National Accreditation Board for Higher Education
Executive Board

Study on the effectiveness of accreditation process

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1 Introduction

Resource based economy is currently shifting toward knowledge based economy, and the synergy between the economic development and higher education becomes inevitable in improving competitiveness. In recent years the contribution of higher education is becoming more central in improving competitiveness, particularly as efficiency enhancer and innovation as well as sophistication. The vision of the current government of Indonesia is to improve its global competitiveness and acquire a respectful standing among other nations.

According to the World Economic Report, the contribution of higher education to the Indonesian competitiveness is only scored at 4.5 (out of 7) in the aspect of *higher education and training* in 2017-2018. Its contribution is even worse in the aspect of innovation which is scored at 4.0 [WEF 2017]. Higher education cannot meaningfully contribute in improving the Indonesian competitiveness without a significant quality improvement, and quality assurance is an integral part of it. As accreditation process is an important aspect in the quality assurance process, it is essential to ensure its effectiveness. Until recently accreditation focused more on aspects in input and process, and less on output and outcome. This study aims to evaluate the effectiveness of accreditation by measuring the correlation between the accreditation result and the quality of institution or programs. This study is also expected to come up with suggestions to improve the instruments used in the accreditation process.

2 Quality assurance in the Indonesian context

Quality assurance mechanism should be carried out internally and externally. Internal quality assurance is carried out by internal units within each institution. External quality assurance process for higher education is carried out among others through accreditation (for institutions and programs) and certification (for individual graduates in particular programs).

Since its establishment in 1994, the National Accreditation Board for Higher Education (*Badan Akreditasi Nasional – Perguruan Tinggi* or BAN-PT) has conducted accreditation for thousands ofl higher education institutions and programs. As stipulated in the Law 12/2012 on Higher Education, BAN-PT is the sole agency mandated to conduct the mandatory accreditation process in higher education. In 2016 BAN-PT has restructured its organization, separating the policy making from the accreditation process. Since 2016 the Accreditation Board is only responsible for developing policies whilst the Executive Board is responsible for carrying out the accreditation process.

After operating as the single accreditation agency in the country since 1994, Independent Accreditation Agency (*Lembaga Akreditasi Mandiri* or LAM) is just recently introduced in addition to BAN-PT. A LAM is established for a particular professional education program, e.g. medical and engineering. Although established as an independent agency, LAM still has to report to the BAN-PT.

In addition to accreditation, certification of individual graduates also indicates the level of quality. The certification is carried out by professional association or organization in its respective the field of expertise. In the medical field, all graduating medical students are required to go through the certification process conducted by the Indonesian Medical Council (*Konsil Kedokteran Indonesia*). In other fields, such as accounting and engineering, certification is voluntary.

3 Accreditation process

The accreditation is conducted by a panel of peers, called the team of assessors. The documents submitted are first administratively inspected, particularly in aspect of completeness of the required documentation. The accreditation process is then carried out in two phases, namely the adequacy evaluation and the site evaluation. The result of both assessments is then used as the basis of defining the accreditation status.

3.1 Criteria

The criteria for assessment in the accreditation process consist of 7 national standards, namely

a) The statement of Vision, Mission, Objective, Goal, and Strategy;
b) Governance, Leadership, Management system, and Quality assurance system;
c) Students and Graduates;
d) Human resources;
e) Curriculum, Learning process, and Academic atmosphere;
f) Funding, Infrastructure, and Information system; and
g) Research, Community service, and Collaboration.

The national standards for higher education are developed by the Board of National Education Standards (*Badan Standar Nasional Pendidikan* or BSNP).

3.2 Result

The number institutions offering higher education in Indonesia is 4,551 as September 2017 and only 1,012 (22.24%) of them have been accredited. From 26,233 programs registered in the Higher Education Database (*Pangkalan Data Pendidikan Tinggi* or PDPT) only 18,874 (71.95%) have been accredited [PDPT 2016]. Table-1 shows that the proportion of programs successfully acquired accreditation A is less than 12% or only 2,256, whilst the proportion for institutions is much smaller at 2.5%. It shows that quality is still a critical problem in higher education. Programs and institutions are provided with an opportunity to appeal on the result. As for September 2016, appeal from 13 institutions and 108 programs have been processed

Table-1: The result of programs and institutions accreditation [BAN-PT 2016]

	PROGRAMS				INSTITUTIONS			
	A	**B**	**C**	**Total**	**A**	**B**	**C**	**Total**
Public institutions	1470	2592	771	4833	17	53	8	78
Private institutions	546	4610	5838	10994	6	190	516	712
Public Islamic institutions	180	734	300	1214	0	16	3	19
Private Islamic institutions	14	397	1041	1452	3	30	19	52
Service Institutions[1]	46	257	78	381	0	7	144	151
Total	**2256**	**8590**	**8028**	**18874**	**26**	**296**	**690**	**1012**

[1] Service institutions are operated under government institutions outside the Ministry of Research, Technology, and Higher Education (MoRTHE). Examples of such institutions are the Military Academy,

Table-2 presents the list of institutions acquired accreditation status A. Since this study focuses only on institutions under the MoRTHE, four institutions are omitted from the list (the Military Academy and 3 Islamic institutions under the Ministry of Religious Affairs).

