



Open Access/Open Data Implementation Plan

International Potato Center



Version 2.0

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Section 1: Introduction

1.1: Purpose of the Open Access and Open Data (OA/OD) Implementation Plan

Open Access is vitally important to increase the visibility, accessibility and impact of the research of CIP and other agricultural research for development stakeholders. A number of reports and studies have established that Open Access not only increases the visibility of research but also increases the citation rate of research and the utility of underlying data. CIP believes that Open Access (OA) and Open Data (OD) will help increase knowledge and use of CIP's information products and consequently further its mission as a research center.

CGIAR has agreed upon a set of Principles on the Management of Intellectual Assets¹ (March 2012) which states in Article 6.1 that “The Consortium and the Centers shall promptly and broadly disseminate their research results, subject to confidentiality as may be associated with [certain] permitted restrictions, or subject to limited delays to seek IP Rights [(patents, etc.)]”. These IA Principles and Article 6.1 in particular have led to the further development of a CGIAR Open Access Policy (October 2013). The Policy is accompanied by CGIAR Open Access and Data Management Implementation Guidelines that provide further details of recommended practices. The OA Policy Article 4.1.19 states that “An Open Access and Data Management Plan should be prepared in order to ensure implementation of this Policy. The Plan shall, in particular, outline the strategy for maximizing opportunities to make information products open access.” This document is the CIP Open Access and Open Data Implementation (OA/OD) Plan which demonstrates how CIP, as member of CGIAR, will comply with the CGIAR IP Principles and OA Policy requirements.

1.2: Scope of Open Access and Definition of Openness

This OA/OD Implementation Plan has been developed pursuant to the CGIAR Open Access and Data Management Policy (adopted 2013) and the CGIAR Open Access and Data Management Implementation Guidelines (adopted 2014). This policy framework stipulates that Open Access is required for all CGIAR information products, such as:

- Peer reviewed journal articles
- Published reports and other written materials
- Books and book chapters
- Datasets (completed datasets and data related to publications).²
- Video, audio, and images
- Computer software

¹ The CGIAR IA Principles are available at <http://bit.ly/XaxoDZ>

² This plan relates to completed datasets and datasets that underpin publications not project working data or raw data. This corresponds with the CO OA Implementation Guidelines which note: “Final information products. The emphasis of the Open Access and Data Management Policy is on final research outputs – those information products (regardless of format) that are “stable” and unlikely to undergo further change (e.g., post-publication materials, datasets collected over the life of a project that has ended, etc.). Data Management and Open Data. These Guidelines focus on data within the context of Open Access – in other words, making final versions of research outputs (including data sets, etc.) openly and freely accessible for use and re-use by others. Data Management is addressed in as much as it affects making data OA.”

and includes CIP's own publications, with the exception of those subject to narrow limitations such as:

- a) Final information products produced prior to 2 October 2013 (i.e. the effective date of the CGIAR Open Access and Data Management Policy);
- b) Information products that are unstable, unlikely to undergo further change or contain characteristics which are assessed to be of limited value to others (e.g. due to low quality);
- c) Information that is determined to be of a sensitive nature due to considerations including privacy, price and political sensitivity, adverse effects on farmer's rights, etc.
- d) Confidential information associated with permitted restrictions or subject to limited delays to seek IP rights pursuant to the CGIAR IA Principles;
- e) Confidential information of Centers beyond the scope of the CGIAR Open Access and Data Management Policy or the IA Principles (for instance, HR hiring documents, personnel records, certain types of financial records, certain types of contracts or vendor agreements, private Board of Trustee minutes all include sensitive and/or confidential information and will not be included in OA repositories).

For the purposes of the CGIAR Open Access and Data Management Policy and this plan, Open Access means the immediate (prompt), irrevocable, unrestricted and free online access by any user worldwide to information products, and unrestricted reuse of content (which could be restricted to non-commercial use and/or granted subject to appropriate licenses in line with the CGIAR IA Principles), subject to proper attribution.

1.3: Overview of CIP

The International Potato Center, known by its Spanish acronym CIP, was founded in 1971 as a root and tuber research-for-development institution delivering sustainable solutions to the pressing world problems of hunger, poverty, and the degradation of natural resources. CIP is truly a global center, with headquarters in Lima, Peru and offices in 18 developing countries across Asia, Africa, and Latin America. Working closely with our partners, CIP seeks to achieve food security, increased well-being, and gender equity for poor people in the developing world. CIP furthers its mission through rigorous research, innovation in science and technology, and capacity strengthening regarding root and tuber farming and food systems. CIP is a member of the CGIAR Consortium, a global partnership that unites organizations engaged in research for a food secure future. CGIAR research is dedicated to reducing rural poverty, increasing food security, improving human health and nutrition, and ensuring more sustainable management of natural resources. Donors include individual countries, major foundations, and international entities.

CIP has approximately 700 staff, of which a third are scientific staff. After South America, that hosts 56% of CIP's staff, SSA is the region with the second largest concentration of staff, around 30% or 200 staff members. Over the last 5 years CIP staff has produced a mean of 74 peer-reviewed papers a year. Journals where CIP staff have published the most in include: PLoS One (6), Plant Disease (8), Archives of Virology (6), Virus Research (5), Genetic Resources and Crop Evolution (6), American Journal of Potato Research (12), Potato Research (9), and Potato Journal (10).

CIP had revenues of 72.4 million USD in 2014 and 70% of W3 and bilateral projects are funded by five main donors: USAID, BMGF, DFID, BMZ-GIZ and Irish Aid. Of these, USAID, BMFG, DFID, and BMZ-GIZ all have some degree of Open Access and/or Open Data policies. For a full list of funding partners please see: <http://cipotato.org/about-cip/finances/>

1.4: Overview of Current OA/OD Environment at CIP

CIP is in the early stages of implementing OA and OD across the organization.

Publications

Early in 2015, CIP adopted CGSpace, an installation of DSpace adopted by several of the CGIAR Centers, CRPs, and partners, as its open access repository for publications (peer-reviewed journal articles, books and book chapters, photographs and videos) in order to comply with the Open Access policy that was adopted in November 2013. CIP is one of 26 communities using CGspace; CGspace is hosted and coordinated by ILRI.

Presently we have 635 items in CGSpace (mostly peer reviewed journal articles), that date from 2011 to 2015. The repositories include 142 items from 2013, 189 items from 2014, and 39 items published in 2015. The InMagic repository, that has served as CIP's primary internal repository for 35 years will be gradually phased out as new publications continue to be uploaded into DSpace.

CGspace is available at <https://cgspace.cgiar.org/handle/10568/51671>.

