

Grant Proposal

Exploring the opportunities and challenges of implementing open research strategies within development institutions

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Abstract

This research proposal calls for support for a pilot project to conduct open data pilot case studies with eight (8) IDRC grantees to develop and implement open data management and sharing plans. The results of the case studies will serve to refine guidelines for the implementation of development research funders' open research data policies. The case studies will examine the scale of legal, ethical and technical challenges that might limit the sharing of data from IDRC projects including issues of:

- Privacy, personally identifiable information and protection of human subject
- Protection of intellectual property generated from projects or potential for financial risks for projects or institutions
- Challenges in the local legal environment, including ownership of data
- Ethical issues in releasing or sharing of indigenous and community knowledge, and the relationship between project participants and investigators particularly in the context of historical expropriation of resources
- Local and global issues of capacity and expertise in the management and sharing of data

The duration of the current project will be fifteen (16) months, commencing September 2015 and ending in December 2016. The project will focus on auditing the data being produced by the participating projects, supporting the development of data management and sharing plans, and surfacing and cataloguing issues that arise.

Keywords

data sharing, research data management, development, data management plan, research policy, mandate

Background and Rationale

Given that there is a close link between research data and research publications, and that data constitutes a primary form of research output, it is appropriate that research funders' open access policies address the issue of open research data (Royal Society 2012). Open research data is free to use, modify, and share for any purpose by anyone. Acknowledging the data source (attribution) and/or providing the data under the same or similar conditions as the original (share-alike) would be the only conditions of use (Open Knowledge 2014).

Open research data must also be technically open, that is, that the data be available for no more than the cost of reproduction and in [machine-readable](#) and [bulk](#) form. The significance of primary data gathered in research projects across domains is its high potential for not only academic re-use, but its value beyond academic purposes, particularly for governments, SME, and civil society. More importantly, the availability of these data provides an ideal opportunity to test the key premise underlying open research data — that when it is made publicly accessible in easily reusable formats, it can foster new knowledge and discovery, and encourage collaboration among researchers and organizations (Borgman 2012, Pampel and Dallmeier-Tiessen 2014, Hodson and Molloy 2015).

Transitioning to an open research data policy raises a number of issues (Walport and Brest 2011, Borgman 2012, Royal Society 2012, Pampel and Dallmeier-Tiessen 2014). Research funding organizations need to be aware of and have an understanding of the opportunities and challenges of open research data policies. For example, realistic and cost-effective strategies for funded researchers to collect, manage, and store the various types of data resulting from their research are unclear. Furthermore, publishing open research data requires skillsets that researchers may have yet to develop. Finally, intellectual property rights issues and privacy concerns are rife in the release of data as well as broader ethical issues around the rights over and "ownership" of collected data. These issues relate to data sharing in general but are particularly challenging in the context of development research.

Most existing funder data sharing requirements have been developed by western funders of natural sciences and biomedical research. The most recent surveys (see references in Hodson and Molloy) of funder policies in this area are somewhat out of date as the policy

environment is in flux. Hodson and Molloy (2015) provide pointers to recent surveys as well as an analysis of best practice in policy including a set of issues that policies should address. These include both issues of framing and operational concerns:

1. An account of general drivers and principles
2. A discussion of the requirements for effective data sharing
3. A statement of necessary limits to openness
4. A definition of research data
5. An overview of data within the scope of the policy
6. An indication of the general criteria for the selection of research data
7. A summary of responsibilities
8. An indication of the availability of infrastructure and responsibility of costs
9. An overview of data management planning requirements
10. Recommendations on enabling discovery and re-use
11. Stipulations to encourage recognition and reward for data providers
12. A summary of reporting requirements, compliance monitoring and possible sanctions

This checklist provides a useful frame within which to both consider and critique the proposed IDRC policy as well as testing the capacity of individual projects to share data and the limitations they face. In particular a focus on points 3, 4, 5, and 7 will be helpful.

Very little work has been done examining open data policies in the context of development research specifically. Using Hodson and Molloy as a framing device derived largely from considerations of those funders in Europe and North America will allow us to test and extend this to include aspects specific to development research. This project will serve to inform open access to research data policies of development research funders through pilot testing open data management plan guidelines with a set of IDRC grantees.

Objectives of the Pilot Project

The general objective of this project is to develop a model open research data policy and implementation guidelines for development research funders to enable greater access to development data.

