

## ORIGINAL ARTICLE

# A Global Mapping of Open Access Policy Registrations: An Analysis of ROARMAP Data

Alpana Saha<sup>1</sup>, Gopalakrishnan Mahesh<sup>2</sup>**HOW TO CITE THIS ARTICLE:**

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**ABSTRACT**

**Background:** The global shift toward open access (OA) is significantly influenced by national and institutional policies.

**Methods:** This study presents a quantitative analysis of OA policies registered in the Registry of Open Access Repository Mandates and Policies (ROARMAP) to understand their geographic and institutional distribution. Data was extracted in August 2021.

**Results:** The analysis revealed 769 registered policies worldwide, with a predominant concentration in Europe (60.21%) and North America (25.75%). Research organizations were the leading policymakers, accounting for 72% of all registrations. The study also notes a correlation between OA policy adoption and the growth of OA journals, with regions having higher policy registrations also leading in OA journal counts.

**Conclusions:** The findings highlight a significant policy divide between developed and developing nations, underscoring the need for inclusive policy frameworks to foster global knowledge equity.

**KEYWORDS**

- Open Access • ROARMAP • OA Policies • Research Policy • Policy Registrations
- Global Knowledge Equity

**AUTHOR'S AFFILIATION:**

<sup>1</sup> Research Scholar, CSIR-National Institute of Science Communication and Policy Research, New Delhi, India.

<sup>2</sup> Chief Scientist, Council of Scientific and Industrial Research (CSIR) Headquarters, Anusandhan Bhawan, 2 Rafi Ahmed Kidwai Marg, New Delhi, India.

**CORRESPONDING AUTHOR:**

Alpana Saha, Research Scholar, CSIR-National Institute of Science Communication and Policy Research, New Delhi, India.

E-mail: alpana.niscair19a@acsir.res.in

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## INTRODUCTION

The open access (OA) movement, which emerged at the dawn of the 21st century, has transformed scholarly communication by advocating for free, immediate, and unrestricted access to research outputs. The foundational declarations—Budapest (2002), Bethesda (2003), and Berlin (2003)—provided the ideological and practical impetus for OA, emphasizing the ethical and practical necessity of making research publicly accessible. These initiatives were soon operationalized through infrastructures like the Directory of Open Access Journals (DOAJ, 2003), OpenDOAR (2006), and the Registry of Open Access Repository Mandates and Policies (ROARMAP).

OA policies are formal directives issued by research institutions, funding bodies, or governments that require or recommend researchers to deposit their work in OA repositories (Green OA) or publish in OA journals (Gold OA). The first institutional OA policy was adopted by the University of Southampton in the UK, followed by mandates from major funders such as the Wellcome Trust (2005) and the National Institutes of Health (USA, 2005). The European Commission's 2007 policy further solidified OA's place in research governance.

As of 2021, ROARMAP listed 769 OA policies globally. This study analyses these registrations to map the geographic and institutional landscape of OA policy adoption. The objective is to identify patterns, disparities, and drivers of OA policy implementation across different world regions and stakeholder groups.

## OBJECTIVES

This study aims to:

1. Analyse the geographic distribution of OA policies registered in ROARMAP.

2. Identify the types of policymaking bodies (e.g., research institutions, funders) and their contributions.
3. Examine the correlation between OA policy adoption and the growth of OA journals.
4. Discuss implications for global research equity and policy development in developing regions.

## METHODOLOGY

Data for this study were collected from two primary sources:

1. **ROARMAP** – for OA policy registrations (data extracted on 7 August 2021).
2. **DOAJ** – for data on OA journals and geographic distribution of OA publishing.

The collected data were cleaned, categorised by continent, country, and policymaker type, and analysed using descriptive statistics. Visualisations (tables, pie charts, bar graphs) were created to illustrate distributions and trends. The analysis focused on:

- Number of policies per continent and country.
- Distribution by policymaker type (research organisation, funder, etc.).
- Comparative analysis with OA journal growth data from DOAJ.

