

# Chapter 4

## The Struggle of Open Access Publishing: The Indonesian Perspective

**Ida Fajar Priyanto**

*Gadjah Mada University, Indonesia*

### **ABSTRACT**

*Open access (OA) publishing has been in existence for almost 30 years. The development is not without barriers. So much effort has been needed to develop OA publishing, including OA books, OA repositories, OA journals, and open data repositories. Indonesia has been experiencing growth in OA publishing, especially in the last 10 years. To realize OA publishing requires much effort. Lack of understanding of OA, lack of OA policy, and contrasting views of OA have resulted in weak recognition of OA publishing. Further and more efforts are needed.*

### **INTRODUCTION**

The year of 1665 marked the beginning of scholarly communication with the introduction of a journal publication entitled Philosophical Transactions of the Royal Society. This was believed to be the first journal publication that applied peer-reviewing before publishing it. From that year, science has grown faster and scientists have shared their research findings more easily. Scholarly and scientific communication is an important part of academic life that plays a role in a system that creates, evaluates, disseminates, preserves, and reshapes new knowledge (Academic and Research Libraries (ARL), 2007; Cullen & Chawner, 2011; Kumar et al., 2011; Sawant, 2012).

However, since then, science has two different sides, one side is in the research itself within the academic and scientific world and the other is the commercial world of publishing research. Publishing has been a practice of business in the scientific world for many years.

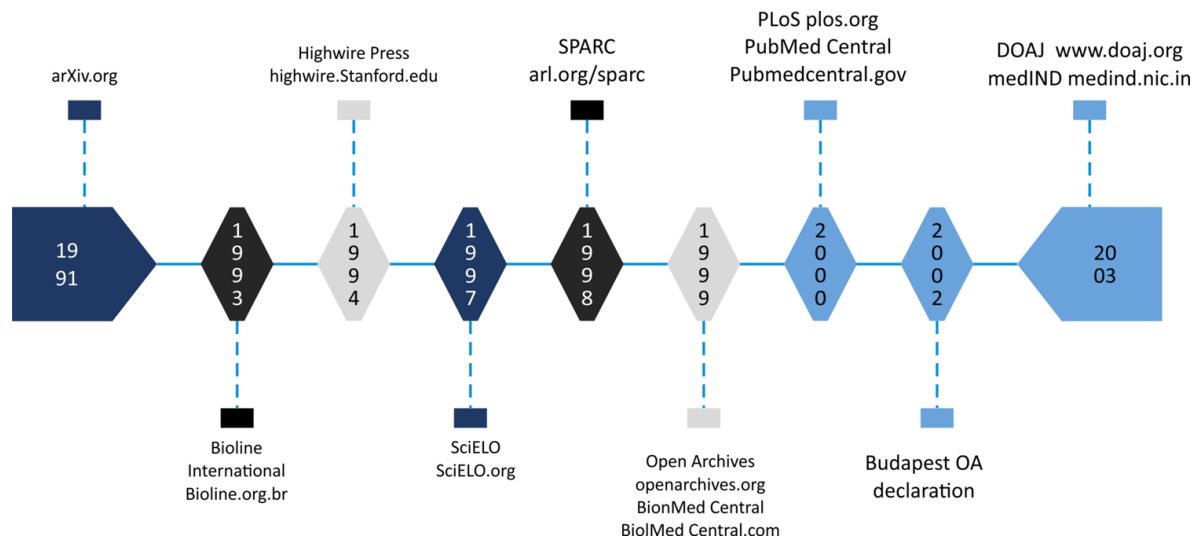
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The research within higher education institutions are purely for the benefit of humankind and they are not-for-profit activities. Meanwhile, the commercial side of research focuses on financial profit. This commercial part causes the rich countries can develop science better as they find no difficulties in getting access to scholarly and scientific publications; while the poor cannot afford to get access to the scientific resources. The awareness of this access divide has existed at least in the last few decades and the idea of opening access to scientific resources for anyone resulted in the Open Access Movement.

In practice, Open Access (OA) is believed to begin in the mid-1990s when Arxiv began uploading full-text articles on the Internet, although actually the effort has been done some years earlier. Parang and Sanders (1994) also mentioned that experiments in launching digital publications had actually taken place in the 1980s but were unsuccessful as the technology could not support it. Meanwhile, Papalardo, et al. (2007) emphasize the OA realization made a real progress in the 1990s with “the launch of several databases and free online peer reviewed journals” (2007, p. 1). Figure 1 shows the OA timeline in the early stages.

