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Diagnostic Study

Addressing Barriers to University Research: A Case Study of Four Universities in Indonesia

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Addressing Barriers to University Research: A Case Study of Four Universities in Indonesia

By:

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Contents

Abbreviations and Acronyms

ARN	:	Agenda Riset Nasional (National Research Agenda)
Bappenas	:	Badan Perencanaan Pembangunan Nasional (National Development Planning Agency)
BHMN	:	Badan Hukum Milik Negara (State Owned Legal Entity)
BKD	:	Beban Kerja Dosen (Lecturers' Workload)
Dikti	:	Direktorat Jenderal Pendidikan Tinggi (Directorate General of Higher Education)
IMHE	:	Institutional Management of Higher Education
Kemenag	:	Kementerian Agama (Ministry of Religious Affairs)
Kemenristekdikti	:	Kementerian Riset, Teknologi dan Pendidikan Tinggi (Ministry of Research, Technology and Higher Education)
LIPI	:	Lembaga Ilmu Pengetahuan Indonesia (Indonesian Science Institution)
LPDP	:	Lembaga Pengelola Dana Pendidikan (Education Fund Managing Institution)
LPPM	:	Lembaga Penelitian dan Pengabdian Masyarakat (Institute for Research and Community Services)
LP2M	:	Lembaga Penelitian dan Pengabdian Masyarakat (Institute for Research and Community Services)
NIDK	:	Nomor Induk Dosen Khusus (Special Lecturer Number)
NIDN	:	Nomor Induk Dosen Nasional (National Lecturer Number)
PKPM	:	Pusat Kajian Pembangunan Masyarakat (Community Development Research Centre)
PPH	:	Pusat Penelitian HIV dan AIDS (AIDS and HIV Research Centre)
PTN-BH	:	Perguruan Tinggi Badan Hukum (Legal Entity State Universities)
Puslitpen	:	Pusat Penelitian dan Penerbitan (Centre for Research and Publication)
RPJP	:	Rencana Pembangunan Jangka Panjang (Long Term Development Plan)
UAJ	:	Universitas Katolik Indonesia Atma Jaya (Indonesian Catholic University Atma Jaya)
UGM	:	Universitas Gadjah Mada (University of Gadjah Mada)
UI	:	Universitas Indonesia (University of Indonesia)
UIN	:	Universitas Islam Negeri (State Islamic University)
MWA	:	Majelis Wali Amanat (Board of Trustees)

KSI Foreword

Diagnostic Study
Addressing Barriers to University Research:
A Case Study of Four Universities in Indonesia

This publication discusses the barriers to research performance at universities, at the policy (macro), institution (meso) and individual lecturer/researcher (micro) levels. It also describes factors that drive research productivity and publication at the universities we engaged in this study.

Universities are an important part of the knowledge sector ecosystem. They not only function to produce knowledge, but also to apply knowledge through teaching to their students. Many of these students are future policy makers, making universities crucial to the knowledge sector: not only in generating knowledge (supply) but also building the capacity of knowledge users (demand).

This publication was developed after a series of focus group discussions with four university research institution partners, facilitated by the Knowledge Sector Initiative (KSI) in late 2014. The four institutions were the Centre for Health Policy and Management (PKMK) of Gadjah Mada University (UGM), the HIV/AIDS Research Centre of Atma Jaya Catholic University Jakarta (Atma Jaya), the Centre for Political Studies (Puskapol) of the University of Indonesia (UI), and the Centre for Islamic and Community Studies (PPIM) of Syarif Hidayatullah State Islamic University (UIN), Jakarta.

We identified issues to create opportunities for change. This will then generate ideas to conduct a more in-depth diagnostic study with the four partners. The development of this diagnostic study aligns with the problem-driven iterative adaptation approach, which explores issues deeply in an effort to develop capacities relevant to them.

KSI would like to extend its highest appreciation to the study team led by Prof. Sri Hartati Suradijono, Ph.D., from UI, along with university research partners Prof. Dr. Phil Hana Panggabean from Atma Jaya, Ari Probandari, Ph.D., from PKMK UGM, Didin Syafrudin, Ph.D., from PPIM of Syarif Hidayatullah UIN, and Teguh Kurniawan M.Sc. from UI.

Even before publication the findings and recommendations of this diagnostic study were raised and discussed with government and research institution partners keen to work together to improve the governance of research and higher education. This effort cannot be applied by only one or two groups, but requires a critical mass from various levels in order to achieve change. We hope that this diagnostic study will contribute to this endeavour.

Budiati Prasetiamartati
Knowledge Sector Initiative

Executive Summary

Various global university ranking systems indicate that Indonesian universities are not competitive enough to compete with a number of international universities. The benchmark of these ranking systems is the importance of international research and publication–one of the criteria for becoming a world-class university.

In general, Indonesian universities do not produce sufficient world-renowned international research or publications. This is reflected in the number of quoted international scientific articles, which is behind Bangladesh, Kenya and Nigeria. This is concerning, as countries with fewer higher education institutions, such as Singapore, Malaysia and Thailand, are able to produce more international publications.

With this in mind, this research aims to explore barriers at universities in Indonesia. It is important, as more than 4,000 of these universities have become assets and research implementing agents outside of Lembaga Ilmu Pengetahuan Indonesia (LIPI). If developed properly, these universities could become centres of knowledge worthy of the world's attention.

Through in-depth interviews, secondary data analysis and questionnaires, this research attempts to obtain information on the barriers faced by lecturers/researchers, research managers and leaders of universities. There are three analysis levels: structural (in the form of government regulation or policy promoting and discouraging research); institutional; and lecturers / researchers as individuals.

We used a multiple embedded case study design with the Universitas Indonesia (UI), Universitas Gadjah Mada (UGM), Universitas Islam Negeri Syarif Hidayatullah (UIN) and Universitas Katolik Indonesia Atma Jaya (UAJ) as the research context. These four universities represent sufficient diverse variations from mana-gement, size and historical aspects. UI and UGM represent legal entity state universities (PTN-BH), commanding great autonomy in their operations. UIN is a state university under the coordination of Kementerian Agama (Kemenag), while UAJ is a private university.