The specific objectives are to:

1. Test and refine implementation guidelines for development research funders' open research data policies;
2. Examine the specific ethical and implementation issues in data sharing in the context of development research including issues of knowledge developed in development and indigenous contexts;
3. Initiate the development of a community of practice around open data management planning amongst IDRC grantees;

4. Build the capacity of grantees on open data management; and Communicate the lessons learned on effective open research data management practices within IDRC and beyond

Methodology

The overarching research question is: What are the essential components of an effective open access to research data policy for development research funders?

We will attempt to answer this question by generating, testing and refining a set of open data implementation guidelines through a series of pilot studies. We will use the framework of Hodson and Molloy to guide our analysis. We will also test the completeness of framework with respect to the specific issues of development research funders.

The project includes three components

1. A state-of-the art review on open access data management plans.
2. Eight open data pilot studies with volunteer IDRC grantees
3. Report and recommendations for IDRC and development funders on data sharing policies and guidelines to support project data sharing.

Literature Review

This will include an updated review of extant policies, scoping out the existing online resources that support data storage, interviews with research funders with open access to research data policies and with researchers who have implemented open access data management plans. The framework of Hodson and Molloy will be used to interrogate the policies. A particular focus will be the practical experience of funders on how policy decisions have an impact on the volume and quality of data sharing in practice.

Open Data Pilot Studies

Eight (8) open data pilot studies will be conducted with volunteer IDRC grantees with new and ongoing projects. This principally involves support (both financial and technical) for the development and implementation of an open data management plan. These eight cases will include a cross-section of IDRC supported research, as well as levels of capacity with respect to the management of open data.

The case studies will focus: on the following research questions:

- What types of support, both financial and technical, are required by IDRC partners to implement an open access data management plan effectively?
- What challenges do IDRC partners face with regard to carrying out data audits?
- What challenges do IDRC partners face with regard to the storage and maintenance of research data?

A maximum of eight projects will be included in the pilot. The projects should span the program areas supported by IDRC. The selection of projects will include:

- Early stage projects, where data management plan is still being developed
- Mid-stage projects, ones already have some kind of data management plan or have plans to provide open data, where some data has already been gathered but can use the collected data to test the guidelines
- At least one (1) project will be conducting research engaging with indigenous or locally developed knowledge
- The projects will be of various sizes
- The projects will represent a diversity of research methodologies
- The projects will be geographically distributed

Each participating project will be engaged in a process of auditing the data that they have, or expect to, produce as a precursor to developing a Data Management Plan. Where possible existing tools, such as the Digital Curation Centre DMP Online tool, will be used to develop DMPs. We will test the applicability and usability of these tools in a development research context. DMPs will include assessment of the following issues:

- What types of data will the project generate/collect?
- What standards will be used and why?
- How will this data be exploited and/or shared/made accessible for verification and reuse?
- If data cannot be made available, explain why.
- How will this data be curated and preserved?
- Identification of suitable research data repositories
- How to enable third parties to access, mine, exploit, reproduce and disseminate data, including consideration of licensing issues
- Providing information on the tools (or provide the tools) and instruments needed to validate the results

The pilot will also include online training via video conference to build the capacity of grantees and IDRC staff around open data management. Project staff resources will be provided to participating grantees to support data sharing activities and training will be provided. Expert monitoring throughout the project will support these activities.

Through the development of the Data Management and Sharing Plan, the data audit and provision of online training the project team will agree to goals with each participating pilot project. After four months each project will be interviewed to determine progress against those agreed goals. Goals will then be refined for the second half of the project. These reports and interviews will be used to support a case study report for each project.

After eight months the reporting process will be repeated in preparation for the final wrap up meeting (below). A report template and structured interviews will be used to identify issues and challenges throughout the project. The availability and discoverability of data

products from the project alongside the agreed goals will be used as the prompts for reporting and interviews.

As discussed above we will use the framework of Hodson and Molloy to organise and interrogate the challenges that projects face in sharing data. In particular there will be a focus on specific challenges associated with the limits to openness, scope of data to be included, and technical capacities that arise in a development research context.

Reporting and Recommendations

Case studies and feedback from the eight pilot project participants will be used to inform IDRC of specific issues that arise from data sharing in the context of these projects. The project will provide advice on refining the open research data policy guidelines in collaboration with the IDRC grantees. It will propose guidelines on Data Management and Storage based on the experience in the development research context.

The project will also collaborate with the grantees to determine if there is an interest and willingness within the group to share their knowledge and experience in a community of practice. If there is, it will determine if support is required by the group to establish goals, roles and responsibilities, and to identify a mode of communication.

