Kementerian PPN/ Bappenas

Australian Aid

Knowledge Sector Initiative

WORKING PAPER 8

Addressing Barriers to University Research

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Key Messages

- Research is essential to building a knowledge-based economy.

  In the 21st century, a knowledge-based economy is the way forward for building a competitive economy. As noted in the National Long-term Development Plan (RPJMN), successful long-term development in Indonesia depends on the ability of the country to strengthen its competitive advantage. It requires a strong base of skilled workers, capacity for innovation, independent research and a strong investment climate. To develop effectively, this all needs a solid, national research base.

- Research is seriously under-resourced in Indonesia.

  Indonesia does not have the financial infrastructure in place to support cutting-edge science and technology. Funding is extremely low at 0.08% of GDP as compared to 1%-3% in strong emerging economies. Human resource capacity for research is weak, with universities prioritising teaching over research. At the individual level, research quality is weak and publishing is very limited.

- The university environment presents significant barriers to building research.

  Research is undervalued in universities where teaching is prioritised and rewarded. There are weak links between universities and research and the needs of the Government and industry. Universities maintain a strong mono-disciplinary structure, whereas the policy issues and challenges that decision makers face are multi-disciplinary in orientation. Universities do not promote and incentivise peer-reviewed publications. There are structural weaknesses in how research is regulated by the bureaucracy.

- Procurement regulations limit the participation of universities in government-sponsored research.

  There is limited interaction between decision makers and the research community to express their needs and concerns, and a lack of collaboration across agencies within government around research needs. There is limited use of the research agenda proposed each year by the national government.

- Studies are underway to identify ways of overcoming these limitations and improving Indonesia's competitiveness.

  The Knowledge Sector Initiative (KSI) is funding two studies related to barriers to university research and the University of Indonesia, in collaboration with the Centre for Innovation, Policy and Governance, is conducting a study of the university environment for research. In all cases, the priority is on identifying viable courses of action to create change so that Indonesia develops a solid research base that supports a strong and competitive economy.

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Executive Summary

This working paper addresses the issue of improving the quality and capacity of research in Indonesia. It specifically looks at Indonesian universities, where relatively poor research quality means that Indonesia performs poorly compared to other countries, such as Bangladesh, Nigeria, Thailand, Malaysia and Singapore (Suryadarma et.al, 2011). There are relatively few studies on factors affecting research performance in Indonesia, but one key study proposes three recommendations (Nielsen, 2010):

- Indonesia needs to consider increasing its gross expenditure on research and development;
- Indonesia's policy makers should not try to over regulate the knowledge sector; and
- Leadership at the highest level is essential.

With respect to spending on research, studies discussing the comparative experiences of five middle-income countries (Brazil, Mexico, Philippines, Singapore and Malaysia) concluded that Indonesia should consider increasing its gross expenditure on research and development from 0.08% to closer to 1% of GDP.

A study by the Indonesian Academy of Sciences (Brodjonegoro

and Greene, 2012) found that a lack of support for research projects and inflexible budgeting and reporting systems have led Indonesian researchers to be less productive than those in similar countries, per dollar of research funds invested. Indonesia does not have the financial infrastructure in place to support cutting-edge science and technology.

With respect to over regulating the knowledge sector, the barriers to research performance at universities have more to do with internal variables, such as incentives or load-balance between teaching and research, than with external factors. The Brodjonegoro and Greene study notes that it is important to:

- Simplify regulations for accessing research funds;
- Eliminate the distinction between research and administrative career paths; and
- Allow the Indonesian Science Fund grantee institutions to receive overhead payments to support indirect research costs without deducting these amounts from existing revenues.

Research has never been effectively promoted as a career. This has led to tension between teaching and research in universities, which has hindered the performance of university-based research. Added to this are a number of underlying problems in the enabling environment for research. Perhaps a bigger issue is the motivation (or lack thereof) of individuals to remain in the knowledge sector. This is a function of all three factors cited above: funding, control and leadership.

The studies also revealed a lack of attention to the detailed interactions between the demand and supply sides of knowledge sector, and how they interact with, and affect each other. Knowledge production is driven by theoretical progress, while the demand side for evidence is driven by practical and political realities. Research communities tend to focus on their own research agendas, with limited regard for policy needs. This leads to limited use of evidence. Leadership by universities in the research community is needed to support a shift to policy thinking in the research community and to evidence use in the policy community.

There is an upswing of interest in issues around enhancing the use of evidence in the policy process. There are two on-going studies noted below, and this working paper explores the possibility of a study supported by KSI among the project's university partners to promote policy research in the research community.

On-going studies examining university barriers to research include:

- 'Reforming Research in Indonesia', which addresses the phenomenon of why relatively few academics in universities want to be researchers (University of Indonesia and Centre for Innovation Policy and Governance supported by the Global Development Network (GDN)); and
- A White Paper on Higher Education, which focuses on higher education in Indonesia, including institutionalising multi-disciplinary research in graduate programs in Indonesia (Indonesian Academy of Sciences (AIPI), supported by KSI).

The consultative group concludes that a full-fledged diagnostic study on barriers to university research in Indonesia is needed. More than just addressing conceptual or philosophical issues, real interventions to reverse the situation should be proposed.

Taking account of the findings outlined above and on-going research efforts, the KSI-supported consultative group made up of four university-based research centre partners suggested the following issues for further study:

- Alignment – research work, researchers and the policy context being synchronised so that a balance is achieved;
- Research funding – though widely acknowledged, funding for research remains limited as it is still seen as an economic burden for investment;
- Research agenda – a National Research Agenda is published by the Indonesian National Research Council (DRN). It aims to be the main reference for research that supports policy processes, but it is

not taken seriously. Options should be explored to create a working science agenda;

- The research career – a major area of concern is unclear career paths for researchers. Interest in research as a career will grow only when a researcher is not viewed as 'second class'; and
- Researcher remuneration and incentive systems – salaries for researchers tend to be lower than those in other sectors. In the end, the core motivation for being an academic in Indonesia is often enhancing one's reputation and having the freedom to do other paid work.

Although it will take years to improve the quality and competitiveness of human resources, infrastructure and institutions for science and technology, much could be achieved with the right diagnostic to examine the existing rules, regulations and institutional arrangements that are the basis for improvements in these sectors.

Finally, we should not forget that research is closely related to innovation. The Indonesian Government has committed to a knowledge-based economy that will lead the country towards national development and economic growth. To achieve this, Indonesia should focus more on research to allow it to become more competitive with neighbouring countries. This can only be done through proper and sustained research development. This diagnostic study aims to contribute to overcoming this challenge and increasing ownership of the problem through Indonesian leadership in universities and in government.