Results of this research show that a number of government regulations serve as research drivers for lecturers. Among them are the regulations on lecturer's workload (BKD) and lecturers' promotion. These are supported by a grant funding mechanism. However, there are two barriers: 1) inconsistency among government regulations; and 2) factors considered a hindrance by lecturers, such as complicated requirements, complex reporting regulations and time limitations on reporting periods. For example, grants are often disbursed in April and must be reported in December, at the same time as the financial books are closed. This limits the time to write high quality research, and meet the requirement to produce an international publication.

Another issue is that despite the relatively large grant scheme, the amount is insufficient to fund high quality research. This causes researchers to sacrifice the quality of research design and methodology used, decreasing the chances of it being accepted by internationally renowned journals. Another barrier is the very high work load of lecturers, as teaching limits their time to write and conduct research.

These obstacles can demotivate lecturers from engaging in research, as the Three Principles of University take separate paths. As well as this, research has often been sidelined due to institutions' dependence on teaching. These factors ultimately affect the amount of research in the four universities.

Data shows that both research funding and the number of proposals is increasing. If this is compared to the number of permanent lecturers within the four universities, research productivity should improve. However, this is in the context that the quantity and quality of human resources in universities, especially private universities, varies thus influencing the research and publications produced.

Despite creative efforts by each university to develop innovations that encourage their lecturers to produce research and publications, the results remain below expectation. This needs to be examined, as a number of hindering factors significantly affect lecturers' willingness to conduct research and to publish. If not addressed, Indonesian universities could remain at the same level as they are today.

Policy Recommendations

Individual and institutional level

1. At the individual level for lecturers and researchers, there is a need to improve the capacity to conduct research and write reports in the form of publications or policy briefs. There is a need for methodology training, reference searching, data analysis, and publication in the form of scientific articles and policy briefs, both by universities and the government. Lecturers and senior researchers should develop a mentoring process to help improve the research quality of lecturers and young researchers.
2. Universities need to improve their recruitment and selection processes and consider the interests and research capabilities of young lecturers. Currently, lecturers are recruited according to the sufficiency ratio of lecturers and students in teaching. Ideally, a young researcher with an interest for research would receive mentoring and counselling from senior lecturers to develop his or her research and publication capacity. The provision of a grant scheme from within an organisation or from external parties, such as grants from Direktorat Jenderal Pendidikan Tinggi (Dikti) and Lembaga Pengelola Dana Pendidikan (LPDP) (for example, junior researcher grant, medium-level researcher grant, up to primary research) could be used as a parameter to develop the research and publication capacity of a lecturer. This development needs to be accompanied by a reward and acknowledgement system that can motivate lecturers to conduct research and be published.

3. From a workload point of view, universities need to find creative ways to manage teaching, research-publication, and community service. High teaching loads limit time to conduct research and publication. A sabbatical leave scheme with rigorous supervision (at the end of the period a certain amount of research and publications must be produced) could be provided to address the pressure of teaching and research loads faced by individual lecturers.
4. Leaders of universities need to engage departments, lecturers and study centres to develop a national research agenda. This would become a research road map tailored to the profile of each faculty, study program/department, and study centre. The workshop or socialisation model, and discussion among university leaders and lecturers or study centres as implementers, should be developed so that units and individuals understand their respective contribution to forming a competitive advantage in specific areas.
5. Leaders of universities should clarify the role of study centres and individual faculty lecturers in producing academic publications and policy publications, as these two outputs have different impacts. High quality scientific article outputs can elevate the reputation of lecturers and faculties at the international level. Meanwhile, public policy outputs are very useful in addressing issues at the community level. Faculties can be encouraged to increase policy publications in addition to their academic publications, so that their research can be more useful to the community. Study centres should be encouraged to produce more academic publications so that their contribution can be documented as a part of university performance.
6. Leaders of universities need to set an example in developing an academic culture within the organisation and demonstrate that the main task of a lecturer is to implement the *Tri Dharma Perguruan Tinggi (*Three Principles of University) even if the lecturer has been promoted to a structural official level. Leaders should also promote a mentoring process, quality control and research outputs.

Macro policies

1. The government needs to revisit a number of policies concerning funding for research and publication that is yet to be aligned. For example, the circular requirement for receiving grants: this requires a specific functional position, but to hold such position one must have the experience of receiving grants. The monitoring and evaluation system for funding research and publication through grants also needs to be reviewed. The government tends to view research funding as providing goods and services, thus incurring high administrative costs in financial reporting. Fund absorption becomes the main focus, while research quality falls short. This grant funding scheme needs to be considered as multi-year, enabling the production of more international publications.
2. The government needs to review the research output target, which is limited to scientific articles published in journals included in the Scopus index. This is important, as not all universities are ready to produce international publications and become world class. Kementerian Riset Teknologi dan Pendidikan Tinggi (Kemenristekdikti) needs to map the potential of universities, which can then be fostered to become world class, while acknowledging other universities that are capable of addressing issues at the local community level. Therefore, universities able to transform into world-class universities,

and universities contributing at the local community level, receive appropriate recognition.

3. The government (Kemenristekdikti, Bappenas, research and development division of the ministry, and local government) can promote research themes proposed in the grant scheme. Thus, the benefit gained from research outputs is not only exclusive to the scientific community, but also affects policy making needed by the people, particularly in resolving real problems on the ground.
4. From the Three Principles of University's aspect, teaching-related policy appears to take a separate path from research and publication. This results in the Three Principles being considered a burden. It is necessary to consider an operational policy that integrates the Three Principles, specifically the principle of teaching and the principle of research. Integration here means that teaching should be placed within the context of research, which should be conducted concomitantly by lecturers, ultimately deciding the weight (load), time and output that they are able to allocate. Vice versa, research should be placed within the context of teaching.
5. It is necessary to reconsider the position of the Three Principles of University in their implementation in the field. In Law Number 12 Year 2012 on Higher Education, the Three Principles are under the responsibility of universities. However, in their implementation, such as in the BKD policy and lecturer certification, lecturers apply the Three Principles. At study centres, a number of non-lecturer researchers are also implementing the Three Principles, especially the principle of research, something that is not acknowledged by the government. Inconsistency in the application of the Three Principles perpetuates vagueness in the employment status and career path of non-lecturer researchers at these study centres.