The success of OA publishing in the 1990s was then followed by the OA declarations. The 3Bs (Budapest, Bethesda, and Berlin) declarations are considered as the biggest international declarations of OA Movement. Other similar declarations have also been held in various countries; while the academic

Figure 1. Timeline of open access initiatives. Adapted from Folder of International Seminar on Open Access for Developing Countries, by BIREME.



and other institutions started to provide online access to their research results especially after the 3B declarations.

The Budapest Open Access Initiative (2002) defines OA as

*The free availability of articles on the public Internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as*

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*data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself (para 3).*

The Bethesda Declaration of Open Access (2003) emphasizes the definition of OA by proposing two conditions of publications as follows:

1. The author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship (para 5).
2. *A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one online repository (para 6).*

The Berlin Declaration of Open Access (2003) indeed encourages research findings to be published “according to the principles of open access” (para 10). Budapest Open Access Initiative reconfirmed the definition of OA later in 2012 as:

*Free availability on the public Internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself (2012, para 9).*

Since 2003 the OA movement has grown steadily with higher education and research institutions began opening access to their repositories. Another new movement emerged in 2020 as UK and European Union also started their OA for the research funded by the governments in Europe and foundations like Wellcome, a charitable foundation in the UK. requires researchers to have their research reports available for public. This is another good initiative from both the UK and EU.

This global movement of OA has helped people to get access to current information sources, especially scientific papers (Civallero & Plaza, 2008). The ease of access enables scholarly and scientific communication grow faster and therefore science and education can develop better for the benefit of all. Research are conducted for the benefit of humankind. In addition, OA publications can eliminate the access divide (Sawant, 2012), because OA can help people to get access to scholarly works (Gul et al., 2008) without any restriction of both copyright and licensing (Suber, 2012, p. 4). In addition, the Budapest Open Access Initiative (2012) considers OA movement as a way to “accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich” (para 3).

## **BENEFIT OF OA**

Research published in the open OA format is beneficial because it is available for anyone across the globe, at any time, so that they can get information for their research and increase their knowledge; while the authors will be recognized for their hard works. There are also other benefits of OA for both the researchers and users.

1. Greater visibility  
Publishing OA research papers can increase the researchers' visibility worldwide. Readers will recognize the authors and may use their research papers for further research that in the long run, knowledge will develop further and this means that the researchers contribute to the development of science. In other words, both researchers and their research papers are more visible through OA publishing because they are accessible anywhere and at any time.
2. Developing interdisciplinary science  
The ease of access to OA publications means that researchers from any discipline may be able to read OA publications. This means that a researcher from one discipline can learn research papers written by other researchers on the same subject but from different discipline. When researchers read research papers from different discipline, they will find different perspective and may collaborate and do research on the same subject due to their similar interest. Therefore, OA may result in increasing interdisciplinarity among researchers from various disciplines.
3. Geographically wider collaboration  
With the availability of Internet, OA publishing may have geographically wider readers as long as they can understand the language. Collaboration among scholars across the world is enabled with the OA publications. OA will bring scholars to know one another and they may collaborate to do further research both in the same discipline and inter-discipline.
4. Increasing the impact of research  
Making research papers available for free for just anyone—scholars, researchers, faculty, students, and public in general will help people understand the issues in various subjects that may be useful and important. In other words, when people in general can get research papers, they may learn from the experts. In addition, when a funding organization finds an important and interesting research paper, they may support the researchers to do further research.
5. Usage of research  
Research data put in the OA repository will enable further research conducted by other researchers and there will probably be more findings. Meanwhile research papers published as OA will also help governments and stakeholders to make decisions faster. There are benefits of using OA research.

## **BUSINESS MODEL OF OA PUBLICATIONS**

In the beginning of OA publications, there were only articles of journal publications available online and free but now OA comes in various types. Besides OA journals, there are also Open Monographs, Open Conferences, Open Educational Resources, OA repositories, OA Thesis and Dissertations, and Open Data. OA research data repositories is the latest development.

