CHAPTER
7

Utility over excellence: Doing research in Indonesia

Fajri Siregar

Background

Improving the quality of science has been one of the agendas of Indonesia's current regime under President Joko Widodo (Jokowi). Under his guiding development plan, *Nawa Cita,* research and development (R&D) is seen as playing an important part in two points, namely to improve productivity and competitiveness (pillar no. 6 of the plan) and to achieve economic resilience (pillar no. 7).

On several occasions, the president has shared his perceptions on the functions of research in the context of Indonesian development. In his view, research ought to *'rediscover its utility. It should be useful and serve the needs of society. It should strengthen innovation and competitiveness. It should not be done for the sake of research itself.'* [1]

To align the functions of research for the purposes of economic development, Jokowi made the crucial decision to merge the Directorate General of Higher Education (then under the Ministry of Education and Culture) with the Ministry of Research and Technology at the beginning of his reign in 2014. Since January 2015, all science and research-related activities have been officially placed under the Ministry of Research, Technology and Higher Education (Ristekdikti).

Since then, the government has made no secret about its desire to enhance research for development purposes. It has been clearly stated in all official documents (e.g. RIRN, Ristekdikti strategic plan and other official documents of the ministry) that the goal of Jokowi's administration is to increase productivity and competitiveness. Science, especially R&D, would have to act along these corridors.

However, Jokowi's administration is no pioneer in utilising R&D to maximise domestic growth in a technocratic outlook (Amir 2007). If anything, his plans and intentions have only been made more explicit than the previous regimes. In fact, he continues walking on a path that has already been laid out since the early millennium.

National science and technology policy in contemporary Indonesia: A brief overview

Efforts to improve Indonesia's national science policy already began shortly after the political reform in 1998. At the turn of the new millennium, the Government of Indonesia (GOI) laid out plans to decentralise higher education and revamp the national science policy.

The first steps in creating a more coherent science and technology (S&T) framework were laid out in Law No.18/2002, known as the Law on National System of Research, Development and the Application of Science and Technology (OECD 2013). At the time of writing of this chapter, this legislation was being revised to accommodate the most current needs of state-driven innovation,[2] but it essentially covers all matters pertaining to research excellence and the utilisation of science for economic growth. Research downstreaming and valorisation, commonly termed as *Hilirisasi,* is a core idea behind the legislation. The law posits that the central government (then still the Ministry of Research and Technology – RISTEK) plays a coordinating role and has the highest authority in delegating all other roles and functions of the many different actors within Indonesia's science ecosystem.

Institutionally, the National Research Council (DRN) was established in 1984 to identify and define S&T development paths and priorities. DRN was also expected to advise on national S&T policies formulated by RISTEK (OECD 2013). However, its role was supposed

to be revitalised upon the introduction of Law 18/2002, as the government sought to streamline R&D activities by setting up national research agendas that should serve as roadmaps for public research institutions and universities to follow suit.

Another breakthrough that took place in this last decade was the introduction of a National Innovation Committee (KIN). KIN was established in 2010 to oversee and coordinate developments across the national innovation system (OECD 2013). However, as an ad hoc institution, the council did not manage to achieve its targets, as it was disbanded towards the end of the then President Susilo Bambang Yudhoyono's reign in 2014. The function of KIN (and the Directorate General of Higher Education) was merged into the Ministry of Research, Technology and Higher Education (OECD 2013).

Persisting institutional challenges remain one of the hurdles in creating an enabling ecosystem for quality research and innovation to flourish, despite notable efforts in streamlining the institutional arrangement. The GOI has taken other measures to improve the conditions of doing science and creating technology, with the aim of enhancing research utilisation at the heart of its plans. These measures include greater freedom to research actors in the planning and execution of public funds for research and commercialisation activities (Brodjonegoro and Moeliodihardjo 2014).