Datasets

CIP generates data on germplasm of potato, sweetpotato and other root and tuber crops (e.g., passport data, genetic/genomic data, characterization, evaluation, surveys), on community seed banks, pre-breeding and breeding, crowd sourcing, GIS and remote sensing, modeling, household survey data among others. Data sets are currently uploaded into a combination of CIP's repositories and externally-hosted repositories.

CIP's repositories: CIP uses Biomart as an open access data repository (www.cipotato.org/biomart). The database has 453 datasets; 11 of these data sets are fully downloadable without restrictions. Over the next three years, we plan to "open up" around 70% of the data that currently exists in Biomart.

External repositories: CIP contributes data to non-CIP repositories, such as The Global Agricultural Trial Repository (agtrials.org), RTB Maps (rtb.cgiar.org/RTBMaps/), Sweet Potato Base (sweetpotatobase.org); Genesys - Global portal to information about Plant Genetic Resources for Food and Agriculture (genesys-pgr.org), Crop wild relative and climate change (cwrdiversity.org), Collecting mission database and field book repositories (bioversity.github.io/geosite), among others.

CIP will adopt Dataverse as its default repository for final data starting with data linked publications, dating November 2013 onwards. Data may continue to exist in Biomart, if relevant, but must be uploaded to Dataverse, once it is final.

We will encourage Dataverse adoption at early stages of the data cycle, and this will also serve as a workspace whereby researchers can share, edit and curate data prior to its release; providing a secure place to store and archive finalized research data once a project is completed.

DSpace and Dataverse platforms were chosen at the recommendation of the CGIAR Office, as reliable tools for sharing, and promoting our research outputs; as well as having the important elements of interoperability with other systems including being Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) compliant. Both DSpace and Dataverse are used by other CGIAR centers. Biomart is already in use at CIP and will continue to be used as a complementary tool.

Metadata:

For metadata, CIP has adopted 15 CG Core Metadata Schema and added 3 additional metadata elements: (Crop, Status, Quality Indicator).

CIP maintains the Crop Ontology for Potato and Sweetpotato website to provide controlled vocabularies on crop traits, experimental design and environment of evaluation trials. Ontologies and trait dictionaries are online for potato http://www.croponontology.org/ontology/CO_330/Potato and sweetpotato http://www.croponontology.org/ontology/CO_331/Sweetpotato.

Informatics Code:

The code of the informatics products currently developed and maintained by CIP Research Informatics Unit was published in 2013 on the Github Open Repository: <https://github.com/>. Additionally, CIP's statistical packages and codes are available in the Comprehensive R Archive Network (CRAN) (ex. Agricolae R-package).

1.5: Information Products and Priorities

Publications:

CIP has deposited CIP-authored scholarly, peer-reviewed research papers from 2011 to 2015 on CGspace. Peer-reviewed research papers have been the priority and will continue to be the priority in 2016.

Other document types that will be prioritized in 2016 include conference proceedings, posters, books, book chapters and reports.

Datasets:

Priority will be given to datasets linked to research publications starting with datasets completed in 2013. CIP will begin contacting authors of publications published in 2013 to get the linked data to make it open access as well.

Efforts will be made to collect datasets from projects in progress, such as mentioned above in section 1.4.

Should the datasets not be ready, a strategy that CIP will adopt during this transition period is to request metadata for upcoming datasets from the researcher. This way the metadata (including data such as the author's contact details) will be available on Dataverse and can be used for resource discovery. While not

ideal, and it cannot be considered “Open Access”, this method will prepare CIP for the culture of open sharing that will become the norm as we move forward.

One of the reasons DSpace and Dataverse have been chosen is that they can easily be linked to each other and it is envisaged that users will appreciate access to datasets that form the basis of our research publications and therefore we will focus on making those links explicit where appropriate using the functionality of the two platforms.

1.6: Deposit Schedules for Information Products

The timeframes stated in the Implementation Guidelines (Table 1) reflect the minimum deposit commitments made by CGIAR Centers during the transition period until 2 October 2018, after which the deposit schedule contained in the Policy becomes binding.

Table 1: Deposit Schedules from the CGIAR Open Access & Data Management Policy and Implementation Guidelines

Types of Information Products	Transition Deposit Schedule (until October 1, 2018)	Policy Deposit Schedule (from October 2, 2018)
Peer-reviewed versions of journal articles	As per the Policy Deposit Schedule unless OA is prohibited or subject to a longer embargo period by publisher	Ideally, at the time of publication Latest: 6 months from publication
CIP-published journals, books, reports etc.	Immediately	CIP-published materials not currently addressed in the Policy
Reports and other papers	As soon as possible Latest: within 6 months of completion	As soon as possible Latest: within 3 months of completion
Externally or commercially published books and book chapters	As per the Policy Deposit Schedule	As soon as possible Latest: within 6 months of completion
Data and data sets	As per the Policy Deposit Schedule	As soon as possible Latest: within 12 months of completion of data collection or appropriate project milestone, or within 6 months of publication of the information products underpinned by that data
Video, audio, scientific images	As soon as possible Latest: within 6 months of completion	As soon as possible Latest: within 3 months of completion
Photographs	As soon as possible Latest: within 6 months of completion or publication	As soon as possible Latest: within 12 months of completion or publication
Computer software/applications/code	As soon as possible Latest: within 6 months of completion	Upon completion of software development
Metadata	As soon as possible Latest: before or on publication of the information product	As soon as possible Latest: before or on publication of the information product or if Open Access restrictions are in place, Metadata will be made open access after 12 months following completion of the project.
Core/corporate governance documents appropriate for public consumption	e.g., financial reports, board agendas and minutes, annual reports, as appropriate As soon as possible	As per 'reports' category of Information Product (Core/corporate governance documents not currently addressed separately in the Policy)
Automated deposit extensions	Certain types of information products (in particular data collected pursuant to hypothesis-driven research) may take longer than 12 months to clean, analyze and publish. Thus, 12 months should be seen as the aim, with 24 months as the long-stop date for making such data Open Access.	A long-stop date of 24 months is not currently included in the Policy

While the Policy is designed to make final information products available via Open Access as quickly as possible, this transition process will take time.

1.7: Exceptions and Extensions to the Deposit Schedule

Certain information products (i.e., data collected pursuant to hypothesis-driven research) may take longer than 12 months to cleanse, analyze and publish. Thus, 12 months should be seen as the aim, with 24 months as the longest acceptable deadline for making such data Open Access. By the end of the implementation phase, 12 months will be the standard³.

The general principle is to make information products Open Access, but that is “subject to the legal rights and legitimate interests of stakeholders and third parties, including intellectual property rights, confidentiality, sensitivity (including price and politically sensitive information) and privacy.”