The varied OA business models welcome readers to get knowledge for free. OA publications have been so beneficial and important for students, faculty, researchers, and even decision makers and people in general. Open Monographs provide readers with free books. Readers may download and read OA books that have the same quality as the commercial ones. This model of book publications has a big number of readership and it helps readers who cannot afford to buy books to get knowledge. In relation to OA monographs, there are also Open Educational Resources where readers can also learn any subject of interest and gain knowledge without attending courses in any university. Meanwhile, in order to get

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knowledge from current research, readers may go to OA journals available from academic institutions and OA publishers. It is interesting to note that nowadays, commercial publishers also share up to 10 per cent of their journal articles for free, as a result of OA movements. To get the research results in various subjects, readers can also go to OA repositories including OA thesis and dissertations. When readers want to continue research on the same subject of interest, they may get data from OA data repositories.

## **OA APPROACHES**

In providing publications, OA has several approaches. OA does not mean that everything is accessible directly after submission or uploading of materials. There are several approaches of OA.

1. Gold OA means that the publications are accessible right after they are published. This is possible because there is funding for publishing OA materials;
2. Green OA contains various materials including preprints, manuscripts, and other publications that comply with legal framework or copyright. Some institutions also consider thesis and dissertations as green OA and part of their institutional repositories;
3. hybrid OA is available as both OA publications from the institutions and at the same time, it is also accessible from any commercial database vendors. Dissertations from American universities are available in this approach. Readers can access dissertations from the universities for free, but they must pay to get the dissertations from a database vendor;
4. Delayed OA means that for a specific period of time, the publications are not free, for a certain period of time, for example for 3 or 6 months after publication. Readers must purchase the publications during that time, but they can get the publication for free after the embargo;
5. Short-term OA is the opposite of delayed OA and it welcomes readers to enjoy free access to publications for a short period of time just right after they are published. Later the publications will cost some money. However, this approach is not so common because the commercial side will be affected when the publications are already shared on the Internet;
6. Selected OA has existed as an impact of OA movement. The commercial database publishers now offer up to 10 per cent of their publications for free. Selected OA means that in every issue of certain journals, readers can access certain articles freely without any purchase. In addition, readers can get some selected chapters of e-books or even a certain number of e-books for free;
7. partials OA means that certain pages of a publication from commercial database publishers are freely accessible. This is also the result of OA movement.

## **OA DIRECTORIES**

The increasing number of OA publications have brought to the awareness of having directories. The directories enable readers to select OA publications easily. Currently there are Directory of OA Journals or DOAJ (<https://doaj.org>), Directory of Open Access Books or DOAB (<https://www.doabooks.org>), Directory of Open Access Repository or OpenDOAR (<https://v2.sherpa.ac.uk/opensoar>), Directory of OA Repository or ROAR (<https://roar.eprint.org/view/type>), Open Conferences (Web of Conferences) (<https://webofconferences.org>), and Open Data Repository (for example <https://opendatarepository>).

org). These directories are helpful because readers can search for the OA publications they need. It is also important for the profession as the data offer information concerning the development of OA of all types worldwide.

Based on the current data from DOAJ (19 January 2022), there are 17,381 OA journals (doaj.org); while the number of OA books has reached 48,420 titles listed in DOAB (doabooks.org). According to OpenDOAR (2022), the number of repositories is increasing and there are now 4,058 journal articles, 3,364 thesis and dissertations, 2,023 conference and workshop papers, 1,939 reports and working papers, and 4,309 other publications available in the registered repositories (see table 1 below).

Supported by the directories, these OA publications can help researchers and scholars in general to get access to publications for free. The development of OA books, OA journals, OA repositories, and other OA publications do help researchers and scholars from developed, developing, and underdeveloped

*Table 1. List of directories of books, journals, and repositories.*

No.	Source	Number of titles	Types of publications
1	Directory of Open Access Journals (DOAJ)	17,381	Journals
2	Directory of Open Access Books (DOAB)	48,420	Peer-reviewed books.
3	Directory of Open Access Repositories (OpenDOAR)	15,693	Thesis, dissertations, articles, working papers, workshop and conference papers, and other types of publications.

countries alike.

## **OA OPPORTUNITIES AND BARRIERS**

As stated above, OA has been widely discussed and implemented over the last two decades. OA has been declared in various countries and it has been implemented in higher education institutions, national agencies, research institutions, and also in the governments. It is also interesting to note that both commercial and OA publications are available for readers. Researchers may publish their papers in either commercial or OA publishers depending on their interest.

The OA publications by academic and other institutions have actually impacted on the commercial database publishers and nowadays the commercial database publishers have agreed to share their publications as OA either as selected or partial OA. Some other commercial publishers also have delayed OA models. Regulations concerning their way of sharing publications as OA depend on their decision.

