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Publications of Islamic University of Indonesia in Scopus Database: A Bibliometric Assessment

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This paper analyses publications of Islamic University of Indonesia in Scopus database. It aims to analyse the publications from number of document, author, collaborating affiliations, and comparison with other universities. Data was collected from Scopus database for the university between 2055 and 2017. The results show that university document improve continuously during research time frame. Furthermore, the results indicate that university collaboration in research is still limited to some universities having close location or having alumni as university faculty members. In comparison with other universities in Indonesia, the university is left behind and in need for further improvement. Based on the results, some suggestions can be recommended: improving faculty members' competitiveness through incentives and commitments; enhancing more research collaboration; and expanding internationalization horizon to attract more international researchers.

Keywords: *Research collaboration, Research productivity, University assessment, Higher education internationalization*

1. Introduction

Since its launching in 2004 [11], Scopus has absorbed attentions of world researchers, governments, and many other institutions. For researchers in Indonesia, Scopus has been a new topic of discussion since government policy

regarding academic position is highly related to this database. Since 2013, Ministry of National Education effectively oblige that having articles in journal indexed in Scopus or in Web of Science is compulsory before a lecture awarded professor title. Such policy is still intact until recently [9] since Indonesian researchers' achievement in international recognition is relatively lower compared to many neighboring countries.

Furthermore, Ministry of Research, Technology and Higher Education [22] initiated an assessment of Indonesian universities' research impact using Scopus database. Fifty state and private universities made the list based on documents in Scopus. The Ministry aimed high target to achieve 30.000 publications indexed in Scopus by 2019. Such effort was expected to improve national competitiveness at least in South East Asian level. The Ministry was also optimistic to achieve target considering many human resource potentials currently not fully utilized in university level.

Thus, being indexed in such database is important for a university especially in Indonesia. The country currently has more than 4.000 higher education institutions. Therefore, policy on publication with orientation to Scopus will bring more pressure and competition to universities. Islamic University of Indonesia, the oldest university in the country, has shown awareness on Scopus importance as academic quality indicator since 2012. For the first time in Rector Annual Report for university anniversary, researchers published their articles in journals indexed by Scopus were listed in the report [15]. After that, university paid more attention in motivating researchers to publish in high quality journals indexed by Scopus. Started by the fiscal year of 2015, significant amount of incentives have been provided by university to increase publications in Scopus [7].

This research is positioned as an assessment for Islamic University of Indonesia's efforts in increasing international visibility of its academia publications. Scopus database is chosen as source for bibliometrics study for its status as well known and recognized in national level policy regarding higher education institution. As an assessment, this research was aimed to evaluate characters of published articles affiliated to Islamic University of Indonesia in terms of its numbers, authors, subjects, collaborations and its comparison with other universities. Such evaluation is important to ensure that assessment will result in prospective strategies to improve university's international recognition.

2. Literature Review

Many researchers employ bibliometrics method with databases from international indexes to mine data and analyse it for several porposes. Some of them use the data for analysis in country level as well as in field of study level. Manh [20] explores Vietnamese researchers publications in Scopus in terms of collaboration with international partners, fields of collaboration, and active countries in partnership for collaboration.

Researchers also analyzed universities' publication using bibliometric for many aspects of the institutions. Many of this studies employed Scopus as database for source of data. Hanumappa, Desai, & Dora [16] analyze publication of Gujarat University during the ten-year period between 2004 and 2013. Their study covers data on type of publications,

publication trend, the most prolific authors, collaborative authorship patterns and trends, most preferred publications. Siwach & Satish Kumar [28] analyze publication of Maharshi Dayanand University, Rohtak in terms of year-wise productivity, citations impact, collaborations, subject distribution, preferred journals, prolific authors, and top cited papers.

Anil Kumar & Dora [2] analyze Indian Institute of Management Ahmedabad (IIMA)'s publication from aspects such as types of publications, most preferred journals, most prolific, authorship pattern, and the journals most cited by the researchers.

Other researchers use other databases such as Web of Science in their analysis of university publication. Baskaran [3] analysed Alagappa University's publication using Web of Science in terms of author productivity, subject, institution collaboration and ranking of authors. Markusova, Libkind, Mindeli, & Jansz [21] Russian Academy of Science (RAS) and Higher education sector (HES). Web of Science subject categories, organizations, source of publications and share of internationally collaborative papers.

Dwivedi[10] analyses Banaras Hindu University's publication during 1989-2016 using Web of Science Science Citation Index Expanded (SCIE). The research focuses on growth of publication, subject of studies, institutional collaborators, international collaboration and consitency of publication.

This paper analyzes publication of Islamic University of Indonesia in Scopus. This type of research at authors' best knowlegde has never been conducted for Indonesian higher education institution. Thus, it provided important insights to study the topic for further discussion.

3. Research Method

This research adopted quantitative research approach in the form of bibliometrics to analyze Islamic University of Indonesia documents in Scopus database. Scopus is considered as main source as suggested by previous work for its more extensive coverage than other database [30]. Collection of data was conducted in the end of November 2017 to gather data from 2005-2017. These time frames are used to analyze development in documents as well as in other available data from database.