Data sets:

During the transition period, an internal procedure to manage exceptions will be instituted. The proposed procedure includes identifying potential exceptions as part of the project start up meeting. Once the data has been finalized, the investigator may apply for certain datasets to be exempt from being posted open access. The investigator must submit a request for exemption to the DDG-R&D and the Compliance and IA (CIA) Manager, including the basis for the exception. Both the DDG-R&D and the CIA Manager must approve the request for the datasets to remain closed. The decision must be documented and linked to the dataset. Annually, all exemptions will be compiled into the IA Report submitted to the Consortium.

Software:

Some software products (databases, portals, tools) are subject to numerous and long term cycles of code and content modifications. Therefore such products are generally submitted as new versions and new releases become available. There should be a prior agreement with project partners and developers that the deposit will be done for the first version that is fully compliant as described in the project output, along with versioning documentation as subsequent versions are released following the deposit date.

³ While the CGIAR Open Access & Data Management Policy indicates that “12 months should be seen as the aim, with 24 months as the longest acceptable deadline for making such data Open Access,” other funding agency policies such as the Bill & Melinda Gates Foundation Open Access Policy have stricter timelines. For instance, the BMFG OA Policy indicates: “**Data Underlying Published Research Results Will Be Accessible and Open Immediately**. The foundation will require that data underlying the published research results be immediately accessible and open.” (<http://www.gatesfoundation.org/How-We-Work/General-Information/Open-Access-Policy>)

Section 2: Strategy and Implementation Overview

2.1: Overview of Strategy and Approach to Implementation

The CGIAR OA Implementation Guidelines provide milestones for implementing the CGIAR OA/OD Policy and we will adhere to the recommended timeframe for making all CIP information products available in the Open Access repositories. Depending on the timeframes established and the longevity of any restricted access to our existing information products payment for publisher for Article Processing Charges (APC) may be required to ensure current publications can be included in the open repository.

CIP will develop supporting processes and workflows linking back to our framework Project Life Cycle. We have defined a Publications Cycle and Data Management Cycle that feed into the Post Award section of any project at CIP. These two cycles will guide all processes related to Open Access at CIP.

Publications: The CIP Library will have a critical role to implement Open Access in CIP, via the Publications Cycle. The library will become a source of resources and offer guidance available to scientists about Open Access journals and Open Access related terms and conditions, especially at early stages of the research planning through project completion when information products are published and available for the institutional repository. CIP scientists should take into account the implications of the Open Access Policy as they plan and execute their research. This includes obtaining signature approval from the Compliance and IA Manager before agreeing terms with publishers for any future publications.

Data collection and management: CIP's Open Data and Data Management Policy and Implementing Guidelines will support data collection and management to ensure that standard approaches are used and due consideration is given to quality and ethical issues such as gaining Prior Informed Consent (PIC), ensuring the anonymization of data, etc. The Research Informatics Unit (RIU) will provide support along this cycle.

Quality: The quality of the information products covered by the Policy must be considered, especially in reference to data. CIP scientists should prioritize resources to ensure that high quality products available. Further guidance on this is available in the CGIAR Open Access Implementation Guidelines and CIP's Open Data and Data Management Guidelines.

Processes and workflows: Once in place, the CIP Knowledge Management function will establish, maintain and manage workflows for all research outputs. This function will ensure that effective and efficient articulation of the different processes is in place across the organization.

2.2: Goals and Objectives

During this transition period of 2015 through to 2018 the main goal for CIP is:

To fully implement Open Access-FAIR (Findable, Accessible, Interoperable and Retrievable) according to standards in existing CGIAR and donor policies (whichever is more stringent), and substantially improve the visibility and use of all the information products that result from our research activities. We will achieve this by setting ambitious but realistic milestones to make incremental progress towards this goal.

We can achieve this goal by pursuing the following objectives:

- **Objective 1: Approved policies, workflows and processes, and implementation plan**
CIP is working on Open Access and Data Management Policies and Guidelines that will contain more detailed guidance on how to implement Open Access across the organization. We expect to complete these policies and associated workflows and processes in September and October 2015 to have them formally approved before the end of 2015.
- **Objective 2: Raise awareness and build capacity**
Increase the awareness of Open Access across the organization and build capacity among all researchers. This will be done as part of the communications and change management strategy 2015-2018 and will include a launching campaign, presentations, information sessions, seminars, orientation programs, supporting Open Access Pack, amongst other mechanisms, during the transition period up till 2018.
- **Objective 3: Formally launch CIP's Open Access repositories**
While CGSpace and Biomart are already in use, we will formally launch and adopt them to support increased access to open knowledge, and we will implement and adopt Dataverse as CIP's primary data repository.
- **Object 4: Adopt FAIR**
All information products and data released from November 2013 onwards will now be uploaded into CGSpace or Dataverse, will be made fully accessible to the public, and will include detailed descriptive and technical metadata. Publications and their linked data are the priority and will be followed by the remaining information products named in the policy.
- **Objective 5: Develop and Implement an Incentive and Compliance Plan**
Integrate Open Access into staff contracts, performance evaluations, and incentive programs for staff.
- **Objective 6: Formalize a Knowledge Management (KM) and Open Access function for CIP**
Create Terms of Reference (ToR) for this office and a dedicated budget. Enhance ToR for the Head of the Library as well as the RIU staff (Data Managers, Data Curators) to evolve these positions to become strategic support to researchers during the research planning and reporting cycle and to enhance the discoverability and dissemination of research after it has been completed.
- **Objective 7: Integrate OA with M&E Processes**
Automate reports specific to M&E requirements.
- **Objective 8: Develop a Plan together with RTB PMU to implement OA**
All CIP staff working on and RTB funded project must at a very minimum follow CIP's Open Access and Data Management policies unless the RTB Open Access policies are more stringent.
Work with RTB PMU to plan for OA/OD in the 2nd call for CRPs. CIP repositories will be available to host RTB information products relating to CIP's mandate crops.