Abbreviations and Acronyms

AIPI	:	Akademi Ilmu Pengetahuan Indonesia (Indonesian Academy of Sciences)
ARN	:	Agenda Riset Nasional (National Research Agenda)
ASEAN	:	Association of Southeast Asian Nations
AusAID	:	Australian Agency for International Development (now integrated into the Department of Foreign Affairs and Trade (DFAT) as Australian Aid)
BOPTN	:	Biaya Operasional Perguruan Tinggi Negeri (State University Operational Assistance Fund)
Dikti	:	Direktorat Jenderal Pendidikan Tinggi (DG Higher Education)
DRN	:	Dewan Riset Nasional (National Research Council)
GDN	:	Global Development Network
GDP	:	Gross Domestic Product
GERD	:	Gross Domestic Expenditure on Research and Development
Jakstranas	:	Kebijakan Strategis Pembangunan Nasional (National Development Strategic Policy)
KSI	:	Knowledge Sector Initiative
LIPI	:	Lembaga Ilmu Pengetahuan Indonesia (Indonesian Institute of Sciences)
LPNK	:	Lembaga Penelitian Non Kementerian (Non-ministerial Research Institutes)
Mendikbud	:	Ministry of Education and Culture
Menristek	:	Ministry of Research and Technology
PAPPIPTEK	:	Pusat Penelitian Perkembangan Ilmu Pengetahuan dan Teknologi (Science and Technology Development Research Centre)
PNBP	:	Penerimaan Negara Bukan Pajak (Non-tax State Income)
PTN-BH	:	Perguruan Tinggi Negeri Badan Hukum (Legal Entity State University)
RPJMN	:	Rencana Pembangunan Jangka Menengah Nasional (National Mid-term Development Plan)
RPJPN	:	Rencana Pembangunan Jangka Panjang Nasional (National Long-term Development Plan)
Sisdiknas	:	Sistem pendidikan nasional (National Education System)
SK	:	Surat Keputusan (Decree)
SSCI	:	Social Sciences Citation Index

1 Introduction

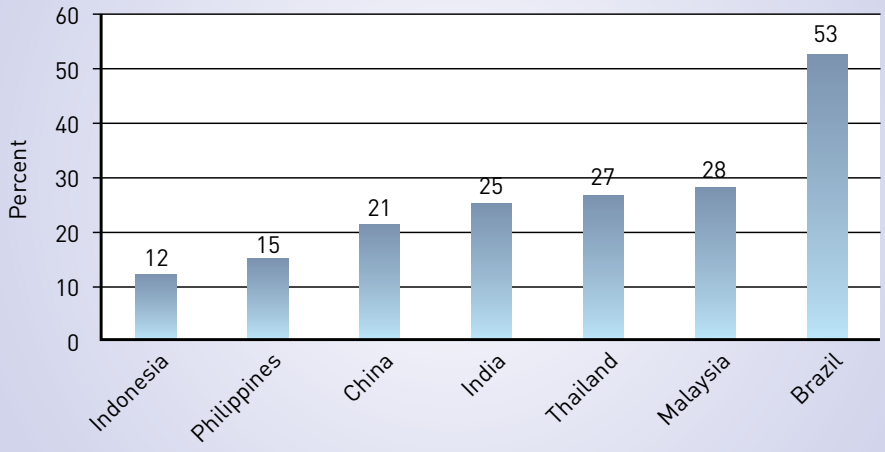
As an emerging middle-income country, the pressure for Indonesia to build its competitiveness is growing. Development policy should be directed towards tapping the potential of the country to deliver quality development outcomes. Despite questions about its effectiveness, informing policy through research is one of the common approaches. Research is seen as a strategic undertaking through which policy can be influenced and improved. The term 'evidence-based policy' stems from the very idea that the influence of research (which brings about evidence) is what informs and supports sound policy.

Building research capacity, particularly research aimed specifically at informing policy formulation, is a huge challenge everywhere. Indonesia is no exception. One of the strategies is to improve the quality of research in universities across the country. However, despite numerous attempts to promote, encourage and facilitate university research in Indonesia, its performance is still not strong. Research outputs are commonly measured in terms of (international) scientific publications and patents. In this regard, Indonesia performs rather poorly. According to *SCImago Journal and Country Rank*[1], during the period 1996-2008 Indonesia published only 9,194 scientific documents, placing its scientific productivity below that of Bangladesh, Kenya, Lithuania and Nigeria – and far below that of neighbouring Thailand, Malaysia and Singapore (see Figure 1). The Social Sciences Citation Index (SSCI) shows that in its international peer-reviewed journals, only about 12% of social science research publications on Indonesia are proposed by authors based in the country, less

1 SCImago. (2007). SJR — SCImago Journal & Country Rank. Retrieved 24 December 2010, from http://www.scimagojr.com.

Figure 1: Share of Domestic Research (%)

The numbers show the share of published research on a particular country done by researchers based in the country

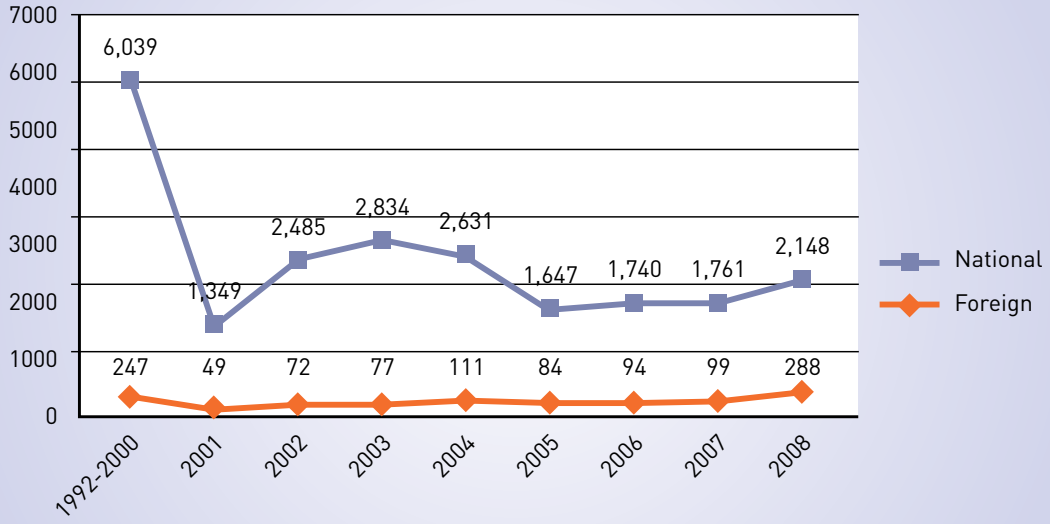


Source: SSCI database, 1956 to 2011.

than half that of Thailand and Malaysia[2].

One indicator of research use is patents. With regard to patents, the total number of patents registered by Indonesians at the United States Patent and Trademark Office in the year 2008 was lower than Singapore, Malaysia,

Figure 2: Number of Patents Registered in Indonesia



Directorate for Patent, Directorate-General for Intellectual Property Right, the Indonesian Ministry of Justice and Human Rights, 2010.

Thailand and the Philippines. The number of patents registered in Indonesia between 1992 and 2008 shows a tendency for foreign patents to dominate. This might illustrate a low quality of research and development performance and weak human resources in Indonesia.