The research utilize Scopus analyzer results for affiliation entry corresponding to Islamic University of Indonesia. The University has been indexed in Scopus database with Affiliation ID: 60103698. The data in this ID was then collected in relation to total of documents for each year, citations documents for each year, prolific authors, subjects of publication, sources of publications, most cited documents, national and international collaborating affiliations, degree of collaboration, and comparison data of other universities in Indonesia.

The university actively finds incorrect affiliations of authors from faculty members and then add it to university ID. Previously many faculty members wrote affiliations with many different names such as Universitas Islam Indonesia, Islamic University of Indonesia, Indonesian Islamic Universiy, University of Indonesian Islam, and others. Currently, the university officially recommend the usage of only two names Universitas Islam

Indonesia and Islamic University of Indonesia for future affiliation for faculty members. For this research, only documents listed under university ID are collected and analyzed.

Total documents for a specific year can be vary between times of data collection due to Scopus massive effort to improve its coverage. Thus, only latest data was considered for each year documents analysis. The data on documents was also followed by analysis on its citation as suggested by Siwach & Satish Kumar [28].

Authors were listed for being part of Islamic University of Indonesia Affiliation ID. However, documents listed for an author didn't guarantee that it belongs to the university affiliation ID. An author might conducted the research and wrote the manuscript during his or her pursuing Ph.D. in other institutions so that document associated should be listed in other institution Affiliation ID.

Subject of publications lists most subject by which authors write their papers. The data for this subject is provided by Scopus and for this research all subject is covered. However, it is important to note that a document can have more than one subject thus percentage should be considered with this idea. Sources of publication lists journal and conference proceedings based on number of documents. For this research only top twenty sources are listed and analyzed.

Most cited documents data is also provided by Scopus. The data indicated document title, author(s), year of publication, source of publication, and number of citations. For this research, additional data is included from SCIMago Journal Ranking quartiles. Sources of publication are examined based on its quartiles in SCIMago Journal Ranking to provide insight on correlation between quality of journal and citations.

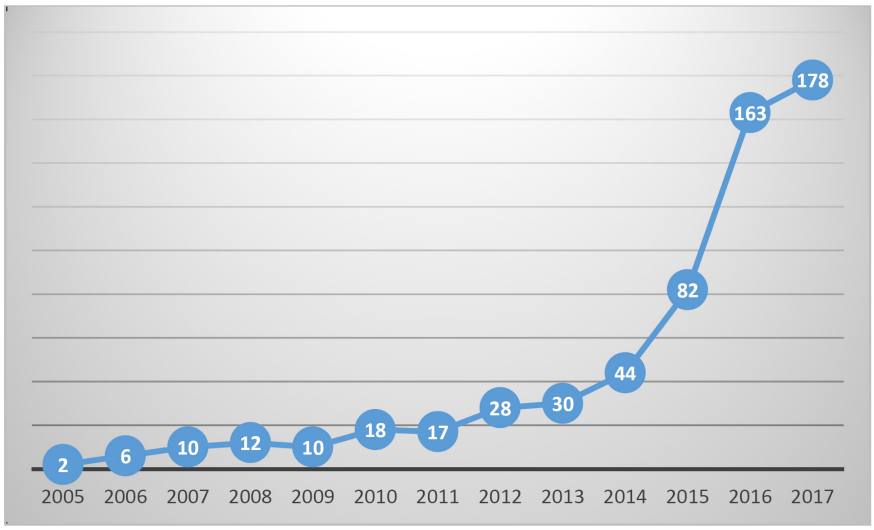
Collaboration with other institutions is analyzed in terms of national and international level following previous work by Siwach & Satish Kumar [28]. Furthermore, analysis is also conducted on trend of degree of collaboration. This degree provides tendency of authors to collaborate with others in their paper. The data was collected by counting the number of document written by single author and multiple author. Single authored documents are compared with total documents to generate degree of collaboration [3]

The research also compared Islamic University of Indonesia publications with other universities in Indonesia. Comparison data was collected through affiliation search in Scopus using keyword "Indonesia". There were many institutions made the list and only universities were collected to ensure a more relevant comparison. The data collected was then analyzed descriptively to explore some insights behind it. Analysis and discussion with previous relevant works also conducted after data description.

5. Results

Documents

In the beginning of its inclusion in 2005, only 2 documents related to Islamic University of Indonesia was listed in Scopus database. This number increased to 600 documents by 2017. This year marks thirteen years of Islamic University of Indonesia being listed in



Source: Scopus (2017)

Figure 1

Documents of Islamic University of Indonesia in Scopus, 2005-2017

Table 1

Documents of Islamic University of Indonesia and Its and Citations in Scopus, 2005-2017

No.	Year	Documents	Percent	Citation	ACPP
1	2005	2	0.33%	19	9.50
2	2006	6	1.00%	12	2.00
3	2007	10	1.67%	35	3.50
4	2008	12	2.00%	58	4.83
5	2009	10	1.67%	23	2.30
6	2010	18	3.00%	329	18.28
7	2011	17	2.83%	141	8.29
8	2012	28	4.67%	61	2.18
9	2013	30	5.00%	132	4.40
10	2014	44	7.33%	83	1.89
11	2015	82	13.67%	98	1.20
12	2016	163	27.17%	60	0.37
13	2017	178	29.67%	15	0.08
Total		600	100%	1066	1.78

Source: Scopus (2017)

Scopus. Figure 1 below depicts increasing number of documents of Islamic University of Indonesia in Scopus from 2005-2017.

