

Repositories and Impact Enhancement

ICARDA BiGdAtA Week

Enrico Bonaiuti

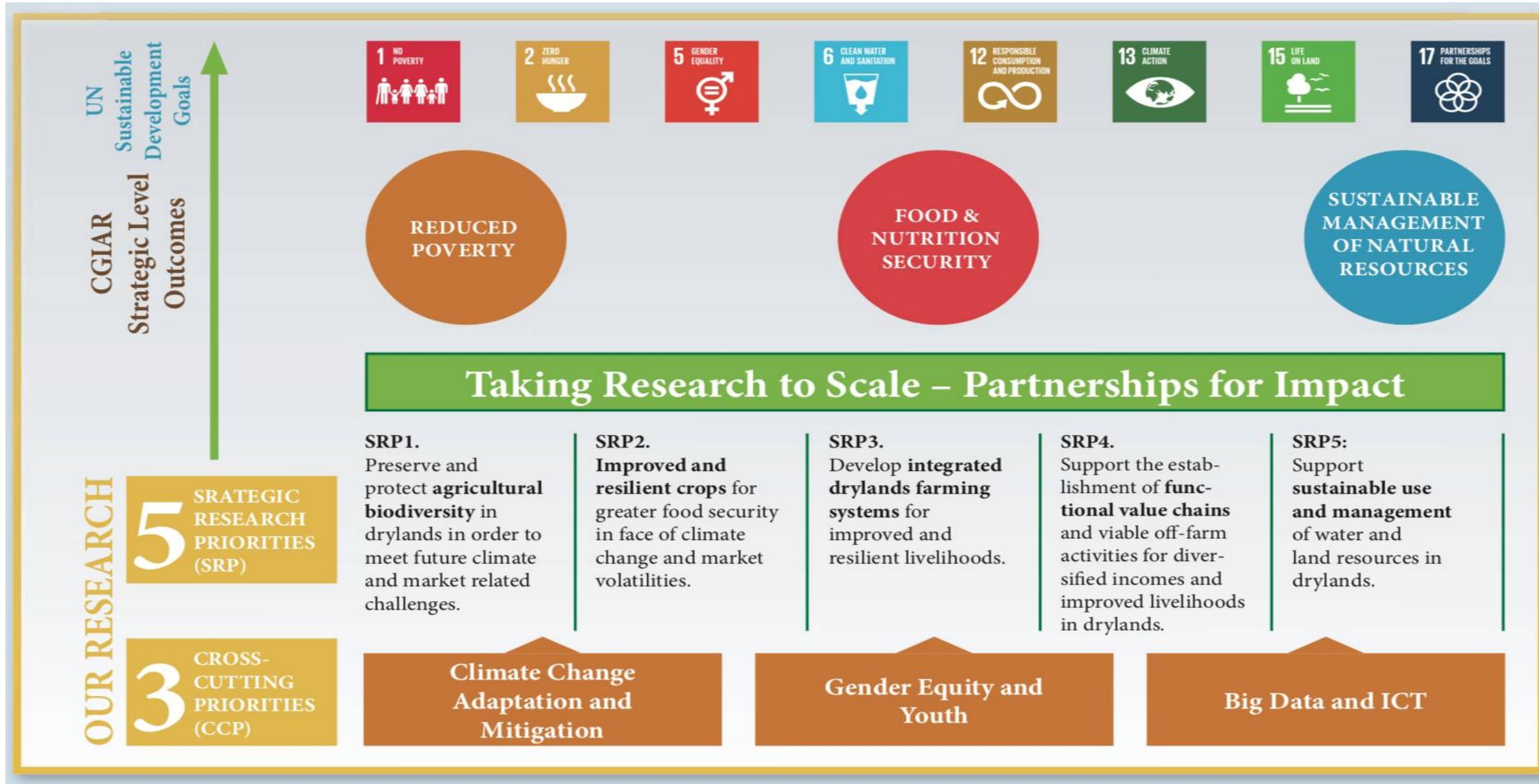
Rabat, Morocco
10th December, 2019



Outline

1. Strategy, Result Framework and Indicators
2. Knowledge Management
3. Repositories, Interfaces and Processes
4. Data Repositories, Curation and Analysis
5. Protection, Rights
6. Use of Data (Visualization, Reporting and Answering Questions)
7. Conclusion

BigData & Open Access: a Priority at Institutional Level



CGIAR: Indicators for Impact....



CGIAR Planning & Reporting

Guidance Sheets for Common Reporting Indicators

<https://sites.google.com/cgexchange.org/cgiar-pbm-resources/guidance/guidance-sheets-for-indicators>

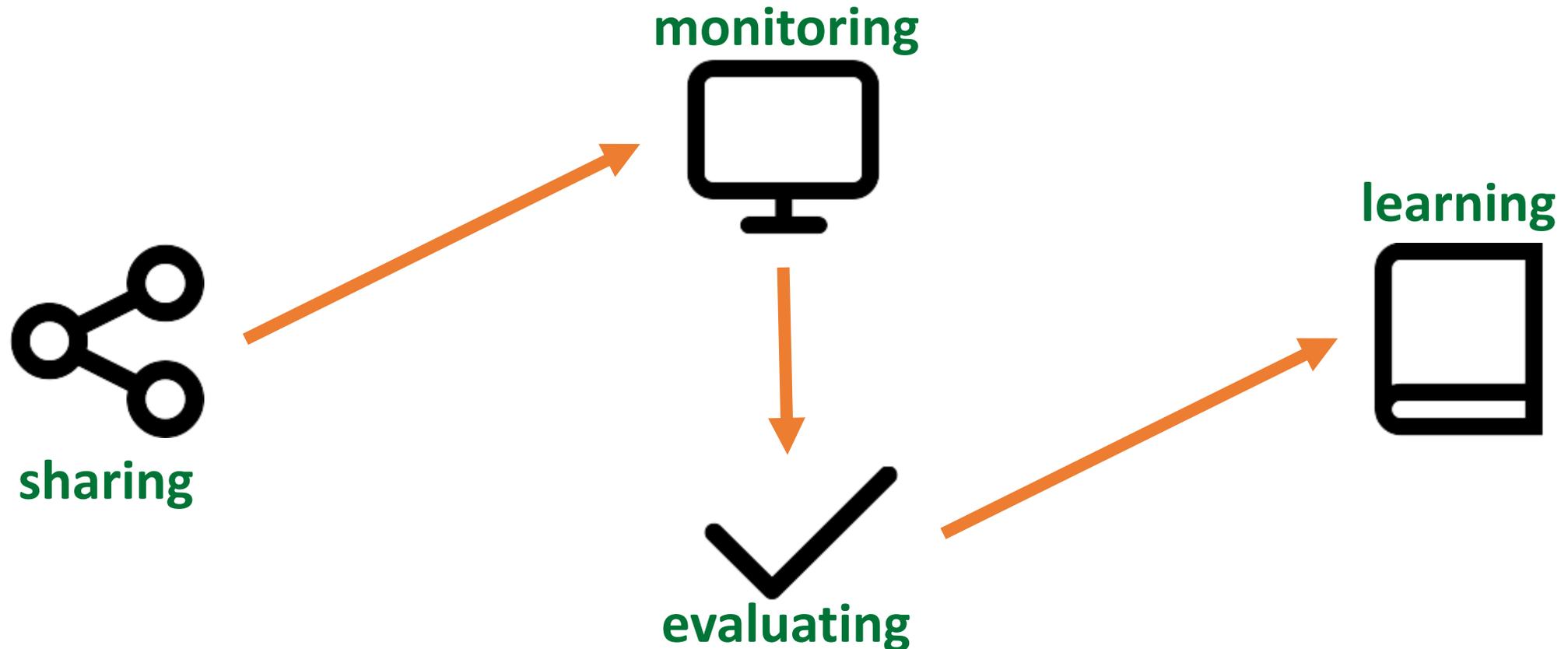
CGIAR Common Reporting Indicators

- #C1 Innovations** --> [pdf print version](#) - 1MB - 03.05.2018
- #C2 Partnerships** --> [pdf print version](#) - 878KB - 03.05.2018
- #C3 Participants + #C4 Trainees** --> [pdf print version](#) - 1MB - 03.05.2018
- #C5 Peer review papers** --> [pdf print version](#) - 460KB - 03.05.2018
- #C6 Altmetrics*** --> [pdf print version](#) - 1021KB - 20.07.2018
- *only for CRPs with Altmetrics subscription
- #I3 Policies** --> [pdf print version](#) - 1014KB - 03.05.2018