2 Suryadarma, D., Pomeroy, J. and Tanuwidjaja, S., Economic Factors Underpinning Constraints in Indonesia's Knowledge Sector, AusAID Knowledge Sector Diagnostic, 2011. SSCI indexes articles published in 2,474 social science journals across 50 disciplines. SSCI is owned by Thomson Reuters. For more information, see: http://thomsonreuters.com/products_services/science/science_products/az/social_sciences_citation_index/

Table 1: Number of Patents Granted by U.S. Patent and Trademark Office (Selected Years)

Economy	1992	2000	2008
Japan	23,151	32,922	36,679
Singapore	35	242	450
Taiwan	1,252	5,806	7,779
South Korea	586	3,472	8,731
Malaysia	11	47	168
Thailand	2	30	40
China	41	163	1,874
Indonesia	9	14	19
Philippines	7	12	22
Vietnam	0	0	0

Source: USPTO data.

Moreover, Table 1 shows that the low level of patents granted in Indonesia has not changed significantly over recent time, in comparison with other countries in the region (Brodjonegoro and Greene, 2012).

Given the important role of universities in building research capacity, a fundamental question arises: What are the structural barriers that hinder the performance of research in universities in Indonesia? While the focus on external factors, such as policy and lack of research funding, has preoccupied universities, rarely do universities look at internal variables, such as incentives or load-balance between teaching and research, which play a role in holding back university research performance.

There are opportunities available for universities to develop research, not with standing their lack of clear plans. For example, for the year 2015 the Government of Indonesia allocated university research funds up to IDR 1.7 Trilion (USD 131 Million) aimed at fostering innovative research in the sciences (primarily natural but also social sciences to some extent). This fund comes from the State University Operational Assistance Fund (BOPTN) and Non-tax State Income (PNBP)[3]. With the merger of Higher Education (formerly within the Ministry of Education and Culture) and the Ministry of Research and Technology in 2014, there is much hope for improved university research performance, reflected in publications, patents and diffusion of innovative research. Research performance and research funding in Indonesia lag behind most of its neighbouring ASEAN countries[4]. A potential avenue to increase research funding is the Government's intention to invite the private sector to contribute to the research fund. A number of research areas where the business community can contribute funding have been identified: food, energy, advanced material, information technology, defence and health[5]. However, relying too much on business-funded research carries the risk that non-technological or non-commercial topics, such as education, society and culture, could be neglected[6].

Another problem is that research has never been prominent as a career. This is not only

3 Kompas, 16 December 2014.

4 Kompas, 17 December 2014.

5 Kompas, 9 January 2015.

6 Republika, 23 January 2015.

true in the socio-cultural context (reflected by pessimism about research as a field of employment), but also in the university setting itself. This is reflected in the way the research load is seen as contradictory to the required teaching load. There seems to be on-going tension between teaching and research in universities that, in many ways, has impeded the performance of university research[7].

While much has been said about the dichotomy between research and teaching in universities, Government regulations on permanent academic staff in universities do not encourage research (see table below). The *only* officially acknowledged academic position is *lecturer*, with no provision for permanent *research* positions. This reinforces the professorship pathway: only teaching professors earn 'legitimate' social acceptance, while research professors do not. This has direct impacts at the university level: lecturers have an increasing teaching load and research loses out, as research contracts tend to result in decreased attention to teaching or even to presence on campus. This reduces opportunities for promotion. A few larger universities have employed fixed-term contract research staff to compensate for this, but this has had very little impact on improving the quality (and quantity) of research.

This working paper provides comprehensive inputs to a further study aimed at diagnosing the barriers to research in Indonesian universities and identifying opportunities to address these barriers. The paper reviews earlier studies and grey literature on the topic and stocktakes the outcome of consultations with a consultative group facilitated by KSI. To help the analysis, we refer to the basic structuration framework (Giddens, 1984) that explains how a structure emerges as an outcome, at the same time as a medium for individual action. Here, research is seen as both action (at the individual level) and structure (at the system level). This will provide us with a conceptual basis to look at the barriers (as well as the drivers) to university research at the structural/system level (e.g. state/ government policies, research and funding structures, support for deepening research fields, etc.), the modality level (e.g. university rules and regulations, facilities, research management, facilitation for research spaces, etc.), and the individual level (e.g. performance of research undertaken, qualifications,

Table 2: Minimum Cumulative Credit from Main Function and Supporting Function of An Academic

No.	Position	Academic Qualification	Main Function			Supporting Function
			Education and Teaching	Research	Social Services/ Engagement	
1.	Expert Assistant	Magister	≥ 55%	≥ 25%	≤ 10%	≤ 10%
2.	Lecturer	Magister	≥ 45%	≥ 35%	≤ 10%	≤ 10%
3.	Senior Lecturer	Doctor	≥ 40%	≥ 40%	≤ 10%	≤ 10%
4.	Professor	Doctor	≥ 35%	≥ 45%	≤ 10%	≤ 10%

Source: Regulation of Ministry of State Apparatus and Bureaucracy Reform No. 17/2013 on Lecturer Functional Post and Credit System (baca: Jabatan Fungsional Dosen dan Angka Kreditnya). Lecturer is defined as professional educator and scholar.

7 Focus Group Discussion 1, 15 December 2014; Focus Group Discussion 2, 12 January 2015.

capacities, networks, etc.).

The next section reviews studies that have already been done or are on-going into the various barriers to research in the Indonesian university system. The following section summarises consultations with the four university partners of KSI on the design of a study, and the paper ends with some comments on next steps in addressing this important aspect of building a strong knowledge sector in Indonesia.

2 Desk Review

Existing and On-going Studies

In this section, we review the key findings from recent studies of university barriers to research in Indonesia. Two are on-going studies, so only preliminary findings can be included.

Existing Studies

There are relatively few studies on the factors affecting research performance, particularly university research, in the Indonesian context. Not only does this show the low interest in understanding research as one of the key performance indicators of higher education institutions, but it may also highlight an irony: university research does not interest the research community. We examine some existing studies below, chosen due to their fundamental contributions to the design of the Knowledge Sector Initiative.

Comparative Experiences of Middle-Income Countries (Nielsen, 2010)

The paper aims to inform Indonesian research stakeholders about the experience of other middle-income countries (Brazil, Mexico, the Philippines, Singapore and Malaysia). Based on these cases, the study comes up with three recommendations.

First, from the comparison of the five countries, *Indonesia needs to consider increasing its gross expenditure on research and development*

from 0.08% to 0.5%-1% of GDP. The country needs to decide whether it wants to invest more in building domestic knowledge capacity. This study argues that for several decades the knowledge sector has been an important sector in which middle-income countries should invest. This strategy has been proven to promote national economic and social development, and the Government should increase investment in research.

