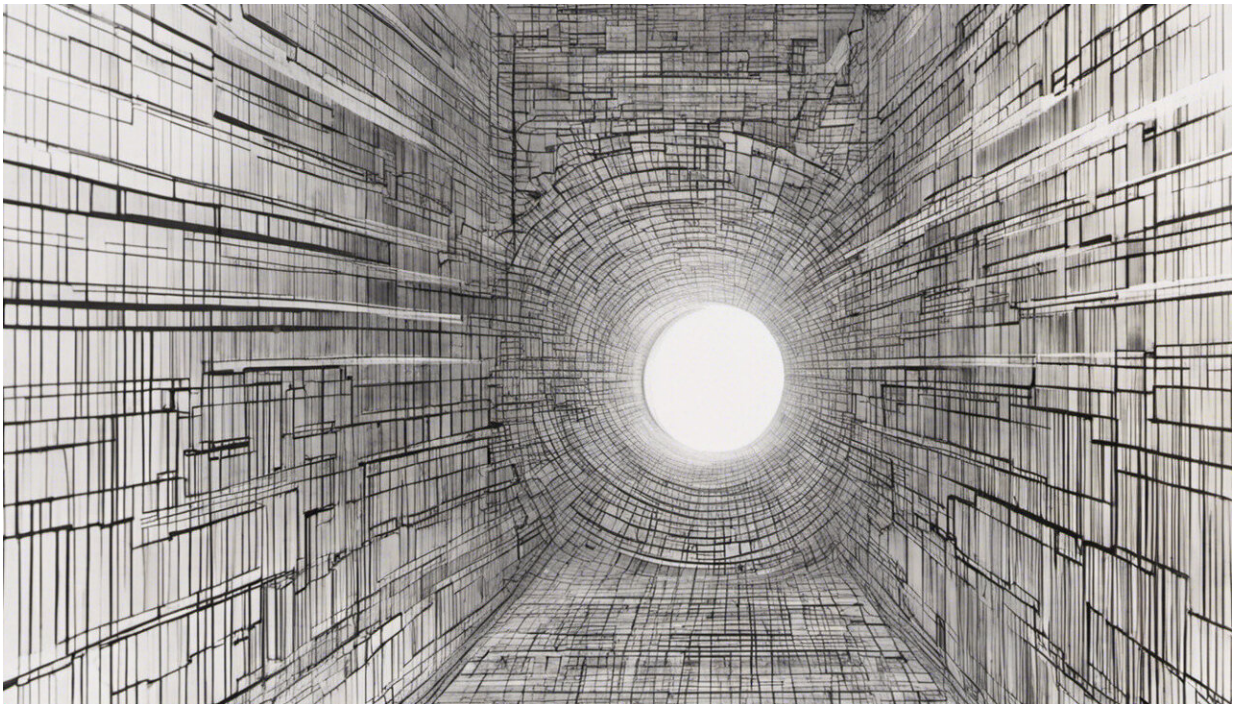# Indonesia's first scientific data bank is a step toward strengthening 'open data' practices

November 11 2019, by Luthfi T. Dzulfikar

Credit: AI-generated image ([disclaimer](#))

A large number of researchers among Indonesia's scientific community have been [known](#) to perform unethical data tampering.

Many manipulate [statistical data](#) to gain a reputation as a researcher who publishes the most under Indonesia's unhealthy academic ranking

system.

Scholars have proposed research data repositories where researchers can share data openly. These data pools allow researchers to verify and reproduce the results of published studies, thereby minimizing room for violations.

However, these databases in Indonesia have rarely required researchers to submit their primary research data. The databases are also scattered across the many universities and research agencies as institutional repositories, until this year.

In August 2019, the government launched the [National Scientific Repository (*RIN*)](#) to become a national-level repository that aggregates research data from various sources.

Born from the mandate of [Indonesia's new science law](#), the repository aims to make research data accessible for the academic community to verify scientific discoveries better and make it easier for other scientists to further contribute to the field.

Although challenges remain, the newly launched national repository is a great first step in strengthening open data practices and improving research quality in Indonesia.