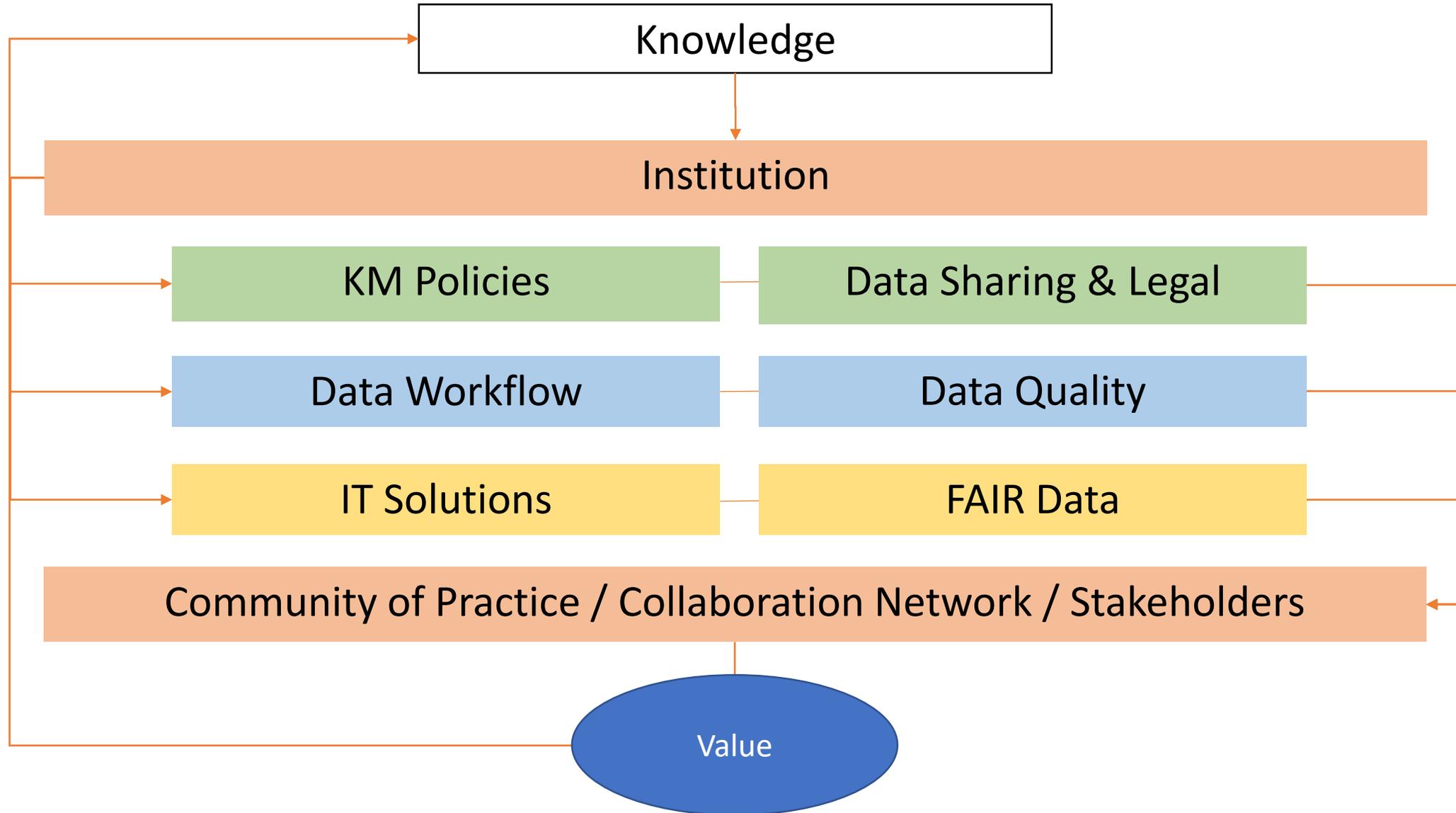


The value of Knowledge Management

Knowledge Management means more than optimizing the data flow within an institution, itself an essential and valuable asset, it also means enabling and foster post-research impact over time, through:



Target Knowledge Management Assets to Improve



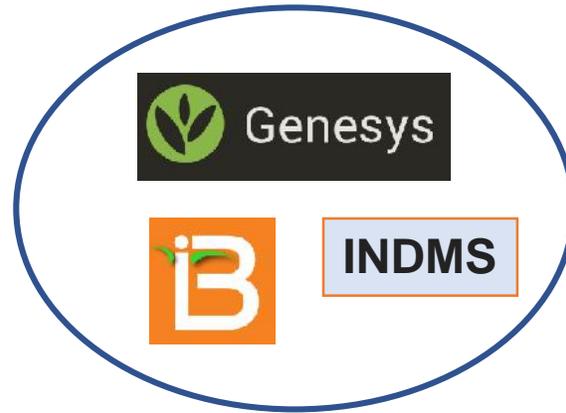
Repositories

1. **Definition of Repository**
2. **What repository you have in your organization?**
3. **What repository do you consult?**
4. **What are the gaps for you in data domain?**



Repositories

archive for **collecting**, **preserving**, and **disseminating** digital copies of the intellectual output of an institution, particularly a research institution.



The [Confederation of Open Access Repositories](#) (COAR) states in its manifesto that "**Each individual repository is of limited value for research**: the real power of Open Access lies in the **possibility of connecting** and tying together **repositories**, which is why we need **interoperability**."

Information Sharing

Welcome to MEL API

Project

[Show/Hide](#)
[List Operations](#)
[Expand Operations](#)

GET	/v1/projects/{id}	Read Object(s)
GET	/v1/projects	Read Object(s)
GET	/v1/projects/{parentid}/project_manager_id/{id}	Read Object(s)
GET	/v1/projects/{parentid}/project_co_manager_id/{id}	Read Object(s)

Publication

[Show/Hide](#)
[List Operations](#)
[Expand Operations](#)

GET	/v1/publications?id={id}	Get a publication by id
GET	/v1/publications/search	Get publications count
GET	/v1/publications/count	Get publications count

[Home](#) > [Our experts](#) > Mourad Rekik



Mourad Rekik

Small ruminant production scientist

[m.rekik\(AT\)icjar.org](mailto:m.rekik(AT)icjar.org)

Mourad Rekik is livestock scientist based in Amman, Jordan with more than 25 years of experience in animal reproduction and small ruminants' production and management in drylands. His expertise includes sheep and goats reproduction and its interaction with nutrition, health and genetics. He is involved in the CGIAR research program on dryland systems as well as livestock and fish. His current research interests focus on boosting resilience and productivity of the livestock production systems at the household level and attenuating the impact of environmental and economic stressors.

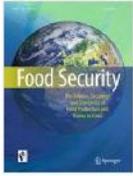
Prior to joining ICARDA, Rekik was researcher and lecturer in several universities in Tunisia. He was also coordinator of several research-for-development projects, involving multidisciplinary teams. He served as member of the British Society of Animal Science and FAO-CIHEAM network on sheep and goats nutrition. Rekik is author of more than 80 peer-reviewed journal publications, book chapters, and conference papers.

Rekik holds a Ph.D. in animal production from the University of Reading in the UK.