The OA development has opened opportunities for readers to get research papers from other scholars more easily. Scholars may share their research to other scholars, to collaborate with other scholars, and to be recognized. However, while OA has been widely discussed and implemented, stakeholders, decision makers, and other parties involved in the scholarly communication cycle do not always agree with the OA ideas. This has been a concern to make more scientific resources available for scholars and research may impact on the development of science and welfare of the nations. In some countries including In-

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Indonesia, OA publishing still has to struggle especially due to various reasons such as understanding of OA, OA policy, OA quality, and awareness of OA existence.

In Indonesia, OA models that are already implemented include OA journals, OA books, OA repositories, and Open Data. Although OA has existed in Indonesia for over a decade, but those four types of OA still need consideration and further development. As all parties involved in OA implementation in Indonesia are not always in the same view, they need to work together so that the objectives of OA will be reached. At present, they seem to have different views of OA.

## **OA IN INDONESIA**

OA has not been a big issue in Indonesia before 2010. A study by Priyanto (2015) shows that even in 2015, there was still lack of understanding about OA among librarians; therefore, the implementation of OA model is based mainly on the practical side and is only based on the view of librarians and the objectives of individual libraries. Meanwhile, as academic integrity was also not a big issue yet before 2010, it was very probable that students and other academicians might consider copying research papers from Internet, including repositories, would be safe and no one would not find out the academic misconduct.

Before 2010 actually there were only a few academic libraries offered OA for their repositories and few people knew about this. It was in 2010 that a thesis available in a public university library's repository was downloaded and copied to be another thesis in another public university—only the name of the author and the research location were replaced—and then it was forwarded to the committee as a new thesis. After the defense was passed, the thesis was made available in the repository of the university library and some readers found this act of plagiarism. This became a big issue when the act was found out and later the university withdrew the degree. Similar misconduct did exist in some other universities. Even a professor was forced to resign after he published an article in a newspaper but it was found that some parts of his article was an act of plagiarizing a student's paper.

In the Indonesian higher education institutions before 2010, research papers, thesis, and dissertation were submitted to the libraries mostly in the printed form and some used CDs or thumb drive. The online submission of research papers, thesis, and dissertations are conducted only in the last few years, although some universities still require students to submit both printed and digital forms; and few higher education institutions require students to submit only printed ones. However, no data are available regarding the formats of thesis and dissertation in every institution yet.

After being technically processed in the library, the printed or digital formats of research papers, thesis, and dissertations were usually available only for those visiting the libraries physically. A few libraries provided online repositories of research papers, thesis, and dissertations, but users could only read those materials, either fully or partially, and no download facility was available. In addition, there was an academic library that applied a very strict regulation regarding those research papers, thesis, and dissertation, in which a library user was not allowed to take picture of the screen with research materials on it. When a library user was found out taking pictures of the screen, the librarians would check the camera and asked the library users to delete all of the pictures of screen containing the texts of research papers, thesis, and dissertations. No photocopying and printing of research papers, thesis, and dissertations were allowed in many academic libraries. However, some libraries still allowed users to xerox or print those repository materials for a limited number of pages which result in incomplete xeroxed or printed material that the user's need. There was criticism regarding the way librarians man-

age their resources—whether the librarians were the guardians of knowledge or the guardians of access to knowledge. Fortunately, the librarians have changed their way of serving users and welcome users to use the repositories although users should still visit the libraries physically.

Nowadays, there are two models of access to Indonesian repositories—either closed or open. The closed access to repositories made library users come to the libraries physically every time they need research papers. While some libraries already applied OA for their research reports, thesis, and dissertations, many still restrict or close the online access to these resources. Meanwhile those libraries with OA repositories, sometimes do not exactly provide OA fully because the readers can only read some chapters instead of the complete fulltext.

The closure of online access to repositories of research papers, thesis and dissertations has made them to have less readers on the one hand; and on the other, it enables anyone to copy and modify others' thesis and dissertations to become their own thesis and dissertations without anyone being aware about this practice. The restriction of access to repositories actually has made the libraries have less visit either onsite or online, but the librarians consider this as the best way of keeping the academic integrity.