Table-2: Institutions with accreditation status A [BAN-PT 2016][2]

Univ Pertahanan	Univ Pendidikan Indonesia
Institut Teknologi Bandung	Univ Lampung
Institut Pertanian Bogor	Univ Sriwijaya
Institut Teknologi Sepuluh Nopember	Univ Udayana
Politeknik Elektronika Negeri Surabaya	Univ Negeri Makassar
Politeknik Negeri Bandung	Univ Mulawarman
Politeknik Negeri Semarang	STIE Perbanas Surabaya
Univ Indonesia	Sekolah Tinggi Pariwisata Pelita Harapan
Univ Gadjah Mada	Univ Muhammadiyah Yogyakarta
Univ Diponegoro	Univ Islam Indonesia
Univ Hasanuddin	Univ Muhammadiyah Malang
Univ Padjadjaran	Univ Gunadarma
Univ Sebelas Maret	Univ Kristen Petra
Univ Airlangga	Univ Surabaya
Univ Andalas	Univ Telkom
Univ Negeri Malang	Univ Muhammadiyah Prof. DR. Hamka
Univ Brawijaya	Univ Bina Nusantara
Univ Negeri Jakarta	Univ Sanata Dharma
Univ Jember	Univ Katolik Widya Mandala Surabaya
Univ Syiah Kuala	Univ Multimedia Nusantara
Univ Negeri Yogyakarta	Univ Mercu Buana
Univ Negeri Semarang	Univ Katolik Indonesia Atma Jaya
Univ PN Veteran Jawa Timur	Univ Katolik Soegijapranata
Univ Negeri Medan	Univ Dian Nuswantoro
Univ Negeri Padang	

3.3 Higher Education Database

As stipulated in the Law 12/2012 on Higher Education, the Ministry of Research, Technology, and Higher Education (MoRTHE) shall provide valid and trusted information on higher education. In order to implement it, MoRTHE has establish a special unit to establish, develop, maintain a Database on Higher Education (*Pangkalan Data Pendidikan Tinggi* or PDPT). It is mandatory for all higher education institutions to submit up to date data to the PDPT. Since the accreditation process relies on information acquired from PDPT, the institution's up to date information in PDPT becomes a prerequisite for accreditation.

[2] Only institutions under the MoRTHE

4 Institutional quality

In order to define the effectiveness of accreditation, the quality of the higher education programs and institutions should be measured. However, finding the consensual definition of quality in higher education is not an easy task. Higher education in Indonesia is a highly diverse system, whereby some established institutions are aspiring to be listed in the 500 best institutions in the world, some vocational based institutions are aiming to implement production oriented education, some are more focus on teaching oriented education, and some have not yet acquired an accreditation status. Some experts are in the opinion that "*quality is in the eye of the beholder"* [Vroeijenstein, 1995].

Therefore the study team has decided to avoid "straight jacket" or "one fits for all" approach in defining quality. The approach chosen is to define quality based on the institutional mission statement, and identify the relevant indicators to measure quality. In assessing institutional quality, the team proposes to focus on those acquired accreditation status A, as illustrates in table-2.

4.1 Mission differentiation

In the early days of the introduction of higher education, universities were established with a single purpose: to serve the church, and later the imperial chamber. Since universities only had a single master, life was much simpler back then. Nowadays higher education institutions have to cope with multifaceted challenges coming from a wide variety of stakeholders, e.g. trustees, government, employers, industries, parents, students, and the public at large.

In the medieval age universities focused their activities in research, whereby education was integrated within the training aspect of research. In these days higher education should conduct separate activities in education, research, and community services. In the 11th century student apprentices were boarding to be physically close and spent long discussion hours with their professor. In the current digital age, a student could earn a degree without even ever visited the university campus. To cope with such tremendous challenges, practically there is no single institution would be able to provide excellent product and services, each institution has to choose its mission, and focus to excel in its endeavor to achieve it.