Publications

Molecular detection and phylogenetic analyses of *Toxoplasma gondii* from naturally infected sheep in Northern and Central Tunisia
 Mariem Rouatbi, Yosra Amdouni, Safa Amairia, Mohammed Rijeibi, Said Sammoudi, Mourad Rekik, Mohamed Gharbi. (20/12/2017). Molecular detection and phylogenetic analyses of *Toxoplasma gondii* from naturally infected sheep in Northern and Central Tunisia. *Veterinary Medicine and Science*, 3(1), pp. 22-31.

Molecular survey and genetic characterization of *Anaplasma centrale*, *A. marginale* and *A. bovis* in cattle from Algeria
 Mohammed Rijeibi, Mourad Rekik, Mohamed Gharbi, Omar Ayadi. (30/4/2018). Molecular survey and genetic characterization of *Anaplasma centrale*, *A. marginale* and *A. bovis* in cattle from Algeria. *Transboundary and Emerging Diseases*, 65(2), pp. 456-464.



Food Security

June 2018, Volume 10, Issue 3, pp 589-601 | Cite as

Economic and food security benefits associated with raised-bed wheat production in Egypt

Authors

Authors and affiliations

Jeffrey Alwang 1

[Email author](#)

[View author's ORCID profile](#)

Samy Sabry 2

Kamel Shideed 3

Atef Swelam 4

Habib Halila 5

1. Virginia Polytechnic Institute and State University, Blacksburg, USA

2. Agricultural Research Center, Cairo, Egypt

3. International Center for Agricultural Research in the Dry Areas, Amman, Jordan

4. International Center for Agricultural Research in the Dry Areas, Cairo, Egypt

5. International Center for Agricultural Research in the Dry Areas, Tunisia

FILIPPO MARIA BASSI

Filippo Bassi, an Italian citizen, is a principal scientist leading ICARDA's durum wheat breeding program. This program aims at delivering to farmers in the developing world superior varieties that increase the productivity per unit of land in face of the climatic challenges and constraints. Since its inception in 1981, this breeding program has released more than 125 varieties in over 20 countries. In this role he conducts regular missions in the rural areas of Ethiopia, India, Senegal, Mauritania, Lebanon, Algeria, Tunisia, and several other countries to investigate the challenges and improve the capacity of delivering innovation by local plant scientists. He strongly believes in the deployment of the most advanced biotechnology and statistical techniques in combination with the wide use of historical and primitive germplasm available within ICARDA genebank, to achieve the sustainable improvement of top

[See more...](#)

ICARDA

Active

Discipline	Plant breeding
Title	Senior Scientist - Durum Breeder
User role	User
Location	Morocco, Rabat
Other Email(s)	F.Bassi@cgiar.org



Publications

[Genomic selection for grain yield and quality traits in durum wheat](#)

Date: 2018 Type: Journal Article
doi: 10.1007/s11032-018-0818-x
Source: Scopus - Elsevier
eid: 2-s2.0-85047508907
Source: Scopus - Elsevier

[Speed breeding for multiple quantitative traits in durum wheat](#)

Date: 2018 Type: Journal Article
pmc: PMC5950182
Source: Europe PubMed Central
pmid: 29785201

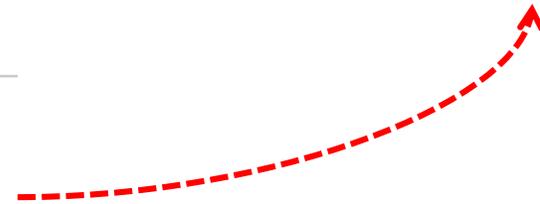
Atef Swelam

ORCID ID

<https://orcid.org/0000-0002-5220-9901>

No public information available.

Record last modified Fri, 31 Aug 2018 15:59:34 GMT



Permanent link to cite or share this item: <http://hdl.handle.net/10568/90141>
 DOI: <https://doi.org/10.1016/j.scitotenv.2017.12.228>

Demographic breakdown

Readers by professional status	Count	As %
Unspecified	2	17%
Student > Master	2	17%
Student > Postgraduate	2	17%
Student > Ph. D. Student	2	17%
Researcher	2	17%
Other	2	17%

Readers by discipline	Count	As %
Environmental Science	3	25%
Unspecified	3	25%
Agricultural and Biological Sciences	2	17%
Engineering	2	17%
Arts and Humanities	1	8%
Other	1	8%

Twitter Demographics | Researcher Members | Attention Score by Discipline

The data shown below were collected from the profiles of 4 tweeters who shared this research output. [Click here to find out more about how the information was compiled.](#)



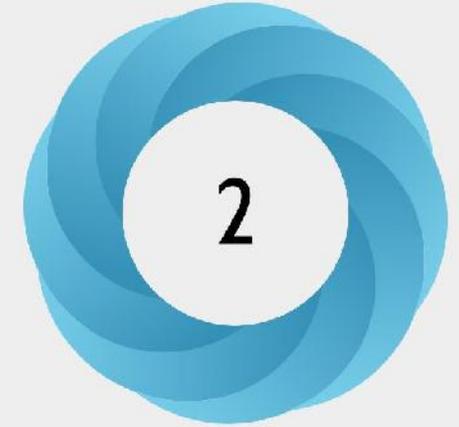
Geographical breakdown

Country	Count	As %
Colombia	1	25%
Kenya	1	25%
Unknown	2	50%

Demographic breakdown

Type	Count	As %
Members of the public	3	75%
Practitioners (doctors, other healthcare professionals)	1	25%

<https://www.researchgate.net/publication/326111492> Durum Wheat Breeding In the Heat of the Senegal River



About this Attention Score

Above-average Attention Score compared to outputs of the same age (52nd percentile)

MORE...