A different case exists in book publishing, where authors still prefer to publish printed books instead of ebooks. This happens because when people buy an ebook, they may share the ebook to their colleague and this will displease the publishers. Publishers still enjoy printing books because they can get better revenue than producing and selling ebooks and they can also avoid illegal sharing of ebooks. However, this has made ebook industries do not run well. In addition, OA books have not been available so far. Authors may either have not been familiar with OA books or consider the cost of OA publishing is not affordable.

Unlike OA repositories and OA books, OA journals are the most in number because journals in Indonesia should be made available as OA journals if they want to get their journals accredited by Ministry of Education (MoE). Although journals in Indonesia were mostly available in the printed form before 2010 and few journals are still available in the printed form nowadays, but they are moving to online and OA due to the requirements by MoE.

Students are required to publish their research for master's and doctorate degrees in the Indonesian or International journals before they can graduate and these OA journals are usually the best choice among students as they just submit it online and they usually can have their papers published quickly.

The problem with OA journals lies in the fact that faculty and researchers are required to publish their research papers in the international journals indexed by *Scopus* or *Web of Science* if they want to get better careers—for example to become professors. They usually publish their research papers in foreign journals because the journals are considered as international, while publishing in the Indonesian journals are considered as local. For those who publish in the journals indexed by *Scopus* or *Web of Science*, they will get better credit for their career. In addition, researchers and faculty still consider publishing in OA journals or Indonesian journals in general is usually not of quality and they will not get credit. This raises a question, when and how Indonesian OA journals can have better articles if researchers and faculty do not submit their research papers to the OA journals available in Indonesia but they prefer to publish overseas.

With regards to OA data or Open Data, the National Innovation and Research Agency (BRIN) has launched a website for data repositories. There is also a new law that requires researchers to submit their research reports including their data to BRIN's research data repository. Researchers have not known this issue as there is no further information and socialization about the law and regulation so far. Researchers usually also keep their data closed and do not share them to others.



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Data management is also new to researchers and they are still reluctant to submit their data for public use due to various reasons. These four issues of OA in Indonesia—OA repositories, OA books, OA journals, and OA data—are discussed in this chapter.

## **DISCUSSION**

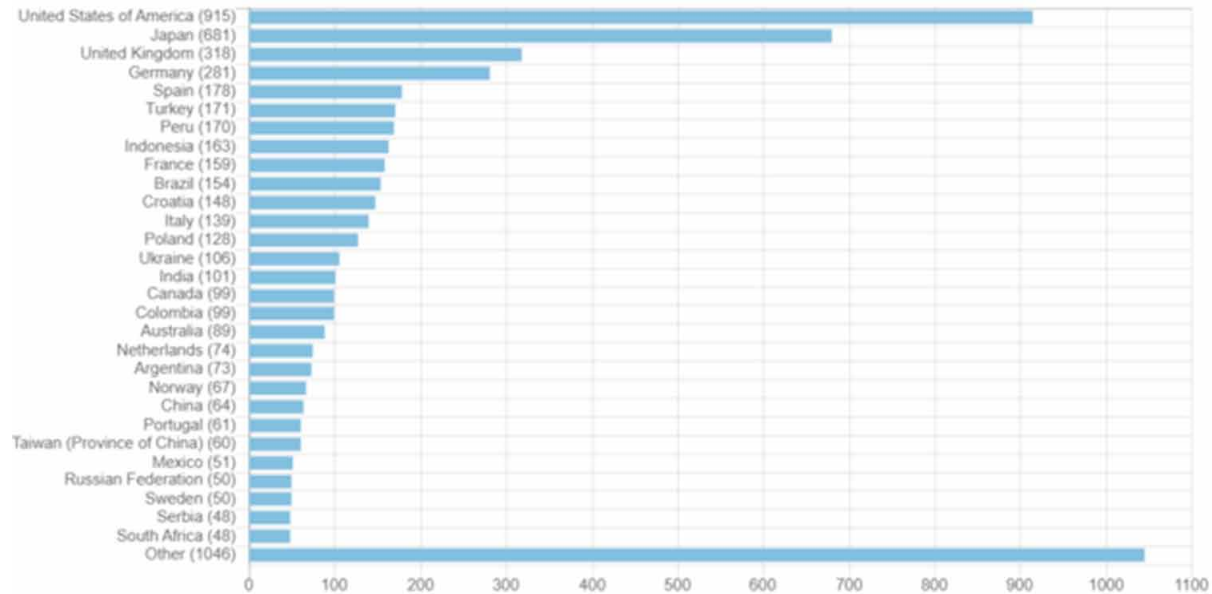
An OA publication is considered valid if there are three requirements: “free accessibility, further distribution, and appropriate archiving” (Velterop, 2005). OA is beneficial both for the readers, authors, and science in general. there are several OA models and approaches that an institution may choose to implement OA publishing. Academic and other institutions started to apply these models according to their decision and consideration. The most fundamental OA issue is when publications are freely available online to all readers.

