%	0.35%	0.55%	0.75%
		IKK 4.1.14	NUMBER OF INHERENT incorporated in the PT (GDLN)	363	390	418	445	473	500
		IKK 4.1.15	PERCENTAGE SATKER-absorption> 95%	46.3%	51.0%	55.8%	60.5%	65.3%	70%

CODE	PROGRAMS/ACTIVITIES	IKU/IKK		INITIAL CONDITIONS (2009)	TARGET				
					2010	2011	2012	2013	2014
		IKK 1.4.16	NUMBER OF HIGHER EDUCATION INFORMATION THAT HAS BEEN PUBLISHED	-	-	25	30	35	35
		IKK 1.4.17	NUMBER OF HIGHER EDUCATION EXHIBITION	-	-	2	3	3	4
4.2	<b>Tridharma SERVICE IN HIGHER EDUCATION</b>	IKK 4.2.1	JUMLAH SATKER RECIPIENT OF FUNDS	83	83	88	93	98	103
4.3	<b>RELEVANCE AND EFFICIENCY OF HIGHER EDUCATION</b>	IKK 4.3.1	TOTAL CAPACITY BUILDING PROGRAM RECIPIENTS PT INSTITISI	59	59	59			
4.4	<b>PROVISION OF SERVICES AND COMPETENCE LEARNING STUDENTS</b>	IKK 4.4.1	PERCENTAGE OF STUDENTS SCHOLARSHIP RECIPIENT GOVERNMENT PTP	3.7%	6.2%	9.4%	13.8%	13.8%	13.8%
		IKK 4.4.2	PERCENTAGE OF STUDENTS SCHOLARSHIP RECIPIENT GOVERNMENT PTM	1.9%	3.1%	4.6%	6.2%	6.2%	6.2%
		IKK 4.4.3	PERCENTAGE OF STUDENTS RECEIVE SCHOLARSHIPS WORLD BUSINESS AND OTHER DONORS (CSR)	0.4%	0.7%	1.0%	1.4%	1.4%	1.4%
		IKK 4.4.4	NUMBER OF STUDENTS IN THE OLYMPICS medalist RECEIVE THE SCIENCE SCHOLARSHIP	57	60	62	65	68	70
		IKK 4.4.5	CENTER OF ENTREPRENEURSHIP AND PRODUCTIVITY	70	110	150	200	260	330
		IKK 4.4.6	Number of Students ADDED A NEW MODEL OF CHANGES IN LEARNING	NA	NA	55,000	60,000	65,000	70,000
		IKK 4.4.7	Prodi TOTAL QUALITY ASSURANCE THAT APPLYING LEARNING	1914	4200	6800	8300	10,200	12,000
		IKK 4.4.8	WAITING TIME TO GET FIRST CHANCE work (MONTHS)	12	11	10	9	8	6
4.5	<b>DEVELOPMENT QUALITY polytechnic education</b>	IKK 4.5.1	Prodi accredited vocational MINIMAL B	62.7%	66.7%	71.7%	76.7%	82.7%	90%
4.6	<b>Prodi QUALITY IMPROVEMENT OF</b>	IKK 4.6.1	Prodi accredited HEALTH PROFESSION	0%	0%	25%	31.5%	48.5%	66.5%