4.2 Clustering of institutions

The MoRTHE has just recently announced a clustering of institutions based on the data acquired from the national database (PDPT). At first we would like to use the clustering as a tool for defining institutional quality. Unfortunately, however, one of the key indicators used in defining the group is the accreditation result. Hence it is impossible to compare the institutions' cluster position against the accreditation result.

Alternatively the team proposes to group institutions in the following 3 (three) clusters based on its specific mission: Research institutions, Vocational institutions, and Teaching institutions. We predict that there will be a significant number of institutions which cannot be grouped in any of the aforementioned clusters due to lack of focus and quality.

All indicators are acquired from the national database on higher education (PDPT).

5 Preliminary analysis

5.1 Research institutions

Institutions grouped in the research cluster have a proven record of achievements in research, such as number of research performance (fund and grants acquired), international publication, and the strength of staff to conduct research. Since MoRTHE regularly conducts monitoring and evaluation of institutions' research capacity through its research grants and data gathering mechanism (PDPT), information is relatively accurate and up to date. Table-3 illustrates the research strength of 922 institutions by its accreditation status[3].

Table-3: Institutional research capacity by accreditation status [MoRTHE 2017]

Variable	Accreditation	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Research performance[4]	A	2	0.92	0.42	1.34	1.75	2.8	4
	B	0.71	0.48	0.03	0.33	0.67	1.04	2.54
	C	0.23	0.25	0	0.03	0.12	0.36	1.21
Staff publication[5]	A	0.5	0.67	0	0.03	0.31	0.69	3.64
	B	0.01	0.06	0	0	0	0	0.41
	C	0	0	0	0	0	0	0
Student - staff ratio	A	25.56	9.14	11.21	18.53	25.21	31.74	54.89
	B	28.7	13.52	0	19.9	27.05	33.83	107.52
	C	25.3	16.8	0	14.5	23.25	31.33	173
Number of PhD holders	A	0.29	0.14	0.06	0.2	0.27	0.36	0.71
	B	0.11	0.09	0	0.03	0.1	0.17	0.76
	C	0.04	0.05	0	0	0	0.05	0.36
Number of Professors &	A	0.29	0.15	0.02	0.19	0.31	0.38	0.72
Associate Professors	B	0.13	0.13	0	0.02	0.09	0.21	0.54
	C	0.03	0.08	0	0	0	0.03	0.57

In term of quality, table-3 shows that in general it correlates nicely with the accreditation status. It reflects the result of using similar indicators (inputs based indicators) in both the accreditation process and the clustering procedure.

The MoRTHE's initiative to develop clusters of institutions deserved an appreciation. However an interesting phenomenon triggered a question: an institution which does not have *any* publication indexed by SCOPUS has acquired an accreditation status A, as presented in table-3.

At present the team still in the process of defining specific output indicators for teaching and vocational institutions, in attempt to measure institutional quality in the remaining two clusters.

[3] N: A = 48; B = 277; C = 597
[4] Data quoted from the Directorate of Research and Community Service - MoRTHE
[5] Indexed by SCOPUS

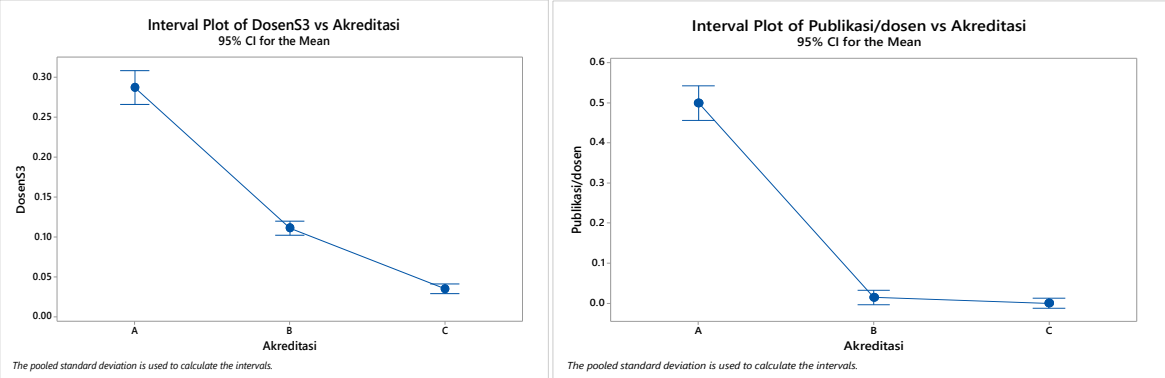

Exhibit-1 Publication per staff for each institutions' category [MoRTHE 2017]

The second diagram presented in exhibit-1 also shows that the ratio of publications per staff, as an output indicator, drops significantly for institutions with accreditation status A to B, to the same level as C. Compare to the diagram presented for number of PhD holders, the drop is more gradual and less drastic. The number of publications is an output indicator, whilst the number of PhD holders is an indicator representing input (resources). Since the accreditation result more conforms to the first diagram, it indicates that the accreditation process takes less consideration on output and too heavy on inputs (available resources).