Mentioned by

4 tweeters

Citations

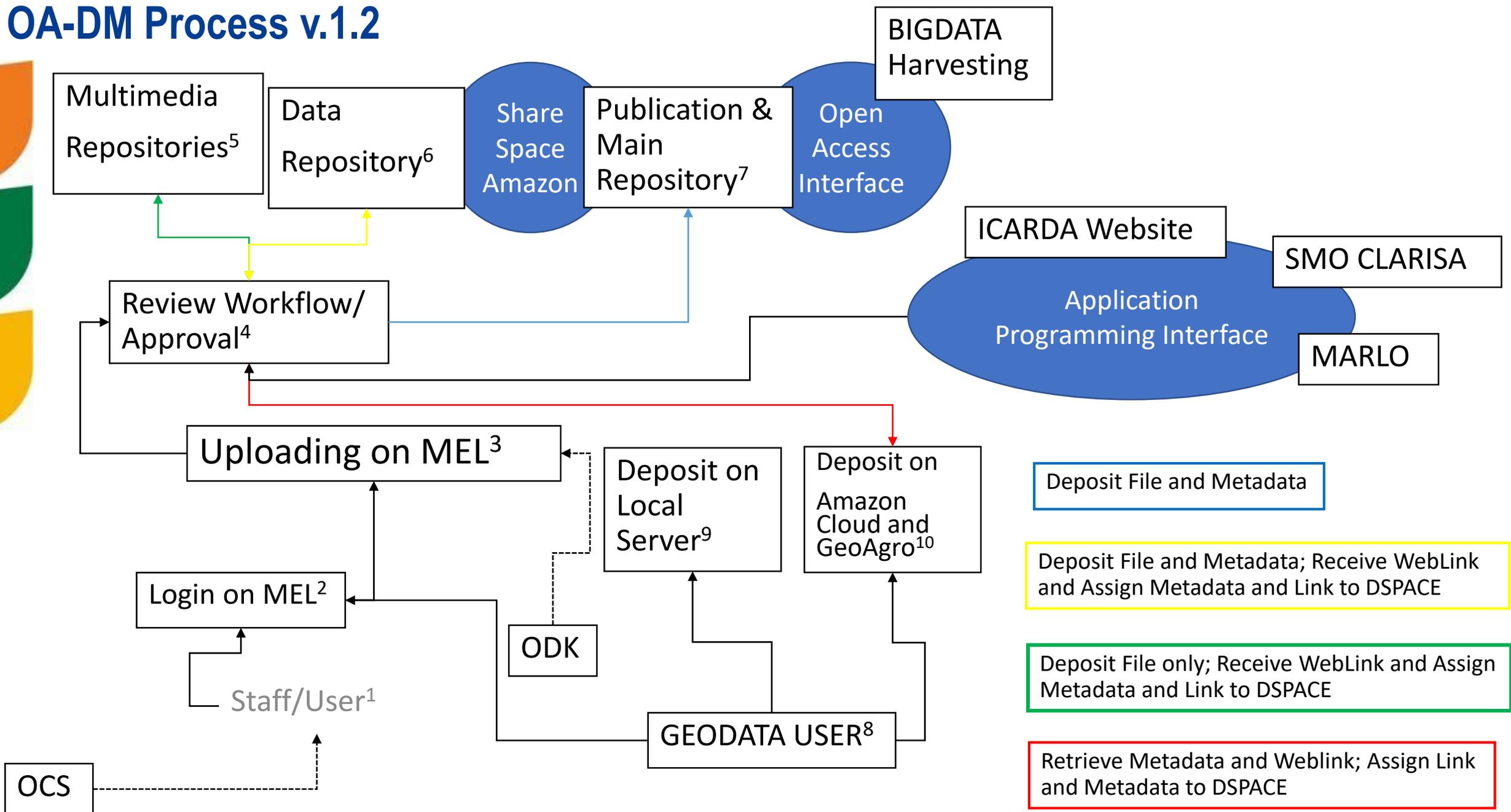
1 Dimensions

Readers on

12 Mendeley



OA-DM Process v.1.2



Deposit File and Metadata

Deposit File and Metadata; Receive Weblink and Assign Metadata and Link to DSPACE

Deposit File only; Receive Weblink and Assign Metadata and Link to DSPACE

Retrieve Metadata and Weblink; Assign Link and Metadata to DSPACE

Monitoring, Evaluation and Learning (MEL)

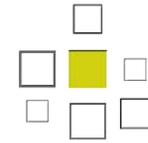
MEL is an online platform for integrated management, monitoring, and reporting of projects, from planning to budgeting, risks assessment, knowledge sharing.