## RESULTS AND ANALYSIS

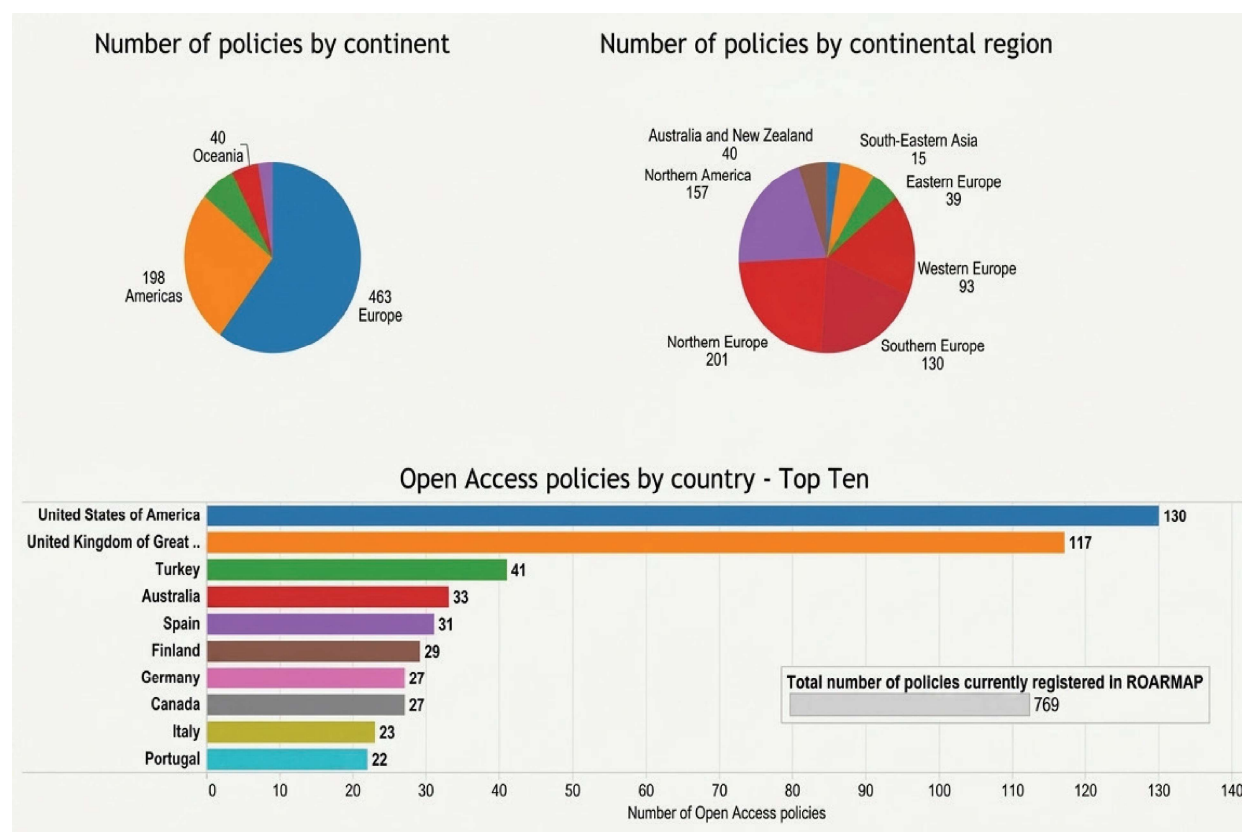
### 1. Geographic Distribution of OA Policies

As of August 2021, ROARMAP listed 769 OA policies. The geographic distribution is highly uneven, with Europe accounting for the majority of registrations.

**Table 1:** Distribution of OA Policies by Continent

| Continent    | Number of Policies | Percentage (%) |
|--------------|--------------------|----------------|
| Europe       | 463                | 60.21          |
| Americas     | 198                | 25.75          |
| Asia         | 49                 | 6.37           |
| Oceania      | 40                 | 5.20           |
| Africa       | 19                 | 2.47           |
| <b>Total</b> | <b>769</b>         | <b>100.00</b>  |

*Source:* ROARMAP (accessed 7 August 2021).



**Figure 1: OA Policy Registration by Continent**

(Pie chart showing Europe 60.21%, Americas 25.75%, Asia 6.37%, Oceania 5.2%, Africa 2.47%)

Europe's dominance reflects early and sustained policy efforts by the European Commission, national governments, and academic institutions. North America (primarily the USA and Canada) follows, driven by strong funder mandates such as those from NIH and CIHR. Asia, Africa, and Oceania lag significantly, indicating slower policy uptake (Table 1).

#### Top 10 Countries by OA Policy Registrations:

1. United States of America
2. United Kingdom
3. Turkey
4. Australia
5. Spain
6. Finland
7. Germany
8. Canada
9. Italy
10. Portugal

The UK and USA together account for nearly 30% of all policies registered, underscoring their leadership in the OA movement (Figure 1).

#### 2. Distribution by Policymaker Type

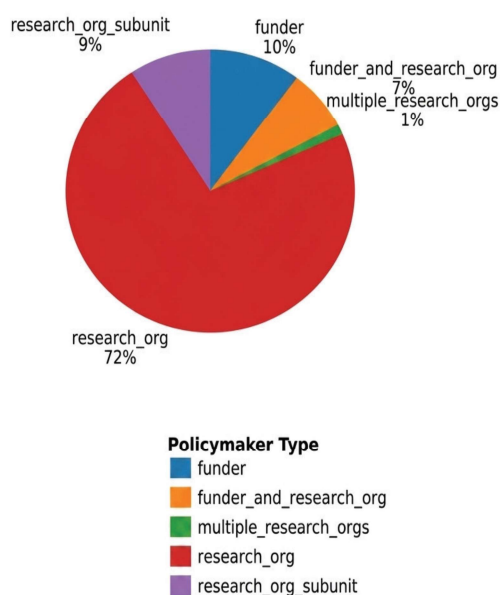
Policies in ROARMAP are categorised by the type of issuing body. Research organisations (universities, institutes) are the most active policymakers.