5.2 Program quality

Measuring the quality of programs is a bit more complicated compare to measuring the institutional quality, since the variety of program offerings is very high. In order to make the problem more manageable, the team proposes to group programs into two major categories, namely professional programs and academic programs. Professional programs are programs that lead to a certain profession, e.g. medical doctor, engineer, or accountant. Academic programs are programs that lead to a broad spectrum of occupations, e.g. history, basic sciences, or philosophy. Between those two extremes, there are hundreds of different programs which are considered in the "gray" area.

By taking into consideration the limited time and resources provided for this study, the team proposes to focus only on a few samples. The proposal is to sample some professional programs (medical, accounting, civil engineering, and teacher); and some academic programs (mathematics and basic sciences). The following sections present the findings in this study.

5.2.1 Medical education

Two separate programs exist in medical education, namely academic and profession. Students should be graduated from the academic program before entering the professional program, which include apprenticeship in the hospital to acquire on site practical and clinical experiences.

Since 2015 the MoRTHE requires all final year medical students to go through a competency test before graduation or an exit examination. The test comprises two stages, namely Computer Based Test (CBT) and On Site Clinical Examination (OSCE). Only graduates passed the exit examinations are eligible to receive a certificate of competency for medical doctor from the Indonesian Medical Council (*Konsil Kedokteran Indonesia*). This certificate of competency is a mandatory requirement for all practicing medical doctor. Table-4 presents the result of the exit examination conducted in 2015 and 2016.

Table-4: Institutions' accreditation status and success rate in the exit examination [LAMPT-Kes 2017]

	Accreditation status		Exit exam			Accreditation status		Exit exam	
Institution	Academic	Profession	2015	2016	Institution	Academic	Profession	2015	2016
Univ. Diponegoro	A	-	94.84%	89.00%	Univ Muh. Malang	B	B	91.01%	86.00%
Univ. Hasanuddin	A	-	60.57%	71.00%	Univ Muh. Makasar	B	B	47.73%	67.00%
Univ. Lampung	A	-	77.23%	79.00%	Univ Muh. Semarang	B	B	64.15%	80.00%
Univ. Padjadjaran	A	-	88.35%	90.00%	Univ Batam	B	B	36.36%	27.00%
Univ. Sriwijaya	A	-	80.21%	68.00%	Univ. Cenderawasih	B	B	15.38%	26.00%
Univ. Jend Soedirman	A	A	79.87%	74.00%	Univ Islam Indonesia	B	B	71.91%	73.00%
Univ. Sumatera Utara	A	A	64.91%	62.00%	Univ Muh. Sumatera Utara	B	B	55.17%	81.00%
Univ. Jember	A	A	82.56%	84.00%	Univ. Halu Oleo	B	B	45.16%	54.00%
Univ. Andalas	A	A	80.93%	87.00%	Univ Kristen Duta Wacana	B	B	95.65%	96.00%
Univ. Udayana	A	A	83.52%	73.00%	Univ Warmadewa	B	B	80.77%	72.00%
Univ. Sam Ratulangi	A	A	48.21%	46.00%	Univ. Lambung Mangkurat	B	B	71.82%	63.00%
Univ. Pelita Harapan	A	A	88.89%	88.00%	Univ Prima Indonesia	B	B	29.63%	37.00%
Univ. Negeri Surakarta	A	A	81.76%	85.00%	Univ. Kristen Indonesia	B	B	54.84%	73.00%
Univ. Syiah Kuala	A	A	59.76%	70.00%	Univ Islam Bandung	B	B	16.67%	79.00%
Univ. Airlangga	A	A	79.66%	95.00%	Univ Islam Sultan Agung	B	B	61.43%	71.00%
Univ. Brawijaya	A	A	92.89%	94.00%	Univ Kristen Maranatha	B	B	77.54%	74.00%
Univ. Gadjah Mada	A	A	97.06%	92.00%	Univ Muh. Jakarta	B	B	62.34%	67.00%
Univ. Indonesia	A	A	93.64%	94.00%	Univ Muh. Yogyakarta	B	B	79.53%	89.00%
Univ. Atmajaya	A	A	92.35%	93.00%	Univ Mulawarman	B	B	73.68%	80.00%
Univ. Tarumanegara	A	A	73.45%	80.00%	Univ Yarsi	B	B	68.10%	75.00%
UIN Syarif Hidayatullah	B	-	81.82%	76.00%	Unversitas Trisakti	B	B	81.42%	87.00%
UniKa Widya Mandala	B	-	0%	0.00%	Univ Alkhairaat	C	-	0	100.00%
Univ Kristen Krida Wacana	B	-	61.61%	86.00%	Univ. Bengkulu	C	-	100.00%	92.00%
Univ Malikussaleh	B	-	50.94%	62.00%	Univ HKBP Nommensen	C	-	87.18%	84.00%
Univ. Mataram	B	-	83.58%	88.00%	Al-azhar Mataram	C	-	29.17%	42.00%
Univ Muh. Surakarta	B	-	54.92%	44.00%	Univ. Pattimura	C	-	57.89%	68.00%
Univ Muslim Indonesia	B	-	56.98%	80.00%	Univ Swadaya Gunung Djati	C	-	73.91%	84.00%
Univ Wijaya Kusuma	B	-	76.89%	60.00%	Univ Palangka Raya	C	C	0	92.00%
Univ Hang Tuah	B	B	81.35%	80.00%	Univ Abdurrab	C	C	50.00%	61.00%
Univ Riau	B	B	75.63%	82.00%	Univ Muh. Purwokerto	C	C	0	0.00%
Univ. Jend Ahmad Yani	B	B	69.40%	86.00%	Univ. Jambi	C	C	64.94%	59.00%
UPN Veteran Jakarta	B	B	68.63%	72.00%	Univ Islam Sumatera Utara	C	C	33.03%	32.00%
Univ Islam Malang	B	B	61.67%	73.00%	Univ Abulyatama	C	C	35.29%	28.00%
Univ. Tanjungpura	B	B	87.10%	91.00%	Univ Malahayati	C	B	27.99%	44.00%
Univ Muh Palembang	B	B	21.21%	63.00%	Univ Methodist Indonesia	C	C	31.37%	51.00%
Univ Baiturrahmah	B	B	44.83%	50.00%	Univ. Nusa Cendana	C	C	89.36%	92.00%
					Univ. Tadulako	C	C	72.09%	83.00%