Interoperability Network: Sustainability through Partners



HIGHCHARTS



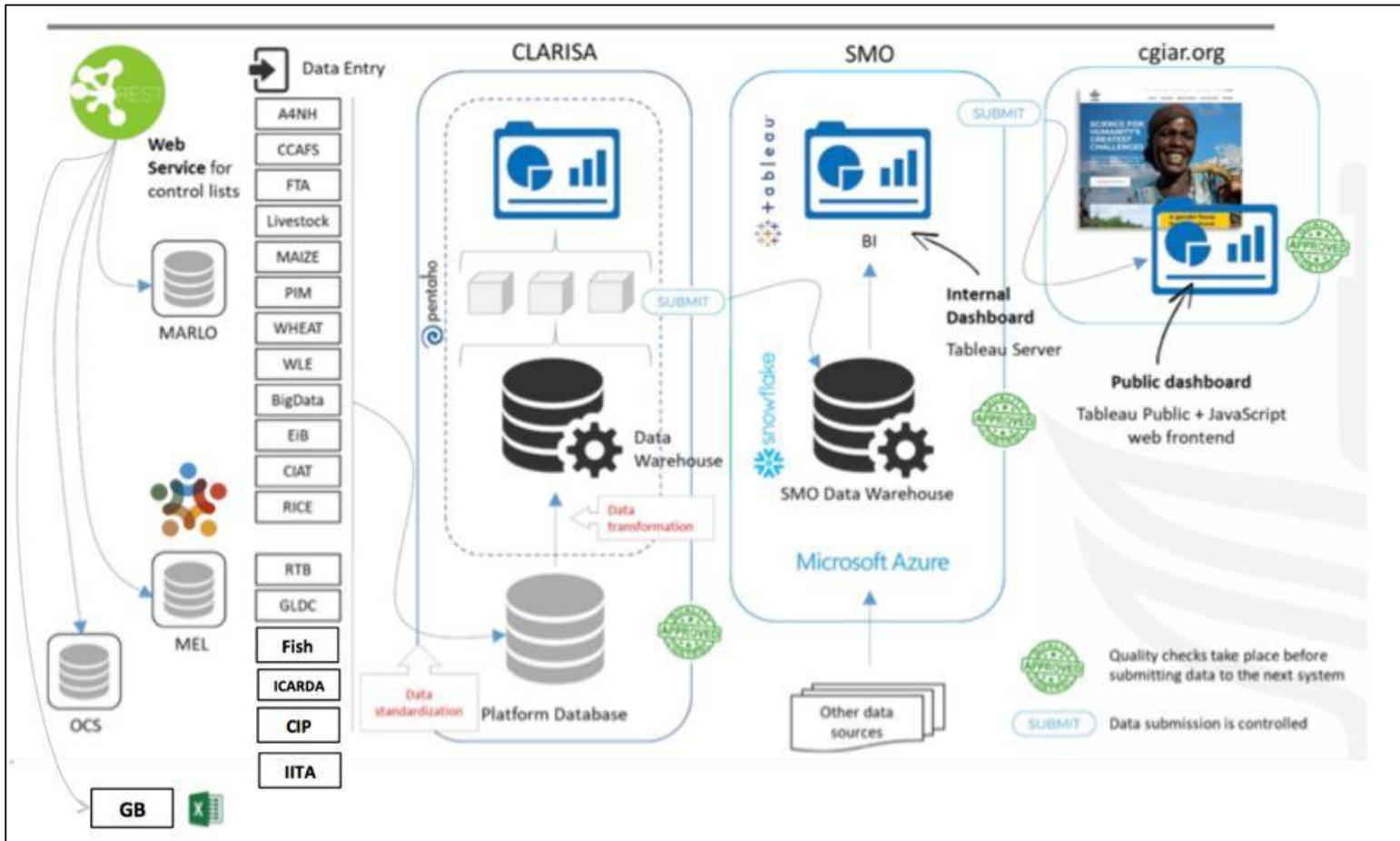
DSPACE



MEL
monitoring
evaluation and
learning

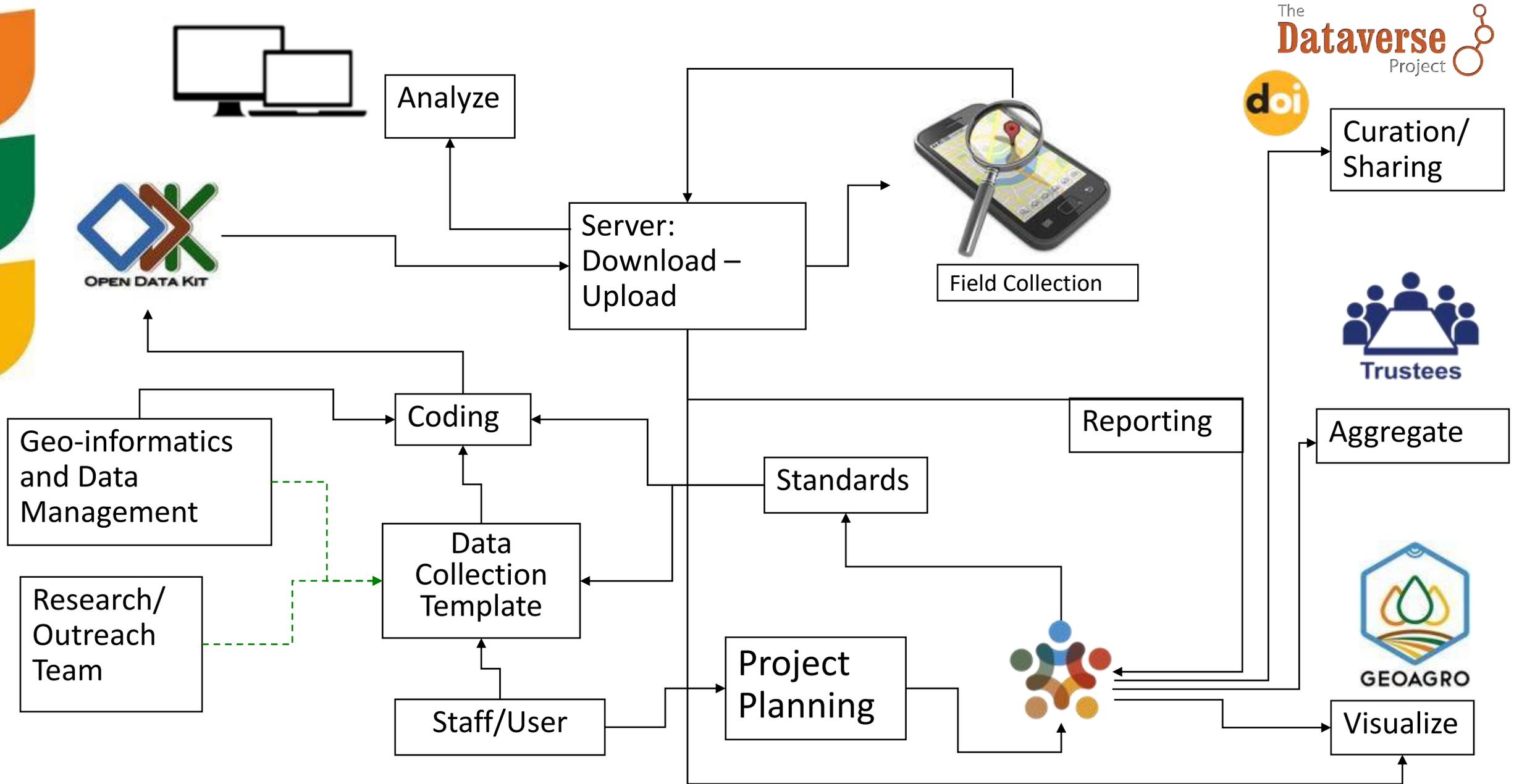


Ensure real time data visualization based on conceptualized indicator framework. CLARISA*: a MARLO-MEL Interoperable solution



*CGIAR - Level - Agricultural
 - Research - Interoperability
 - System – Architecture

Field Data Collection



Dataverse V 4.7 + Usage of Handle (Thanks to CIMMYT)



Supported by:



RESEARCH PROGRAM ON Livestock



Platform for Big Data in Agriculture

Powered by:  Code4bia



Main

 Metrics

0 Downloads

 Contact  Share

The root dataverse.

Search this dataverse...

 Find

[Advanced Search](#)

 **Dataverses (9)**

 **Datasets (0)**

 **Files (0)**

Dataverse Category

[Research Group \(9\)](#)

Publication Date

[2018 \(9\)](#)

1 to 9 of 9 Results

 Sort ▾

Big Data and ICT (International Center for Agricultural Research in the Dry Areas)

Feb 5, 2018



The advent of big data that incorporates geo-informatics, remote sensing and the large volumes of data being generated by technological advances in genomics will revolutionize the way we work in the future. The use of this information to increase research efficiencies and decisio...



Capacity Development (International Center for Agricultural Research in the Dry Areas)

Feb 5, 2018



Capacity development is core to ICARDA's mission and an essential element for the delivery of quality research and sustainable development impact. Over the coming decade we will build on our extensive network of long and enduring partnerships with universities and ARIs, which use...



Gender equality and youth (International Center for Agricultural Research in the Dry Areas)

Feb 5, 2018



As the role of women in dry area agriculture increases, and their workloads become heavier with the migration of men to urban areas and abroad, they face financial, cultural and legal constraints in accessing knowledge, innovation, finance, markets, institutions and resources, pa...



Data Curation



United Nations
Statistics Division



ORCID

Connecting Research
and Researchers



AIMS



ArcGIS®

Reporting CRP

Donors

Partners

SDG(s)

Keyword(s)

The list is provided by [AGROVOC Web Service](#). You can add new subjects by typing or copy & paste them from another source, if comma separated. All new, non-AGROVOC subjects are coloured in green: please ensure these are coherent with the knowledge reported.

Crop(s)

MELSpace

Abstract

Number of dataset users

Dataverse

Data Collector

Dataverse Subjects

Related publications

URL

Please, provide any DOI, Research Gate, Google Scholar, CGSpace or other URL if any.

Keywords maintenance and intelligence

+ AGROVOC Export Subjects

10 records Search:

ID	Keyword	Type	Language	Usage Count	Actions
39	climate change			335	
20466	news update			311	
22941	durum wheat			273	
33	capacity development			269	
22678	sunn pest			236	

1. Harvesting
2. Editing
3. AGROVOC Matching
4. Assigning
5. Splitting
6. Frequency and use analysis
7. Synchronizing
8. Depositing



Dataverse API and Analysis (Thanks for Bioversity and CIP)

Repositories Analytics

▼ CIP

CP

MEL



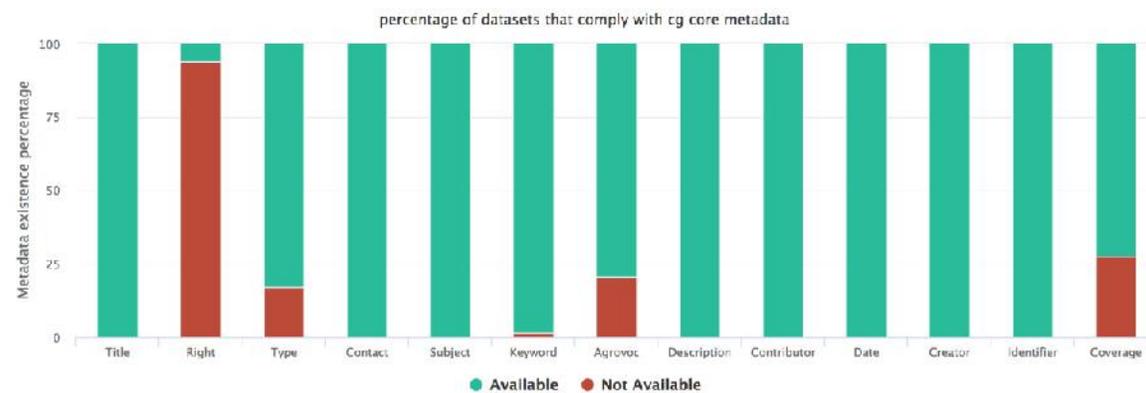
Filters

× All Metadata

× All Datasets

Get Charts [link](#)

Graph



Highcharts.com

Analyze, Compare and Re-sync

Word Cloud

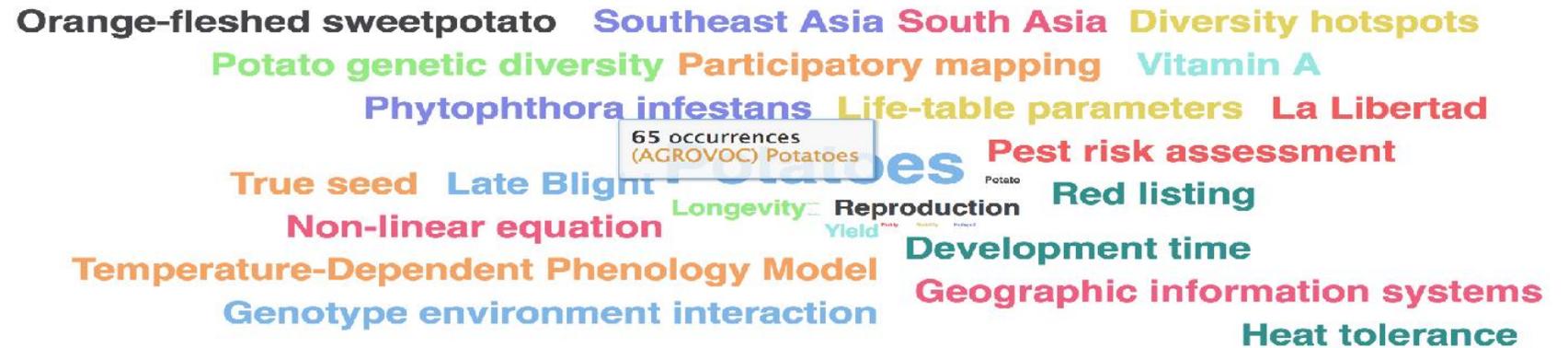
All Types

Specify Stop Words

× All Datasets

Get word cloud

Graph



1. Harvesting
2. Editing
3. AGROVOC Matching
4. Assigning
5. Splitting
6. Frequency and use analysis
7. Synchronizing
8. Depositing

Legal Aspects of KM: Attribution and Licensing



+21%
ICARDA Scientists
Registered in
1 Quarter.
Over 5 Million
Worldwide.