The data above shows that in general the Islamic University of Indonesia publications constantly increases in Scopus. Significant improvement can be seen started in 2015 with 82 almost double compared to previous year data.

Citations to Documents

600 documents in Scopus for Islamic University of Indonesia has been cited in 1066 documents or 1.78 average citation per article (ACPP). Documents published in 2010 have largest number of citation with average 18.28 and documents published in 2017 is for the time being less cited. Table 1 below depicts papers and citation of Islamic University of Indonesia in Scopus.

Prolific Authors

There are 443 authors from Islamic University of Indonesia who have been contributing in Scopus database in 2017. The most prolific of them is I. Fatimah with 54 documents indexed, followed by F. Wahid with 30 documents. Top twenty of Islamic University of Indonesia authors are listed in the Table 2 below. Total of documents they produce is 341 documents or more than 50% of total documents all Islamic University of Indonesia authors contribute in Scopus.

Table 2

Islamic University of Indonesia's Top 20 Authors Based on Number of Documents

No.	Author	Subject	Documents	Citations	ACPP	h-index
1	Fatimah, I.	Engineering, Chemical Engineering, Physics and Astronomy	54	268	4.96	7
2	Wahid, F.	Computer Science, Social Sciences, Engineering	30	120	4.00	6
3	Saleh, C.	Engineering, Mathematics, Social Sciences	27	4	0.15	1
4	Setiawan, H.	Computer Science, Engineering, Physics and Astronomy	25	30	1.20	2
5	Chafidz, A.	Materials Science, Engineering, Chemistry	21	115	5.48	6
6	Dirgahayu, T.	Computer Science, Engineering, Decision Sciences	19	35	1.84	4

Contd...

7	Firdaus	Computer Science, Engineering, Physics and Astronomy	14	15	1.07	2
8	Hidayat, A	Engineering, Materials Science, Physics and Astronomy	13	48	3.69	4
9	Ma'mun, S.	Energy, Chemical Engineering, Materials Science	13	507	39.00	7
10	Ratna Wati, D.A.	Computer Science, Engineering, Physics and Astronomy	13	6	0.46	1
11	Amrulloh, Y.A.	Computer Science, Medicine, Engineering	12	16	1.33	3
12	Muafi	Business, Management and Accounting, Economics, Econometrics and Finance, Engineering	12	10	0.83	3
13	Muhimmah, I.	Computer Science, Engineering , Materials Science	12	28	2.33	3
14	Purnomo, M.R.A.	Engineering, Computer Science, Materials Science	12	9	0.75	2
15	Sari, A.D.	Engineering, Computer Science , Materials Science	12	2	0.17	1
16	Yuwono, T.	Computer Science, Physics and Astronomy , Engineering	12	14	1.17	2
17	Suryoputro, M.R.	Engineering, Materials Science , Computer Science	11	2	0.18	1
18	Feriyanto, N.	Business, Management and Accounting, Social Sciences , Engineering	10	2	0.20	1
19	Yudha, Septian Perwira	Engineering, Physics and Astronomy , Chemistry	10	0	0.00	0
20	Hakim, R.F.	Computer Science, Mathematics , Physics and Astronomy	9	6	0.67	2

Source: Scopus (2017)

Considering many faculty members has only small number of document or even without any documents listed in Scopus, the data above suggests important message for inequality in faculty members quality of publications. Some faculty members seem to have

Table 3

Islamic University of Indonesia's Documents in Scopus Based on Subjects

Subject	Documents	Percent	Citation	ACPP	h-index
Engineering	237	22.42%	170	0.717	4
Computer Science	172	16.27%	186	1.081	6
Materials Science	85	8.04%	31	0.365	2
Physics and Astronomy	74	7.00%	8	0.108	2
Business, Management and Accounting	70	6.62%	76	1.086	5
Social Sciences	69	6.53%	60	0.870	4
Mathematics	55	5.20%	58	1.055	4
Energy	38	3.60%	31	0.816	3
Economics, Econometrics and Finance	37	3.50%	50	1.351	3
Medicine	36	3.41%	52	1.444	4
Chemistry	35	3.31%	206	5.886	9
Environmental Science	33	3.12%	48	1.455	3
Decision Sciences	24	2.27%	23	0.958	3
Chemical Engineering	19	1.80%	103	5.421	4
Pharmacology, Toxicology and Pharmaceutics	15	1.42%	24	1.600	1
Agricultural and Biological Sciences	14	1.32%	13	0.929	2
Earth and Planetary Sciences	13	1.23%	151	11.615	4
Biochemistry, Genetics and Molecular Biology	9	0.85%	26	2.889	2
Multidisciplinary	9	0.85%	31	3.444	4
Arts and Humanities	8	0.76%	14	1.750	2
Psychology	2	0.19%	186	93.000	1
Health Professions	1	0.09%	1	1.000	1
Immunology and Microbiology	1	0.09%	0	0.000	0
Nursing	1	0.09%	0	0.000	0

Source: Scopus (2017).

been familiar with international publishing so that produce many articles continuously. While others need more attention and improvement in training for such publishing.