In this study the proportion of students passed the exit examination is selected as an indicator representing the quality of program. Since students could repeatedly take the test before passing the examination, the data only recorded for first takers.

Exhibit-2 illustrates the scattered diagram of students' success rate in the exit examination for each Faculty of Medical Sciences. The horizontal axis represents the accreditation status of the Faculty of Medical Sciences. In order to prevent misleading perceptions, programs with 30 or less exam participants are omitted in the diagram. The following interesting points are observed,

a) Despite its relatively older existence, strong human resources and infrastructure, as well as A accreditation status, Universitas Sam Ratulangi is considered as an outlier. In 2015 and 2016, only 48% of its students who participated in the CBT and OSCE were passed. This is far below the average figure (80%) for programs with accreditation status A.

b) Although Universitas Muhammadiyah Yogyakarta only acquired accreditation status B, its success rate was 89%; whilst Universitas Nusa Cendana achieved 90% success rate with accreditation status C.

c) The accreditation results for programs with accreditation status A correlates nicely with the students' success rate, whilst the correlation is weak for programs with accreditation B and C.

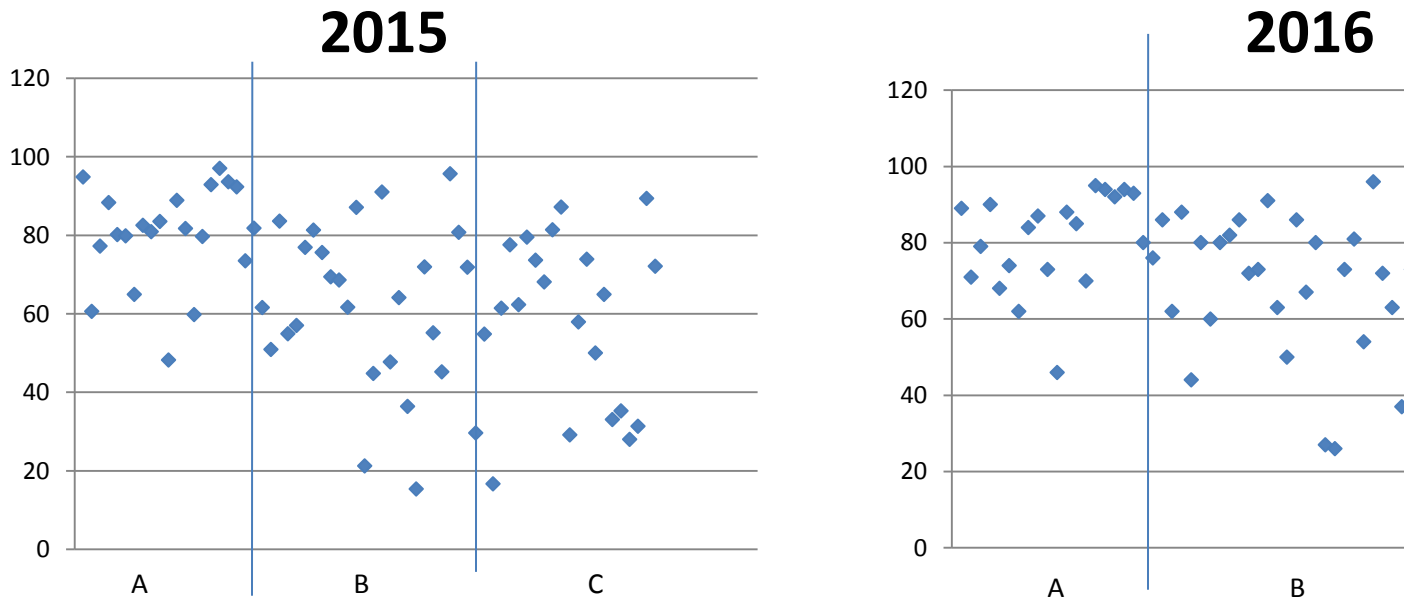

Exhibit-2 Success rate of students in the exit examination in 2015-2016 [LAMPT-Kes 2017]

d) C.

5.2.2 Accounting education

In fields other than medical sciences, certification is voluntary. In the field of accounting, in average only 37% of students admitted to the program take the opportunity to participate in the certification process. In this study the success rate is assumed to represent the quality of the accounting program. Since the job market has not required a certificate to practice as an accountant, the certification is still voluntary.