1 Research Performance in Universities and its Barriers

1.1 Research performance

A study conducted in the Universitas Indonesia (UI), Universitas Gadjah Mada (UGM), Universitas Islam Negeri Syarif Hidayatullah (UIN) and Universitas Katolik Indonesia Atma Jaya (UAJ) showed that the number of research proposals fluctuates in these four universities. In 2013, the number of proposals increased compared to the previous year. However, in 2014, that number decreased. In 2012 in UI, 320 research proposals were funded, in 2013 this number increased to 387, while in 2014 it decreased to 317. In UGM, 1,955 proposals were funded in 2012. This number grew to 2,277 proposals the following year, but decreased slightly to 2,099 proposals in 2014. UIN had 86 proposals in 2012, increasing to 450 in 2013, and decreasing 283 in 2014. UAJ did not follow this trend. In 2012, there were 137 research proposals; there were 155 in 2013, and this rose to 170 in 2014.

The number of research results in the form of articles published in international scientific journals recorded in the Scopus index–the world's largest journal database–is sufficiently aligned with the growing number of research proposals from year to year. UGM produced 377 articles in international journals recorded in the Scopus index in 2012. This increased to 473 in 2014 (2013 data is not available). UI, which is the Indonesian university with the most articles recorded in Scopus, published 414 articles in 2012, then

519 in 2013, and 480 in 2014. Despite having fewer than UI and UGM, articles produced by UAJ have continued to rise from year to year (21 articles in 2012; 24 in 2013; 44 in 2014).

Research funds, both from internal funding sources, grants from Dikti and sponsor funds in these four universities during the same period tended to increase. In UI, research funds in 2012 that reached Rp34.8 billion surged to Rp68 billion in 2014. The same thing occurred in UGM, particularly in the Medical Faculty: research funds grew from Rp13 billion in 2012 to Rp72 billion in 2015. At UIN, the 2012 research budget was recorded as Rp2.465 billion, rising to Rp9.77 billion in 2014. Similarly, the UAJ research budget increased from Rp4 billion in 2012 to Rp5.48 billion in 2014.

The number of research proposals and journal publication outputs recorded in the Scopus index, as well as research budgets of respective universities, showed that the funding for research tended to increase, but this was not accompanied by a consistent increase in the number of proposals and scientific publication outputs in Scopus. This data shows that from 2012–2014, there was a fluctuation of research outcomes in these four universities, with an upward trend interspersed with decreases. This may be related to the use of Dikti's grant scheme, particularly its multi-year grant scheme which caused the number of research proposals to decrease in the second year. In addition, for several Dikti grants requiring outputs in reputable scientific journals, researchers needed time in the second year to advance the process of their research writing outcomes. This resulted in lecturers not conducting research for two years in a row. Grant policies will be discussed in a separate section.

Low research and international publication ratios compared to the number of permanent lecturers can explain why Indonesia continues to be behind other Southeast Asian countries such as Singapore, Malaysia and Thailand.

Increasing research proposals and international publication gives the impression that Indonesian universities are performing better. However, compared to the number of permanent lecturers obligated to apply the Three Principles of University, namely teaching, research-publication and community service, research performance in the four examined universities is concerning. For example, UI in 2014 had 4,010 lecturers (holding various status). The ratio of research proposals to lecturers is 1:12. That means there is only one research proposal for every 12 lecturers. Meanwhile, UGM, which had 3,229 lecturers (2014), has a research to lecturer ratio of 1:1.5 – the best ratio among the four universities. UAJ, with 369 permanent lecturers, has a 1:2 ratio. Finally, UIN, with 1,128 permanent lecturers, had a ratio of 1:4 in 2014. This shows an uneven spread in interest to conduct research and publish in scientific journals.

Low research and international publication ratios compared to the number of permanent lecturers can explain why Indonesia continues to be behind other Southeast Asian countries such as Singapore, Malaysia and Thailand. Based on data from *SCImago Journal and Country Rank*[1] for the period of 1996–2014, Indonesia produced

1 http://scimagojr.com/countryrank.php, accessed on February 29, 2016.

32,355 documents for scientific publication. This is far below other Southeast Asian countries like Singapore (192,942 documents), Malaysia (153,378) and Thailand (109,832).

Data from these four universities shows that a number of faculties or fields are producing research and being published internationally. Medical, technical and biotechnology faculties have demonstrated good research performance. All three are exact science fields, which raises the question: why do exact science faculties perform better than social and humanitarian faculties? One assumption is that exact sciences have their own integrative characteristics in research and teaching. Activities in laboratories in the form of research can be an integral part of teaching, and vice versa. There are more international journals in these fields according to the Scopus index, while there are very few reputable international journals in social fields with an impact factor of close to 1, recorded in Scopus. Another theory is that research must use primary data in a controlled laboratory, similar to exact science research. This causes several areas, such as law, philosophy and other humanitarian fields, which rely on in-depth analysis in arguing or explaining a phenomenon, to be considered not 'scientific' enough.

Other than research by lecturers in faculties, research performance in universities is supported by the existence of study centres within universities. These study centres mostly focus on specific areas and conduct research and advocacy according to their respective expert fields. They are not burdened by teaching tasks. In UI, there are 43 study centres across the university and faculties. In UGM, there are 28 study centres under the coordination of Lembaga Penelitian dan Pengabdian Masyarakat (LPPM). UAJ has four study centres, but only two of them focus on research and advocacy within their areas of expertise (Pusat Penelitian HIV dan Aids/PPM and Pusat Kajian Pembangunan Masyarakat/PKPM).

Although using the name 'study centre' and conducting research activities, most study centres aim to produce a policy within a specific theme, or advocacy in relation to specific study fields. Therefore, the research outputs or study outcomes are often published in the form of policy recommendations, which is fundamentally different from scientific articles in journals. Even though the value of the research can increase the university's funding for research (for example, the research fund in the PPH in 2014 was Rp3.7 billion–more than two thirds of UAJ's total research budget), often the result cannot be factored into the university's performance, which prioritises scientific articles in reputable journals recorded in Scopus. As a result, much research by study centres remains unrecorded, despite large contributions to the community and revenue for the university.

1.2 Research barriers in universities

In this report, the lack of performance by universities in conducting research, along with supporting factors, will be examined from three aspects: structural (related to the consistency of government policy); institutional modality (consistency between government regulations and institutional policy); and individual lecturers as researchers. By looking at these three issues, the relevance of these levels will be explained.