Subject of Publications

Based on subject of publications, Engineering is ranked as the most indexed by Scopus with 237 documents or about 22.42%. Second most indexed subject is Computer Science with 172 documents or 16.27%. Other top ten subjects are Materials Science, Physics

Table 4

Islamic University of Indonesia's Documents in Scopus Based on Sources of Publication

No.	Source	Documents
1	IOP Conference Series Materials Science And Engineering	64
2	AIP Conference Proceedings	41
3	Advanced Science Letters	20
4	Journal Of Engineering And Applied Sciences	11
5	Journal Of Physics Conference Series	10
6	Procedia Engineering	10
7	Lecture Notes In Computer Science Including Subseries Lecture Notes In Artificial Intelligence And Lecture Notes In Bioinformatics	9
8	Proceedings 2015 International Conference On Science And Technology Ticst 2015	9
9	Bangladesh Journal Of Medical Science	8
10	Proceedings ICWT 2016 2nd International Conference On Wireless And Telematics 2016	8
11	Asian Journal Of Chemistry	7
12	Advances In Intelligent Systems And Computing	6
13	International Journal Of Applied Business And Economic Research	6
14	Advanced Materials Research	5
15	Applied Clay Science	5
16	ARPN Journal Of Engineering And Applied Sciences	5
17	Energy Procedia	5
18	Indonesian Journal Of Chemistry	5
19	Proceedings Of The 29th International Business Information Management Association Conference Education Excellence And Innovation Management Through Vision 2020 From Regional Development Sustainability To Global Economic Growth	5
20	Electronic Journal Of Geotechnical Engineering	4

Source: Scopus (2017).

and Astronomy, Social Sciences, Business, Management and Accounting, Social Sciences, Mathematics, Energy, Economics, Econometrics and Finance, and Medicine. Table 3 below illustrates Islamic University of Indonesia's documents based on its type of subjects in Scopus.

The results above reflects domination of natural sciences over social sciences in Islamic University of Indonesia publications. Subjects such engineering, computer science, materials science, physics and astronomy, social sciences, business, management and accounting, mathematics, medicine, economics, econometrics and finance, chemistry, energy and environmental science contribute more than subjects such social sciences, business, management and accounting, economics, econometrics and finance, multidisciplinary, and arts and humanities.

Sources of Publication

Source of publication reflects trend in journal or conference proceeding that authors publish their papers. Based on Scopus data, IOP Conference Series Materials Science and Engineering and AIP Conference Proceedings are main source of publication by authors of Islamic University of Indonesia. Table 4 below details top twenty sources of publication in Scopus by by authors of Islamic University of Indonesia.

The data is consistent with previous finding in subject of publication. Engineering, Computer Science, and Materials as main subject are also represented by sources of publication. This result strengthen previous finding that natural sciences contribute significantly in publication of Islamic University of Indonesia.

Most Cited Documents

Documents published by authors of Islamic University of Indonesia have been cited by many other authors and for document level, top citation is described in Table 5 below. Document entitled "The attractive female body weight and female body dissatisfaction in 26 countries across 10 world regions: Results of the international body project I" is most cited with 186 citation in Scopus. The document is a result of collaborative work by authors around the world in which an author from Islamic University of Indonesia join the team research.

Table 5

Most Cited Documents of Islamic University of Indonesia Documents in Scopus

No.	Document title	Authors	Year	Source	Cited by	SCIMago JR Quartiles
1	The attractive female body weight and female body dissatisfaction in 26 countries across 10 world regions: Results of the international body project I	Swami, V., et.al.	2010	Personality and Social Psychology Bulletin	186	Social Psychology (Q1)
2	ZnO/montmorillonite for photocatalytic and photochemical degradation of methylene blue	Fatimah, I., Wang, S., Wulandari, D.	2011	Applied Clay Science	86	Geochemistry and Petrology (Q2) & Geology (Q1)
3	Photocatalytic generation of sulphate and hydroxyl radicals using zinc oxide under low-power UV to oxidise phenolic contaminants in wastewater	Shukla, P., Fatimah, I., Wang, S., Ang, H.M., Tadé, M.O.	2010	Catalysis Today	55	Catalysis (Q2) & Chemistry (miscellaneous) (Q1)
4	E-government challenges and the role of political leadership in Indonesia: The case of Sragen	Furuholt, B., Wahid, F.	2008	Proceedings of the Annual Hawaii International Conference on System Sciences	40	Engineering (miscellaneous)
5	Adsorption of anionic dyes in aqueous solution using chemically modified barley straw	Ibrahim, S., Fatimah, I., Ang, H.-M., Wang, S.	2010	Water Science and Technology	31	Environmental Engineering (Q2) & Water Science and Technology (Q2)
6	Composites of TiO2-aluminum pillared montmorillonite: Synthesis, characterization and photocatalytic degradation of methylene blue	Fatimah, I., Wang, S., Narsito, Wijaya, K.	2010	Applied Clay Science	26	Geochemistry and Petrology (Q2) & Geology (Q1)
7	Textile industries wastewater treatment by electrochemical oxidation technique using metal plate	Nordin, N., Amir, S.F.M., Riyanto, Othman, M.R.	2013	International Journal of Electrochemical Science	25	Electrochemistry (Q3)
8	Aluminum drinking water treatment residuals (Al-WTRs) as an entrapping zone for lead in soil by electrokinetic remediation	Putra, R.S., Tanaka, S.	2011	Separation and Purification Technology	22	Analytical Chemistry (Q1) & Filtration and Separation (Q2)