Table-4 illustrates the proportion of accounting graduates who participated in the certification tests. It shows that a significant proportion of accounting graduates choose professions that do not require certification to practice.

Compare to medical education, the success rate in acquiring "*professional chartered accountant*" certificate is very low. In order to acquire the certificate, participants should take the following 7 subjects:

- corporate reporting;
- ethics and corporate management;
- advanced financial management;
- strategic management and leadership;
- information system and internal control;
- tax management; and
- advanced management accounting.

A participant does not have to take all subjects at once, and given 3 years at most to pass the 7 subjects. Most tests are conducted 3 times each year at each designated test location / institution. Since the certification process is voluntary, not all accounting graduates take the examination. It should also be noted that information on participants' graduating class is not available that it is impossible to conduct cohort analysis. Table-5 shows that the success rate of accounting graduates from various institutions in the certification process in 2017 is 15.18%.

Participants pursuing a certification should take a training program provided by accredited institutions PPAk). The training providers should receive accreditation from IAI as well as BAN-PT. At the end of the program students should take examination on the 7 subjects. The correlation between the accreditation status of the professional program and the success rate of participants is assumed to reflect the effectiveness of the accreditation process.

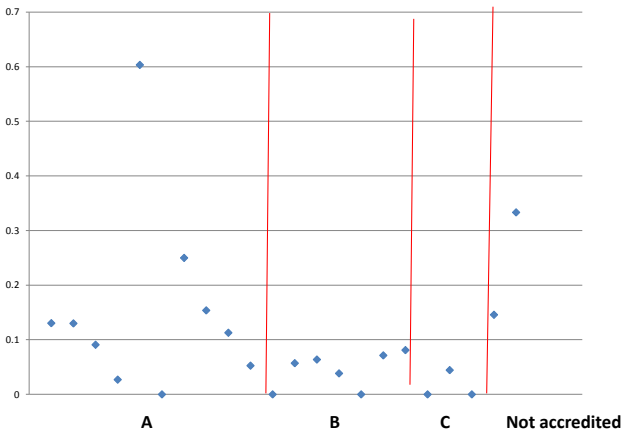

Exhibit-3 Success rate of participants from testing institution [IAI 2017][6]

[6] Only institutions with more than 5 participants are included in the diagram

Since participants in an examination are not exclusively students from the training program (PPAk) at the testing institution, we do not take into account participants from institutions other than the testing institution in measuring the program quality.