**GDPR Safe
Measures**
for Data
Sharing and
Interoperability

Findable 
Accessible 
Interoperable 
Reusable 



400+
Millions
licenses of which
more than 40%
Open Access*.

2500+
Publishers,
30k+ Journals
and Related
Policies for
Archiving and
Sharing.



Data Protection and Compliance: Interaction with Staff (Q&A)



In details, which process the reported data goes through?
How the reported data is useful to other users?



Workflow and Overall framework

Process: <http://hdl.handle.net/20.500.11766/7481>

https://www.youtube.com/watch?v=rvo18MD7M_g&t=320s

<https://cgiarmel.atlassian.net/wiki/spaces/MEL/pages/10780674/Deliverable+reporting>

Information
Products & Data



How is the information used?



- 1) Data storage (advance querying): a) Legacy; b) Reference; c) Evaluations/Audits; d) Compliance with Policies and regulations
- 2) Data ex/re-orting / Manage multiple requests: a) Donors/Projects; CGIAR/CRPs; SMT/BOT; Communication; Research;
- 3) Rights (GDPR) and Acknowledgments: Authors, Donors; Partners
- 4) Communication: a) Scientists profiles; b) Program/Themes summaries; c) Evidence to support statements

Information
Uses



The EU General Data Protection Regulation (GDPR) is the most important change in data privacy regulation in 20 years - we're here to make sure you're prepared.



Will every Information Product for public consumption – including blogs and reports – have to be revised to remove personal data? If so, who is responsible for doing this? And who is responsible for seeking consent to include personal information?



Yes. Everything that's available for the public should not contain any personal data, unless we have a record of informed consent.

GDPR compliance is a top priority.

Shared responsibility.

Legal Counsel support + KM team (CODIS, MEL, GU-DM, ITU, CDU)



Personal
Data

GDPR Compliance: Action taken

1. Consent agreement in place
2. User access to his/her data
3. Right to be forgotten in place
4. Institutional Profiles for data access (incl. data sharing agreement)

Personal Info

Change Password

Privacy & Data Settings

Know more about your rights. Visit the [Privacy & Data Settings](#) on the MEL Guide.

Profile Visibility * ⓘ

Full Essential

MEL news and updates * ⓘ

All news and updates Only essential news and updates

Export Your Data ⓘ [Export](#)

Review the Terms of Use & Privacy Policy ⓘ [Review](#)

Request Info on Your Data or Report an Issue ⓘ

[Send](#)

[Forget Me](#) ⓘ

Your account and data will be erased. Are You Sure? ⓘ

By being forgotten, you will no longer be able to use this website and relate content anymore, but other users may still tag you for attribution purposes. MEL will keep record of your Name, Surname and associated Institutions (contact) wherever tagged within the system, but your other personal data will be permanently deleted without recovery options (see GDPR, Article 17).

Should you not be tagged anywhere in MEL for a period longer than 3 months, your contact will be permanently deleted as well.

If you agree and reconsider in the future, please write at mel-support@cgmel.org to request a new account.

[I am, forget me](#) [I am not, close this](#)

Network Analysis for Impacts

SDG(s)



Keyword(s) *

drylands soil wheat

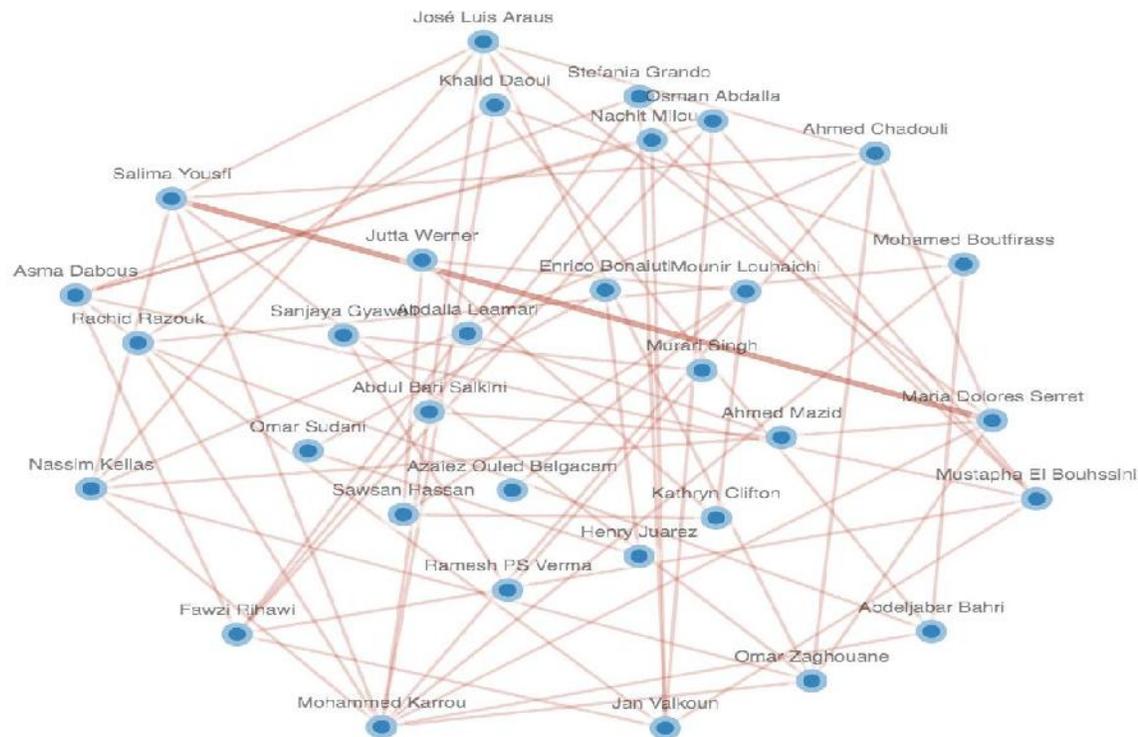


The list is provided by [AGROVOC Web Service](#). You can add new subjects by typing or copy & paste them from another source, if comma separated. All new, non-AGROVOC subjects are coloured in green: please ensure these are coherent with the knowledge reported.