Contd...

9	A comparison of sesquiterpene scaffolds across different populations of the tropical marine sponge Acanthella cavernosa	Jumaryatno, P., et.al.	2007	Journal of Natural Products	19	Molecular Medicine (Q2), Analytical Chemistry (Q1), Organic Chemistry (Q1), Complementary and Alternative Medicine (Q1), Drug Discovery (Q1), Pharmaceutical Science (Q1), & Pharmacology (Q1)
10	Information flows and adaptation in Tanzanian cottage industries	Kristiansen, S., Kimeme, J., Mbwambo, A., Wahid, F.	2005	Entrepreneurship and Regional Development	19	Business and International Management (Q1) & Economics and Econometrics (Q1)
11	Determination of key components and adsorption capacity of a low cost adsorbent based on sludge of drinking water treatment plant to adsorb cadmium ion in water	Siswoyo, E., Mihara, Y., Tanaka, S.	2014	Applied Clay Science	16	Geochemistry and Petrology (Q2) & Geology (Q1)
12	Preparation of cetyltrimethylammonium intercalated Indonesian montmorillonite for adsorption of toluene	Fatimah, I., Huda, T.	2013	Applied Clay Science	16	Geochemistry and Petrology (Q2) & Geology (Q1)
13	Application of EAPR system on the removal of lead from sandy soil and uptake by Kentucky bluegrass (Poa pratensis L.)	Putra, R.S., Ohkawa, Y., Tanaka, S.	2013	Separation and Purification Technology	16	Analytical Chemistry (Q1) & Filtration and Separation (Q2)
14	Preparation and characterization of nano size NiOOH by direct electrochemical oxidation of nickel plate	Hamdan, M.S., Riyanto, Othman, M.R.	2013	International Journal of Electrochemical Science	12	Electrochemistry (Q3)
15	Comparison of activated carbons prepared from indonesian forest and agricultural residues	Hidayat, A., Rochmadi, Wijaya, K., Hinode, H., Budiman, A.	2013	Asian Journal of Chemistry	12	Chemistry (miscellaneous) (Q4)

Contd...

16	Isocyanates in marine sponges: Axisocyanate-3, a new sesquiterpene from Acanthella cavernosa	Jumaryatno, P., Rands-Trevor, K., Blanchfield, J.T., Garsona, M.J.	2007	Arkivoc	12	Organic Chemistry (Q4)
17	Esterification of Palm Fatty Acid Distillate with High Amount of Free Fatty Acids Using Coconut Shell Char Based Catalyst	Hidayat, A., et.al.	2015	Energy Procedia	11	Energy (miscellaneous)
18	Gaming or gaining? Comparing the use of Internet cafés in Indonesia and Tanzania	Furuholt, B., Kristiansen, S., Wahid, F.	2008	International Information and Library Review	11	E-learning (Q3) & Library and Information Sciences (Q3)
19	The current state of research on eGovernment in developing countries: A literature review	Wahid, F.	2012	Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)	10	Computer Science (miscellaneous) (Q3) & Theoretical Computer Science (Q2)
20	Modelling the interactions across international stock, bond and foreign exchange markets	Hakim, A., McAleer, M.	2010	Applied Economics	10	Economics and Econometrics (Q2)

Source: Scopus and SCIMago Journal Ranking (2017).

The data in table also describes source of publication and SCIMago Journal Ranking. Based on the citation, it can be concluded that most cited documents tends to be written in journals with high citation which in the case of SCIMago Journal Rankings can be categorized by Q1 and Q2. In general, most documents are written in top quartiles of its subjects. The data also confirm trend of dominance by natural sciences in contribution to Islamic University of Indonesia.

National and International Collaboration

During their research and publication processes, Islamic University of Indonesia authors collaborate and interact with other researchers around the world. These processes can be reflected in collaborating affiliations indexed by Scopus for Islamic University of Indonesia's documents. Collaborating affiliations by which their researchers work together with Islamic University of Indonesia academia in Scopus database are Universitas Gadjah Mada (Indonesia), Universiti Kebangsaan Malaysia, and University of Agder (Norway) as the top three institutions. Collaboration with Indonesian institutions yields 111 documents which mean national collaboration is still main target for authors. As for foreign countries, Malaysia tops the ranking with 60 documents followed by Australia with 28 documents. A more detail data can be viewed in Table 6 below.