1.2.1 Structural (government policy)

The government has created various regulations aimed at increasing lecturers' understanding of the importance of research, for example, the regulation on research and publication in career development. This regulation is enshrined in the Minister of State

Apparatus and Bureaucracy Reform Regulation Number 46 Year 2013 on the Amendment of the Minister of State Apparatus and Bureaucracy Reform Regulation Number 17 Year 2013 on Lecturer Functional Position and its Credit Number, and on Joint Regulation of the Minister of Education and Culture and Head of State Employment Agency Number 4/VIII/PB/2014, and Number 24 Year 2014 on Provisions of the Implementation of Lecturer Functional Position and its Credit Number. It is also enshrined in the Minister of Education and Culture Regulation Number 92 Year 2014 on Technical Guideline of Credit Scoring for Lecturer Functional Position and its Credit Number. These regulations emphasise that the career path of a lecturer involves activities related to the Three Principles of University: education-teaching, research-publication and community service. In 2014, Dikti translated this into an operational guideline for credit scoring, containing the following:

Table 1. Operational Guidance Assessment of Credit Score

No	Position	Academic Qualification	Primary Function			Supporting Function
			Education and Teaching	Research	Community Service	
1	Expert assistant	Master	≥ 55%	≥ 25%	≤ 10%	≤ 10%
2	Lecturer	Master	≥ 45%	≥ 35%	≤ 10%	≤ 10%
3	Head lecturer	Doctoral	≥ 40%	≥ 40%	≤ 10%	≤ 10%
4	Professor	Doctoral	≥ 35%	≥ 45%	≤ 10%	≤ 10%

Despite highlighting an increase in the weight of research and publication for higher career paths (expert assistant requires at least 25 percent while professor requires 45 percent), this regulation does not automatically motivate lecturers to conduct research. Even when remuneration has been developed to drive lecturers to do research and obtain their academic position, some lecturers believe the position and remuneration do not compare with what they can earn in other projects using their expertise. Most lecturers who care about their career path will be motivated to do research, however these regulations that 'punish' lack of research have limited impact on lecturers who do not care for academic positions. Obtaining an academic position is considered an administrative burden. Many lecturers feel that this is not accompanied by appropriate incentive or remuneration.

In line with the career path of lecturer functional position, the government developed a BKD evaluation / reporting system every semester. Certified lecturers must report their performance at the end of each semester; minimum nine credits and maximum 16 credits, including three primary evaluation elements of lecturer position. This can be seen from Law Number 14 Year 2005 on Teachers and Lecturers, Government Regulation Number 37 Year 2009 on Lecturers, Government Regulation Number 41 Year 2009 on Benefit for Teacher and Lecturer Profession, Special Benefit for Teachers and Lecturers, and Honorary Benefit for Professors, and Minister of National Education Regulation Number 47 Year 2009 on Educator Certification for Lecturers. These regulations are intended to improve research and publication, however, it is thought they only encourage lecturers to conduct research and write reports for the

sake of fulfilling the BKD, not for promoting scientific publication. The regulations enable lecturers to conduct research only to fulfil the obligations of educators/lecturers, and do not force lecturers to publish in a reputable journal. The BKD also provides a 'loophole' for lecturers: they do not have to do research if they become peer assessors. This allows lecturers to avoid doing research or seeking publication. Dikti's regulation on publishing scientific research in a journal as a prerequisite for graduation encourages the improvement of publication numbers in universities. The regulation enshrined in the Dikti Circular Letter Number 152/E/T/2012 and Kemenristekdikti Regulation Number 44 Year 2015 was received differently by universities. Some immediately implemented it within the university, while others conducted further assessment before implementing it. In short, universities must implement the Dikti regulation to increase institutional and Indonesian scientific publication. Although deemed to increase the number of scientific publications, there were some challenges in its implementation.

These regulations are intended to improve research and publication, however, it is thought they only encourage lecturers to conduct research and write reports for the sake of fulfilling the BKD, not for promoting scientific publication.

First, the limited number of local and accredited national and international journals created a bottleneck, which affected graduation. Second, student graduation was postponed to allow universities to pursue acceptance of articles in journals. Finally, students must pay expensive tuition fees to add another semester. For doctoral students who must publish internationally, the difficulty is exacerbated by the process and publication costs, which reach to hundreds of dollars. The government should pay attention to this issue, as it adds a burden to students and delays their graduation.

In an effort to push research and publication in a reputable journal, the government provides support through a funding (grant) scheme from a number of institutions, such as the Kemenristekdikti (previously Dikti under the Ministry of Education and Culture) and LPDP of the Ministry of Finance. This means the government realises that funding is necessary to improve research and publication, however, there are still gaps in its implementation.

The amount of the grant scheme in the State Budget (APBN) is considered too small for national research development. The amount of 0.09 percent is deemed too low if the state wants to develop high quality research and publication. The small amount of funding received by lecturers, particularly in exact science fields that require expensive equipment, often makes them sacrifice their research methods. A number of researchers with potential research themes ended up engaging a sponsor–even enticed to go abroad–which provided better facilities and funding to develop research. In addition, as the research method used is already compromised by cost, the chance of being published in a reputable international journal is much slimmer.

Administrative requirements are considered an obstacle for lecturers applying for a grant scheme. To obtain a grant, a lecturer must have a certain functional position, however, to hold that functional position, a lecturer must have experience in a grant scheme. Another issue is that the financial

reporting system which has been used until now implies that a grant must be 'used in full' without looking at real outputs of research. This reporting system is thought to put a burden on researchers when maintaining the quality of research content. A one-year financial reporting system is difficult to manage, especially if the goal is a reputable international journal, whose selection process takes time. A multi-year funding system needs to take into account that the research process and the process of publishing in a reputable journal take time. The Kemenristekdikti followed up on this financial reporting issue by sending a letter to the Minister of Finance on 23 December 2015.

To improve research and publication, each university develops study centres working on specific expertise. They receive projects from sponsors in the form of research and consultancy activities, which results in a report for the donor, a policy brief and advocacy. These outputs are often discounted as the university's performance, which shows that the government, in this case Dikti, prioritises outputs in the form of journals, when in fact, non-journal outputs often have more direct impact on resolving issues in the community. Government policies that place more emphasis on international journals need to be reviewed. The government realises that research should not just be aimed at international journals, but should be able to resolve concrete issues in the community. Currently, research is not used to solve many problems in society, causing them to recur, for example, forest fires which repeatedly occur over many years.