Second, *Indonesia's policy makers should not try to over regulate the knowledge sector*. The argument for this recommendation stems from the market mechanism in which economic development is supported by research, be it in the conventional economic model (manufacturing-based) or in the modern economic model, that is, knowledge-based. Consequently, as in other middle-income countries reviewed in this study, Indonesia's policymakers are advised not to try to over regulate the sector. Instead, the role of the Government remains in setting policy, regulations and the budgetary framework that facilitates a more effective research system.

Third, *leadership at the highest level is essential*. A clear political directive from the highest level of national leadership about the necessity and importance of domestically generated evidence and research for national development is urgently needed to stimulate necessary changes.

Based on these recommendations, this study suggests that a more structural approach would be instrumental in making the role of research more prominent in development. The suggestion to focus on research funding allocations, policy directives towards research and strong political leadership shows a tendency towards factors that shape the 'structure', rather than the those that affect 'individual actions'.

Regulatory Obstacles to the Growth of the Knowledge Market (Sherlock, 2010)

This paper focuses on Indonesia and aims to examine both the demand for evidence (government institutions) and its production (by universities, think tanks and non-governmental organisations). It examines the relationships between them, and inevitably, it examines the role of regulations in hindering the growth of an effective market in intellectual services for research. The study finds that the knowledge sector requires an effective two-way relationship between the production of and demand for evidence. In this regard, the Government needs to produce clear and well-defined demands for knowledge and make it procedurally easy and viable for suppliers to meet those demands.

There are structural problems on the demand side in institutional terms and in terms of the regulation of human resources. On the one hand, agencies within the Government often do not collaborate on identifying and designing research needs for development policy. On the other hand, the performance structures create no incentive to feed researchers' knowledge into the policy process or to make their research useful for policy makers' needs. Regulatory constraints on knowledge production are also a problem. The study demonstrates inconsistences in the application of procurement regulations and processes: the procedures are complex, ambiguous and implemented in different ways across government. The procurement process, through open tender, eliminates universities and non-government organisations from the knowledge market.

Based on these findings, the study recommends: critically assessing some regulations to look at the effectiveness of staff types (functional vs. structural) and whether they should be made distinct with respect to research; simplifying procurement procedures; and rectifying the regulations which disqualify universities and non-governmental organisations from providing research to the Government. That may be the root of the on-going tension between government and non-government institutions. Other recommendations include: reassessment and redesign of the role of the Indonesian Institute of Sciences (LIPI) and other research institutions; support to specialised technical

and policy units in agencies; development of training programs for government officials on procurement procedures; support to drafting and deliberation on a new procurement law; and facilitation of the participation of civil society organisations, stakeholders and the general public in the policy process.

Like Nielsen, Sherlock emphasises the significance of structural factors over individual factors underlying the organisation and performance of research. One key difference is that Sherlock also touches on the modality aspects, that is, the empowerment of research institutions' capacity, the role of government officials in reviewing and drafting procedures and the role of civil society. The study admits that structural reform needs a 'critical mass' at the individual level, which can only be achieved through facilitation or improving modalities.

Review of Social Science Capacity Building Support to Indonesia's Knowledge Sector (McCarthy and Ibrahim, 2010)

The aim of this study is to identify the major factors that limit the development of qualitative social science research in Indonesia. Among the findings are, first, that universities do not develop a funding and policy framework to support high quality social science research. There are no incentives for self-generated research, which has resulted in a 'culture' among academics in which they 'moonlight' outside of the academy. Extremely low remuneration in the academic sector has caused researchers and lecturers alike to work outside the research sector and take on consultancies – providing advisory services to donors and governments – or even leaving for other sectors such as government or the private sector.

Second, from the perspective of donors who are keen to foster the research sector, past approaches have been carried out with no significant impacts. These include: supporting universities on in-country research projects; secondment of personnel; support for infrastructure; training and post-graduate education; and assisting independent research centres in acquiring core and project funding.

Third, the study shows that most efforts have not addressed the 'big-picture' problem (perhaps it should be called the 'elephant in the room') in organisations and structures in the knowledge sector. It classifies the big-picture problem as a number of underlying problems in the enabling environment for research, such as: national economic and legal policies and structures; educational culture which does not emphasise quality of research; lack of long-term core funding for research institutes; lack of demand for long-term outcome-focused research; incentives for research organisations to provide consultancy; difficulties in creating organisational research capacity with limited core funding and administrative capability; and lack of career incentives for carrying out policy-relevant research.

Finally, this review identified underlying problems both at the structural (*macro*) and modality (*meso*, termed as 'enabling environment') levels, but perhaps does not look as much at the individual researcher (*micro*) level. Even if all the macro and meso level problems have been addressed (and this is a big 'if'), the success of research undertaken at the individual level also depends on how much the individuals are motivated and feel 'secure' to continue working in the knowledge sector.

Overview of the Indonesian Knowledge Sector (Karetji, 2010)

This study aims to provide a broad overview of the institutional landscape, policies and nature of the knowledge sector in Indonesia. It finds an imbalance in the allocation of funding for social science research in the research budget. The research budget is split among seven priority sectors of the National Research Agenda whose main emphasis is on the more scientific and technical aspect of knowledge.

The study identifies that on the '*supply side*' or knowledge production side of the knowledge sector, the majority of Indonesian universities do not have clear career paths for their researchers: most academics are recruited internally, with

a lack of transparent recruitment procedures, while research centres are established without a clear roadmap. They are based mainly on the voluntary interests of individuals who, as a result, must seek their own resources and financing. Despite a lack of core funding, most knowledge-producing organisations have been receiving capacity building support from various sources for quite a long period of time, but their management skills remain weak. This limits their ability to provide quality research. There is actually increased human capital (including researchers) available for research due to a broad distribution of expertise with high-level academic qualifications at the university.

These institutions will need to evaluate how they manage financial revenues and investment capital, particularly for investing in staff training and organisational capacity building. Investment in strong information and communication technology infrastructure is crucial for research organisation capacity, as well as partnerships (like private-state universities) that could strengthen organisational capital across a range of institutions. Capacity building in research organisations should address problems such as the lack of systems to ensure the creation of collective knowledge from individual work. Research programs should be monitored and evaluated to avoid individual initiative bias in developing research and management capacity.

On the *demand side*, the study confirms the huge 'gap' between research and policy: the role of research in influencing decision makers depends significantly on how much it is perceived as being able to support the interests of policy makers and high-level bureaucrats in maintaining power and accessing resources. As such, research institutions cannot always rely on the demand side to meet their needs. They have to develop their own skills to be able to cost their services and to work out how to generate reliable revenue.

Preliminary Study on the Indonesian Science Fund (Brodjonegoro and Greene, 2012)

In addition to the four studies that address the structural, capacity and regulatory issues, a fifth study was published recently that focuses squarely on responding to the funding challenges of the sector, and proposes a solution. This study was carried out by AIPI and funded by the World Bank and AusAID (now DFAT), and puts forward evidence that the number of publications and patents in Indonesia is low. Scientists believe the reason lies in the difficulties encountered in securing support for research projects and the inflexible budgeting and reporting systems in place. Therefore, Indonesian researchers are less productive than those in most comparable countries, per dollar of research funds invested. As a result, Indonesia is not aligned with other countries of its size and resources in terms of measures of national productivity for science and technology.