Table 6

Islamic University of Indonesia's Top 20 Collaborating Affiliations in Scopus Based on Country and Number of Documents

No.	Affiliation name	Country	Documents
1	Gadjah Mada University	Indonesia	81
2	Universiti Kebangsaan Malaysia	Malaysia	31
3	University of Agder	Norway	17
4	Curtin University	Australia	11
5	University of Queensland	Australia	9
6	Universitas Muhammadiyah Yogyakarta	Indonesia	9
7	Universiti Teknikal Malaysia Melaka	Malaysia	8
8	International Islamic University Malaysia	Malaysia	7
9	University of Malaya	Malaysia	6
10	Institut Teknologi Sepuluh Nopember	Indonesia	6
11	Universitas Sebelas Maret	Indonesia	5
12	Universitas Ahmad Dahlan	Indonesia	5
13	Universitas Pembangunan Nasional Veteran Yogyakarta	Indonesia	5
14	Universiti Teknologi Petronas	Malaysia	4
15	La Trobe University	Australia	4
16	Kyoto University	Japan	4
17	Hokkaido University	Japan	4
18	Queensland Museum	Australia	4
19	Universiti Teknologi Malaysia	Malaysia	4
20	University of Western Australia	Australia	4

Source: Scopus (2017)

The data indicates that most institutions affiliated with Islamic University of Indonesia came from local or near universities in region. Collaboration with Gadjah Mada University results largest number of document, followed by universities in Malaysia dan Australia. Gadjah Mada University is a state university where many researchers in Islamic University of Indonesia graduated from. Since many academic staffs take master or doctoral degrees in Malaysia and Australia, it became clear that two collaboration with universities in two countries provide excellent results. Many universities in the countries are also partners for networking and research is among main issues dealt in memorandum of understanding between parties.

Table 7

Degree of Collaboration in Documents of Islamic University of Indonesia in Scopus, 2005-2017

No	Year	Single authored	Multi authored	Total	Degree of Collaboration
1	2005	1	1	2	0.50
2	2006	0	6	6	1.00
3	2007	1	9	10	0.90
4	2008	3	9	12	0.75
5	2009	2	8	10	0.80
6	2010	2	16	18	0.89
7	2011	3	14	17	0.82
8	2012	7	21	28	0.75
9	2013	6	24	30	0.80
10	2014	5	39	44	0.89
11	2015	17	65	82	0.79
12	2016	26	137	163	0.84
13	2017	30	148	178	0.83
Total		103	497	600	0.81

Source: Scopus (2017)

Degree of Collaboration

Trend in national and international collaboration can also be seen from degree of collaboration. Authors of Islamic University of Indonesia tend to collaborate in publishing their papers. The data in Table 7 below describes degree of collaboration between 2005-2017. Degree of collaboration is relatively high and stable with average 0.81.

Comparison with Universities in Indonesia

Although it has many documents indexed in Scopus, and the number continuously grows, Islamic University of Indonesia still has to improve its publication quantity. In national level, Islamic University of Indonesia is left behind compared to other universities in Indonesia mainly large state-owned ones. Based on the number of documents indexed by Scopus in 2017, Islamic University of Indonesia is ranked 20 among Indonesian universities. Table 8 summarizes top thirty universities in Indonesia based on their Scopus documents between 2008-2017.

Table 8

Top 30 Universities in Indonesia Based on Number of Documents in Scopus, 2008-2017

No	Institution	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total	2008-2012 Average	2013-2017 Average
1	Bandung Institute of Technology	196	321	336	576	607	701	962	1017	1395	1292	8,699	407.20	1073.40
2	University of Indonesia	200	240	255	375	465	592	577	707	1077	1699	8,182	307.00	930.40
3	Gadjah Mada University	113	159	220	269	315	406	485	549	1058	936	5,304	215.20	686.80
4	Bogor Agricultural University	77	82	174	173	186	260	346	474	608	614	3,628	138.40	460.40
5	Sepuluh Nopember Institute of Technology	36	108	78	148	139	229	276	402	556	671	2,805	101.80	426.80
6	Diponegoro University	35	54	68	67	90	113	148	228	393	814	2,272	62.80	339.20
7	Brawijaya University	22	25	39	86	81	140	262	335	380	347	1,863	50.60	292.80
8	Padjadjaran University	23	48	62	57	87	140	132	219	320	373	1,737	55.40	236.80
9	Airlangga University	35	32	48	48	74	87	110	125	232	370	1,473	47.40	184.80
10	Hasanuddin University	33	34	39	55	74	123	160	175	230	278	1,451	47.00	193.20
11	Sebelas Maret University	8	22	23	20	28	82	155	143	414	506	1,431	20.20	260.00
12	Bina Nusantara University	3	2	25	26	71	83	214	294	236	348	1,315	25.40	235.00
13	Andalas University	21	32	59	44	41	74	113	210	301	220	1,271	39.40	183.60
14	Syiah Kuala University	18	31	41	66	69	77	102	147	144	206	990	45.00	135.20
15	North Sumatera University	7	13	17	22	28	39	63	103	187	320	954	17.40	142.40
16	Indonesia University of Education	5	0	14	13	19	40	48	53	259	452	924	10.20	170.40

Contd...