Table-5: Participants' success rate in the 7 subjects tested in 2017 [IAI 2017]

	Participants		Certified		Success rate			
Testing institution	**Testing institution**	**Outside institution**	**Testing institution**	**Outside institution**	**Testing institution**	**Outside institution**	**TOTAL**	**Accreditation status[7]**
PERBANAS	2	4	1	0	50.00%	0.00%	16.67%	NA
STIE YKPN	35	13	7	0	20.00%	0.00%	14.58%	NA
STIESIA Surabaya	1	4	1	2	100.00%	50.00%	60.00%	B
Univ STIKUBANK	1	6	0	0	0.00%	0.00%	0.00%	B
Univ Muhammadiyah Malang	6	0	0	0	0.00%	-	0.00%	NA
Univ Airlangga	4	19	3	0	75.00%	0.00%	13.04%	A
Univ Andalas	13	22	0	2	0.00%	9.09%	5.71%	B
Univ Brawijaya	24	76	3	10	12.50%	13.16%	13.00%	A
Univ Diponegoro	2	9	0	1	0.00%	11.11%	9.09%	A
Univ Gadjah Mada	2	35	0	1	0.00%	2.86%	2.70%	A
Univ Hasanuddin	19	28	1	2	5.26%	7.14%	6.38%	B
Univ Indonesia	14	44	6	29	42.86%	65.91%	60.34%	A
Univ Islam Bandung	0	3	0	0	-	0.00%	0.00%	B
Univ Islam Indonesia	1	1	0	0	0.00%	0.00%	0.00%	B
Univ Jenderal Soedirman	10	10	0	0	0.00%	0.00%	0.00%	A
Univ Lambung Mangkurat	1	4	0	0	0.00%	0.00%	0.00%	NA
STIE Malangkucewara	0	8	0	2	-	25.00%	25.00%	A
Univ Kristen Maranatha	2	2	2	0	100.00%	0.00%	50.00%	B
Univ Mercu Buana	4	17	1	6	25.00%	35.29%	33.33%	NA
Univ Mulawarman	10	4	0	0	0.00%	0.00%	0.00%	C
Univ Padjadjaran	3	36	1	5	33.33%	13.89%	15.38%	A
Univ Riau	21	5	0	1	0.00%	20.00%	3.85%	B
Univ Sanata Dharma	5	9	0	0	0.00%	0.00%	0.00%	B
Univ Syiah Kuala	34	11	1	1	2.94%	9.09%	4.44%	C
Univ Tarumanegara	8	6	1	0	12.50%	0.00%	7.14%	B
Univ Trisakti	14	48	3	4	21.43%	8.33%	11.29%	A
Univ Udayana	15	22	0	3	0.00%	13.64%	8.11%	B
Univ Widyatama	33	24	0	3	0.00%	12.50%	5.26%	A
Univ Sam Ratulangi	1	0	0	0	0.00%	-	0.00%	C
Univ Sriwijaya	22	9	3	1	13.64%	11.11%	12.90%	C
Univ Sumatera Utara	0	2	0	0	-	0.00%	0.00%	B
TOTAL	307	481	34	73	11.07%	15.18%	13.58%	

[7] NA = Accreditation is expired and has not been re-accredited yet

The scattered diagram presented in exhibit-3 shows that top accreditation status does not guarantee that graduates will be successful in the certification process, whilst lower accreditation status does not deter its graduates to perform better in the certification process. Only institutions with accreditation status B could be considered as clustered at 0% - 10%. Therefore we conclude that for the accounting program, the accreditation status does not correlate with the program quality.

5.2.3 Civil engineering

Engineering education covers a very broad spectrum of areas, from hard sciences such as mechanical and civil engineering to softer ones such as engineering management. Due to its broad coverage, assuming that the quality indicators in a particular engineering education can represent the overall engineering discipline, especially in terms of educational outcomes, is not possible. In this study the quality of education is assumed could be indicated by the attainment of professional certification of individual graduate.

In many cases the credibility of professional certification in engineering in Indonesia is also questioned, mainly due to the failure to assign a single agency responsible for issuing engineering professional certificate. In the past professional certification was not mandatory to works in engineering sector. But eventually, either required by the industry or mandated by law, in order to be qualified to work in engineering profession, one must demonstrate his/her competency by means of professional certification.

The Law 11/2014 on Engineering defines engineers are those who hold professional title in engineering. Further, the law also defines that engineer's certificate of competence as the formal written evidence of his/her competency. However, there is no clause in the law that professional certification is compulsory to practice engineering. Thus, question on the value of certification remains, as no engineer has yet to receive the benefit of being certified other than having the academic degree of engineer itself. Since (engineering) professional certification is not mandatory, it is then difficult to figure out is there any correlation between accreditation (as a measure of quality of education) to the professional qualification / certification.