The root cause of the problem, according to this study, is that Indonesia does not have the financial infrastructure in place to support cutting-edge science and technology. Nor does it have an infrastructure in place to allocate and disburse funds to researchers, provide facilities for research, or maintain a state budgeting system that would allow the flexibility needed for scientific research. Indonesia's gross research and development investment is less than 0.1% of GDP, almost too low to appear on the published charts. The study firmly believes that these problems can be addressed systemically by creating an autonomous Indonesian Science Fund which, on a competitive basis, would directly supply scientists and engineers with funds for world-class research. It would also point out obstacles and would require, as a condition of award, the institutional support researchers need for increased productivity.

The study recommends support for the establishment of an Indonesian Science Fund, specifically:

- The Indonesian Science Fund should be established under the auspices of AIPI

because of its independent status.

- Simplification of the regulations around access to research funds, especially those coming from private and other non-state funds. The regulations should also give permission to Indonesian Science Fund grantees to utilise funds outside the annual budget process for purposes described in the grant, including multi-year projects.
- The elimination of the distinction between research and administrative career paths, and ensuring the same salary and benefits for both.
- Allow the Indonesian Science Fund grantee institution, whether university or non-ministerial research institutes (LPNK), to receive overhead payments to support the indirect costs of research without subtracting the amounts from existing revenues.

On-going Studies

There are two on-going studies looking at barriers to research in universities. They are summarised below.

Global Development Network-funded Study on Reforming Research in Indonesia

The study, '*Reforming Research in Indonesia: Policies and Practices*', is funded by the Global Development Network (GDN) and carried out by the University of Indonesia and the Jakarta-based Centre for Innovation Policy and Governance (hereafter the 'GDN study'). The study focuses on the social sciences and investigates the factors that hinder research at macro, meso and micro levels. In order to develop some depth of understanding, it is carrying out seven case studies, two of which were selected specifically for their remote locations in Papua and Aceh.

Among the issues that will be considered in these cases are:

- Whether there is differential policy influence from basic, applied and policy research;
- Why relatively few people/academics in universities want to be researchers rather than lecturers, or at least increase their research focus;
- Whether the autonomy of the university allows for academic autonomy as well as bureaucratic autonomy.

While still at an early stage, the GDN study seems to be very much in line with KSI's attempt to identify and address barriers to university research. Its focus at the structural level suggests KSI might pay attention to the meso and/or micro levels to examine the dynamics of research and its impacts on the institutions as well as individual researchers.

As such, the meso level would focus on the facilities and modalities through which research in centres or by individuals is structured (or constituted) within the university system (likewise, how research in a university is structured/constituted within the national system of research through research-related policies). At the micro level, the focus is on the ways in which research as 'action' is made routine by individual researchers. Here, the notions of 'deepening research fields' and 'widening research spaces' (to be discussed later) become key to understanding the dynamics in the flow of research, from the structural/system level (e.g. policy) to the organisation and management of research at the meso level (e.g. university or research centres), and how these all impact on the performance of individual researchers.

KSI-funded White Paper on Higher Education (Oey-Gardiner, 2015-2016)

The second on-going study (funded by KSI and implemented by Professor Oey-Gardiner) focuses on higher education excellence, including mono- versus multi-disciplinary research. Increasing global competition demands improved quality researchers with broader-based knowledge. This is best achieved through inter-disciplinary higher education. Higher education institutions in developed countries recognise the need to broaden the individual, specialised knowledge base, enabling creative innovations to grow and develop. Current public policy in Indonesia is

based on the principal of 'linearity', narrowing one's own educational experiences to increase specialisation. These policies are regarded as contradictory to the demands of the growing global market. AIPI members recognise a global trend towards inter-trans-multi disciplinary discourse and development of knowledge in general, which Indonesia should adopt if it wants to compete in a globalising world.

AIPI intends to assess the position of academics on the issue of mono-discipline versus multi-inter-trans disciplinary approaches to developing knowledge and innovations. To gather the related data, AIPI will conduct a series of consultation visits in seven universities across Indonesia, holding seminars and consolidation meetings. This will culminate in a report on opportunities for inter-disciplinary study in higher education in Indonesia. This study is expected to finish by the end of 2016.

Summary of Desk Review

This overview of studies of the research environment in Indonesia has looked at all levels involved in the demand for and production of knowledge. What remains unaddressed however, are the detailed interactions between the demand and supply sides, and the mechanisms through which different levels interact and affect each other. We firmly believe that it is the generative mechanisms of these relationships that would explain the characteristics of the barriers (or drivers) of research performance in Indonesia, particularly in a university. Understanding the generative mechanisms in the relationships might also point to some solutions.

Often the need for particular research for policy purposes is neither communicated, nor properly defined. This can be because the need itself is not well formulated by policy makers. Policy necessitates research for several reasons. Among the most fundamental is support for a legitimate decision. Here lies the core problem of the demand side – the policy or political decision is mostly, if not always, made *ex ante* the research. This means that the demand for research comes after the political decision on certain policies. Hence its purpose is mainly to provide legitimacy, or in some cases, to refine (political/policy) decisions that have already been made. For policy to be legitimate it should be backed up by sound and conclusive research. But whether it should be research that drives the policy remains questionable. The realm of the policy-making processes even indicates that the reality is the opposite: it is the political decision that drives policy, then research is needed to give it legitimacy. The challenge for researchers is to get evidence on relevant issues prior to the decision making process. This means anticipating issues before the policy makers get to them.

The supply, or production, side of the knowledge sector has its own research agenda. The agenda is perhaps driven by some conceptual understanding or advancement of theoretical and academic reflection. But often the theoretical progress that drives research is disconnected from the actuality (and factuality) that drives policy. What most concerns researchers and academics (both in the natural and social sciences) is the advancement of theories or conceptual thinking/understanding, rather than the actual dynamics of the societal contexts in which they work – and to which the policies are targeted.

In sum, research communities (including universities or research centres) create their own research agenda in ways that are not linked to policy needs. The two are not communicating; the two are not linked; the two are not connected. Indeed, the relationship between policy (demand) and research (supply) is *non sequitur*.

3 Consultation with the Consultative Group

As part of the effort to address barriers to university research, KSI took the initiative to move forward with forming a consultative group consisting of four university-based research centre partners. Three focus groups were organised (15 December 2014, 12 January 2015 and 25 February 2015), along with individual consultations, in a comprehensive attempt to explore and deepen understanding on the topic, and build co-ownership of the partners.[8]

The previous desk review and discussions provided some ideas on the barriers to university research. These barriers are identified and found across different contexts and at different levels (from structural to individual), although differences in character/typology of the centres affect how they manifest. Consensus was achieved

8 The consultative group members who participated in the series of Focus Group Discussions include Dr. Yodi Mahendradhata, Prof. Adi Utarini, Prof. Irwanto, Prof. Hana Panggabean, Dr. Clara Ajisuksmo, Anindita Gabriella, MA, Dadi Darmadi, MA, Idris Thaha MSi, Sri Budi Eko Wardani, M.Si, Anna Margret, Ph.D.

around the following issues as being central to reducing or removing the university barriers related to university research:

Alignment

Alignment refers to harmonisation and synchronisation of research work, researchers and the organisational context.