- **Objective 9: Adopt the CGIAR Core Metadata Element Set within CIP Repositories**
Maintain and be actively involved in discussions and decisions related to CG Core. CG Core will be used for all CIP repositories, including CGspace, Dataverse, and Biomart and will be used to describe publications, data sets, and other types of research outputs.
- **Objective 10: Ensure that Data Sets Generated with Partners will be Open Access**
Through clear IP clauses in contracts/LoAs, ensure that data sets generated by partners for CIP-affiliated research is made openly accessible. Assistance from the Compliance and IA Manager is required here, along with coordination and collaboration from the Grants and Contracts Office.
- **Objective 11: Adopt Linked Open Data (LOD) as Possible**
Publish Data deposited in Dataverse via Resource Description Framework (RDF) for Linked Open Data (LOD). When possible, begin using LOD in all open repositories to further discovery and uptake of CIP's research outputs.
- **Objective 12: Track and Monitor OA Progress and Uptake**
Adopt new tools such as altmetrics to help track and share downloads, page views, social media shares, and other indicators of access and usage. Share such statistics with researchers on a regular basis. Analyze data to identify opportunities to enhance discoverability and increase visibility of CIP's research outputs.
- **Objective 13: Develop and Implement a Plan to Make "High Value" Legacy Data and Information Products Open Access**
Work with SO/DCE leaders to identify and prioritize high-value data sets produced by CIP researchers. Establish a process to clean, describe, and disseminate selected data sets and information products as feasible.
- **Objective 14: Establish a Coherent and Sustainable Funding Plan for Open Access.**
Incorporate Open Access and Open Data as a line item in upcoming project proposals. Determine how to establish a sustainable funding model for Open Access publication fees/article-processing charges, repository maintenance and development, staffing, short-term and long-term preservation fees, etc.

2.3: Timelines and Milestones

- **Objective 1 Approved policies, workflows and processes and implementation plan**

Milestone 1.1: Versions 1.0 of CIP policies, workflows, guidelines and implementation plan approved.

Timeline: September-December 2015

Milestone 1.2: During 2016, institute a six-month review of the policies, processes, and guidelines in place and make changes as needed to improve implementation. Subsequently, on a yearly basis, review policies, processes, guidelines and implementation plan and revise as appropriate.

Timeline: January 2016-December 2018.

- **Objective 2: Raise awareness and build capacity**

Milestone 2.1: Launch campaign for Open Access internally in CIP HQ

- Elaborate a communications and change management strategy for Open Access
- Include an incentive program for Open Access
- CIP Open Access Support Pack (version 1.0) made available
- Schedule for campaign in place

Timeline: October - December 2015

Milestone 2.2: Visit to the SSA and Asia Regions to launch campaign.

Timeline: January-April 2016

Milestone 2.3: Develop a training and capacity building plan to address needs of researchers at HQ and in the regions.

Timeline: January-June 2016

Milestone 2.4: Implement a training and capacity building plan.

Timeline: January-December 2016

- **Objective 3: Approve and implement repositories**

Milestone 3.1: Formalize CGSpace as CIP's institutional repository for publications, and other information products except data.

Timeline: September-December 2015

Milestone 3.2: Formalize Dataverse as CIP's institutional repository for final data linked to publications as well as final data sets.

Timeline: September-December 2015

Milestone 3.3: Set up Dataverse at CIP.

Timeline: September-December 2015

Milestone 3.4: Begin using Dataverse for socioeconomic data.

Timeline: January - June 2016

Milestone 3.5: Increase the percentage of openly-accessible material in Biomart.

Timeline: 2016-2018

- **Objective 4: Adopt FAIR**

Milestone 4.1: Institutional decision to adopt CC-BY 4.0 or CC-BY-NC 4.0

Timeline: December 2015

Milestone 4.2: Establish criteria for scoring or measuring FAIR adoption.

Timeline: October - December 2015

Milestone 4.3: Develop a plan to improve visibility and discovery of materials already in the repositories by enhancing the metadata and encouraging harvesting from other compliant repositories.

Timeline: October 2015 - March 2016

- **Objective 5: Develop and implement an incentive and compliance plan**

Milestone 5.1: Integrate Open Access into staff contracts

Timeline: December 2015-July 2016

Milestone 5.2: Integrate Open Access into staff work plans and performance evaluations

Timeline: December 2015-March 2016

Milestone 5.3: Integrate Open Access into Orientation Program

Timeline: January 2016-June 2016

- **Objective 6: Formalize a Knowledge Management function for CIP**

Milestone 6.1: Develop ToR for Head of KM and agree on funding plan for 2016.

Timeline: December 2015

Milestone 6.2: Head of KM on board.

Timeline: July 2016

Milestone 6.3: Expand scope and range of services of RIU and the Library in a scalable and sustainable way. New ToRs for RIU and Library approved and socialized.

Timeline: December 2015.

- **Objective 7: Integrate Open Access into M&E processes**

Milestone:

Timeline:

- **Objective 8: Develop a Plan with RTB PMU to implement Open Access**

Milestone 8.1: Final submission for RTB includes Open Access section.

Timeline: March 2016

- **Objective 9: Adopt the CGIAR Core Metadata Element Set within CIP Repositories**

Milestone 9.1: In CGspace, revise metadata for existing records to ensure compliance with CG Core.

Timeline: January - June 2016

Milestone 9.2: Enhance subject keywords and other descriptive metadata records in CGspace to enhance discoverability and improve visibility of manuscripts and articles produced by CIP authors. Initial focus on peer-reviewed articles published after October 1, 2013.

Milestone: January - June 2016

Milestone 9.3: Plan to implement CG Core within BioMart.

Timeline: January - June 2016

Milestone 9.4: Implement CG Core as part of Dataverse launch.

Timeline: September - December 2015

Milestone 9.4: Represent CIP's interests in discussions and decisions related to CG Core. Participate in Consortium-wide discussions related to guidelines, implementation issues, and revisions to CG Core.

Timeline: 2016 - 2017

- **Objective 10: Ensure that any data sets generated with partners will be Open Access through clear IP clauses in contracts/LoAs.**

Milestone 10.1: IP clauses for contracts developed/updated.

Timeline: January 2016 -ongoing

- **Objective 11: Adopt Linked Open Data (LOD)**

Milestone 11.1: Publish the data deposited in Dataverse into Resource Description Framework (RDF) for linked open data (LOD)

Timeline: 2017

Milestone 11.2: Adopt LOD within CGspace.

Timeline: Will be determined by DSpace functionalities, upgrades, and CGspace adoption schedule.

- **Objective 12: Track and Monitor OA Progress and Uptake**

Analyze data to identify opportunities to enhance discoverability and increase visibility of CIP's research outputs.

Milestone 12.1: Adopt altmetrics within CGspace to help track downloads, page views, social media shares, and other indicators of access and usage.

Timeline: January - April 2016, dependent upon CGspace timeline

Milestone 12.2: Develop template for capturing and sharing downloads, page views, social media shares, and other indicators of access and usage by SO/DCE.

Timeline: January - April 2016, dependent upon CGspace timeline

Milestone 12.3: Issue first reports.

Timeline: April 2016

Milestone 12.4: Improve reporting by highlighting analytics that trigger improvement processes.