The real OA movement in Indonesia began about a decade or so ago when a few libraries offer research papers, thesis, and dissertations in their websites for free. A few years later, journals began available online for free too. The government’s regulation requires journals to be OA journals if they want to get their journals accredited by the MoE. During the last 4 years, issues about national OA data repositories has also emerged. It began with seminars, workshops, and discussions on Open Data, data repositories, and data management. BRIN followed up this with the new law on national research data and reports submission to BRIN for the government-funded research. Unfortunately, the law has not got attention from among researchers as there has been no socialization yet.

It is interesting to note that during the last few years, discussion, workshops, and implementation of OA in Indonesia are widely conducted and faculty, researchers, and librarians are enthusiastic with the OA programs. The chart, in Figure 2 below shows that Indonesia ranks 10 in the world in terms of OA repositories according to OpenDOAR.

Figure 2. OA repositories rank by country according to OpenDOAR.

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## OA Journals

OA journals have developed so rapidly compare to other OA models. This is understandable because government regulation requires all journals to be OA if they want their journals accredited by MoE. Therefore, most journals in Indonesia are actually OA journals nowadays although they are not always registered in Directory of Open access Journals (DOAJ). According to the Ministry of Education, Culture, research, and technology, currently there are 5990 journals in various fields in Indonesia (<https://sinta.kemdikbud.go.id/>, 2021). In fact, Indonesia is the second biggest supporter of OA journal publications after England (Irawan et al., 2020). However, out of 5990, there are only 1513 journals or 25.26% registered in DOAJ.

Soon after MoE issued the regulation, journals in Indonesia moved to OA and all journals apply an Open Journal System (OJS). As we all know, OJS is an on-line journal management and publishing platform that was first launched in 2002 as open-source software (Lukman et al., 2012). Most Indonesian journals are managed by universities and some research institutions. The ease of managing journals using OJS makes it easier for anyone to submit their research papers for publications as journal articles. Therefore, students who will attend the graduation prefer to submit their research papers to OA journals. The OA journals also gets benefit from the universities' requirement of master's and doctorate students to publish their research papers in journals after they do the defenses, because they can get publication papers most of the time.

Besides university press management and faculty members, librarians in Indonesia are also involved in the OA journal publications such as being editors, reviewers and managing the OA journals.

By having all journals available in the OA system, there is also no commercial aspect of journal publications in Indonesia and therefore they do not compete with other commercial journal publications.

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While OA journals can be an effective way to share scientific information, the regulation by MoE that requires all faculty members to publish their research papers in the foreign commercial international journals discourages the Indonesian journals to grow in quality. OA journals only get research papers mostly from students, because faculty members submit their research papers to any international journals. Therefore, OA journals in Indonesia do not always have reputable authors.

Language is another barrier for the Indonesian journals to become internationally recognized because most Indonesian journals are available only in Indonesian language. The language of OA journals limits readership. Indonesian OA journals get a small number of readers. In order to get readers worldwide, Indonesian OA journals should also be written in the international language. Wider readership will result in recognition of authors and the journals. In other words, quality of articles and language are still the barriers for OA journals in Indonesia to develop.

### **OA Repositories**

There are national repository system, subject repository, local repository, and institutional repository models. The latter is a medium for acquiring, preserving, and disseminating research and other scientific activities conducted by an institution (Jeelani et al., 2016). Through an institutional repository, readers can get resources from the institution. OA repositories can be very helpful for so many readers. In Indonesia, institutional repositories are growing. Besides research reports funded by the institutions, the repositories contain mostly thesis and dissertations. Before graduation, students should upload their thesis or dissertations to the institutional repositories belonging to the academic libraries and write an article to be published in journals. Earlier, especially in 2000s, the academic libraries required students to submit theses and dissertations both in the digital and printed version due to the fear that the digital version might not always be available as the infrastructures were not robust. As the number of printed versions grew so quickly, the libraries could no longer afford to manage them. Finally, they ask students to submit only the digital version. Unfortunately, the printed-version thesis and dissertations dated before 2000s were also digitized and the printed versions were destroyed, instead of being moved to the Archive Department in the institution.