Another issue is the recruitment of professional research staff. Until now, there has been no legal umbrella for non-lecturer researchers in universities, causing ambiguity in their tasks, obligations as researchers, and career advancement. In several cases, research outcomes from study centres published in international journals were not considered, as they were produced by researchers with no National Lecturer Number (NIDN).

In 2015, Kemenristekdikti Regulation Number 25/2015 on Special Lecturer Number (NIDK) was issued. This was expected to address the issue of lecturers' teaching load, among several other issues. However, until the end of 2015, supporting regulations for the implementation and socialisation of NIDK were not provided equally in all universities. Thus, it was not clear whether NIDK could address the status of non-lecturer researchers in universities.

Study centres are ambiguous about lecturer certification and the implementation of the Three Principles of University through the BKD policy. Article 1 paragraph 9 of Law Number 12 Year 2012 on Higher Education states that the Three Principles require universities to deliver education, research and community service, meaning the Three Principles are placed at the level of higher education institutes. This includes study centres which have contracted professional staff who are not burdened with the education principle. In reality however, the BKD policy implies that the implementation of the Three Principles sits at the individual lecturer level, and the lecturer must act as educator, researcher and provider of community service. Therefore, there should not be researchers who do not teach and conduct community service. The reality is that a number of universities have study centres relying on non-lecturer researchers to conduct their activities. As there is no legal umbrella, the status and career advancement of these non-lecturer researchers is unclear. That is why the government needs to be consistent in implementing Law Number 12 Year 2012 on

Higher Education, with the Three Principles embedded in universities. This would alleviate the burden on all lecturers having to deliver the Three Principles; delivery would be done according to each lecturer's interest and capacity. Implementation could also be done through periodic rotation with strict monitoring and evaluation.

1.2.2 Institutional modality

Alignment between government policy and institutional policy

Data obtained through interviews with various sources indicates that the four universities attempted to translate government policy on research and publication by issuing a number of internal policy documents (trust fund board decree, rector decree, formulation of a strategic plan and primary research plan). This contributed to encouraging lecturers to conduct research sourced from grants and other sponsors.

Although it appears that universities have attempted to implement government policy, in practice improving research and publication is done within the institution. The first and foremost challenge is time management between teaching and research-publication. Data from the four universities shows that most lecturers are still burdened by high teaching credit requirements. Conducting research and publication requires a lot of time, undisturbed by other activities, and a lot of effort. For example, in UIN and UAJ, permanent lecturers have a workload of 36 hours per week, or equivalent to 12 credits per semester, consisting of nine teaching credits and three credits for research, publication and community service. It can be seen that 75 percent of lecturers' time is spent teaching, making it difficult for them to do research. This is made worse by the high ratio of students to lecturers, and the high proportion of students in bachelor programs (thus not having sufficient capacity to conduct research and publication).

The UAJ example demonstrates that teaching takes a higher proportion of time than research. In this campus, there are a number of cross disciplinary discussions and training sessions to develop research capacity, but this is often hindered because lecturers are bound by the ISO 9001 rule, which demands 14 face-to-face meetings in a course. If a lecturer participates in a discussion or training, he or she must adjust the schedule. This is not easy, as it means adjusting the students' schedule too. This example shows that finding a balance between teaching and research and publication is one of the keys to improving the quality of research and publication.

It is deemed unrealistic to decrease the teaching load by reducing the number of students, given that universities' revenue mostly comes from tuition, especially private universities. Therefore, the government needs to address the dependency on tuition for the sake of fairness–funding assistance should not only be for state universities. For example, a portion of research funding could be used by the institution as alternative revenue.

Each university has creative ways of reducing the teaching load. In UI for example, there is a core research lecturer scheme that provides a minimum teaching credit for participating lecturers, so that they can concentrate more on research and publication that has a clear target. There is also the sabbatical leave scheme that liberates lecturers from teaching within a specific time period in order to produce high quality research. But these efforts are not without their problems. The core research lecturer scheme is considered unfair for faculties with good research performance. Meanwhile, sabbatical leave is rarely used because other lecturers will have to bear the load of the lecturers opting for this scheme.

Thus, it is necessary to consider a core research lecturer scheme that is not binding and can be done fairly by rotating the lecturers participating for a specific time period.

To meet the appropriate ratio of lecturers to students, the government issued a Kemenristekdikti Regulation Number 25/2015 containing NIDK. This regulation was intended to address the high teaching demand, something that is viewed to hinder lecturers from conducting research. However, at the time of this research being completed in February 2016, no further operational policy format, such as a regulation on the career path for special lecturers, had been formulated. Several questions need to be addressed in such operational policy, among them: Are special lecturers tasked with implementing the Three Principles of University, or just with reducing the teaching workload? If they are required to implement the Three Principles, are special lecturers given the same access as lecturers with NIDN? What is the financial capacity of the institution to accommodate special lecturers?

Based on findings in four partner universities, one of the factors affecting research and publication performance is strong leadership support, which builds a healthy scientific foundation. Strong leaders will turn research development strategies in universities into policies that are implemented by units under them. At the university level, the rector publishes a number of documents related to research quality and standards. Then, institutions responsible for research will implement them. This policy would not run smoothly without the support of university and faculty leaders.

At the unit level, productive unit leaders form habits like 'research and publication hour' to push lecturers to conduct research in laboratories. They create incentives and hold discussions, and select topics for cross-disciplinary research. These creative steps start from the hard work of unit leaders translating government policy into a number of local policies according to the conditions of respective institutions, and over a long period of time (more than three years).

Besides giving direction for the organisation, leadership plays a crucial role in sustaining research strategy and priority. There is a tendency for leadership change to alter policy. This was seen in UIN, which previously generated priority research areas socialised through proposal selection. When the leadership changed in 2014, this did not continue.

Research funding

Data shows that these four universities are committed to providing research and publication funding to back up their lecturers. This is also supported by incentive policies for lecturers who have received grants or successfully published their research results in a reputable international journal.

Despite the allocation of funds for research and publication, this budget is considered to be insufficient. Specific fields, such as medical and exact science, need significantly large research funding, which is not included in the internal funding scheme and grants from government agencies. Incentives are also considered to be lacking when compared to the level of effort that must be undertaken by lecturers. For example, to publish in an international publication, which sometimes can be costly (up to hundreds of dollars), lecturers are only given an incentive of some million rupiahs (under Rp10 million). As a result, lecturers must fund this themselves. These four universities have developed various research funding schemes tailored to their respective capacities and profiles. There is

a funding scheme for junior researcher, multi-discipline research, and international collaboration, with different funding caps. This shows multiple paths in research, and it is expected that lecturers can develop their research and publication capability through various schemes.