- Research and teaching are not dichotomous; on the contrary, they enrich each other. Quality teaching assumes quality research, and vice versa. The current situation of 'mutual hostage' between research and teaching (in which teaching allocation is compromised by research, and time for research is consumed by teaching) is among the most pressing issues to be addressed.
- Universities and their research centres need to be 'harmonised' – the realisation of a centre's vision and mission should be in line with that of the university. While the centres can provide in-depth research relevant to teaching, the university is the place to hold the academic ideals of the research and teaching world. Both need capacity building in managing, and more importantly, balancing the load.
- Another structural alignment problem is dualism in professorship qualifications and ranking. At the moment, two distinct schemes exist: professor in research and professor in teaching. The latter is much more widely accepted and seen as more 'legitimate'. Research Professorship is awarded by LIPI, while Academic Professorship is awarded by the Government via the Ministry of Education and through a credit scheme ('kum' system). These two schemes need to be reconciled so that academic paths, be they research or teaching, lead to the same professorship.

Research Funding

- Despite being already widely acknowledged, the problem of research funding remains unresolved: funding is limited and what funds are available are not easy for researchers to access. Funding research is still seen as an economic burden for investment.
- At the university level, there seems to be no impact or outcome assessment systems in place either for assessing research quality or for assessing the academic and socio-economic impacts of research. Therefore, even if literally applied, the 'economy of scale' is difficult to calculate. A typical research project in a university today costs around IDR 150 million and lasts for one fiscal year. The short time frame and limited funding often result in no outcome apart from a formal report. There is no follow up to prepare journal papers, academic briefings, or popular articles and public dissemination.
- Over the past two years, the allocation of research funds in the state budget has increased, but not significantly. Research funding from within universities is also very difficult, if not impossible to generate because of the preference given to teaching. Most of the university income comes from the students, characterising most, if not all of the Indonesian higher education institutes as '*teaching universities*' not '*research universities*'.

Table 3: Gross Domestic Expenditure on Research and Development (GERD) in 2009 and 2013

	2009	2013
GERD	IDR 4.72 trillion	IDR 8.09 trillion
GDP	IDR 5,613 trillion	IDR 9,083 trillion
Ratio GERD/GDP	0.08%	0.09%

Source: PAPPIPTEK LIPI

Research Agenda/Priority

- The Indonesian National Research Council has published a strategic document, 'National Research Agenda' (ARN). This is intended as the main reference for research that supports policy processes. However, researchers, universities and research funders have not taken the document seriously. This is reflected in the limited references to it from the policy perspective. Perhaps due to its massive coverage of around 27 'focus' areas, it hardly qualifies as an agenda to focus research. The ARN fails to address the basic concern about whether and to what extent research is perceived to contribute to evidence-based policy making.
- ARN does not appear to inform the research agendas of university and university-based research centres. On the one hand, this may show how little ARN (and DRN) has influenced or inspired the university research directives (and management, if any). On the other hand, this creates a gap in direction at the national level for universities to focus their efforts on developing research capacity. ARN should be used as a tool to coordinate research carried out by government ministries, LPNK and universities.
- The National Mid-term Development Plan (RPJMN) is the official reference and guide for ministries and local governments to work on their own development policy and planning, although sometimes they diverge from this reference point. What is key here is that RPJMN as a reference for development policy could actually translate very easily into defining research needs and demands at both national and ministerial levels. But this is not the case.
- Specifically regarding research, RPJMN 2015-2019 actually sets out the priority agenda related to science and technology on improving productivity and competitiveness in international markets through improving science, technology and innovation capacity. These priorities are: increasing the results of research, development and application of science and technology; supporting competitiveness in the production of goods and services; sustainability and utilisation of natural resources, and changes in lifestyle; supporting science and technology activities, including the provision of human resources, infrastructure, institutional settings and networks; and as a tangible target, building 100 techno-parks at the municipal level, and one science park in every province.
- The Ministry of National Development Planning (Bappenas) has its own national research agenda, albeit *sectoral*, that is formulated in a bottom-up fashion (similar to the RPJMN formulation). The agenda was developed from a consolidation of proposed research agendas submitted by ministries and discussed with different working units in Bappenas. This process was intended to ensure cross-ministerial coordination. However, the research directorate in Bappenas only coordinates with LPNK and the Ministry of Research and Technology. There is a potential (and already actual) disconnect between the National Development Strategic Policy on science and technology and the national research agenda produced by DRN.

Human Resources for Research and Research 'Careers'

- Ironically, while training in research is increasing, the availability of quality *full-time researchers* in any discipline is extremely limited. This is also the case for *junior full-time researchers*, perhaps because the career of a researcher is often perceived less favourably from the perspective of job security (unclear career path), but also in terms of financial income. It is rare to find a full-time researcher in a university unless it is someone very distinguished - and even then it might be for a few years on a special project.

The bigger issue is the lack of priority given to research. Teaching loads make serious research impossible and the salary structure prohibits using time for serious (often poorly funded) research. In other universities (in more developed countries), salaries provide a living and teaching time is much more limited than it is in Indonesia. Additionally, research money can be used to buy out some of that teaching time. Publishing for promotion is central in both, but in other countries the distinction is made between *vanity publishing* (internal journals) and *peer-reviewed publishing*, both domestic and international.

- In the university context, it is commonly understood that the qualification for academics who teach is often significantly lower than for those who do quality research – let alone when publication is taken into account. For academics, it is much easier to earn a salary from teaching, supplemented by consultancies, than securing research grants.
- In some cases professional researchers from outside the university are recruited to research centres by the rector. Very few of them go on to build a career within the university system.
- What probably concerns the team most is the outcome of unclear career paths for researchers. This creates doubts among young, early career academics in universities. Not only is the career path of a researcher towards professorship unclear, more importantly there is no clear directive at both national policy and university regulatory levels. Only when being a researcher is not seen as 'second class' will interest in research as a career (not only a passion) grow.