The government's decision to decentralise decision-making in research to R&D actors has created a new tension between autonomy and control. This is exemplified by government policies geared towards more productivity, without creating the necessary preconditions or environment where quality research can thrive (ACDP 2013; Brodjonegoro and Moeliodihardjo 2014). These contradictions will be elaborated in the following sections.

New Public Management and the functions of research

The apparent push of GOI to increase the output and productivity of science and research can be viewed as reforms influenced by a *New Public Management* approach, focusing on increasing efficiency in public organisations (Christensen 2011; Hidayat 2012). This is visible

in the structural reforms taking place within public universities, with seven state universities gaining a new legal status through government regulation No. 61/1999. Through the regulation, state universities were restructured into State Owned Higher Education Autonomous Legal Entities (BHMN), which allowed more autonomy in attaining external funding to support their activities (Rakhmani and Siregar 2016). The eventual output expected by the GOI is an increase in quality research and other academic products such as patents, joint collaboration and wider international cooperation.

According to Christensen, New Public Management reforms taking place within the university reflect the more general reform trends in the political-administrative system that are geared towards neoliberal principles (Christensen 2011). In the Indonesian case, increased efficiency that correlates with better output is not only expected from universities, but also from other research institutions using public funds. Local research councils (DRD), the Agency for Technological Analysis and Implementation (BPPT) and the Indonesian Institute of Sciences (LIPI) are other science actors whom the central government expect to increase their outputs (Oey-Gardiner 2011), most notably in the form of international publications.

An increased emphasis on productivity and output is a key feature of the current Indonesian science landscape. If New Public Management is a key notion to understand institutional reforms driven by structural pressure (Christensen 2011) (which parallels with the notion of good governance in other sectors), then globalisation in the form of increasing international standards is the other dominant force.

The role and presence of international agencies in Indonesia plays a critical role in this regard. The World Bank, for example, asserted its agendas through several projects to help shape a more effective S&T sector, such as IMHERE (2005–2012) and RISETPRO (2013–2020). The Australian government, on the other spectrum, has taken part in trying to connect the research to policy nexus through its long-term programme 'Knowledge Sector Initiative', involving other major international actors, such as the Overseas Development Institute and the Australian National University. The United States, through USAID,

also took part in the effort of improving the management of higher education through its HELM (2011–2016) project.

Beside these programmes, the Ministry is also well aware of, and well related with, other institutions such as Frauenhofer Gesellschaft, the World Intellectual Property Organisation (WIPO) or initiatives of the United Kingdom (UK) through the Newton Fund and Innovate UK, as well as the Ford Foundation and other donors who have all introduced their respective notions of quality. Collaborative programmes have raised the exposure of international benchmarks to Indonesian academia.

All of the above initiatives have contributed in helping Indonesian researchers understand the notion of quality research, albeit without explicitly conveying the term 'research excellence'. Through programme frameworks and performance indicators, notions of quality and international standards were translated to the Indonesian science community in order to achieve the objectives of the said projects.

Performance assessment and measurement

Adopting international standards in a local context

To measure its own performance in science and technology, the GOI has used several sets of globally accepted indicators. As documented in the official long-term national research master plan (RIRN), Ristekdikti refers to indices such as the Global Competitiveness Index (GCI) and Global Innovation Index (GII) to situate Indonesia's relative position in competitiveness and economic performance (Kemenristekdikti 2018).

Notable indicators that are deemed especially important to measure Indonesia's progress include: Gross Expenditure on Research and Development (GERD), multifactor productivity, a headcount of researchers and researchers-to-population ratio. These are some of the main performance indicators used by the GOI to measure the country's progress in S&T. The Global Innovation Index, in contrast, uses indicators such as knowledge creation, innovation linkages, information and communication technologies (ICT), R&D and tertiary education. The

Indonesian government eventually incorporated a set of six indicators into RIRN, as shown in Table 1.