CODE	PROGRAMS/ACTIVITIES	IKU/IKK		INITIAL CONDITIONS (2009)	TARGET				
					2010	2011	2012	2013	2014
	<b>HEALTH PROFESSION EDUCATION AND QUALITY HEALTH</b>	IKK 4.6.2	PT MEET STANDARDS OF QUALITY FACILITIES AND INFRASTRUCTURE	126	153	183	213	243	273
<b>4.7</b>	<b>LECTURERS AND PROVIDING QUALITY educational personnel</b>	IKK 4.7.1	PERCENTAGE OF LECTURER PTN QUALIFY S2	73.8%	78.5%	82.5%	88.5%	94.5%	100.0%
		IKK 4.7.2	PERCENTAGE OF LECTURER PTS QUALIFY S2	46.7%	51.7%	57.0%	65.0%	75.0%	90.0%
		IKK 4.7.3	PERCENTAGE OF LECTURER PTN QUALIFY S3	16.1%	17.5%	20.0%	23.5%	26.5%	30.0%
		IKK 4.7.4	PERCENTAGE OF LECTURER PTS QUALIFY S3	4.0%	4.3%	4.7%	5.2%	5.6%	6.0%
		IKK 4.7.5	PERCENTAGE OF LECTURER PTN CERTIFIED	26.8%	39.0%	50.0%	65.0%	80.0%	100.0%
		IKK 4.7.6	PERCENTAGE OF LECTURER PTS CERTIFIED	7.4%	10.5%	26.0%	37.0%	49.0%	55.5%
		IKK 4.7.7	Education Personnel PTN PERCENTAGE HAVE CERTIFICATE OF FUNCTIONAL	0%	1.9%	3.7%	5.5%	7.5%	10.0%
		IKK 4.7.8	THE FOLLOWING NUMBER OF LECTURER IN ACADEMIC TRAINING ABROAD	700	750	800	850	900	1000
		IKK 4.7.9	NUMBER OF LECTURER IN THE FOLLOWING TRAINING IN ACADEMIC AFFAIRS	150	200	250	300	350	400
		IKK 4.7.10	PT OPERATOR CERTIFICATION OF LECTURERS	60	65	70	75	80	85
		IKK 4.7.11	NUMBER OF PLANNING DOCUMENTS, REPORTS, AND PERFORMANCE Personnel	3	3	3	3	3	3
<b>4.8</b>	<b>PROVISION OF SERVICES AND INSTITUTIONAL COOPERATION</b>	IKK 4.8.1	PTN PT PERCENTAGE TOWARDS AUTONOMY	8%	15%	17.5%	24%	27.5%	30%
		IKK 4.8.2	NUMBER OF INCORPORATION / AMENDMENT PTN PTS AND NEW	45	55	65	75	85	95
		IKK 4.8.3	TOTAL CLOSURE PTS	A	A	2	4	6	8
		IKK 4.8.4	OPENING OF NEW Prodi	500	500	500	500	500	500

CODE	PROGRAMS/ACTIVITIES	IKU/IKK	INITIAL CONDITIONS (2009)	TARGET					
				2010	2011	2012	2013	2014	
		IKK 4.8.5	NUMBER OF FOREIGN STUDENTS IN PTI	5280	5300	5400	5600	5800	6000
		IKK 4.8.6	JUMLAH INSTITUTIONAL COOPERATION	2088	2100	2150	2175	2200	2225
		IKK 4.8.7	NUMBER OF INTERNATIONAL AFFAIRS OFFICE IN HIGHER EDUCATION	33	33	50	60	70	80
<b>4.9</b>	<b>DEDICATED TO RESEARCH AND DEVELOPMENT COMMUNITY</b>	IKK 4.9.1	NUMBER OF DOING RESEARCH LECTURER	44,460	16,701	9063	13,656	18,249	22,842
		IKK 4.9.2	NUMBER OF LECTURER WITH THE NATIONAL PUBLICATION	6733	8193	8742	9280	9790	10,310
		IKK 4.9.3	LECTURER WITH THE PUBLICATION OF THE INTERNATIONAL	484	593	643	693	743	793
		IKK 4.9.4	NUMBER OF REGISTERED IPR	65	721	871	1021	1171	1321
		IKK 4.9.5	PT PERCENTAGE THAT PROVIDES ACCESS TO THE INTERNET AND E-JOURNAL	50%	52%	54%	56%	58%	60%
		IKK 4.9.6	Number of lecturers DEDICATED TO THE COMMUNITY	6286	3594	3610	3750	4000	4245
		IKK 4.9.7	JUMLAH Business Incubator WITH PT / INDUSTRIAL	11	15	18	20	23	25
		IKK 4.9.8	PT PERCENTAGE WITH COOPERATION WITH INDUSTRY BASED RESEARCH AND DEVELOPMENT	0.5%	1%	2%	3%	4%	5%
		IKK 4.9.9	PT PERCENTAGE OF COOPERATION WITH THE GOVERNMENT AND LOCAL GOVERNMENT BASED RESEARCH AND POLICY	0.5%	1%	2%	4%	6%	8%
		IKK 4.9.10	The number of students IMPLEMENT PROGRAM STUDENT CREATIVITY	13,780	14,763	16,959	18,662	20,348	22,084
		IKK 4.9.11	NUMBER OF LECTURER write college textbook	63	290	325	360	395	430



## **ANNEX E. WHAT IS MEANT BY “CLOSING THE CAPACITY GAP<sup>16</sup>”?**

### **1. Capacity to Set Objectives<sup>17</sup>**

- Based on an understanding of the national and local contexts
- Requires sound data and information about current needs
- To target evidence-based population and service interventions