The challenge in funding, in addition to relatively small amounts, is fund disbursement. In the case of grant schemes, it is often found that research fund disbursement comes too late, while the reporting time for the funds remains unchanged. This presents a time barrier for lecturers/researchers in conducting research.

In terms of research time, grant schemes that usually run for one calendar year have their own challenges. Research is conducted in the midst of other time-consuming activities, and grant schemes demand that research outcomes are published in an international journal or seminar. Publishing in a journal or seminar takes time, often more than one year. Therefore, grant achievement in these four universities has not reached one hundred percent of expectation.

One of the important aspects of funding is reporting and supervising financial use. Respondents conducting research in these four universities state that the reporting system for grants is too administrative and time consuming. As a result, research focuses too much on administrative issues. Those who have not been involved in grant research said they were not interested in joining. This is related to the lack of preparedness of government and higher education institutions in uniforming their financial reporting systems. A number of respondents stated that reporting systems in universities, which are more predictable, do not cause too much trouble. However, due to research cap limitations in universities, lecturers often choose to accept research grants, notwithstanding their sometimes cumbersome reporting systems.

Research agenda/priority

Through Dikti, the government has developed the National Research Agenda (ARN). Established from a number of research clusters, it is applied as one basis for grant selection. The reaction to ARN implementation in each university generally differs. In UI, UGM and UIN, it is followed up by creating documents at the university level, such as a strategic plan, long-term development plan (RPJP) and research grand plan tailored to the characteristics and strengths of the university. These documents are then socialised and become the basis for evaluating the feasibility of research proposals in the respective universities. But translation at the faculty level is handed over to the faculty head.

One of the barriers in implementing the ARN is the lack of socialisation at the lecturer level. Many lecturers do not understand the ARN and its relation to their development as researchers and lecturers. As a result, the research process runs based on the willingness of lecturers and does not refer to the research agenda. At UIN Syarif Hidayatullah, socialisation takes the form of selecting incoming proposals from three lecturers chosen by LP2M or Puslitpen. These research proposals are evaluated based on UIN's research agenda, then discussed so they are more in line with the priority research agenda.

In its national implementation, the application of ARN is not yet consistent with the research cluster mentioned. In addition, the developed research road map does not involve departments, faculties and study centres. This causes confusion, as the road map may have been developed by university leaders without discussion with relevant units.

Facility availability

In interviews with various sources in these four universities, it was found that research facilities provided by universities still need to be improved. One example is access to journal subscriptions, which serve as the foundation for scientific development in each field. Generally, the access provided by universities is considered sufficient. But for some fields, a reputable international journal is very limited and expensive, making it hard to access.

The facilities deemed to be lacking are the ones directly related to research, such as laboratory equipment. This is caused by limited funding.

These issues indicate that limitations on facilities relate to the funding provided by institutions or donors. The issue of facility becomes increasingly important, especially for non-lecturer researchers whose employment status is not recorded at the university. For example, in UGM and UAJ, a number of facilities such as the Internet, library and training to develop research capacity requires prior employment registration. Due to their contracted status, non-lecturer researchers have difficulty in accessing these facilities.

Researcher remuneration and incentive system

To increase high quality research and publication, the government (through Dikti and LPDP) and universities provide incentives to assist researchers to publish in a reputable scientific journal. Grant funding from Dikti and LPDP covers the lack of funds provided by higher education institutions. However, researchers do not always know how to access these incentives. Assistance from seniors through their networks to the funding source and ways to access it, as well as encouragement from superiors, are two things needed by junior lecturers or researchers.

Respondents conducting research in these four universities state that the reporting system for grants is too administrative and time consuming. As a result, research focuses too much on administrative issues. Those who have not been involved in grant research said they were not interested in joining.

The amount of incentive does not motivate lecturers to conduct research for publication. Existing incentives, despite increasing amounts, do not adequately promote research and publication.

'Cumulative' credit system

The credit score evaluation system in a lecturer's career, known as cumulative credit (*kum*), affects research performance in universities. However, not all lecturers are motivated to conduct research for publication under this system.

The cumulative system is considered reasonably effective in increasing lecturers' awareness of the importance of research. Those who realise this will be encouraged to do scientific research for publication. However, there are negative perceptions around obtaining this credit score, as many lecturers feel the system is too administrative. Increasingly high demand also discourages some lecturers, who feel that they will never be promoted. The government needs to develop a reliable system to promote lecturer research and publication without adding to their administrative load.

Another issue is the 'reward and 'punishment' mechanism in the cumulative system.

Lecturers who do not obtain their credits are not promoted and stay in the same rank for a long period of time as 'punishment'. As this is not considered important, it does not encourage lecturers to develop research and publication and obtain their credits. There is a perception that conducting research and writing reports for publication is 'hard', particularly when coupled with the administrative burden of obtaining credits. This discourages lecturers from moving their functional position to a higher level.

Policy research and publication scheme

Publishing scientific articles is seen as being for a more limited audience. It is felt that this does not address the needs of the community, or advocacy and public policy, and is less 'interesting'. Ideally, research outcomes are expected to meet these needs, but in reality, limited research projects do this.

The argument that international journals prioritise finding the truth using valid and up-to-date research methods often ignores research that addresses local challenges. The international university ranking system is frequently misinterpreted. This issue was discussed in the 'Global Forum Rankings and Accountability in Higher Education: Uses and Misuses' meeting initiated by UNESCO, OECD's Institutional Management of Higher Education (IMHE) and the World Bank in 2011 in Paris. A number of ranking systems that use parameters such as the number of international publications, Nobel winners, important alumni and other factors, often ignore the role of university research in addressing issues within society. This forum recommended that the goal should not be international rankings, but a world-class system, namely universities with excellent standards of service focusing on resolving local problems according to their context.

The government needs to develop a reliable system to promote lecturer research and publication without adding to their administrative load.