Table 1: National research contribution targets

National targets	2015	2020	2025	2030	2035	2040
Multi factor productivity (%)	16.7	20.0	30.0	40.0	50.0	60.0
GERD/GDP (%)	-	0.84	1.68	2.52	3.36	4.20
Annual state budget for research/GDP (%)	0.15	0.21	0.42	0.63	0.84	1.05
Total number of researchers (headcount)	1 071	1 600	3 200	4 800	6 400	8 000
Potential researchers (%)	-	20	40	60	80	100
Productivity	0.02	0.04	0.07	0.10	0.14	0.18

Source: RIRN document (2016)

GERD is one of the first indicators Ristekdikti uses to understand the general condition of the research environment. Compared to other ASEAN countries, Indonesia is still behind, allocating only 0.2 % of its gross domestic product (GDP) to research, compared to South Korea, ASEAN and BRICS countries, whilst surpassing only the Philippines (0.1%) – see Table 2.

On top of the universal standards referred to by the Ministry, the GOI also looked elsewhere for an international benchmark. For its long-term development agenda, the country set its sights on South Korea, citing the country's relatively comparable situation in the 1970s, in which both countries endured conditions of low growth. South Korea went on to achieve a much higher speed of development as the country accelerated due to a significant amount of technological contribution and science utilisation. This is what Indonesia aims to emulate.

The case of South Korea has convinced Indonesian policy-makers to pursue incremental yet specific improvements, especially in the realms of human resources and the contribution of S&T towards domestic economic growth (Kemenristekdikti 2016). To take an example, the document stipulates the aim to have a ratio of 1:1 in terms of post-graduate to undergraduate student by 2040, citing South Korea's achievement (Kemenristekdikti 2016).

The availability of human resources is indeed one of the main indicators in science and research. This is why Ristekdikti aims to increase the number of researchers and engineers (perekayasa) that are available to undertake both applied and basic research, especially

Table 2: GERD of ASEAN and BRICS countries

Country	GERD (%GDP)
South Korea	4.2
Singapore	2.2
China	2.1
Malaysia	1.3
Brazil	1.2
Russia	1.1
India	0.8
Thailand	0.6
Vietnam	0.4
Indonesia	**0.2**
Philippines	0.1

Source: Kemenristekdikti (2018)

those under the auspices of state institutions. According to the data from LIPI and BPPT, by 2016 Indonesia had recorded a total number of 9 556 researchers and 2 295 engineers. The government recorded a steady increase of researchers and engineers as depicted in Table 3.

The GOI is not only targeting an increase in available scientists, but also students with the potential to become scientists. This is why the ministry also monitors the number of postgraduate students enrolled at higher education institutions. Another indicator for this is the number of international students enrolled at Indonesian universities. The ministry utilises these numbers as part of its stick-and-carrot approach towards the quality management of public universities and as an indicator of internationalisation, which is an important element of competitiveness. Along these lines, increasing the amount of collaboration, both national and international, is another sub-theme of productivity.

The overall goal should, however, not be understood as just becoming on par with South Korea. Above all, the GOI aims to achieve economic competitiveness to become a global powerhouse, citing a McKinsey report that suggests Indonesia's potential to become the seventh largest economy in the world, were it to achieve its full potential (Mckinsey Global Institute 2012).

In doing so, the government bought into the principles of the Triple Helix, believing that in creating a productive science ecosystem, the

Table 3: Growth of engineers and researchers, 2010–2016

Year	Researcher	Engineer	Technical researchers	Nuclear experts
2010	7 502	1 967	N/A	N/A
2011	7 658	2 176	N/A	N/A
2012	8 075	2 176	N/A	419
2013	8 713	2 261	N/A	457
2014	9 128	2 341	2 735	457
2015	9 308	2 332	2 705	437
2016	9 556	2 295	2 499	N/A

Source: Kemenristekdikti (2018)

first step is to align business, academia and the state. As a result, inventions already present in other sectors, such as civil society, were often overlooked (Amir and Nugroho 2013).