### **2. Capacity to Develop Strategies<sup>2</sup>**

- Based on a clear priority-ranking of needs
- Requires an understanding of the processes that can contribute to meeting needs
- To identify desired end-results and develop meaningful benchmarks to determine progress

### **3. Capacity to Draw Up Action Plans<sup>2</sup>**

- Based on an agreed strategy
- Requires listing of and consensus on required actions
- To identify stakeholders involved in carry-out actions and set a clear timetable

### **4. Capacity to Develop and Implement Appropriate Policies<sup>18</sup>**

- Based on meeting capacities 1-3
- Requires design of policies and inclusion of all appropriate stakeholders in decision-making
- To establish methodologies for effective and accountable policy implementation

### **5. Capacity to Develop Regulatory and Legal Frameworks<sup>3</sup>**

- Based on rule of law
- Requires adapting national laws and regulations for compatibility
- To assure accountable policy implementation

### **6. Capacity to Build and Manage Partnerships<sup>3</sup>**

- Based on transparency
- Requires time for full and constructive consultation among key stakeholders which is based on appropriate incentives
- To secure commitments by the stakeholders involved in the implementation of the action plan

### **7. Capacity to Foster an Enabling Environment for Civil Society<sup>3</sup>**

- Based on democratic principles
- Requires resources and empowerment
- To sustain development initiatives

### **8. Capacity to Mobilize and Manage Resources<sup>19</sup>**

- Based on cooperation and complementarity of effort
- Requires a quantification of resources that are needed to implement the plan
- To have the capital (human, physical, logistical, financial, other) required to set the plan into action, and the ability to absorb capital to use it efficiently and effectively to achieve objectives

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<sup>16</sup> Adapted from S, Browne, (2002), *Developing Capacity through Technical Cooperation: Country Experiences*, UNDP/Earthscan Publications, p. 4.

<sup>17</sup> Necessitates closing the data gap

<sup>18</sup> Necessitates closing the policy gap

<sup>19</sup> Necessitates closing the financial gap

**9. Capacity to Implement the Plan<sup>3</sup>**

- **Based on capacities 4-8**
- **Requires that those responsible for carrying out every part of the plan be appropriately selected, that they are aware of their responsibilities, and know to whom they are accountable for performance**
- **To meet set benchmarks and achieve the objective(s) on time**

**10. Capacity to Monitor Progress and Analyze Effects<sup>2</sup>**

- **Based on capacity 9**
- **Requires that people and mechanisms be put in place to enable the measurement of agreed benchmarks and indicators**
- **To provide feedback for results-based management to ensure that objectives and strategies are adjusted that progress is realized and sustained; and evidence that intended outputs, outcomes and impacts are actualized**

## **ANNEX F. TEN BASIC PREMISES OF UTILIZATION-FOCUSED EVALUATION**

**From: Michael Patton, Utilization-Focused Evaluation. Newbury Park, CA: Sage, 1986.**

- 1. A concern for use should be the driving force in an evaluation.**
- 2. The concern for utilization is ongoing and continuous from the very beginning of the evaluation.**
- 3. Evaluation should be user-oriented. It should be aimed at the interests and needs of specific, identifiable people.**
- 4. Once identified, the intended evaluation users should be personally and actively involved in making decisions about the evaluation.**
- 5. There are multiple and varied interests around any evaluation. The process of identifying and organizing stakeholders to participate in the evaluation process should be done in a way that is sensitive to and respectful of these varied and multiple interests.**

**Stakeholders representing various constituencies should come together at the beginning of the evaluation to decide whose issues and questions will be given priority in the evaluation.**

**Focusing of the evaluation should not be done by the evaluators in isolation.**

- 6. Careful selection of the stakeholders for active participation in the evaluation process will permit high-quality participation. High quality participation is the goal, not high quantity participation.**
- 7. Evaluators have a responsibility to TRAIN stakeholders in the evaluation processes and the uses of information.**
- 8. There are a variety of ways in which evaluation processes and findings are used (to directly influence major, specific decisions, OR to make minor adjustments to programs OR to have broad conceptual impact.) We must recognize the context and the broad user orientation.**
- 9. Be aware of the wide variety of situational factors that affect an evaluation (organizational characteristics, community variables, the nature of the evaluation, political considerations, etc).**
- 10. Beware of financial and staff time costs that are related to utilization of evaluation.**