There are over 4,000 higher education institutions in Indonesia and many of them are developing institutional repositories, but not all are OA. There are Closed-Access repositories, partially Open repositories, and OA repositories. In addition, only 163 institutions have registered their repositories with OpenDOAR so far. One hundred sixty-three OA repositories belong to universities, polytechnics, and academies, organizations or agencies, and a hospital.

Surprisingly, although those institutions have already registered their repositories in OpenDOAR, the readers cannot always get the full text. According to Priyanto (2015) higher education institutions do not always open their repositories because (1) they are afraid that their scholarly works will be copied by users; (2) they are afraid people may find out that some of their scholarly works are the results of an act of plagiarism; and (3) they are not ready with the infrastructure including Internet access. Lack of understanding of OA is likely the main reason of the issue.

### **OA Books**

While Indonesian publishers still focus on printed books, quite a few publishers offer ebooks as they worry that they cannot get revenue due to the ease of readers to share ebooks. Readers are of the opinion that

buying an ebook means they have the right to share with others. Meanwhile authors still prefer publish printed books as they are physically visible and the market is still high. With regard to OA books, it seems that Indonesian authors have not consider them. This is understandable because publishing OA books still need administrative works that cost some money, authors do not always have budget to produce OA books, and publishers still want revenue. Sponsors are needed to publish OA books.

## **Open Data**

Open Data is still emerging. Most academic institutions still do not keep students' and researchers' data. The institutions let students to keep their own data and researchers usually keep their data themselves. They still consider research data are for their own research only and may only be used for the specific and single purpose. Sharing data has not been common in Indonesia. However, as mentioned earlier, discussions, seminars, and workshops on research data management, Open Data, and Data repositories attracted decision makers; although no individual higher education institution have considered to require their students to submit their research data. Instead, they just submit the research results in the forms of thesis and dissertations.

Nationally, BRIN has initiated research data repository since 2015 and it has begun to prepare the infrastructure for the repository since 2017 but the number of data submitted is still low as researchers are not always aware of the importance of research data repository and data sharing. BRIN is open to anyone in any field from any institutional background, such as universities, government, and private research institutions, industry, or ministries, to submit their data so that the data can be reusable. In the beginning, researchers are expected to submit their research data and report if they are funded by the government. However, Unlike European Union's open data regulation in which only government-funded researchers should submit their research data and reports, BRIN welcomes all research data and reports from researchers in Indonesia. BRIN would like to play a role to store, preserve, and share research data from Indonesian researchers so that the data may be reusable. By developing OA research data repository, BRIN will be able to boost the national research agenda and eliminate barriers among researchers who need research data.

Along with the development of BRIN, National Library of Republic of Indonesia has also initiated Open Data for library research in 2019. However, during pandemic of covid-19, the project run slowly. It is important for the decision makers and government to promote the importance of data repository.

## **Struggles of OA Publishing in Indonesia**

With regard to Indonesia, the development of OA publishing is not free from barriers. The challenges are not only from the institutions and libraries themselves, but also from other parties.

Institutional repositories are not always well managed, some become a routine of the libraries to receive thesis and dissertations in the digital format. This is surely due to lack of understanding of OA and how to develop OA repositories. Many academic libraries still keep their repositories closed access for some reasons stated earlier, and to get the full-text resources, one needs to visit the libraries physically. If they are from the same institution, they may come to the library easily, but if they are from other institutions, they need to submit some administrative requirements such as a letter from the institutions, a form containing information about personal information, purpose of visit, etc. OA repositories are not always fully open. Some offer abstracts only, while some open one to three chapters only, and some

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other types of restriction. For one thing, they close their access because libraries are of the opinion that OA may cause academic misconduct, especially plagiarism. Meanwhile other libraries consider their repositories have aspects of plagiarism and so they keep their repositories closed in order that no one will find out, as stated earlier. Some academic libraries also provide incomplete or partial text to read in their OA institutional repositories, for example, only chapter 1, chapter 2, and references are available to read, while the research finding, discussion, and conclusion remain inaccessible. The act of guarding access instead of guarding knowledge in the libraries has forced readers to visit the libraries to read the full papers.