Researcher Numeration and Incentive Systems

- The salary for a researcher, or remuneration in the knowledge sector, is not as attractive as it is in other sectors. Being a researcher is seen as a less popular career, affecting social standing in terms of reputation. For serious researchers, often the capacity of their host institutions (be they universities, university-based centres or independent think tanks) to provide full research facilities is minimal or extremely limited.
- For researchers, securing grants (from the Government or from within the university), and the opportunity to enjoy additional salary and (a little bit more) time to do research, is often hampered by the monitoring-and-evaluation scheme for research, which is ill-designed. Not only is the load of administrative paperwork often too high to deal with, more fundamentally this is because most monitoring and evaluation systems treat research no differently than any other activity. As a result, researchers are burdened unnecessarily by administrative reporting responsibilities (which are often not in line with the stages of research, or even disrupt the research activities themselves), rather than focusing on producing quality research outputs.
- There is no standardised incentive system for university researchers. Some universities will provide financial (and social) incentives to researchers who manage to publish in peer-reviewed journals (usually international ones). While individual researchers can apply for government (i.e. DG Higer Education) publication grants for writing a journal paper, the process is usually very slow. The financial support given by a university to those who publish in an international journal is much lower than support given by the Government.
- In retrospect, the core motivation for being an academic in Indonesia is often enhanced social reputation of being a lecturer, and the autonomy over one's time that can be capitalised on or used for other paid work. There are rarely scientific reasons that drive them to be good researchers.

- Law No. 12/2012 article 89 on Higher Education states that around 30% of State University Operational Assistance Funds (BOPTN) could be allocated for research, in addition to the Non-tax State Income (PNBP) from universities, which amounts to IDR 300-400 billion[9]. While this has been in place for some time, the effectiveness of this fund to develop university research is yet to be realised.

'Kum' Credit System

- The national credit system (called '*kum*'), which was established in 1999[10], seems to be a structural factor that significantly affects career advancement in the university. The credit system is a tool for academic assessment. The salary system relates directly to this credit system, which unfortunately does not effectively encourage better research outcomes. For example, the proportion of credit given to those who publish in national and international journals does not adequately reflect the difference in the effort needed to publish in these journals. The credit system also reflects a rather rigid approach that is counter-productive to encouraging quality research (e.g. conference attendance, conference/symposium papers, etc.). There is a need to reform the *kum* system to promote and improve the quality of university research.
- *Kum* is the national reference point for remuneration and salary in universities. However, not only does it have a tedious verification system, but the whole approach to its database needs reform. This could be because the system was not designed on the basis of trust. For example, electronic document submission (e.g. scanned certificate, paperwork, etc.) should be encouraged. The online system for submission and verification should be introduced to help streamline and ease the process for academics (more importantly), but also for government administrative systems.

Publication Scheme and Research-to-Policy

- There are a number of publication outcomes that *could* be derived from *one* typical research project: research reports, academic papers (working papers, journal papers, seminar papers, book chapters), popular articles (in magazines, op-ed. in newspapers), news coverage (interviews, profile, news), and policy papers (briefing papers, policy briefs). If properly strategised, research can create impact if those outcomes are targeted. However, not many researchers have been able to do this, or perhaps more precisely, not many research projects are designed with a strategic approach to create impact.
- The certification scheme for university academics (started in 2008) includes financial incentives for academic publication in accredited journals, in addition to teaching and research. This is useful and encourages better quality research, but the result is not as great as expected. The reasons for this will be explored in the diagnostic study forthcoming from KSI in mid-2016.
- The university publications scheme is in need of an overall review. Nearly all departments and faculties/schools host journals. As a result, Indonesian universities have the highest number of in-house journals anywhere. While this is seen as a good way to publish in terms of

9 Kompas, 16 December 2014; JPNN, 9 December 2014.

10 The legal basis for this system is the Joint Ministerial Decision between the Ministry of Education and Culture and the Head of the State Employment Body (Mendikbud and Kepala Badan Kepegawaian Negara) No. 61409/MPK/KP/99; No. 181/1999 on the Operational Guidance on the Functional Title of Lecturer and Their Credit Values (Petunjuk Pelaksanaan Jabatan Fungsional Dosen dan Angka Kreditnya). This basis was recently renewed by the Ministerial Regulation (Permendikbud) No. 92 2014 on the Technical Guidance on the Operationalisation of the Assessment of the Credit Values for Functional Position of Lecturer.

quantity (and *kum* credits), it does not help encourage quality publication in accredited, peer-reviewed international journals. With the *kum* system disproportionally weighing national journals over international ones, academics and researchers prefer publishing in national journals that are hosted by their own universities or even schools/departments, because it is easy. In the long term, this approach will not be beneficial if Indonesian researchers have to compete with their international counterparts and excel globally. This provides an important opportunity to think about what gives credit for promotion: in bringing research closer to policy, perhaps it should not only be peer-reviewed journals for academic publication that receive credit, but also policy-relevant outcomes such as policy briefing papers.

- With regard to informing policies, the problem is twofold. First, needs from the policy side are not well communicated to the research community – or if they are, the latter is often not well informed. As a result, seldom are the outcomes of research used effectively to assist decisions or policy making. Second, perhaps more fundamentally, policy making belongs to the political 'world', while research belongs to the intellectual 'world' – and the two worlds are far apart, if not totally disconnected. It is not that the political is not intellectual (or the other way around) but that policy is often decided in the political moment (lobby, negotiation, etc.), while research takes place within the intellectual domain (reading, reflecting, thinking, etc.). How research can influence policy makers and the policy process needs more consideration.
- There is a pressing need to bring research closer to policy making. Policy-making processes need to be informed by data and evidence; and the research agenda needs to be informed by policy needs. While it is not always easy (or pragmatic) for policy makers to approach the research community directly, it may be more practical for the latter to engage with the former.

Research Management

- Another issue highlighted by the consultative group was research management. At the operational level, there is a need to have dedicated staff to manage research, specifically, managing the research agenda, allocating resources to carry out research (research staff, funding, network, etc.), preparing technical/administrative aspects of research (paper work, reporting), linking with potential donors/sponsors in order to fund research, and assuring research quality for both processes and outputs. Such tasks should be strategically, not just efficiently, managed. The key here is to ensure the centre has the research *capacity* to benefit from the research *opportunity*.
- The dimension of research 'capacity' versus 'opportunity' is perhaps the closest proxy for research management to operationalise the dimension of 'supply' versus 'demand' in the knowledge sector. The need to strengthen organisational capacity for managing research would perhaps be the most strategic area to bring supply closer to demand (and not the other way around). This is obviously beyond what has commonly been understood: that handling a research project professionally is a must if we are to produce high quality research.

4 Conclusions and the Way Forward

What we have identified helps us understand some fundamental barriers to university research at three different levels: system and structure (including law, regulatory frameworks, etc. – mostly in the state domain), modality (including interpretation schemes, facilities, etc. – mostly at the university and centres' scope) and individual levels. This includes capacity building, interaction and networking – mostly at the personal level. All existing studies reviewed and the consultations with the consultative group have helped shed more light on how we could understand the dynamics of research in universities in Indonesia and identify some opportunities to address the issues. The reflections for further investigations are summarized in nine key points:

1. While much has been said about the dichotomy between research and teaching in universities, government regulations on permanent academic staff in universities do not encourage research. Only teaching professors earn 'legitimate' social acceptance, while research professors do not. This has direct impacts at the university level: lecturers have an increasing teaching load and research loses out, as research contracts tend to result in decreased attention to teaching or even to presence on campus. This reduces opportunities for promotion.
2. The recently re-designed Ministry of Research, Technology and Higher Education (bringing the Director General of Higher Education at the Ministry of Education and Culture to the Ministry of Research and Technology) aims, among other things, to facilitate the production of research. The main objective appears to be increasing Indonesia's research output, but the focus seems to be on research in the natural sciences

and the development of new technology. While perhaps it is too early to assess the impacts and outcomes of this new ministry, one aspect worth pondering is the extent to which this new ministry could promote the use of research to inform policy.