In terms of research downstreaming and valorisation, Ristekdikti also tried to be creative. In 2016, Ristekdikti introduced the measure of *Technology Readiness Level* (TKT) as a determinant of funding eligibility.[3] TKT serves as a measurement tool that assesses the readiness of a research project to translate into commercial entities. The introduction of this measure also indicates greater support for research projects with greater commercialisation potential. There is a preference for research that is ready to be made into prototypes, ready to be patented and can be directly applied to commercial purposes.

In this attempt, universities are considered pivotal and the central government is willing to show good faith in its higher education institutions, whilst awaiting a greater return of productivity after more than ten years of structural reforms and financial autonomy.

Translating standards into practice

Macro level

The GOI has introduced policies that push for a coherent framework in improving the nation's science ecosystem. Besides the currently finalised long-term national research master plan (RIRN) that runs until 2040, the government previously referred to National Research Agendas (ARN) developed by the National Research Council.

RIRN outlines the government's research priority sectors and the ensuing budget allocation within the upcoming periods. The document aims to serve as a research roadmap for ten sectors: food, energy, medicine, transportation, information and communication technology, defence, advanced material, maritime, disaster management, as well as social science and humanities. The agendas are set to be coordinated with national development priorities to realign scientific development with long-term economic growth. RIRN itself is being translated into concrete action plans, with the introduction of Ministerial Decree 40/2018 to enforce the programme. The decree also serves as guidance to translate the research priorities into a National Priority Plan 2017–2019.

Meso level

At an institutional level, the ministry has set its sights on operationalising further measurements of S&T development. Hence, further indicators are being developed. This includes an index on regional competitiveness (Indeks Daya Saing Daerah) that charts the capacity of provinces and districts, basically copying indicators used in the GCI and GII indices.

A core component in achieving local competitiveness, which is also an integral component of Jokowi's science development agenda, is the establishment of Science and Techno Parks (STPs). This is a fitting example of how to implement a regime's vision into a workable programme. Due to various factors, the initial target of establishing 100 STPs has hit a bump and is now revised to 66 STPs across the archipelago. Referring to the ten research areas stipulated in the Prioritas Riset Nasional (PRN) 2017–2019, it is clear that food and agriculture is the main theme of STPs to be established.

Another priority programme close to the heart of Ristekdikti officials are the Centers of Excellence[4] (COEs) that are spread throughout several regions across the country. According to Ristekdikti, the goal is to increase institutional capacity, relevance and boost productivity of innovation, especially in the industry sector. The ministry has assisted over 208 institutions spread across universities, ministerial research

institutions and industries to cultivate innovative and productive practices as can be seen in Table 4.

Table 4: Number of COEs based on institutional category

Institution	Number
Non-ministerial research institution	70
Industrial research institution	13
University research institution	48
Ministerial research institution	77
Total	**208**

Source: Kemenristekdikti (2018)

Predictably, the approach is also on increasing the number of institutions to receive assistance from the ministry. Further evaluation should be undertaken to look at the impact of COEs on increasing local economic growth and whether they contribute to establishing local innovation systems.

Having established macro agendas of research for development purposes, the government went on to tackle issues pertaining to productivity, specifically target-oriented individual improvements. The key issue for the government was how to translate targets into workable programmes or changes in practice.

Individual/micro level

While most research outputs are measured at the institutional level, it is eventually the individual who has to live up to the heightened expectations. It is the individual who has to perform and 'survive' the trappings of the neoliberal academia (Rosser 2016).

Having recognised the low performance of Indonesian scholars internationally, in 2012 the then Directorate General of Higher Education introduced a decree[5] that requires students (both undergraduate and postgraduate) and lecturers to publish in scientific journals. This was followed by a similar decree in 2015, revising the previous rule and focusing on postgraduate students only. This move was not welcomed by the academic community, given their already heavy workload in teaching and also bureaucratic management (Rakhmani 2013).