Authors: 3172,3675

Number of publications for Salima Youfifi and Maria Dolores Serret together : 1

- <http://hdl.handle.net/20.500.11766/3565>



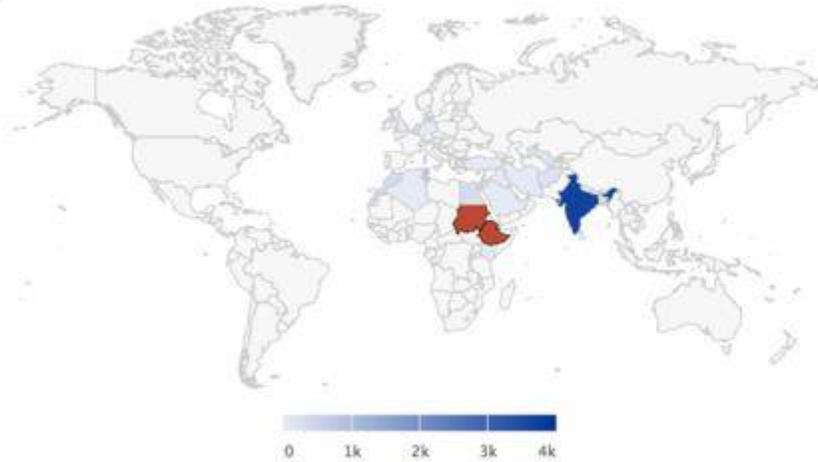
Monitoring Progress along ICARDA Result Framework

1. Project Proposal mapping at SRP level (PDGMU)
2. Project Approved mapped at Sub-SRP (Research Area) Level with matching to key performance indicators for each (MEL)
3. Annual Plan of Work (MEL) and Budget (OCS) submitted
4. Full year access to report planned results (All Staff)
5. Annual reporting on Expected results (Managers and Program Leaders)

ICARDA - Deployment of Malt Barley and Faba Bean Varieties and Technologies for Sustainable Food and Nutritional Security and Market Opportunities in the Highlands of Ethiopia - Zewdie Bishaw - Budget: \$3,000,000										
Overview										
Output	Type	Output Responsible	Deliverable	Crops	Reporting Scientist	Center	Type	Delivery date	Files	
NARS and stakeholders capacity, through training and provision of critical facilities, strengthened 2018-09-01		L: Zewdie Bishaw	2506-seed business training courses for small- to medium-scale seed producers	Barley, Faba bean	Girma Tesfahun Kassie	ICARDA	Presentation	2016-06-30	Type: Presentation Date: 2018-06-11 	
Training information				Supervisor	Center	Type	Implementation Period	Files		
Ethiopia Male PhD on Genetic Identity, Epidemiology and Management of Faba Bean (<i>Vicia faba</i> L.) Gall Disease in Ethiopia				Seid Ahmed Kemal	ICARDA	Individual Degree	From: 2018-03-01 To: 2018-06-30			
Outcome	Outcome type	Indicator	Indicator description				Indicator values			
Food and nutritional security and market opportunities of smallholder farmers enhanced	Development Outcome	Next-generation malt barley and faba bean varieties released	This indicator measures the quantity of malt barley and faba bean varieties with high yield, grain quality combined with resistance to abiotic and biotic stress released, to constitute the next generation of replacement varieties for rainfed and irrigated cropping systems.				Values			
		Farmers' access to seed of modern malt barley and faba bean varieties	This indicator measures the number of farmers (both males and females) who will have access to seed of modern malt barley and faba bean varieties as well as rhizobium inoculants through informal small seed-pack distribution systems during the project period				Values			
Productivity and production of malt barley and faba bean, through enhanced crop management technologies, improved	Development Outcome	Variety popularization and demonstration plots	This indicator measures the number of demonstration plots (0.25 Ha) planted				Values			
		Farmers aware of existing improved malt barley and faba bean varieties	This indicator measures the number of farmers who, thanks to demonstration activities, become aware of improved crop management technologies.				Values			
		Barley and faba bean area planted with seed of new varieties	This indicator measures the area cropped with certified seed of new barley and faba bean varieties supplied by public, private, and farmer unions				Values			

Highlight disaggregation

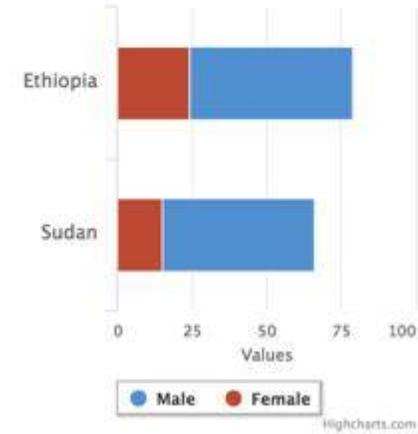
Capacity Development world map chart



Highcharts.com © Natural Earth

Shift + Click countries to view comparison of the trainees

Comparing the numbers of Female Trainees/Male Trainees/Total participants

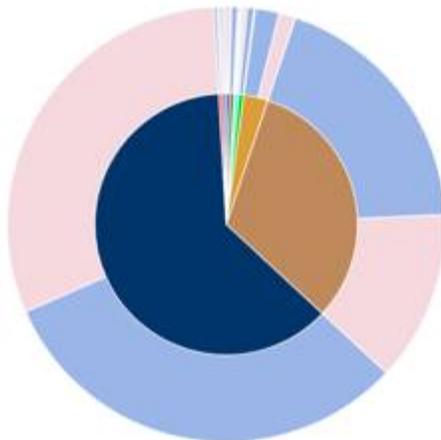


Highcharts.com

Capacity Development

Total: 5,974
● Male
● Female

Capacity Development Pie Chart



- BSc (1)
- MSc (23)
- PhD (37)
- Individual Non Degree (6)
- Internship (26)
- Seminar Training (35)
- Workshop Training (179)
- Training Course (1,901)
- Field Day (3,711)
- Farmer field school (30)
- Other (25)

Pie Chart Filters

Phase:

Institution:

CRP:

Period Range: (Slider from 2000 to 2025)

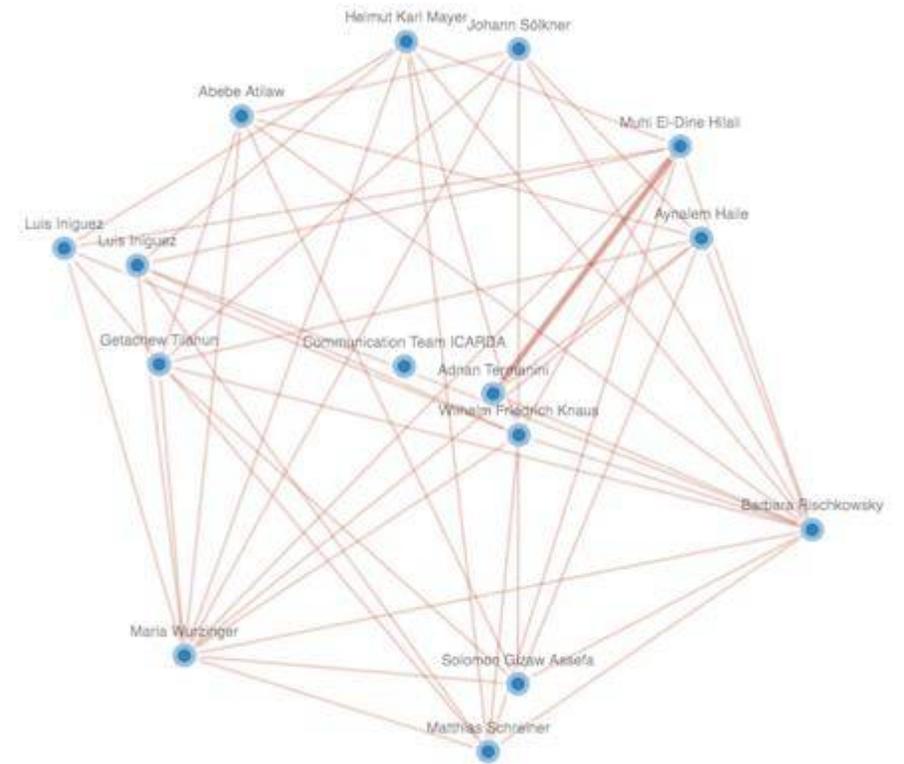
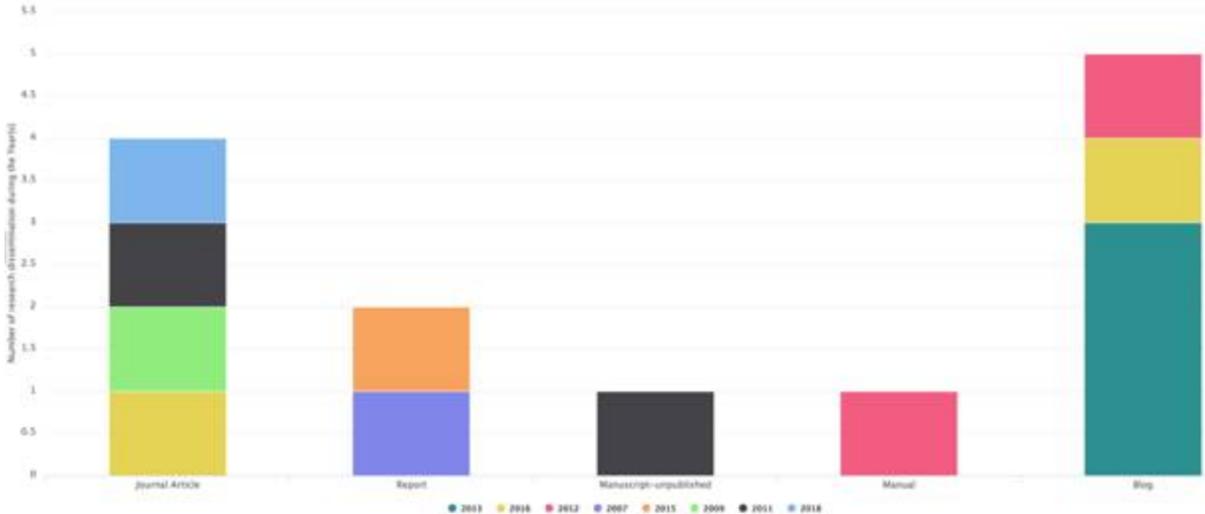
Publications and Data