3. The RPJMN 2015-2019 (made formal by Presidential Decree No. 2/2015) stipulates that successful long-term development in Indonesia depends on the ability of the country to strengthen its competitive advantage, particularly qualified human resources and adequate science technology. However, there is no clear strategy or roadmap to operationalise this ideal and to improve the quality of human resources in research. The RPJMN (2015-2019) calls for a lot of research, from conception to the implementation phase, but this requirement does not seem to be reflected in the plan.
4. In terms of the law, Law No 20/2003 on the National Education System provides details on teaching and education. It focuses much less on research or research-related activities. For example, it suggests that higher education is conducted in an open system, and that the university should conduct teaching, research and community service. Yet the priority remains teaching. The Law also allows the university to raise funding from various resources, as long as it can be held publicly accountable for managing the funds. While this provides a possible way out of universities' problem of funding research and increasing the quality of education in general, universities do not appear to be taking advantage of this opportunity.
5. The same law further suggests that private universities could also act on behalf of the Government as mentors for local, particularly remote, universities. As such, while capacities of local, usually smaller, universities could be built and improved in a more affordable way (as it does not entail travel to Jakarta), there is also a hope that this would improve research performance. There is an intention to eliminate the dichotomy between state and private universities – more than 80% of universities are private[11]. Most of the private universities are regarded as 'second class' by society. This has resulted in unintended discrimination toward private universities in terms of funding, facilities, academic staff and opportunities for development, among others. The Government has realised this problem and recently started taking corrective measures, especially to ensure fairness for private higher education institutions in receiving government support.
6. Sherlock's findings (2010) shed light on the changing status of some state universities. They are yet to have much effect on enabling improvements in their research performance. The new status of PTN-BH (autonomous state university) provides a degree of managerial autonomy for larger universities, allowing them to attract funds in addition to state budget allocations. Seven leading universities have been granted this status, with another four in process. While the impact of this status on research is yet to be determined, some have seen PTN-BH as an opportunity to increase income from student fees, but have paid less attention to the quality of tuition, or to opportunities to increase research.
7. Another aspect to consider is government research procurement. Current practice shows that governments usually make research contracts with individuals instead of engaging with research institutions. Some universities have established commercial arms to manage direct engagement with government, but whether this can contribute positively towards university research performance, or towards

11 The number of state universities is 73, while there are 453 private universities. This does not include colleges and other types of higher education. Source: forlap.dikti.go.id/perguruantinggi/homegraphpt.

research-to-policy effectiveness, is an open question. The issues seem to be general underfunding together with legislation that inhibits government procurement of research, both in duration of research and location of researchers. This needs further investigation.

8. In terms of modalities, the prospect of encouraging university research through government regulations and private support belies the reality. The research budget is barely at 0.09% of the country's GDP (ideally 1%), and 74% of that comes from the Government[12]. The Government (i.e. Ministry of Research and Higher Education) admits that the management and governance of state universities are far below those of other countries, particularly in terms of financial management[13]. This will impact the ability of universities to effectively manage research.
9. For research-to-policy to take place, much remains to be done. Research outcomes (be they from Government or non-government centres) are rarely used by the Government in policy-making processes. Either the Government does not see the importance and value of research in informing policy, or the research communities fail to engage with the Government. An 'excuse' coming from the Government is that the research is not focused on high social impact issues[14]. The public too needs awareness that good policy can only come from well-informed decision- and policy-making processes – which can be supported through quality data, information and research. Here, the Government's political will to ensure evidence-based policy making is the key.

The Way Forward

The need for a fully-fledged diagnostic study on barriers to university research in Indonesia is clear. It should address not only conceptual or philosophical issues, but more importantly propose interventions to reverse the situation. As such, the diagnostic would have to assist KSI's partners in improving research in the universities in which they are based.

The study should focus on the following issues:

1) Alignment;
2) Research funding;
3) Research agenda/priority;
4) Human resources for research and research 'careers';
5) Researcher remuneration and incentive system;
6) 'Kum' credit system;
7) Publication scheme and research-to-policy; and
8) Research management.

Each issue should be explored at three levels of barriers/drivers: (i) *structural/systemic* (e.g. state/government policies, research and funding structures, support for deepening research fields, etc.); (ii) *modality* (e.g. university rules and regulations, facilities, research management, facilitation for research spaces, etc.); and (iii) *individual* (e.g. performance of research undertaken, qualifications, capacities, networks, etc.).

Two further points to consider:

1. Competitive grants are an important form of funding that enable academic researchers to pursue intellectual agendas that would not be possible otherwise. Arguably, the ability to generate funding is a necessity for a career in academia. There is an increasing expectation from academics for research funding from their universities, or at least that universities attempt to secure funding. This may lead to real-world impacts on high-quality research that survives peer review processes and is publishable in international bona fide journals. The diagnostic needs to address what capacity building is needed both for individual researchers and research centres. These capacities are focused on guiding researchers to understanding the role of research grants in their academic

12 *Kompas*, 9 January 2015.

13 *Jawa Pos*, 21 January 2015.

14 *Kompas*, 23 January 2015.

career, introducing them to a number of opportunities, and eventually building the capacity of research centres to offer quality support services.

2. The diagnostic study would need to be engaged with the relationship between researcher and innovation. The Government has made a commitment that a knowledge-based economy would be one of the future pathways to national development and economic growth (e.g. with the establishment of the Creative Economy Agency). To achieve this, Indonesia should pay much more attention to research: the country cannot escape from competition in research performance with neighbouring countries. There is no other way to increase national competitiveness at the global level than proper development of research. Building high quality and competitive human resources, infrastructure and institutions for science and technology will take a long time. It is essential that the diagnostic examine the existing rules, regulations and institutional arrangements that reflect this effort.

This paper brings together the evidence we have and the perspectives of KSI's university partners. Through a desk study we have reviewed past diagnostics and explored inputs from on-going research in this area. This material served as a background in focused discussions with KSI's university research partners. This paper, and consultations with KSI partners led to the development of a more in-depth study led by the four partners. This study is on-going now and will be published in 2016. We believe it will help ensure more evidence-based policy in Indonesia, particularly in tapping benefits from the knowledge sector.

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The Knowledge Sector Initiative (KSI) is a joint program between the governments of Indonesia and Australia that seeks to improve the lives of the Indonesian people through better quality public policies that make better use of research, analysis and evidence.
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