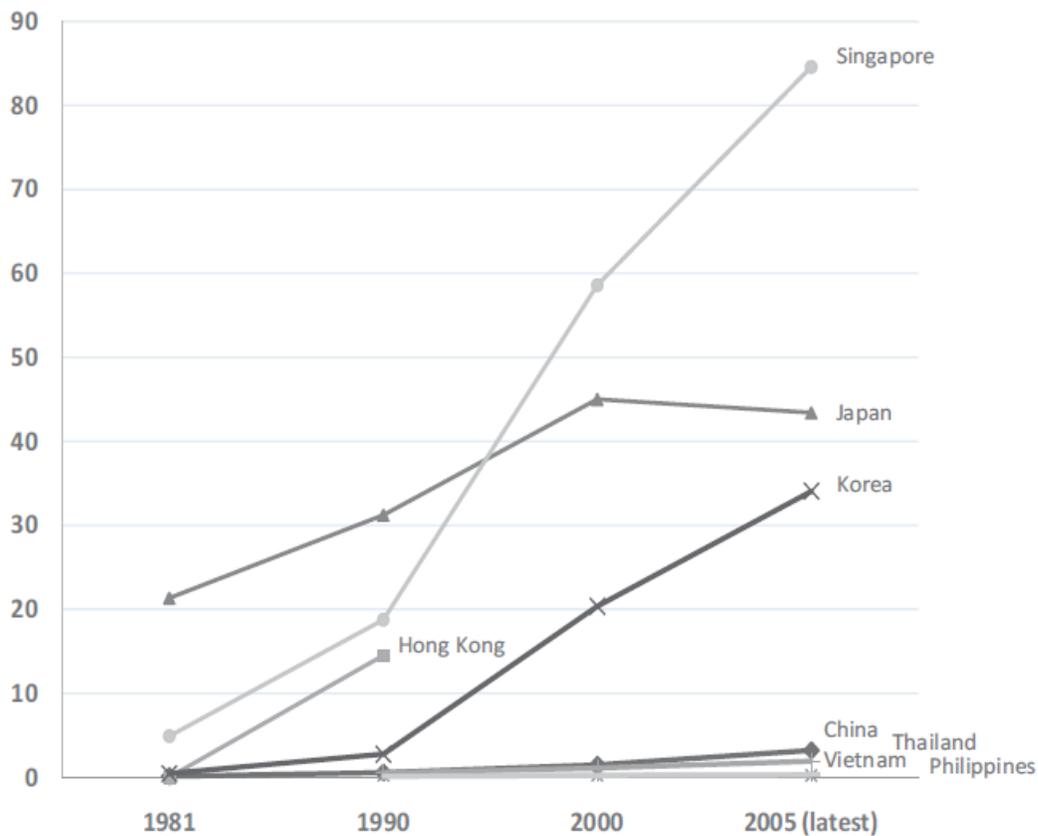


## ANNEX G. SCIENCE CITATIONS PER 100,000 INHABITANTS: EAST ASIA 2012

From: Patrinos (2012) *Strengthening Educational Quality in East Asia. SABER: System Assessment and Benchmarking for Education Results*. Washington DC: World Bank/UNESCO.

(This figure) shows the research performance of economies in East Asia. Three stand out as high achievers in this area: Singapore, Japan, and Korea. *All other economies continue to be in the initial or emerging phase of development in terms of research capacity, with fewer than 10 citations per 100,000 inhabitants.* (Note: this would include Indonesia, which does not appear in this figure).

**Figure 3. Science Citations per 100,000 Inhabitants**



Source: National Science Foundation (United States) via World Development Indicators

When grouped according to *growth* in research output between 1980 and 2005 (the latest year for which data are available), China, Korea, and Singapore are in the top 25 percent; **Indonesia**, Japan, Malaysia, the Philippines, Thailand and Vietnam are in the middle 50 percent, and Cambodia, Hong Kong, Lao PDR, and Mongolia are in the bottom 25 percent.