17	Telkom University	0	8	9	19	27	54	96	169	244	270	898	12.60	166.60
18	Udayana University	21	22	65	45	51	63	85	91	123	127	883	40.80	97.80
19	Sriwijaya University	10	15	21	25	30	57	76	84	97	140	628	20.20	90.80
20	Islamic University of Indonesia	12	10	18	17	28	30	44	82	163	178	600	17.00	99.40
21	Lampung University	13	17	33	30	34	37	44	52	84	109	550	25.40	65.20
22	Riau University	13	23	34	25	39	52	36	65	62	99	481	26.80	62.80
23	State University of Malang	2	3	6	9	9	17	24	39	121	173	464	5.80	74.80
24	Sam Ratulangi University	12	8	12	19	19	31	37	45	55	71	402	14.00	47.80
25	University of Jenderal Soedirman	5	8	19	11	25	25	42	45	72	97	388	13.60	56.20
26	Petra Christian University	12	17	18	21	12	29	42	56	63	43	367	16.00	46.60
27	University of Jember	14	11	7	17	15	28	26	45	50	96	359	12.80	49.00
28	Universitas Negeri Semarang	2	0	10	9	13	13	18	22	102	144	341	6.80	59.80
29	State Islamic University Syarif Hidayatullah Jakarta	2	5	15	20	20	29	58	45	72	58	335	12.40	52.40
30	Ahmad Dahlan University	1	6	31	24	10	19	24	41	69	69	306	14.40	44.40

Source: Scopus (2017)

As the table shows, top ten Indonesia universities based on documents indexed by Scopus are Bandung Institute of Technology, University of Indonesia, Gadjah Mada University, Bogor Agricultural University, Sepuluh Nopember Institute of Technology, Diponegoro University, Brawijaya University, Padjadjaran University, Airlangga University, and Hasanuddin University. The presence of these universities in the top of the list was not a surprise since these institutions was state-owned and government supports to become world-class universities. Being state-owned university bring comparative advantages in the form of society favor and government support. Having these two factors make many state-owned universities more sustain and well prepared to compete in international publication.

The data above also shows the average publication by universities in two different tima frames: 2008-2012 and 2013-2017. On average documents produced in 2013-2017 in higher than in 2008-2012. Some universities even produced double, triple and quadruple publications after 2012. All universities tend to increase their averaged annual publication in the last five years compared previous years. It can be a good indication that government intention to improve Indonesia publication in Scopus is followed by universities in Indonesia.

Dynamics and competition among Indonesian universities in Scopus is dominated by state-owned universities. Most of top thirty universities are famous and large state-universities in Indonesia with relatively stable in ranking. Only few private universities can make their names in the list such as Bina Nusantara University (12), Islamic University of Indonesia (20), Petra Christian University (26), and Ahmad Dahlan University (30).

6. Discussion

Data and results above reflects that Islamic University of Indonesia need to improve its international publication from both quality and quantity perspective. With more than 700 active faculty members, current university total documents in Scopus reflect relatively low productivity of researchers. This may lead to less ranking for university if an immediate effort is not conducted. Thus, improving faculty members' performance is crucial for the university to maintain its competitiveness and international recognition. According to Jing & Zhang [18], normative and ideal organizational commitments could improve performance and effectiveness of faculty member in a study with China background. However, they also noted that economic commitment didn't relate significantly to performance and effectiveness. Furthermore, Hu & Grill [17] also found that time dedicated for research and the presence of relevant doctoral program were significant factors to productivity among information system faculty members. Other notable mention of research result also indicated that too long hours of teaching could reduce research productivity.

Islamic University of Indonesia has implemented many endeavors to improve research performance of its faculty members. Providing sufficient funding for research is one its initial efforts. The university provides opportunities for faculty member to access fund for several stages of research based on their academic achievement and requirements. The stages by which faculty member can pursue through research process can be categorized

from initial research for early member, fundamental research for advanced members and international research funding scheme provided to enhance international collaboration. Incentives for published articles in Scopus has also been introduced in the last two years. This policy can be argued as main indicator for fast increasing documents in recent years. Although funding as economic commitment should not be viewed as important factor according to Jing & Zhang [18], the university experience shows significant result from policies related to financial incentives.

In term of available time for research, Islamic University of Indonesia needs to pay more attention considering teaching is still main activities for many faculty members. Many faculty members also view teaching as core of competence they need to improve that make research second priority in their campus life. Furthermore, student body is dominated by undergraduate students that make internationalization of university through research productivity more challenging. However, the university has tried some efforts in dealing this circumstance. For instance, introducing online classes as alternative for classical activities. Current policy allows faculty members to use approximately 30% of all classical activities to be changed to online classes. This extra 30% of class meeting can be very useful for faculty members to improve their research time as noted by Hu & Grill [17] for better quality in university productivity.