In Indonesia, there is limited high quality research influencing conflict resolution within the community, such as research from the UGM Medical Faculty that contributed to the Ministry of Health providing public health services. However, university research such as this is rarely used as a basis to develop public policy. The example of the UGM Medical Faculty research influencing the policy of the Ministry of Health shows the potential for synergy between the medical faculty and the Ministry of Health as policy makers, and the institution that provides health services. Not all fields have this modality. The ministry and faculty should synergize with each other. The ministry and offices under it provide access to lecturers to conduct research in order to develop policy or evaluate policy implementation. For example, the development of the agriculture and plantation policy could be based on research by the agricultural and technology faculty. Similarly, education policy could include research from the education and psychology faculty, or research on mineral resources could engage technical faculties, and so on.

Publication in international journals/seminars is required under the grant scheme. The main priority of Dikti and universities is scientific publication. There is a lack of recognition on outputs in the form of policy briefs or advocacy. This causes research to

be used more as material to evaluate cumulative scores and institutional performance, without resolving issues in the community. Study centres and faculties can implement a different and non-exclusive function. Faculties can be encouraged to produce scientific articles, while study centres help translate these publication results into a more operational policy, which benefits communities. However, as in the PPH UAJ and the Psychology Faculty of UAJ, synergy is not easily achieved, as faculties are oriented towards a relatively rigid teaching method and curriculum that does not enable PPH research activities to be integrated into teaching. Involving students (as part of education) in PPH research as a part of the curriculum is difficult to do.

Research management

Research management by lecturers and researchers at study centres in universities needs to be improved. In general, respondents in the four researched universities stated that there was a proposal selection system to determine the feasibility of research in order to receive funding. This was done at the department and faculty level, or under research institutions at the university level. However, not all selection and study processes were linked with research priorities in each institution.

An important issue related to research management is that monitoring and evaluation against research and publication is still not done systematically. Evaluation remains limited to the use of research funding, not to its content and output. There are interesting practices in conducting research monitoring and evaluation, such as organising lunch together while discussing research ideas, discussing research progress and challenges, and establishing a colloquium to discuss research outcomes. However, this depends on the culture of each unit, as these activities are not officially institutionalised yet. For example in UIN and UAJ, a lot of research outcomes do not translate into scientific articles as the relevant lecturers stop at research reporting and fund reporting used for their BKD.

In the four universities, there was no mention made of senior lecturers or researchers mentoring junior lecturers to build their capacity. Junior lecturers and researchers hope to be mentored to improve their capability in research and publication. This is in line with national findings that the number of professors is relatively high, but that most of them are not productive and do not provide enough guidance for junior lecturers. Mentoring depends on the willingness of senior lecturers or researchers. While some care about young lecturers and become their mentors, others are indifferent.

This lack of mentoring is associated with high teaching loads that limit time for mentoring and make it less effective. Ideally, as mentors senior lecturers would direct young or junior lecturers or researchers to publish their research strategically and would use their networks to include research in an international journal or forum.

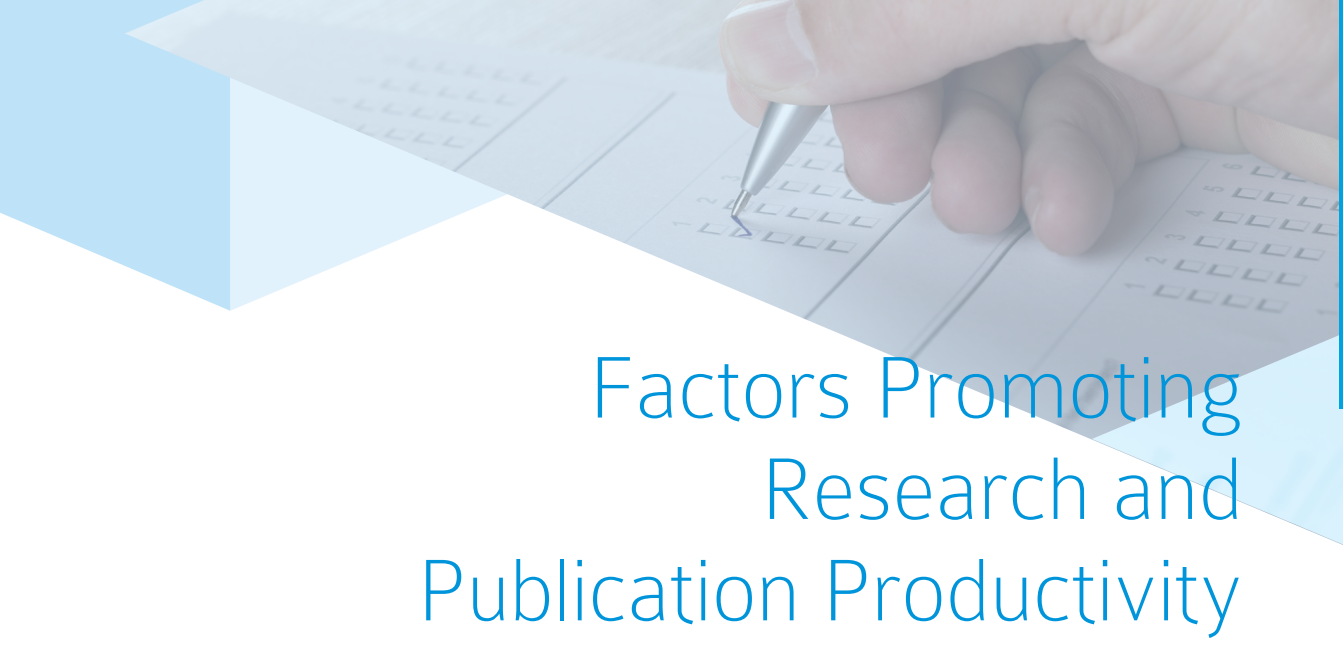
University support for research and community service is still lacking. The primary focus of education staff is teaching, which is the case in UAJ and UIN. The institution responsible for research has limited resources and is there to serve the university. Meanwhile, education staff in faculties and departments cannot provide much support to research projects, such as helping to create a budget, contacting resource people or managing data collection. Ultimately, this burden is borne by lecturers or researchers. There is a need for more intensive training and effort by universities to improve the capacity of education human resources to support research.

Most lecturers state that research is difficult and requires a long time to complete. The same goes for publishing, especially in international publications which demand a good level of English.