Timeline: September 2016

- **Objective 13: Develop and implement a plan for “legacy” data.**

Milestone 13.1: Develop a priority list of datasets along with SO and DCE leaders.

Timeline: January 2016

Milestone 13.2: Work with CPAD to identify CIP-produced materials where CIP owns the copyright; begin depositing materials to the repository. Goal of 100% of CIP-copyrighted materials into the repository by December 2017.

Timeline: 2016 – 2017

- **Objective 14: Elaborate a coherent and sustainable funding plan for OA**

Milestone 14.1: Develop an Open Access budget, both for the transition period and the maintenance phase

Timeline: September - June 2016

Milestone 14.2: Develop a funding plan and cost recovery mechanisms

Timeline: September - June 2016

Milestone 14.3: Refine and update budget and funding plan as needed

Timeline: 2016, 2017, 2018

2.4: Anticipated Needs and Challenges

Schedule Challenges

- Administrative changes may take more time than anticipated due to management approval processes.

Budget Needs

- Yearly maintenance costs for the CGSpace platform
- Budget allocation for the Head of KM
- Library staff time for establishing processes and provide continued support.
- RIU staff time for establishing processes, ensuring data quality and ontology standards, provide Biomart maintenance, and provide continued support.
- Dedicated IP resource for OA
- Communication costs to support change management
- Travel costs to support roll-out globally
- Travel costs to represent CIP at CGIAR open access meetings
- Open Access fees
- Open Access maintenance in perpetuity

Resource availability and skill sets

- Open Access for data: data management and curation resources and skills at the project and RIU levels
- Open Access for publications and curation resources and skills at the Library level
- Skills at the researcher level specifically there are needs in data standardization and ontologies (e.g., clone selector).
- Increasing demand for dedicated IP resource.

Technology to be acquired, updated, maintained, installed, etc.

- OAI-PMH compliance for databases and repositories.
- Open Access maintenance in perpetuity

Awareness, compliance, challenges

- Resistance to change
- An internal communications and change management plan must be robust. Awareness campaigns led by the Consortium with support from donors to lend legitimacy would help.
- Senior Leadership sponsoring the initiative will reinforce Open Access as an institutional imperative
- Library staff time as a “consultancy role” to guide clients through the process of compliance with the new policy. Initially more time will be dedicated to this area of work to assist and guide staff; at the expense of other areas of work.
- Incoming Head of Knowledge Management or function will provide support and training for scientists in the Open Access preparation & publication of their data sets

Administering article processing charges (APCs) at scale

- No budget to pay for APCs for publications that were issued starting November 2013 that did not include this as a budget line in their budgets. No central fund for this. May impede and/or delay process. We will have to implement a mitigation strategy, for example, identifying journals that offer APC waivers.

Supporting researchers' questions and concerns around OA publishing and deposits

- Seminars, information sessions, Q&A, backstopping roles for RIU and Library, etc...

Supporting researchers' questions and concerns around data management and data quality

- Seminars, information sessions, Q&A, backstopping roles for RIU and Library, etc.

2.5: Lead Centers, Participating Centers and Partners

Information products produced by lead Centers and participating Centers (including partners) in CRPs are subject to the Open Access and Data Management Policy. Agreements put in place after 2 October 2013 should be carefully negotiated to ensure that any restrictions on sharing data under a research and/or development project are limited in duration, territory and/or field of use, if applicable, and fully justifiable by reference to the CGIAR IA Principles (i.e., in particular articles 6.2, 6.3, and 6.4)⁴ and the CGIAR Open Access and Data Management Guidelines.

As part of RTB, CIP will ensure that the information products that it produces are Open Access. CIP will also serve as the "host" repository for potato and sweetpotato information products and integrate any non-CIP generated information products into these repositories that are also compliant with CIP's policies.

⁴ Article 6.2 is on "Limited Exclusivity Agreements," Article 6.3 is on "Incorporation of Third Party Intellectual Assets" and Article 6.4 is on "Intellectual Property Rights," all part of the CGIAR IA Principles.

Section 3: Technical Infrastructure

3.1: Repository Systems

CIP will use two open access repositories to archive and curate its research outputs, in accordance with the CGIAR OA Policy.

For publications: the CGSpace platform is being used to provide access to our research publications. This platform meets the industry standards for interoperability and metadata. The repository can be found at <https://cgspace.cgiar.org/handle/10568/51671>

For more detailed information please refer to section 1.4

For data: the Dataverse platform will be adopted to archive and curate datasets linked to research publications. This platform meets the industry standards for interoperability and metadata. The repository can be found here: <http://thedata.harvard.edu/dvn/dv/CIP>

For more detailed information, please refer to section 1.4

3.2: Interoperability

Dataverse and CGSpace provide the necessary interoperability when combined with relevant metadata that will enable retrieval of specific datasets.

Dataverse has an API (a protocol that specifies how the software interacts with other programs) to search and access the datasets and will soon provide features for the conversion of data into the Linked Open Data compliant formats (RDF).

3.3: Metadata

CIP has adopted and uses the CGIAR Core Metadata schema in CGSpace and will adopt it in Dataverse once that repository has been launched.

Both repositories used by CIP contain persistent IDs that are very important for the re-use of data and for citation of both paper and data sets. Dataverse uses the Digital Object identifier (DOI) protocol; while DSpace uses the hdl. handle protocol.

The next version of CGSpace proposes to use and Open Researcher and Contributor ID (ORCID) for researcher identification that will enhance the consistency of names in the CGIAR Core Metadata.

3.4: Data Storage and Preservation for Future Use

CIP will develop repositories that fulfill the requirements for storage and maintenance for future use of its different information products. These criteria will also be important in the selection of future repositories that may exploit technological advances to facilitate better storage and maintenance for future use.

As part of its preservation activities, CIP is committed to responsible and suitable management of information products deposited in its Dataverse and CGSpace repositories.

Digital preservation is an evolving field. CIP bases its preservation strategy on the Open Archival Information System (OAIS) reference model (ISO 14721:2012); this strategy will continue to evolve and is informed by current and emerging best practices.

Efforts will be taken to preserve any work submitted to CIP Dataverse and CGSpace repositories. Contributors are strongly encouraged to deposit information products in a recommended file format to facilitate long-term preservation. See list below of recommended file formats. For files in other formats, a derivative copy in a more stable format should be created if feasible. In these cases, both versions and associated metadata should be deposited.

CIP Dataverse and CGSpace repositories will provide long-term access to submitted works along with associated metadata. In order to provide long-term access, CIP will: backup files in a secure and redundant manner, periodically refresh the storage media, and migrate obsolete file formats for files stored in recommended open file formats. Daily backups to the Amazon Cloud service will be used.