Expert Advisory Group

The project will be supported by an expert advisory group (EAG) that will meet twice during the project and provide advice for specific pilot project participants. The EAG will meet at the beginning of the project to identify initial issues on implementation and policy with the IDRC policy. This meeting will then include project participants and discussion of challenges and issues that may arise, as well as approaches to overcoming them. The EAG will also participate in an assessment meeting at the end of the project both to critique the progress made by the pilot projects and to test the recommendations arising from the project.

Goals of the initial meeting:

- Review the IDRC ORD policy and critique the implementation guidelines
- Orient the volunteer grantees to participate in the pilot case studies
- Develop guidelines for the pilot projects
- Refine the monitoring and evaluation framework

At the final wrap up meeting the research lead of each participating project will be expected to participate at a roundup workshop at the conclusion of the pilot to share experience and lessons learned. The reporting (above) will be used as the basis for discussion with reflection based on draft case studies for response from the participants and experts.

Risk Assessment and Recommendations

See Table 1.

Table 1. Risk Assessment and Recommendations			
Risk Category	Risk Description	Risk Likelihood High, Medium or Low	Prevention Plan
Risks to achievements of objectives	An insufficient number of volunteer projects to participate in the pilot case studies are identified.	M	The call to Program Officers will be made through a variety of channels – PA Directors, Lyris lists and Friday coffee and the significance of the RSP will be clearly articulated.
	An insufficient number of volunteer projects are working with knowledge within indigenous contexts.	M	Program Officers responsible for projects working with indigenous knowledge will be identified and targeted.
	Program Officers do not have sufficient time to participate in the project.	H	The time commitment required from Program Officers will be described in the call and their ability to participate effectively in the project will be confirmed before their participation is finalized.
Risks to timing	The pilot case studies are not completed within eight (8) months.	M	The mentors and their grantees will collaborate on work plans with deliverables and completion dates. The work plans will be monitored by the principal investigators and the responsible officer.
Ethics considerations	Knowledge from indigenous sources cannot be made open due to IP rights concerns.	M	Examine this ethics consideration at the outset and determine how the needs/rights of all parties (grantees and indigenous participants) can be met.
Grantees capacity risk	Grantees do not have sufficient time to participate in the project.	M	The time commitment required from grantees will be accurately described in the call to Program Officers and confirmed before the volunteer grantees are selected.
	Grantees do not have the knowledge and experience required to manage and share research data.	L	The project workshop and project mentors will provide knowledge and support.

Communications

While there have been a range of data policy implementation projects across a range of research funders this IDRC project treads new ground in investigating research data sharing in the specific context of development research. This raises both issues of data ownership and ethics that are specific to development research as well as raising more prominently issues that are common to research data sharing generally.

Two core audiences are therefore research funders engaged in development issues, particularly those with a strong position on data sharing more generally (Wellcome Trust, Gates Foundation, and DFID) and research funders concerned more broadly with developing strong practice in collaboration and data sharing (with a focus on Canadian funders of the Tri-Council Group). Our focus will be on directly engaging the first group (through involvement in the workshop and wrap up meeting) and engaging the broader research funder community more generally through published reports, best practice documents, at meetings such as the Research Data Alliance, FORCE2016 etc. and potentially through a new community of practice around open data management and sharing planning.

Timeline and Activities

1. September 2015 - Submit the RSP PAD and budget
2. September 2015 - send an internal call to IDRC Program Officers to identify grantees to participate in the pilot case studies
3. September 28, 2015 - complete a draft of the monitoring and evaluation framework and metrics for success
4. October 31, 2015 - finalize the eight (8) volunteer grantees to participate in the pilot case studies
5. December 11, 2015 - complete the literature review and survey of funders/data infrastructure providers.
6. January 11-13, 2016 - Convene a three day workshop at IDRC - The Expert Advisory Group to meet on the first day and the eight (8) volunteer grantees and IDRC Program Officers to join the meeting for the last two days
7. The pilot case studies will commence in January 2016 and finish in September 2016 for a duration of eight months
8. Reporting: Project will be interviewed for a preliminary report after 4 months and at 8 months for the final report.
9. Wrap up meeting: The research lead of each participating project will be expected to participate at a roundup workshop at the conclusion of the pilot to share experience and lessons learned. The reporting (above) will be used as the basis for discussion with reflection based on draft case studies for response from the participants and experts. This will take place in October 2016.
10. Reporting: Final outputs to be delivered by November 2016 (see below)

Incentives and Supporting Measures for Pilot Participants

- Costs relating to the implementation of the pilot, including labour and infrastructure, will be covered by IDRC.
- Specific technical and professional support services will also be provided
- Each project will also be assigned a mentor from the Expert Advisory Group.
- Other incentive or recognition for providing open data will be considered as a key part of the pilot project.