1.2.3 Individual lecturer/researcher

Apart from structural factors (lecturer's rank/position regulation, lecturer's workload, incentives) and institutional modalities (workload arrangements for The Three Principles of University support in research), one of the reasons for the lack of high quality research and publication is the ability of the individual lecturers themselves. Most lecturers state that research is difficult and requires a long time to complete. The same goes for publishing, especially in international publications which demand a good level of English.

Improving the research capacity of lecturers is imperative. Knowledge on methodologies, data processing and reference searching, and assistance in scientific journal writing needs to be taught. There is a need at the university and national level to establish a consultancy institution to improve lecturers' quality of writing, making their articles publishable in international journals.



2 Factors Promoting Research and Publication Productivity

2.1 Structural factors

Several government regulations have promoted publication and research by lecturers. One of these is the government regulation on lecturer functional position career path, which clearly states that to go up to the next level, a lecturer must conduct research. In addition, the proportion of research and publication must increase if the lecturer aims to reach the top of his or her career and become a professor. The proportion of research and publication must reach at least 45 percent, with the lecturer becoming the first author in a reputable international journal. Lecturers wanting to reach the top will be encouraged to conduct research and to publish.

Other policies include lecturer certification and BKD regulation, which establish that lecturers must fulfil tasks equivalent to at least nine semester credits, with a maximum of 16 credits per semester, with mandatory research included. This is a prerequisite for receiving the professional benefits of a lecturer. Failure to fulfil this requirement results in foregoing professional benefits.

In addition to regulations associated with lecturers' positions, the status change of a number of universities contributed to the improvement of scientific research and publication within their respective institutions. The establishment of UI and UGM as state-owned legal entities (BHMN), which then changed again to legal entity state universities (PTN-BH), gave larger autonomy to both institutions, including altering their organisation in order to promote research.

This status change and increased autonomy in managing universities was accompanied by an emerging board of trustees (MWA) which, after receiving inputs from the university senate, produced a number of policies for university leaders to manage research within the campus. Based on research findings, this contributed to developing a research culture in UI and UGM.

Government funding through the Kemenristekdikti, as well as LPDP in various schemes, facilitated lecturers to conduct and publish research. The funding can also be used for training to build lecturers' capacity to conduct research and publish findings. Ultimately, this will improve institutional performance in research.

2.2 Institutional modality

The above-mentioned policy is considered by all universities involved in

this research to have influenced them in their program implementation, including improving the quantity and quality of research and publication. Such government policy is followed up by other operational policies within the scope of the university.

In UI and UGM, MWA produced multiple documents directing the rector in managing research. The rector and university, as well as faculty leaders then developed a strategic planning document and long-term development plan (RPJP) document. These two documents contained various primary research programs, including a road map to achieve their objective within the sphere of research and publication. This also occurred in UIN. These documents became briefs and guidelines for lecturers at the faculty level to conduct research. The absence of a strategic plan and guiding documents, including their lack of socialisation, has left lecturers confused when determining their research and publication direction. In the end, this made it hard for them to obtain grant funding internally, from Dikti, and from other external sources.

2.3 Improved research interest for lecturers

The commitment from universities and government has improved lecturers' willingness to conduct research. In UAJ, 56,5% lecturers questioned in this research said they were consistent in conducting research in 2012–2014. In the UGM Medical Faculty, the average number of research outcomes for every lecturer has increased on each study program (Bachelor's 0.21 research outcomes in 2012 to 0.44 research outcomes in 2014; Master has 0.75 research outcomes in 2012 to 0.79 research outcomes in 2014; and Doctoral from 0.625 research outcomes in 2012 to 1.08 research outcomes in 2014). Even though not all lecturers have conducted research, the number of research outcomes per lecturer is increasing from year to year. This was the same at UI. It is estimated that 30 to 40 percent of the total number of UI lecturers have research projects. In a number of faculties, such as the Technical Faculty, 80 percent of the lecturers are actively conducting research. This is the same at UIN Syarif Hidayatullah.

Even though not all lecturers are consistently doing research, the interests of individual lecturers can influence other lecturers. A lecturer who has conducted research can ask another lecturer who has not done so to be involved in research, so that they can develop a joint study. In addition to conducting a study, this peer research factor gives lecturers confidence to overcome their personal concerns in relation to conducting research. Although not done formally, forming groups consisting of a number of researchers with the same interest is good practice. These groups conduct activities starting from discussing research proposals to publishing research outcomes to gain inputs.

Universities and faculties have made efforts to facilitate lecturers and research so they can access well-funded research grants. For example, UGM LPPM regularly updates information on research funding opportunities through grants from donors and the Ministry of Research, Technology and Higher Education, via the website: *http://lppm.ugm.ac.id/info-penelitian/*. The UGM Medical Faculty does this by providing information on 'bidding deadlines' through the Research and Publication Office within the faculty.

3 Conclusion

The objective of this research is to find hindering and promoting factors to research and publication in universities in Indonesia. It aims to explore the higher education philosophy that may have contributed to the low research performance in Indonesia. Therefore, a strategy to disseminate research outcomes and recommendations to improve research performance, and to address actual issues in the community, has been developed. Following are the findings of this research:

1. The low number of research outcomes at universities is caused by multiple factors within the sphere of policy, institutional modality and individual lecturers. Although a number of policies have aimed to improve research and publication, the tension between teaching-education and research-publication remains the main problem to be addressed. Most universities rely on student tuition fees to fund their operations. This makes the teaching portion more important than research. Government regulations that encourage (or 'enforce') research and publication omit the fact that research has not been able to replace the role of teaching as the main source of revenue for most campuses.
2. To overcome the tension between teaching and research, a number of universities creatively develop their own internal strategies. However, their implementation is hindered by the absence of a legal umbrella at the national level. This is experienced by research centres relying on contracted professional staff who find themselves underdeveloped, as they do not have a traditional career path and are not recognised nationally.
3. The government, in this case the Kemenristekdikti, needs to grant more autonomy to universities to develop strategies that balance the burden of the Three Principles of University, while preparing a legal umbrella for non-lecturer researchers within study centres.
4. In terms of research and publication outcomes that have always been a dichotomy (articles in journals for limited audience or public policy), the Kemenristekdikti, along with the Bappenas and local government can map research themes within ministries or regions. These can then be developed in the grant scheme and the grant is directed at themed research relevant to the needs of a ministry of local government. The research can also fulfil the scientific principles required by international journals.

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