At this time, CIP is committed to preserving the bit stream of files. All works submitted to the CIP Dataverse and CGSpace repositories will receive a persistent URL. This policy will be reviewed annually to ensure practices are consistent as technology and best practices evolve.

Recommended file formats for data and publications:

Format	File Extensions
Acrobat PDF/A	.pdf
Comma-separated values	.csv
Open Office formats	.odt, .ods, .odp
Plain text (US-ASCII, UTF-8)	.txt
XML	.xml
Shapefiles and raster files for GIS data	.shp, .tifw, .asc
Multimedia and pictures	.jpg

3.5: Limited Internet Connectivity

In order to maximize uptake within these environments, CIP will take into consideration users with limited internet connectivity to ensure that alternative versions of documents, multimedia and data are available that require minimal data download as appropriate. For example, making publications available in easy to load HTML format or “text only” format is one such solution. Publications stored as a large PDF files will also be made available as separate files (e.g. Chapters).

Section 4: IPR/Intellectual Assets

4.1: CGIAR Principles on the Management of Intellectual Assets

The CGIAR IA Principles and associated implementation guidelines provide for the prompt and broad dissemination of research results, which means that information products should be made openly accessible as soon as possible. Article 1 of the Open Access and Data Management Policy states: “this Policy complies with the CGIAR Principles on the Management of Intellectual Assets (‘CGIAR IA Principles’), which is the umbrella document for this Policy.” The assumption of Open Access may be challenged by reference to the allowable/reportable restrictions and exclusions set out in the CGIAR IA Principles and associated implementation guidelines, and the guidance in these Guidelines that allow for restricting Open Access in certain circumstances.

4.2: Open Licenses

Article 4.1.5 states that ‘Suitable open licenses shall be used that recognize the legal rights to information products and encourage their use and adaptation.’

In addition to providing greater access to knowledge, Open Access and Open Data also allows others to reuse information products through appropriate open licenses.

A variety of open licenses exist. The implementation plan will include the use of the Creative Commons Attribution licenses (CC-BY 4.0 or CC-BY NC 4.0) which are becoming the norm for Open Access and Open Data policies (and is in fact mandated by the Bill and Melinda Gates Foundation).⁵ The GNU General Public License (GNU GPL) is currently used for software and programming code.⁶

4.3: Guidance for Authors

Authors may continue to publish in the journals that they have always published in as long as they are compliant with the policy. They should consider different journals that prioritize Open Access. However it is important to be aware that tools exist that they can use in order to retain certain rights as the author of their paper. One such tool is the ‘Author Addendum’. The Author Addendum is a legal document that accompanies the publishing agreement which aims to secure permission to immediately deposit the publisher’s version of the paper (PDF), in an open access repository no later than 6 months from publication. The CGIAR has developed such an addendum, and has also provided a factsheet that provides guidance for authors. Both the addendum and the factsheet can be found at the following URL: <https://docs.google.com/viewer?a=v&pid=sites&srcid=Y2d4Y2hhbmdlIm9yZ3xvYWQtc3VwcG9ydC1wYWNRfGd4Ojc3MWU4NTEwMTk0YTIwZjc>

⁵ Creative Commons Attribution 4.0 License: <http://creativecommons.org/licenses/by/4.0/>

⁶ GNU General Public License: <http://www.gnu.org/licenses/#GPL>

4.4: Translations

Article 4.1.7 of the CGIAR Open Access and Data Management Policy states that ‘Translations of key documents and other media into pertinent languages are encouraged. All versions should be deposited in suitable repositories and made Open Access.’

CIP commits to adopt of CC-BY 4.0 or CC-BY 4.0 NC licenses; these licenses allow for re-use of information products, including translations.

Section 5: OA/DM Teams and Staffing

5.1: Day-to-Day Operations

Open access requires new processes and workflows to support it. Both the publications workflow and the data workflow, which are normally linked, operate within CIP's Project Lifecycle. Our strategy will be to embed these lifecycles as much as possible in existing processes within Phases 5 to 7 in the Post-Award section of the Project Life Cycle.

Fig.1: CIP's Project Life Cycle



CIP Library

The mission of CIP's Library will be expanded to include oversight and support to the publications workflow. Cecilia Ferreyra, as Library Officer, will be the main focal point for Open Access at CIP focused on:

- Open Access publishing, and;
- the day-to-day operations with the curation and maintenance of the institutional repository in CGSpace.

Research Informatics Unit (RIU)

The mission and scope of the Research Informatics Unit will be enhanced to include support to the Data Management cycle, including making data that underpins publications openly accessible in our institutional repository, in Dataverse.

Initially 1 FTE will serve as focal point for Open Access of data, focused on:

- uploading the final datasets and;
- the day-to-day operations with the curation and maintenance of the institutional repository in Dataverse.

Although data management for project data is the responsibility of the respective scientists, who do their own data formatting, cleaning and preparation for eventual publication, RIU will offer support along the different phases of the data cycle to promote quality, best practices and harmonization where relevant. This support will be provided as requested.

Currently there is no staff employed specifically as data managers at CIP. CIP will develop a base set of skills around data management within RIU, to support and complement project resources and skills. We acknowledge the diversity of datasets in CIP's portfolio and how these need to be handled differently. So the RIU will provide customized support. Eventually, some RIU resources will be posted regionally, to provide a more agile support to the region.

The process of uploading final data in Dataverse will be monitored by RIU, with a high level of involvement in the initial phases of implementation that may decrease as researchers develop the expertise.

Close coordination between RIU and the Library is an essential element for this model to work.

KM and Open Access Officer

CIP plans to add resources for high level oversight of Open Access and Open Data processes, as well as KM activities. Initially, this specialized resource will be focused on consolidating OA & OD processes, with an emphasis on continued improvement of workflows, efficiency and effectiveness, global reach and capacity building and change management related activities.

5.2: OAIWG and DMTF Representation

- CGIAR-wide Open Access Implementation Working Group (OAIWG): Joel Ranck until the KM Officer is hired.
- Data Management Task Force (DMTF): Henry Juarez and KM Officer.

5.3: Center Steering Committee and Other Internal Partners

Open Access Focal Points

CIP will invite three researchers to become Open Access Focal Points- one for each of the DCEs. They will be our OA & OD Champions, and their role will be to support the Library and RIU to systematically and regularly collect information products that are produced by their respective DCE to make them Open Access according to the policy, as well as support the change management process

- The OA focal point has the responsibility of:
 - ✓ collecting all the information from their respective staff
 - ✓ documenting it in an excel spreadsheet
 - ✓ ensure that CRP linkages, and other reporting requirement linkages are made
 - ✓ send all information back to the Library to be processed
 - ✓ provide additional information to the Library as requested
 - ✓ champion OA and OD

Open Access Community of Practice

CIP plans to invite scientists to form an Open Access community of practice internal to CIP. This CoP should discuss technical topics and enrich the decision making processes regarding Open Access at an institutional level. We will encourage an RTB representative to join this CoP.