The government went on to target more senior lecturers who were deemed to be underperforming through the issuance of Research, Technology and Higher Education Ministerial Regulation No. 20/2017. Through this regulation, the government aimed to push middle-level to high-level scholars to publish in journals (specifically, SCOPUS-indexed ones) or else lose their professional allowance.[6] Similarly, lecturers who had already obtained a professorship or Guru Besar (distinguished Professor), were asked to increase their publications output, with the threat of having their professional allowance revoked.

Predictably, the ministry received a public backlash from the academic community, with many scholars writing open letters and op-eds in the media to criticise the move. One notable article written by an Indonesian scholar labelled the mindset as the 'Spectre of SCOPUS' (Mulyana 2017), referring to the government's obsession with increasing the number of publications in international journals, without first improving the quality of infrastructure and providing the necessary preconditions for scholars to be productive.

As part of the public service, lecturers in Indonesia are obliged to comply with the civil servant regulatory framework in order to advance their careers. While some financial incentives have improved over the last years, the many rules and restrictions have hampered their academic freedom and often prove to be a stumbling block in expressing their ideas and aspirations. As civil servants, mobility is restricted and pursuing a postdoctoral position abroad, for example, is officially against the rules once a tenured position at a public university has been obtained (Rakhmani and Siregar 2016; Team 2016).

This is where professional obligations become more apparent and the said 'passion' is put to the test. Junior academics, who have completed their doctorate from an overseas university, and return to an Indonesian university with a relatively respected position, are tasked with juggling between performing academic tasks, while fulfilling managerial duties within the department or faculty, with the latter occupying almost a third of the daily or weekly workload (Rakhmani and Siregar 2016).

Indonesian academics, both junior and senior, are inclined to multi-task. Given the relatively low basic income, most scholars are likely to

search for additional financial incentives (Suryadarma et al. 2011). By securing a managerial position within the university bureaucracy, an academic adds an important safety net in the form of added take-home pay. Others prefer to occupy themselves with external projects, performing consultancies or policy research that adds financial stability and builds their reputation outside the campus. A majority of social scientists surveyed between 2014 and 2015 were shown to have additional income on top of their regular salary (Rakhmani and Siregar 2016).

Conducting external research is not forbidden, although not actually encouraged. Indonesian academics are asked to adhere to the three principles of academia or *Tri Dharma Perguruan Tinggi*, namely *teaching, research, and community service*. The performance of academics is assessed annually, based on the percentage of those three components. Yet unsurprisingly, teaching is still the dominant component for many academics across regions and universities.

Writing, especially publishing in a scientific journal, seems to be a habit whose virtues are not always understood, particularly by the older generation of Indonesian academics (Rakhmani et al. 2017).[7] To many Indonesian scholars, creating impact is much easier to achieve by writing op-eds and popular articles in the national media. There is a greater sense of fulfilment in being published in a renowned national newspaper (e.g. *Kompas, Jakarta Post)* or in the popular *Prisma* journal than, for example, in the *Journal of Southeast Asian Studies* (Rakhmani et al. 2017). It is therefore no surprise that many Indonesian scholars are not even aware of their own *H-index*, as the thought of publishing in an international journal has never occurred to them (Rakhmani et al. 2017).

The challenge is now to shift the perspective from seeing writing as an obligation to seeing it as an activity that enhances critical thinking and quality improvement within academia itself. That this shift is driven by a technocratic, top-down approach only reminds Indonesian academics how they are still under the control of a government whose commanding attitude is born out of living in the times of a neoliberal spirit.

The term 'publish or perish' applies very much to the Indonesian context, and not only in the Global North, the only difference being the lack of openness in the academic community and meritocracy to embedding research excellence into its organisational culture. This 'quantity over quality' conundrum will likely become the new status quo. It is foreseeable that Indonesia will see an increase in international publications, yet many questions will remain open regarding its real impact on academic quality. Against this background, the pursuit of research excellence will most likely be a by-product of pursuing tangible research objectives, rather than of virtue. Government's push for a more outward-looking attitude is therefore not always a bad policy to have.