Academic librarians in Indonesia are indeed somewhat familiar with OA and OAR. However, they lack understanding of OA and they implement OA repositories based on the technical side. Actually, they also understand the benefits of OA, but limited understanding causes them to know only the technical side and the implementation is mostly based on the goal of achieving a certain rank such as the world-class university rankings and Webometrics (Priyanto, 2015). It is important to include Open Access in the curriculum of Library and Information Science Department so that librarians have better understanding of OA. There should also other programs for librarians to understand OA, for example seminars, discussions, and workshops.

OA journals that have been developing well will surely be beneficial in the long run. The policy that researchers and faculty members should submit their research papers to the international or foreign journals indexed by *Scopus* or *Web of Science* is not relevant for the development of OA journals. Indonesian scholars do not always have the opportunity to read the research papers in English due to their lack of English capabilities. In addition, MoE should not only consider the publications by researchers and faculty members in the international journals but also consider how to internationalize the Indonesian journals so that the Indonesian journals are also indexed by *Scopus*, *Web of Science* and other indexers. It is better for MoE to allow researchers and faculty members to publish their research papers in the Indonesian OA journals written in either international language or Indonesian and they are acknowledged equally. This way, the Indonesian OA journals will have better quality and more readers.

Open Data is beneficial for sharing knowledge and research collaboration, increasing research quality, and research efficiency. The initiatives from BRIN and National Library of Indonesia to have OA research data are a good beginning. In order to have a good research data nationally, BRIN must take immediate action by announcing the research data submission regulation to institutions that have research activities. It is also important to do campaign on the importance of research data repository. Apart from those two national institutions, higher education and research institutions should also initiate research data repository in order to support the academic integrity.

## **FUTURE RESEARCH DIRECTION**

OA Research in Indonesia is an example how the understanding of OA is important. Without understanding OA completely, the implementation may not be relevant. Collaboration among several parties to develop OA—OA repositories, OA books, OA journals, and Open Data—will build a strong and robust OA content, management, and services. Until now, few research on OA have been conducted in Indonesia. Further research is needed for better understanding of OA and its implementation.

There has no research on OA book publishing and this will be valuable for all parties—governments, publishers, researchers, and readers—because there are a lot of aspects to analyze, for example funding,

authorship, readership, and management of digital publishing. Without any existence of OA books, the academic and education support in general show lack of digital technology development. It also shows how digital publishing runs slow in Indonesia that the condition may affect the digital literacy and reading in general.

Research publications in international journals may affect on the quality of Indonesian OA journals. Research on the policy of research publications will contribute to the awareness of Indonesian readership. Indonesian scholars need research papers to be published in Indonesia instead of overseas only so that Indonesian scholars can also read them more easily. In addition, to develop wider readership, OA journals in Indonesia should have global readers. Indonesian research will be unknown in the world if they are published only in the language that is known by Indonesian scholars. International collaborative research will follow if research in Indonesia is known globally. Therefore, further research on journal and OA journal management is necessary, especially in order to support the emergence of Indonesian OA journals worldwide.

Institutional repositories will be valuable if the content is fully accessible, therefore, academic librarians should learn further about OA and its management as well as collaborate with the university management, researchers, students, and faculty to formulate a better institutional repository. An OA institutional repository is a medium to collect all research conducted in the institution. Further research on OA institutional repositories will help improve the management of it. It is also important to do research on academic integrity as academic misconduct may still exist in various institutions.

The implementation of Open Data or Open Research Data nationally need to be appreciated. This will contribute to the development of science and research as well as collaboration among scholars. The slow development of Open Data implementation has not been analyzed yet; therefore, research on Open Data is also important.

## **CONCLUSION**

Open Access has been available almost 30 years ago and it has been declared almost 20 years ago in Budapest which was then followed by Bethesda, Berlin, and other OA declarations in various parts of the world. OA is not only in the form of OA journals, but also OA books, Open research Data, Open conferences, OA repositories, and any others. Developing an OA publishing is important and valuable for the benefit of science, scholars, and readers in general. However, it is not always easy to develop OA due to lack of policy; lack of understanding of OA, lack of collaborative works, and slow implementation.

OA journals have developed well in Indonesia but they need attention from the policy makers and the government. It is expected that OA will have wider readership. Lack of understanding of OA and its implementation result in poor accessibility to research and other resources output from any institution. There should be programs to develop the understanding of OA, for example by way of including OA as a coursework in the LIS department. Meanwhile Open Data has existed and need further actions from the institutions; while OA books still need further investigation.

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