On the other side, Law 2/2017 (amending Law 18/1999) in Construction Services, boldly states that everyone who are working in the construction sector (or industry) must be certified, both for experts and skilled workers. Consequently, certification becomes mandatory and graduates of engineering education who, regardless his/her engineering area, is going to work in the construction industry must be proven qualified through certification. Certification is awarded by professional associations and registered by the National Construction Service Development Board (LPJK). Nevertheless, attempt to find correlation between education accreditation and certification may not be straight forward, because not all engineering graduates are going to work in construction. More, even many professionals and practitioners in the industry are still arguing the true meaning of engineering certification due to the practices of awarding certification. There is still question on the effectiveness of certification by professional associations, as an instrument to safeguarding quality of engineering professional competence. While some strong and more established professional associations are consistently able to maintain their integrity and stringent quality control process, many others have a tendency to use the certification process for commercial purposes.

A limited study involving 5 professional associations shows the correlation between accreditation of a study program with the level of qualification of graduates in the last 10 years (2008-2017). The following associations are selected based on their reputation and area of specializations in the areas relevant to civil engineering education program;

1)	HAKI (Himpunan Ahli Konstruksi Indonesia)	- structural engineering
2)	HATTI (Himpunan Ahli Teknik Tanah Indonesia)	- geotechnical engineering
3)	HATHI (Himpunan Ahli Teknik HidraulikIndoensia)	- hydraulic engineering
4)	HPJI (Himpunan Pengembangan Jalan Indonesia)	- road engineering
5)	IAMPI (Ikatan Ahli Manajemen Proyek Indonesia)	- project management

The engineering qualification is stratified into three levels: junior engineer (Ahli Muda), associate engineer (Ahli Madya) and senior engineer (Ahli Utama), to reflect level of competency and (practical) experiences. The figure below, although not conclusive, suggests there is a positive correlation between the quality of education program (accreditation) and qualification of graduates.

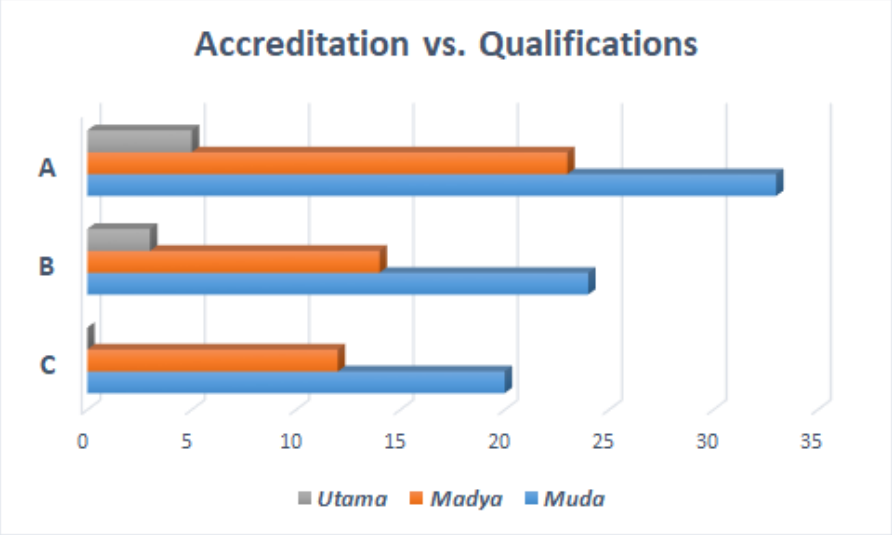

Exhibit-4 : Success rate in the certification process [ ]

It shows that the higher/better the accreditation, the higher the likeliness that a graduate from a civil engineering program to obtain higher professional qualification, thus possessing higher competence.

6 Interim conclusion

The study team concludes that currently the accreditation process puts too much focus on input and process indicators, whilst output and outcome indicators receive insignificant attention. Although input and process are important elements in quality, the team is under the opinion that the quality is better reflected by the output and outcome indicators. However we experienced problems and difficulties in gathering the necessary data on output and outcome.

Our preliminary analysis suggests that the accreditation result has little correlation with the quality of the program. The correlation is found only in particular cases, such as in medical sciences whereby programs with accreditation status are strongly correlated with the students' success rate in the competency examination.

The findings of our study have also been limited by the lack of focus in institutional mission statement. Most institutions avoid strong statement that characterizes its focus, i.e. research or teaching.

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