Members of this CoP will include the Focal Points from the three DCEs.

Section 6: Promoting and Supporting Researchers' Implementation of Open Access for Publications

As part of the implementation process, CIP will emphasize information sessions, training and capacity building, change management activities as well as making the tools and support processes as efficient as possible.

We understand that this is a change process, and we expect that Open Access will gradually become a part of CIP's organizational culture.

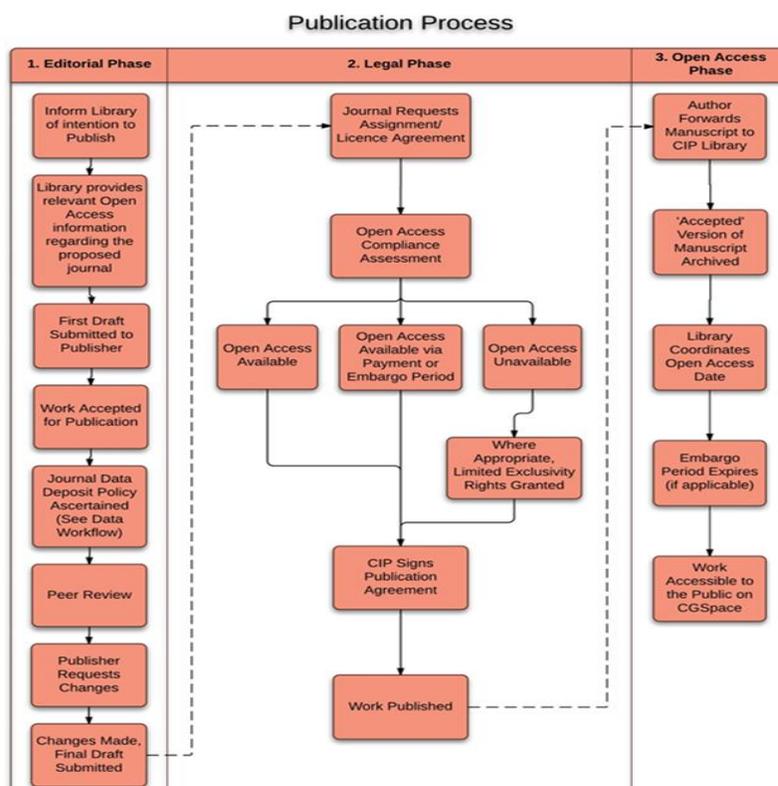
6.1: Deposit Workflows for OA Publications Repository

The CIP Library staff coordinates and curates CGspace, and manages CIP's Publications Workflow.

The workflow for publications is shown in Figure 2 below:

CIP's Library will provide support along the Publications workflow, especially by accompanying the Legal Phase and directly managing the Open Access Phase.

Fig.2 CIP Workflow for Publications



6.2: Author Guidance

- We will develop a CIP Open Access support pack using parts of the existing CGIAR Open Access Support Pack complemented and customized with institutional tools and requirements. The support pack will include FAQs, best practices, legal tools like Creative Commons licenses, Data Management Plan templates, Publishers Data Base and Author Addendum, amongst other elements and how to use them for either self-publishing or negotiating with publishers.
- Once the CIP Open Access policy has been launched, CIP will launch a change management and communications campaign to raise awareness and inform about future Open Access requirements.
- Information sessions, seminars and training sessions will be customized for authors. The Training and Capacity Building Plan will include regular sessions delivered by the Library Officer, RIU and the KM Officer. Special events, like Annual Meetings will also be used to socialize concepts and build capacity. Other platforms like CIP's monthly Gathering Under the Tree staff meeting and newsletter will also dedicate space to Open Access.
- CIP's Orientation Program for new research staff will include a section for Open Access.
- Presenting OA-OD at internal project meetings or kick-off meetings and demonstration tools and options authors have for Open Access publishing. The participation of the Library Officer and Data Management staff from RIU in the Start-Up meetings will be critical.

6.3: Funding for OA Fees

At present there are no official plans at CIP to create a central fund for Open Access article processing costs. Based on the number of publications produced by CIP last year, and assuming that this level of production is maintained or increased, and considering an average fee of \$3,000 we estimate that the budget for article processing fees would be around \$120-\$150k per year.

However, to ensure that these costs are covered in the near future, researchers will start to include a budget line when writing up their proposals. Finance will add an Open Access and Data Management section on the proposal budgets. In this way we will gradually phase out projects with no budget for Open Access with projects that have fully budgeted for these costs.

The PNM committee has a very well established process in CIP, whereby funding opportunities are assessed and approved in order to continue to the proposal stage. The PNM supporting template will also be updated to include OA & OD line items in its budget section. This will help ensure that the availability of funds for Open Access.

6.4: Internal Communication Strategy

The communications strategy will start late this year (2015) and will continue throughout 2016.

- September: get buy-in and formal approval from Leadership and key Management positions of the policies, guidelines and implementation plan.

- At the September CIP Strategy Meeting, present the OA & OD implementation plan and its implications to CIP. Emphasis on Q&A and success stories.
- October 2015-March 2016: “Global Launch Campaign”. Preparatory work will include:
 - Focal Points and champions identified
 - Presentations and Communications material ready
 - Information sessions scheduled and planned
 - CIP OA & OD Support Pack available
 - Open Access Week at CIP’s Gathering Under the Tree in October
 - Training sessions scheduled and planned
 - CIP’s Orientation Program with OA & OD section
- March 2016- Dec 2016
 - More Information & training sessions including regional workshops
 - Start including feedback with citation metrics in reports shared with researchers
 - Incentives Program. The Library will track metrics on both repositories and feed that to Communications to promote internally to reinforce the OA messages. These key messages include success stories about the OA articles, data sets deposited, citation, etc.