Research excellence

Signs of improvement

As of early 2018, Ristekdikti had important progress to proclaim. Based on the latest SCIMAGO data, the ministry highlighted the steep increase in Indonesian international publications in 2017; the number of journal articles almost doubled, especially in the field of natural science.[8] The ministry sees this as an achievement, referring to their persistence in pushing academics to produce more publications, using the stick-and-carrot approach discussed in the previous section.

According to Ristekdikti, the number of international publications has increased, especially between 2016 and 2018. According to official Ristekdikti statistics, the number of international journal articles published rose from 2.057 in 2011 to 8.091 in 2015, having quadrupled within the four years. The average rate of increase was 28.8% for each year. Hence, the general trend of publication is positive. If quantity is seen as a measure of improving the research environment, then Indonesia is doing things right. This positive trend is seen for both national and international journals, as well as conference-based proceedings. The increase in international exposure means that the amount of international cooperation has also increased. This has

enabled greater mobility of Indonesian academics (e.g. scholarships and seminar funds). The overview of this rising trend can be seen in Table 5.

In terms of infrastructure, the ministry can also claim to have improved significant aspects of the research environment. An important example here is the setting up of an integrated national publications database of journals called SINTA.

With regard to funding, the ministry has introduced a more flexible, output-based funding mechanism where research is only audited at the end of the research process, according to the pre-agreed output. This will enable easier multi-year funding that has hampered long-term research projects for many years in Indonesia, especially research institutions relying on the annual state budget. Overall, the ministry is still on track in achieving its medium-term goals, as summarised in Table 6.

Seen from a critical point of view, however, these clear-cut indicators set by the GOI do not necessarily illuminate the question of quality. The GOI has also set up national standards on education containing standards of teaching and content of curricula, but these do not reflect nor consider aspects pertaining to research excellence. What are regulated through the national standard are minimum budgetary criteria and allocated commitments for research activities.

Understanding excellence in the Indonesian context

It is fair to say that research productivity and utilisation have been key themes for the Indonesian government. Generally speaking, scholars live in a time where their research is expected to fill a performative function (Lyotard 1984). The issue of the relevance of research to wider societal development has often been highlighted by President Jokowi. Scholars are expected to ask questions of societal relevance and to conform with the common goals of national development, which in all fairness, is not too different from their role during Soeharto's *New Order*.

From a technocratic point of view, the overemphasis on research productivity and utilisation is a necessary step in achieving immediate

Table 5: Overview of journals and conferences, 2011–2015

Year	Journal				Conference			
	International journal articles	National journal accredited by Kemenristekdikti	National journal not accredited by Kemenristekdikti	Total	International conference	Regional conference	National conference	Total
2011	2 057	1 413	10 325	**13 795**	1 843	279	2 438	**4 560**
2012	3 113	1 316	11 521	**15 950**	2 160	430	3 245	**5 835**
2013	4 464	1 232	20 948	**26 644**	4 298	907	5 608	**10 813**
2014	6 459	1 330	19 845	**27 634**	5 037	1 214	6 447	**12 698**
2015	8 091	1 367	18 318	**27 776**	5 989	704	8 116	**14 809**

Source: Kemenristekdikti (2018)

Table 6: Ristekdikti performance indicators

No.	Target indicators	2015	2016	2017	2018	2019
1	Number of registered patents	1 580	1 735	1 910	2 100	2 305
2	Number of published international journal articles	5 008	6 229	7 769	9 689	12 089
3	Number of prototypes	530	632	783	930	1 081
4	Number of industry-ready prototypes	5	15	15	15	15

Source: Directorate General for Strengthening Research and Development (2016)

developmental goals. However, seen from the perspective of a pioneering researcher, the many overwhelming targets result in the feeling of a diminishing space to undertake frontier science or blue skies research. The government is also on the brink of undermining the role of social science by prioritising natural science, both in principles and practice (Rakhmani and Siregar 2016). The government should understand the virtue of doing basic research, or research in the realms of social science and humanities, science that triggers deep dialogues and is about civilisational matters. After all, research excellence is not only about the quality of one's work, but also about whether it brings about a change in paradigms (Kuhn 1996). On many fronts of societal issues, Indonesia badly needs this.

