

THE CASE FOR INTERNATIONAL SHARING OF SCIENTIFIC DATA A FOCUS ON DEVELOPING COUNTRIES

PROCEEDINGS OF A SYMPOSIUM (2012)



Scientific research and problem solving are increasingly dependent for successful outcomes on access to diverse sources of data generated by the public and academic research community. Global issues, such as disaster mitigation and response, international environmental management, epidemiology of infectious diseases, and various types of sustainable development concerns, require access to reliable data from many, if not all, countries. Digital networks now provide a near-universal infrastructure for sharing much of this factual information on a timely, comprehensive, and low-cost basis. There also are many compelling examples of data sharing in different research and application areas that have yielded great benefits to the world community, although many more could be similarly facilitated.

Many countries that are members of the Organisation for Economic Co-operation and Development (OECD) and some emerging economies already have implemented national policies and programs for public data management and access, while others are in the process of developing them. Nevertheless, many developing countries do not have formal mechanisms in place. The topic of “data sharing” is broad and complex, and developing countries have different infrastructure, human resource, and access needs that must be addressed. (For purposes of this report, “developing” countries are defined as non-OECD countries, recognizing that there is a broad range of economic development among the non-OECD nations.)

There are various specific barriers to the access and sharing of scientific data collected by governments or by researchers using public funding. Such obstacles include scientific and technical, institutional and management, economic and financial, legal and policy, and normative and sociocultural barriers, as well as limitations in digital infrastructure. Some of these barriers are possible to diminish or remove, whereas others seek to balance competing values that impose legitimate limitations on openness. Despite such challenges, however, there could be much greater value and benefits to research and society, particularly for economic and social development, from the broader use and sharing of existing factual data sources.

Many researchers in developing countries, in particular, lack the norms and traditions of more open data sharing for collaborative research and for the development of common research resources for the benefit of the entire research community. Moreover, the governments in many developing countries treat publicly generated or publicly funded research data either as secret

or commercial commodities. Even if governments do not actively protect such data, many lack policies that provide guidance or identify responsibilities for the researchers they fund concerning the conditions under which researchers should make their data available for others to use. Finally, developing countries frequently do not have data centers or digital repositories in place to which researchers can submit their data for use by others. In those cases where such repositories do exist, they tend to be managed as black archives—that is, not open to most researchers or the general public.

Because of the importance of data access and sharing in the developing world, an ad hoc committee of the Board on International Scientific Organizations (BISO) and the Board on Research Data and Information (BRDI), in consultation with the Committee on Freedom and Responsibility in the Conduct of Science (CFRS) of the International Council for Science (ICSU), organized a 2-day international symposium in Washington, D.C., on April 18–19, 2011. The main objective of the symposium was to gain better understanding of the data access and sharing situation in the developing world, with a focus on barriers, opportunities, and future actions.

Part One of the proceedings addresses the following questions: Why is the international sharing of publicly funded scientific data important, especially for development? What are some examples of past successes, and what are the types of global research and applications problems that can be addressed with more complete access to government data collections and government-funded data sources?

Part Two provides an overview of the status of public data access internationally, particularly in developing countries. Part Three explores the principal barriers and limits to sharing public data across borders. Finally, Part Four discusses the rights and responsibilities of scientists and research organizations in providing and getting access to publicly funded scientific data. It also provides some insights on how international scientific organizations, government agencies, and scientists can more successfully improve sharing of publicly funded data to address global challenges, particularly in less economically developed countries.

NRC Committee on the Case of International Sharing of Scientific Data: A Focus on Developing Countries

FAROUK EL-BAZ (*Chair*), Boston University

BARBARA ANDREWS, University of Chile

ROBERTA BALSTAD, Center for
International Earth Sciences

JOHN RUMBLE, JR., Information
International Associates, Inc.

WILLIAM WULF, University of Virginia

TILAHUN YILMA, University of California,
Davis

Staff

KATHIE BAILEY MATHAE, Director, Board
on International Scientific Organizations

PAUL F. UHLIR, Director
Board on Research Data and Information

For More Information

Copies of *A Case for International Sharing of Scientific Data: A Focus on Developing Countries. Proceedings of a Symposium* are available from the National Academies Press; call (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area), or visit the NAP website at www.nap.edu. For more information on the project, contact staff at (202) 334-2807 or visit the website at www.nationalacademies.org/pga.