Section 7: Promoting and Supporting Researchers' Implementation of Open Data and Data Management

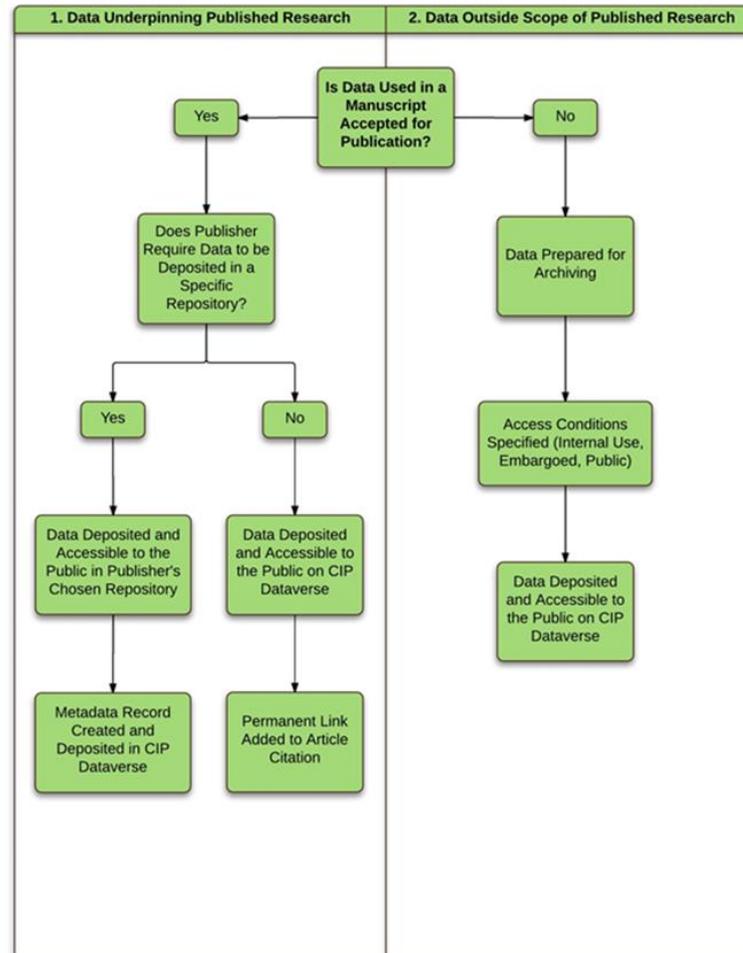
Open Access represents a cultural change in the life of CIP. The current research lifecycle needs to include processes that accommodate Open Access compliance. As such, we should expect a transition period. A communications plan explaining the policies, infrastructure, tools and processes should help researchers make the transition to Open Access more smoothly. Additionally, incentives for Open Access compliance should also be considered.

There will be a global rollout with follow up and maintenance efforts with more specific targeted communications and capacity building across the organization.

7.1: Deposit Workflow for Open Data Repository

For datasets, we propose a workflow to identify, track, and make data openly accessible according to the policy.

Fig.3 CIP Workflow for Data



7.2: Support for Data Management Practices and Data Quality

This workflow that is part of CIP's Open Data and Data Management Guidelines; It includes sections and checkpoints for Data Curation, Quality, Ethics, Legal and IP, Metadata, etc. The RIU will support the Data Management Cycle including help for:

- Development of a project Data Management Plan
- Data curation
- Data quality
- Metadata
- Upload to Dataverse
- Other

7.3: Data Streams

Streams can be represented by different workflows. The forthcoming CIP Open Access CoP should take care of identifying the data types, their lifecycle, metadata and the best workflow.

Section 9: Assessment, Impact, Review

Altmetrics will be implemented in CGSpace by the end of 2015. Using data provided by Altmetrics, the CIP Library will produce and circulate metrics reports regularly. Examples of such reports may include “Top 25 Publications” by number of citations, downloads, and other metrics of the publications included in CGSpace that are critical to share with the CIP research community to show the positive impact of Open Access and CIP’s research outputs in general. When possible, such information will be accessible via repository platforms.

Dataverse also provides with metrics associated with downloads and data sharing. RIU will produce reports on a regular basis to share with CIP’s research community.

9.1: CIP Repository-Level Metrics

Management of OA/OD efforts will include repository-level metrics based on the FAIR model such as:

- growth of repository content
- the number of repository items downloaded
- downloads by geographical location
- how users are finding CIP repositories

9.2: Measuring Item-Level Usage/Uptake

Management of OA/OD efforts will include item-level metrics such as:

- Item downloads
- Item page views
- Citation counts using services such as Scopus
- Journal impact factor
- Where possible, altmetrics such as social network references such as Twitter, blogposts etc.

9.3: Measuring Individuals’ Compliance

Presently, CIP does not have a process to measure individual compliance to the CGIAR Open Access policy; however this must be discussed with leadership, HR and with the researchers to agree on a path forward.

Possible paths forward include:

- CIP policies compliance
- Acknowledgement given to researchers for efforts to disseminate their information products in openly-accessible ways, via depositing into the CIP repositories. Such acknowledgment might include sharing relevant metrics with science teams as an incentive to adopt these practices.
- Employment contracts should be updated to include reference to the OA/OD policy and appropriate methods of assessment

- Work plans and performance appraisals should include OA/OD metrics. The Library and RIU will provide regular reports throughout the year to support these metrics.
- Improvement of workflows, tools and capacity building based on feedback provided by scientists.

9.4 Assessing and Reviewing Center-Level Progress and Impact

CIP will track progress and impact of OA/OD in annual reports to management. Metrics that may be included in the annual report include:

- No. records added to the repositories
- No. of visitors
- No. of full-text files downloaded
- The top 10 search terms used by users to arrive to find our repositories
- The top 25 most downloaded repository items overall
- The country the users come from
- The percentage of full-text articles vs. metadata-only records
- Metrics associated with information that has been promoted through outreach efforts and those not promoted.
- Inclusion of Open Access data in CIP Annual Report (beginning FY16)

9.5: Increasing Visibility – Additional Steps

CIP will encourage and allow harvesting from other repositories using OAI-PMH. CIP will consider participating in other harvested collections such as WorldCat and OpenDOAR, particularly if enrollment is done as a CGIAR-wide initiative.

Increasing efforts to promote open access articles and datasets will become part of the Library's responsibilities. References to fully-open, fully-accessible manuscripts and articles will be posted to social media channels to increase visibility of CIP research outputs. In addition, CPAD will promote selected OA publications and data through specific media plans. All of these efforts will be tracked to better understand how promotional activities impact access to research outputs and will inform future efforts.

In addition, existing links to research outputs via CIP websites will be reviewed in order to update references to point to content archived within CGspace and/or Dataverse. Content in external sites such as Issuu, Scribd, and Google Books will also be analyzed in order to determine if these practices are increasing discoverability of CIP research outputs or if such practices should be stopped in order to point as much potential usage to CIP repositories as possible -- where access is tracked and measured.

In 2016, metadata records will be revised and enhanced in conjunction with adopting CG Core. Additional descriptions and subject keywords will be added to try to increase discoverability and findability of CIP research outputs in search engines such as Google, Google Scholar, and Bing.