As long as targets come in the form of mere numbers, the achievement of quality will not be the main objective. The academic community is capable of achieving these targets, yet the achievement of excellence will not be inherent in the process. Local standards of quality, utilisation and excellence may also differ from advanced industrial countries and need to be considered. For example, while others are already questioning the effectiveness of peer-review mechanisms, Indonesian academia is still in the phase of firmly embedding peer-review systems into the academic culture. For many actors in academia, it is a process of habituating or of a learning process of building a critical mass to embed peer-review processes.

Conclusion

The Indonesian government has introduced several means of improving its research environment within the last two decades. Macro-level policies as well as institutional changes were introduced to achieve a coherent research ecosystem. The government has made clear that research is an important element of achieving national development targets, with science as an important pillar to contribute to long-term economic growth.

The indicators are clear-cut: economic competitiveness, multifactor productivity, the headcount of researchers, researchers-to-population ratio, gross expenditure on R&D, SCOPUS-indexed articles, citation

index, gross contribution towards GDP, and more. The measurement of quality ultimately relies on, and is partly reflected by, these numbers.

What remains to be done is finding a balanced way to achieve these measures. The government has attempted to create a productive research environment by providing the necessary infrastructure. It has also enforced a stick-and-carrot approach, largely informed by neoliberal thinking that has been prevalent in the global sciences and higher education systems. Indonesian universities are no exception to this norm as they gleefully play catch-up in the world university rankings, leaving Indonesian academics little left but to play along.

In the context of an aspiring, lower-middle-income country, research utilisation is more significant than the actual pursuit of excellence itself. For emerging economies such as Indonesia, *Hilirasi* or research valourisation is the main priority. It is seen as a key driver of innovation and is what every major policy and programme revolves around.

Against this background, research excellence should be understood as a by-product of research utilisation. In particular, international collaboration and exposure have helped to raise awareness of matters pertaining to research quality. Understanding the standards of international assessment is an effective measure of shaping 'quality' and 'excellence', which is something the academic community itself should be concerned with, rather than the technocratic, output-driven bureaucracy.

This leaves the Indonesian academia with its own internal homework, namely to build and sustain a local 'critical mass' to habituate the culture of peer review and engender merit-based academia. The challenge for Indonesian academia is to understand the rules of the game, and to incrementally own it. These are matters beyond conventional measurements, but are ingredients of excellence that can elevate the quality of research in Indonesia to enable its scholars to compete on the highest academic playing field.

Notes

1 President Joko Widodo, FRI National conference, 29 January 2016.
2 https://www.antaranews.com/berita/645751/menristekdikti-revisi-uu-sinas-iptek-wadahi-inovasi
3 Research grant recipients can continuously update and monitor the readiness level of their research through an online platform. See https://risbang.ristekdikti.go.id/layanan/tingkat-kesiapterapan-teknologi/
4 See http://pui.ristekdikti.go.id/index.php/beranda_en/profile. Accessed on 18 August 2018.
5 See Directorate General of Higher Education decree No. 152/E/T/2012 and MoRT decree Dikti No 44/2015.
6 See http://www.thejakartapost.com/news/2018/06/10/wanted-6000-new-journals-to-publish-150000-papers.html. Accessed 3 July 2018.
7 See for example the critique written by Franz Magnis Suseno and Dikti di Seberang Harapan. *Kompas*, 8 February 2012. https://edukasi.kompas.com/read/2012/02/09/08343285/Dikti.di.Seberang.Harapan. Accessed 10 November 2018.
8 See https://ristekdikti.go.id/publikasi-ilmiah-internasional-indonesia-terus-melesat-nasir-himbau-untuk-jaga-momentum/. Accessed 3 July 2018.

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