Outputs and Outcomes

Outputs

1. 8 case studies
2. One journal article that synthesises lessons learned from 8 case studies
3. Summary report and recommendations to IDRC on identifying best practice and refining data sharing policy
4. An index of available data products from the participating projects with critical analysis of their usability, discoverability and evidence of use and wider interest

Outcomes

1. Eight (8) grantees to have an active and effective data sharing program in place. All eight to have released some data or have immediate plans to do so over the course of the pilot.
2. Improved knowledge and capacity to support the implement of the Centre's ORD policy within IDRC
3. Improvements to guidelines and best practice on Data Management and Storage for development research funders and their grantees
4. The 'seeds' of a community of practise around open data management and sharing planning

Roles and Responsibilities

Roles of IDRC Open Access Working Group Members

- Attend the 3 day workshop in November, 2015
- Review the preliminary and final reports
- Assist in evaluating the performance of the participating projects and the pilot project as a whole through attendance at the Wrap up Meeting

Roles of the Expert Advisory Group

- Attend the 3 day workshop in November, 2015
- Critique and refine the draft policy implementation guidelines
- Critique and refine the monitoring and evaluation plans for the pilot
- Provide expert advice and perspective to the pilot projects
- Review the preliminary and final reports
- Assist in evaluating the performance of the participating projects and the pilot project as a whole through attendance at the Wrap up Meeting

Roles of the volunteer grantees

- Attend the latter 2 days of the 3 day workshop in November, 2015
- Working (with support) to audit the data they expect to produce (or have produced)
- Producing (with support) a data management and sharing plan
- Implement the agreed data management and sharing plan
- Engaging with the mentors on monitoring the implementation of the data management and sharing plan
- Responding to analysis of the usage and discoverability of data generated by the project
- Reflecting on the experience of preparing and implementing the data management and sharing plan
- Attending the wrap up meeting to discuss the experiences and guide the further development of open research data policy implementation guidelines for development research funders

Project

Exploring the opportunities and challenges of implementing open research strategies within development institutions. IDRC Project:108131

Ethics and security

The project will be exploring ethical considerations related to the release of research data to the public. Of note, individual privacy concerns and issues of intellectual property will be studied within the eight case studies. Each case study implementer will also be asked to conform with the ethical protocols of their respective institutions and projects. All data sharing will be carried out by the projects themselves within existing regulatory, ethical and contractual arrangements that are in place.

Author contributions

LC and CN planned and wrote the proposal. The proposal was refined through multiple rounds of discussion with IDRC.

References

- Borgman C (2012) The conundrum of sharing research data. *Journal of the American Society for Information Science and Technology* 63 (6): 1059-1078. DOI: [10.1002/asi.22634](https://doi.org/10.1002/asi.22634)
- Hodson S, Molloy L (2015) Current Best Practice for Research Data Management Policies. Zenodo 2015: 1. DOI: [10.5281/ZENODO.27872](https://doi.org/10.5281/ZENODO.27872)
- Open Knowledge (2014) Open Definition v2.0. <http://opendefinition.org/od/2.0/en/>. Accession date: 2016 4 18.
- Pampel H, Dallmeier-Tiessen S (2014) Open Research Data: From Vision to Practice. In: Bartling S, Friesike S (Eds) *Opening Science*. 1. SpringerOpen URL: http://book.openingscience.org/vision/open_research_data.html [ISBN 978-3-319-00026-8]. DOI: [10.1007/978-3-319-00026-8_14](https://doi.org/10.1007/978-3-319-00026-8_14)
- Royal Society (2012) Science as an Open Enterprise. <https://royalsociety.org/topics-policy/projects/science-public-enterprise/report/>. Accession date: 2016 1 27.
- Walport M, Brest P (2011) Sharing research data to improve public health. *The Lancet* 377 (9765): 537-539. DOI: [10.1016/S0140-6736\(10\)62234-9](https://doi.org/10.1016/S0140-6736(10)62234-9)

Supplementary material

Suppl. material 1: Explorer les occasions et les défis que présente la mise en oeuvre de stratégies de recherche ouverte au sein des institutions de développement

Authors: Cameron Neylon, Leslie Chan

Data type: Grant Proposal

Brief description: A translation of the proposal into French. IDRC operates in both English and French as a Canadian Crown Corporation.

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