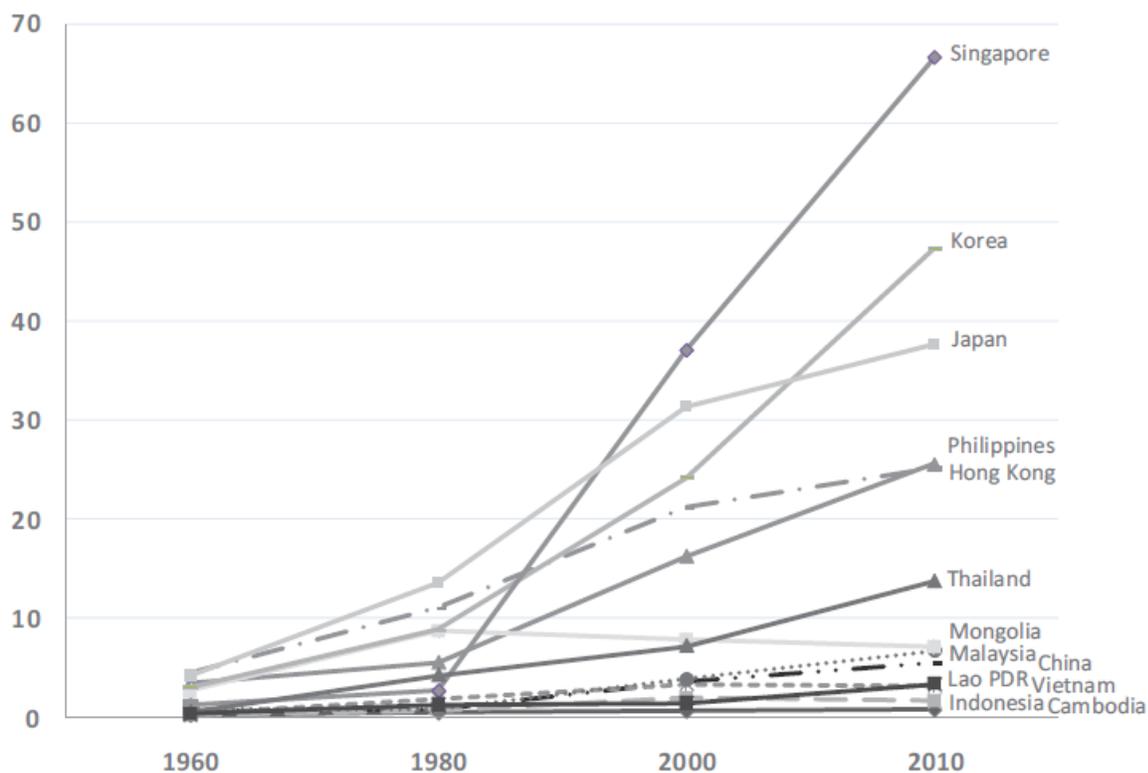


## ANNEX H. PROPORTION OF POPULATION WITH A TERTIARY DEGREE ATTAINMENT

From: Patrinos (2012) *Strengthening Educational Quality in East Asia. SABER: System Assessment and Benchmarking for Education Results*. Washington DC: World Bank/UNESCO.

**Attainment:** (The following figure) shows increasing levels of tertiary attainment in the adult population across the region. In 1960, in all economies in East Asia, fewer than 5 percent of the population had obtained a tertiary degree. By 2010, the spread has become much wider, with four out of 14 economies continuing under the 5 percent attainment range but with Singapore and Korea at the other end of the scale having an attainment rate of 66% and 47% respectively. There was rapid growth in tertiary degrees between 1980 and 2000 in Singapore, South Korea and Japan, but this growth has leveled off in the past 10 years—it would be useful to study what policies were in place that effectively allowed the attainment rates to quadruple within the span of 20 years. (Source: SABER-Tertiary (2012)).

**Figure 2. Proportion of the Population (aged 25-44) with a Tertiary Degree**



Source: Barro and Lee (2010)