Making a more credible research ecosystem

Hendro Subagyo, Head of the Centre for Data and Scientific Documentation at the Indonesian Institute of Sciences—currently the nation's largest research institution and the one also responsible for the repository—says the creation of a centralised data bank began in 2002.

It stemmed from the lack of shared data—and in turn, transparency—in

research publications in Indonesia.

Since early 2010, universities and research agencies across Indonesia have started developing institutional repositories for researchers to submit the results of their studies.

However, Hendro says that they are usually designed to only store reports such as research papers and conference proceedings. Often, there are no requirements to deposit the data used to conduct the research.

"The substance of those research results are unverifiable and cannot be studied further by other scientists as only the research articles are available," he said.

The government establishes RIN to fill that missing gap, he added.

The end goal of this database is to help create what he calls a "credible research ecosystem."

"We want to build a scientific environment that produces credible research. This means that researchers should provide more than just a scientific publication to show that they have properly conducted a study," he said.

Lessons learned from foreign scholars

Indonesia's national repository is inspired by Netherland-based Data Archiving and Networked Services (DANS) platform.

Containing more than 250,000 datasets from over 70,000 studies, DANS compiles scientific datasets, publications, and researcher information to encourage data sharing among scientists.

Brian Nosek, a professor of psychology at the University of Virginia, US, said recently that the lack of data sharing is a big problem in the academic world because it makes it hard for other researchers to validate scientific discoveries.

Nosek and his team conducted a project attempting to verify the research findings presented in papers on cancer biology published throughout 2011-2012.

To his surprise, however, out of 197 experiments across 51 papers published even in top journals such as *Nature* and *Cell*, only in 3 of them were the data made available for access in public repositories.

"There is a lack of full reporting and availability of the data and materials that were underlying the research. This is a pervasive challenge across the sciences," Nosek said during a webinar on research transparency.

Organised in late October, the event involved over 1000 participants from more than 30 Indonesian universities.

Another speaker, Virginia Barbour, a professor at the Queensland Institute of Technology, Australia, said that open data practices also benefit authors.

For example, a 2019 preliminary research paper by UK researchers found that papers which share their research data through public repositories saw a 25.36% higher citation impact on average.

The paper observed 531,889 scientific papers issued by open access publishers *Public Library of Science* (*PLOS*) and *BioMed Central* (BMC).

Barbour, who is also the Director of the Australasian Open Access

[Strategy Group](#), said the increase might be due to an increased perception of quality and trust toward publications that make their data accessible.

"It indicates that citations are really done based on a more in-depth reason, not just in a superficial way, but also obviously with some sort of (consideration of) perceived trust and credibility," she said.

Overcoming challenges

Despite the vital role of RIN in promoting open data system in Indonesia, some researchers question the quality of its data management. This prevents them from adopting open data practices.

A participant during the webinar questioned whether these open data practices conformed to global standards such as Europe's [General Data Protection Regulation (GDPR)](#) on personal data.

"One of the challenges is that our researchers often don't trust that their intellectual rights will be protected when their data is stored in a governmental database," Hendro said.

A promoter of open science, Rizqy Amelia Zein, who is also a psychology lecturer at Universitas Airlangga, shares Hendro's concern. She says that the challenge that the Indonesian Institute of Science must overcome is convincing researchers that this is an important scientific mission.

"The Institute has attempted to socialize to scientists so they store their research data in the repository. Unfortunately, their awareness on [research data](#) management is still low," she said.

Hendro says that inviting Indonesian researchers to commit to this

national project voluntarily is no easy task. Indonesia's database's current collection stands at [less than 4,000 datasets](#).

Since [the science law](#) still requires additional bylaws to formally enforce the repository nationwide, it currently operates on a voluntary basis.

But, Hendro guaranteed the development of the [repository](#) has also incorporated mechanisms to ensure the protection of researchers' copyrights over their data.

"Researchers have the right to make the data available only upon request," he said.

"If they are willing to make the data open, we also have guidelines that inform them of what the consequences are, and [what kind of licenses can be applied.](#)"

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