Keyword(s)

awassi
 awassi sheep
 awassi sheep milk



Authors: Adnan Termanini, Muhi El-Dine Hilali
Number of publications for Adnan Termanini and Muhi El-Dine Hilali together: 1
 • <http://hdl.handle.net/20.500.11766/7111>



Project

AFESD/KF/BMGF/OFID Support for Enhancement of Food ...

Region

AFESD/KF/BMGF/OFID Support for Enhancement of Food Security in the Arab Region, Phase II

Optimizing Subsidiary Crop Applications in Rotations (OSCAR)

Institut National des Grandes Cultures

Location :
Tunisia, Jendouba

[visit the Website](#)

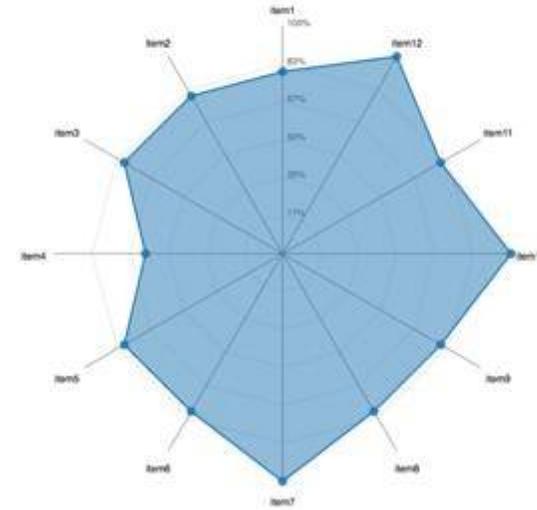


Working Areas

Partners

Knowledge Partners

Partnership health check-up



Partnership Evaluation



The “Agricultural Research e-Seeker” (AReS)

 **CGSpace**
A Repository of Agricultural Research Outputs

Search for Title, Author, etc... Powered by Code**o**bia

Title

ILRI Yearly List of Publications by Type

ICARDA Yearly List of Publications by Type

ILRI Yearly List of Publications by Subject

ICARDA Yearly List of Publications by Subject

Select Repo...

Publishing Info

Select Publisher...

Select Region...

Select Countries...

Affiliation and Donors

Select Author...

Select Year...

Livestock (667)

CRP on Grain Legumes - GL (598)

CGIAR Challenge Programme on Water and Food (141)

International Development Research Centre (137)

Publications List

 **Combining Ascochyta blight resistance and high yield in lentil cultivars**
Sarveet Singh, Shiv Kumar Agrawal, Ranjit Kaur Gill, Jasdeep Kaur, Seid Ahmed Kemal, Jitendra Kumar, Ashutosh Sarker. (31/1/2013). Combining Ascochyta blight resistance and high yield in lentil cultivars. *Phytopathologia Mediterranea*, 52(1), pp. 222-241.
Publisher: Firenze University Press | **Subject:** ascochyta blight,high yield,resistance,Lentil
Type: Journal Article | **Status:** Open access | **Date issued:** 2013-01-31 | **Reporting CRP(s):** CRP on Dryland Systems - DS,CRP on Grain Legumes - GL,CRP on Wheat - WHEAT

 **The CTA Youth Strategy Synthesis 2013-2017**
Publisher: Technical Centre for Agricultural and Rural Cooperation
Type: Report | **Status:** Open Access | **Date issued:** 2014

 **Stratégie du CTA pour la Jeunesse 2013-2017 : Synthèse**
Publisher: Centre Technique de Coopération Agricole et Rurale
Type: Report | **Status:** Open Access | **Date issued:** 2014

Which scientists, institutions and CRPs have produced publications on «Cassava» during 2017?



Select Year «2017» and Subject «Cassava» and find out!

AReS will also tell you «where» the research has taken place and more.

Where does IFAD concentrates its effort during the last five year? And on which subjects?



 Select Year «2013-2018» and Funder «International Fund for Agricultural Development» and find out!

Region and Countries are shown in the atlas, while the «Subject» filter will automatically sort for those available in the Info Products List of Results. The same list is sortable by Subject.

Are IFAD and ADB funding the same projects? If yes, what have they produced and where?



Select Funder «International Fund for Agricultural Development» then check if «African Development Bank» appears in the Funder filter too. If no, they are not related in MEL/CGSpace, if yes select it!

The Info Products List of Results and the Info Products Overview will provide you with all information.

How did IITA funded its work on gender and Cassava in Nigeria? Which scientists took part in those projects?



Select Affiliation «International Institute of Tropical Agriculture», select Subject «Gender» and «Cassava», then select Country «Nigeria» and find out!

The top Funders and top Contributors are shown in the tables.

When did Dr. Faustus and Dr. Jekyll publish their work on Yam with IITA?



Select Author «Dr. Faustus» and «Dr. Jekyll», then select Subject «Yam», Affiliation «International Institute of Tropical Agriculture» and find out!

The Year (date range) will automatically resize to the intended period.
Also, the Info Products List of Results can be sorted by Date.

Conclusions

Challenges

1. OA costs not budgeted in proposals
2. Proposal Development Process (timeline & sharing)
3. Data management plans – data collection (lack of ...not harmonized)
4. Strengthening collaborations with Partners (CG and Non)
5. Professional Development (lack of time)

How our Stakeholders can help?

1. Fundraising. Securing projects in the area of Knowledge and Data Management
2. Advocate at CGIAR level a better evaluative mechanism in relation to Data Sharing and Usage

ICARDA Retweeted



RootsTubersBananas @RTB_CGIAR · Dec 3

The Monitoring, Evaluation & Learning online platform used by 8 @CGIAR Research Programs and Centers, has won silver at the 2018 Enterprise Business Collaboration Award in Berlin in the category of 'Best Collaboration Infrastructure': bit.ly/2FZ5ZTW @ICARDA @wcebc



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<http://www.rtb.cgiar.org/blog/2018/12/03/monitoring-evaluation-learning-platform-wins-silver-award-in-berlin/>



ICARDA @ICARDA · Dec 6

AWARD: Silver price at 2018 Enterprise Business Collaboration Award in Berlin for MEL - a Monitoring, Evaluation & Learning platform for @CGIAR scientists and #R4D partners. Category: Best Collaboration Infrastructure

WATCH: bit.ly/2FZ5ZTW

VISIT: mel.cgiar.org



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