## ANNEX I. GOVERNANCE MATTERS TO EDUCATIONAL OUTCOMES — BEC-TF SELECTED TABLES: AGGREGATED INDICATOR SCORES

### Education Service Provision Standards

INDICATORS	SCORE
Percentage of districts where each junior secondary school has at least 40% of teachers who have a minimum education qualification of S-2 or Diploma IV and holds a teaching certificate in line with the subject they teach. (1)	92%
Number of districts where gender parity and junior secondary schools exist. (14)	91%
Percentage of districts where the primary level dropout rate does not exceed 1% of students currently enrolled in school (7))	82%
Average net enrolment rate primary and junior secondary for all districts. (13)	79%
Percentage of districts where at least 75% of all junior secondary school principals have a minimum education qualification of S-1/D-IV and a teaching certificate from an accredited institution. ( 4)	66%
Percentage of districts where at least 75% of all school supervisors have a minimum education qualification of S-1/D-IV and a teaching certificate from an accredited institution. (5)	60%
Percentage of districts where the junior secondary level drop-out rate does not exceed 1% of students currently enrolled in school. (8)	60%
Average transition rate from junior secondary to senior senior secondary for all districts. (12)	28%
Percentage of districts where average National Exam Score for Year 6 is 6.0 or higher. (9)	24%
Average transition rate from primary to junior secondary for all districts. (11)	24%
Percentage of districts where 95% of the children in the 7-12 year old group attend school SD/MI (6)	22%
Percentage of districts where average National Exam Score for Year 9 is 6.0 or higher.(10)	16%
Percentage of districts where at least 75% of all primary school principals have a minimum education qualification of S-1/D-IV and a teaching certificate from an accredited institution. (3)	12%
Percentage of districts where each primary school has at least 40% of teachers who have a minimum education qualification of Bachelor or Diploma IV and holds a teaching certificate. (2)	6%
Percentage of Average Adult Literacy Rate in all districts. (15)	83%

\*The average score for the surveyed LGs from highest to lowest. The indicator reference number appears in brackets.



## ANNEX J. GOVERNANCE MATTERS TO EDUCATIONAL OUTCOMES — SELECTED TABLE: EDUCATION SERVICE PROVISION STANDARDS

These standards are derived from National Education Standards (NES) and Indonesia's Education Minimum Service Standards (MSS). Results can be regarded as proxy for the overall achievement of MSS and relevant elements of the NES. The indicators, aspects and assigned weightings are detailed in Table 2.3 (not given here).

	INDICATORS	ASPECT	WEIGHT
1	Each primary school has at least 40% of teachers that have a minimum education qualification of S-1 or Diploma IV and holds a teaching certificate.	Performance	50%
2	Each primary school has at least 40% of teachers that have a minimum education qualification of S-1 or Diploma IV and holds a teaching certificate in line with the subject they teach.	Performance	50%
3	At least 75% of all primary principals have a minimum education qualification of S-1/D-IV and a teaching certificate from an accredited institution.	Performance	50%
4	At least 75% of all SMP/MTs school principals have a minimum education qualification of S-1/D-IV and a teaching certificate from an accredited institution.	Performance	50%
5	At least 75% of all school supervisors have a minimum education qualification of S-1/D-IV and a teaching certificate from an accredited institution.	Performance	50%
6	95% of all children in the 7-12 year age group attend primary school	Performance	50%
7	The primary level drop-out rate does not exceed 1% of students currently enrolled in school.	Performance	50%
8	The junior secondary level dropout rate does not exceed 1% of students currently enrolled in school.	Performance	50%
9	Average National Exam Score for Year 6 is 6.0 or higher.	Performance	50%
10	Average National Exam Score for Year 9 is 6.0 or higher	Performance	50%
11	Transition rate from primary to junior second	Performance	50%
12	Transition rate from junior secondary to senior secondary	Performance	50%
13	Net Enrollment Rate	Performance	50%
14	Gender Parity primary and junior secondary	Performance	50%
15	Adult Literacy Rate	Performance	50%



## ANNEX K. GOVERNANCE MATTERS TO EDUCATIONAL OUTCOMES: SELECTED TABLE: TRANSPARENCY AND ACCOUNTABILITY

The practices and regulatory efforts made by local government to enable transparent and accountable governance in education service delivery and expenditure for its constituents.

	INDICATORS	ASPECT	WEIGHT
1	Financial reports are publicized in the local area media, on an official announcement board, or through a website	Performance	50%
2	Community is able to attend local parliament session discussing the accountability and BPK audit reports	Performance	50%
3	The Education Council is involved in the compilation of Renstra (Strategic Planning)	Performance	50%
4	Local legislation on transparency exists	Performance	50%
5	Local legislation on public participation exists	Performance	50%
6	The public has access to budget sessions in the local parliament	Performance	50%
7	The accountability report discussion in the local parliament is open to the public	Performance	50%
8	Community is involved in monitoring and evaluating education activities	Process	33%
9	Education unit is producing progress reports on planned activities and realization, including budget.	Regulation	17%
10	There are mechanisms in place to ensure that educational stakeholders have the opportunity to participate and voice their opinions regarding the evaluation of the local government's Education Office, schools, and the local Education Board.	Process	33%



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