In relation to relatively low publication in social sciences and art and humanities, Nederhof [24] pointed trend that these subjects need more indicators in comparison with its counterparts. There were also a trend of publishing in local language which make sense since many content of the study in the field might be well understood in local context. Furthermore it is commonly understood that impact factor of social sciences and art and humanities tends to be lower than of natural sciences in general. Thus, specific treatment for faculty members in the fields of social sciences and art and humanities need to be considered. Based on Scopus database, research in social sciences and art and humanities tends to be published in books rather than in journals and conferences [26]. This trend suggests importance of specific policy to guide faculty members to focus their research for publication in international book publishers.

Other results of this study also indicate low achievement in international research collaboration. Islamic University of Indonesia has started international collaboration in the form of memorandum of understanding signing for more than two decades. Some important results of this collaboration are in the form of student exchanges, cultural center initiative and other activities. Many faculty members also get academic benefit in the form of staff exchange, guess lecture and others. However, impact of this collaboration in research and publication related seems to be limited. The university needs to enhance more effort to handle this problem.

Many researchers had identified factors that potentially improve collaboration in research especially in developing countries. According to Frame & Carpenter [14], more author collaborations were found in basic sciences compared to others. Non-scientific factors also play important role in collaboration such as geography, politics, and language. Furthermore, Benatar [5] suggested commitment to ethical issues in medical and health

research might be key point in international collaboration. Emanuel, Wendler, Killen, & Grady [12] also suggest many benchmarks that can be implemented to ensure more multinational research for clinical issues, including social value, scientific validity and independent review. Other factors such as collaboration and technology readiness, and leadership can also improve collaboration quality [6].

For Islamic University of Indonesia, focus on basic sciences and ethics can be important aspects to be considered to gain more international collaborators in research and publication. The university has introduced six main aspects in its institutional research roadmap and mainly focused on local capacity. This roadmap can optimized in gaining more attention from other researchers in the world. However, some problem can be traced such as limitation of possible networking to only universities listed in top 500 THE university rankings. This limitation may reduce potential collaboration from new and growing universities since such institutions are in need of international recognition. Furthermore, according to Kim [19], there was a trend in increasing symmetrical research collaboration in the international context. In a symmetrical research collaboration, scientists from many different countries conduct research project in a "more or less equivalent manner". This implies quality of researchers will be main attractive attribute for collaboration and limiting potential partners to top universities will simply decrease potential co-authorships.

Other intriguing finding in this study is the fact that publication of Islamic University of Indonesia is left far behind many other universities. Publication should be addressed as impact of long and large academic process from teaching, research and other related policy. Considering the university competitiveness in publication might open for many room for debate about its main factors. However, it will be fair to suggest that the university need a holistic assessment in its academic master plan especially in internationalization. Many universities listed above the university gains many advantages in Scopus publications due to expanding efforts in internationalization of higher education by providing spaces for foreign students and researchers to contribute. The university might take the others' experiences in this matter.

Researchers have paid attentions on significant factor for internationalization of higher education to succeed. Many factors can contribute such as quality assurance [4], government educational policy reform [29], international-friendly environments [27], credit accumulation and transfer system in region [1], competitive curriculum [25], positioning strategy and branding [23]. For Islamic University of Indonesia, some efforts has been made in quality assurance and information technology as its main core pioneering endeavor [8] along with curriculum improvements. The university and other higher education institutions also follow government vision on world-class university by engaging in many relevant international standards such as university rankings, international quality assurance and others. Such efforts should always be maintained by the university and enhanced in the future to ensure internationalization process work properly and as its impact, university publications continuously grow.

7. Conclusion

Islamic University of Indonesia has been indexed in Scopus database since 2005 and its number of documents increases continuously until recently. The growth of document also significantly increase in the last five years. Authors affiliated to university in Scopus also increase but with a trend to centered among few prominent authors. Publications in social sciences and art and humanities are also left behind ones in natural sciences and technologies. The universities has collaborate with many institutions for research but up to this point the numbers are limited to close universities in location or to universities where many faculty members are graduated from. University is left when compared to other universities especially state-owned universities and need to improve some strategies to gain competitive achievements in the future.

The research finds important suggestions that can be implemented to improve Islamic University of Indonesia publications. Creating a more encouraging environments for faculty members is most important to optimize their potential in publishing. Such environments can be realized by balancing teaching and research activities, improving institutional commitments and rewarding more relevant incentives for faculty members. The university needs also to focus more on its efforts in internationalization by expanding previous activities not only in term of students and staffs exchange but also research collaboration. To do so, a more solid background for research ethics should be developed in the form of specific body in the university.

This research is a basic work to analyze university publication in Scopus database which based on authors knowledge has never been conducted for Indonesian context. It provides solid background for future research in the field especially using Scopus as bibliometrics assessment. Scopus database is proven to be powerful and reliable for such study. However, some limitations should also be acknowledged from this research which can be addressed in further works. Such limitations include: using only Scopus database and not include others like Google Scholar, Web of Science, DOAJ and relevant databases; comparing only other universities documents not including its policies regarding publications; and dealing limited discussion with government policies in internationalization of higher education in Indonesia.

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