**Table 2: OA Policies by Policymaker Type**

| Policymaker Type                     | Number of Policies | Percentage (%) |
|--------------------------------------|--------------------|----------------|
| Research Organisation                | 554                | 72.0           |
| Funder                               | 77                 | 10.0           |
| Research Organisation Sub-unit       | 69                 | 9.0            |
| Multiple Research Organisations      | 8                  | 1.0            |
| Funder & Research Organisation Joint | 61                 | 8.0            |
| <b>Total</b>                         | <b>769</b>         | <b>100.0</b>   |

Source: ROARMAP

Number of Open Access Policies Worldwide by Policymaker



**Figure 2:** Share of OA Policies by Policymaker Type

\*(Bar chart showing Research Org 72%, Funder 10%, Sub-unit 9%, Joint 8%, Multiple 1%)\*

Research organisations dominate because OA policies are often implemented at the institutional level to enhance research visibility and compliance with funder mandates. Funders account for 10%, reflecting a growing trend of tying grant compliance to OA dissemination (Table 2 and Figure 2).

### 3. Country-wise Breakdown by Policymaker Type

**Table 3:** Top Countries by OA Policies from Research Organisations

| Country        | Number of Policies |
|----------------|--------------------|
| United Kingdom | 90                 |
| United States  | 68                 |
| Turkey         | 41                 |
| Spain          | 29                 |
| Finland        | 29                 |
| Germany        | 23                 |
| Portugal       | 20                 |
| Italy          | 19                 |

| Country   | Number of Policies |
|-----------|--------------------|
| Australia | 19                 |
| Brazil    | 16                 |

**Table 4:** Top Countries by OA Policies from Funders

| Country        | Number of Policies |
|----------------|--------------------|
| United Kingdom | 19                 |
| India          | 5                  |
| Canada         | 5                  |
| Belgium        | 5                  |
| United States  | 4                  |
| Lithuania      | 4                  |
| Spain          | 3                  |
| Italy          | 3                  |
| France         | 3                  |
| Estonia        | 3                  |

India's notable presence in funder-led policies (5 registrations) reflects initiatives by funding bodies like DST and CSIR, though institutional adoption remains limited (Table 3 and Table 4).

### 4. Correlation with OA Journal Growth

Data from DOAJ (August 2021) show a strong positive correlation between OA policy adoption and the number of OA journals. The USA leads with 1,059 OA journals, followed by the UK, Spain, and Germany – all countries with high policy registrations.

**Table 5:** OA Journals vs. OA Policies (Top 5 Countries)

| Country | OA Policies (ROARMAP) | OA Journals (DOAJ) |
|---------|-----------------------|--------------------|
| USA     | 97                    | 1,059              |
| UK      | 94                    | 872                |
| Spain   | 32                    | 753                |
| Germany | 25                    | 698                |
| Turkey  | 41                    | 562                |

This correlation suggests that policy frameworks stimulate OA publishing infrastructure, encouraging both Green and Gold OA routes.

## DISCUSSION

The analysis reveals a **significant policy gap** between the Global North and South. Europe

and North America together host 86% of registered OA policies (Table 5), while Asia and Africa – home to rapidly growing research ecosystems – account for less than 9%. This disparity risks perpetuating knowledge inequity, where researchers in developing regions lack access to global research and their own outputs remain less visible.

#### Drivers of OA Policy Adoption:

- **Funder mandates** (e.g., NIH, Wellcome, ERC, Plan S) have been crucial in pushing OA compliance.
- **Institutional advocacy** by universities and libraries has normalised OA deposit.
- **Government policies** (e.g., in the UK, Finland, India) integrate OA into national research strategies.

#### Barriers in Developing Regions:

- Limited awareness of OA benefits.
- Resource constraints for repository infrastructure.
- Predatory publishing concerns.
- Lack of coordinated national policies.

**The Indian Context:** India's draft STIP 2021 emphasises OA for publicly funded research, aligning with global trends. However, with only 13 policies on ROARMAP (7 institutional, 5 funder, 1 sub-unit), there is substantial room for growth. India's strong showing in funder policies indicates top-down impetus, but grassroots institutional adoption is needed.

## CONCLUSION

This study confirms that OA policy adoption is highly concentrated in economically developed regions, with research organisations being the primary drivers. There is a clear correlation between robust policy frameworks and the growth of OA journals. However, the low policy registration in Asia, Africa, and Latin America highlights a critical gap in the global OA ecosystem.

For OA to truly be “global,” policymakers in developing nations must be supported in drafting, implementing, and registering OA mandates. International collaborations, capacity-building initiatives, and platforms like ROARMAP can help bridge this divide. Future research should examine the

effectiveness of these policies in increasing deposit rates and enhancing research impact in underrepresented regions.

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## Funding Statement

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## Conflict of Interest

The authors declare no conflicts of interest.

## Data Availability

The data supporting this study are derived from publicly available sources: ROARMAP and DOAJ. Processed datasets are available from the corresponding author upon request.

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