



2021 Technical Report

AICCRA Knowledge and Data Sharing unit

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This report is a summary of what was done during 2021

1. Introduction

The main purpose of this team effort is to help the AICCRA Project to support evidence-based decision-making by ensuring that the research data, which is essential for the integrity, quality, and value of research, is appropriately managed at the cluster level. It also strengthens the culture of results-based project monitoring and evaluation (M&E) by ensuring the reporting of high-quality information products.

Additionally, we support establishing data sharing and management processes from legal agreements through research operations and reporting. This “conveyor belt” process is applied to AICCRA through the MIS reporting system called Managing Agricultural Research for Learning and Outcomes (MARLO).

MARLO is an online platform assisting the AICCRA project in its strategic results-based program planning and reporting of research clusters. It covers the cluster cycle from planning to reporting and learning. Reports generated by the system support outcome-focused programmatic reporting with additional synthesis at the flagship and cross-cutting levels.

2. Technical Report

The following is a list of activities and duties that were carried out by the technical team to adjust MARLO from a CRP perspective (CCAFS) to the AICCRA needs to fit its purpose and be aligned with the structure of the project in terms of the Project Implementation Manual.

2.1. Infrastructure, Network, and Security

2.1.1. Production environment

- a. The application server hosted in Amazon Web Services (EC2) was updated in terms of its operating system from Ubuntu 16.04 to Ubuntu 18.04, and this improved the stability and security of the site
- b. The database service kept the same as a Relational Database Service (RDS) in Amazon Web Services using MySQL.
- c. Read replica Database service kept active and synchronized with the main database. The purpose of this database is to reduce the load time and processes of the main database queries when producing summary reports or querying the database.





- d. AICCRA digital certificate is valid until May 25 of 2022 (See [here](#)) and is scheduled to be renewed for another year.
- e. We have operationalized a backup strategy for MARLO-AICCRA Data:
 - i. We have established an automated backup process as plan B when something critical happened on the site. All files are being placed in the cloud and very often they are transferred automatically to the Alliance File System located in Palmira/Colombia.
 - ii. The Alliance File System, where the backups are stored, was updated after 10 years of service. The new server has better support, is more stable, and more reliable ([See email](#) sent by the Alliance Infrastructure, Network, and Security team)
 - iii. We implemented an automated process that moves all backups into an S3 bucket in AWS (See [here](#))
 - iv. Backup files coming from the database were generated in the webserver (every 4 hours) and were automatically moved to Alliance File System and S3 Bucket. In addition, Amazon Web Service is also taking a full snapshot of the database server every 4 hours and they are being stored in the data center in Virginia (USA). This snapshot contains the data of the AICCRA database and its server configuration.

2.1.2. Testing Environment

This environment is used to introduce and test new developments and functionalities for MARLO. It is hosted in a virtual server located in the data centre of the Alliance in Palmira/Colombia. The virtual server has the following technical specifications:

- Storage: 75 Gb
- Processing: 6 CPU Intel(R) Xeon(R) CPU E5-2640 v2 @ 2.00GHz
- Memory: 12Gb
- SO: Linux Ubuntu

2.2. Software maintenance (Back-end)

- a. The following JAVA libraries were updated to improve the security and performance of the site:
 - Active directory library of CIAT 2.2 to 2.3:
This library allows all our users to connect with MARLO using the CGIAR Outlook credentials.
 - Log4J library 2.15 to 2.16
This library is used to record in plain text all events that happened in the MARLO server, or any system output predefined by the developer.
- b. The CGSpace integration service was updated to adjust it to a new API release





- c. We have solved a potential issue in the system that would allow a malicious agent to decrypt the password of a specific user.
- d. We re-implemented the online chat that is always located on the bottom-left side. For this purpose, we are using the tawk.to service, which is free now.
- e. We have re-connect the pusher technology in the MARLO-AICCRA instance so that we can detect users who are within the same section and avoid overwriting issues.

2.3. Technical support

- a. MARLO Team has resolved 84 support tickets for the AICCRA community in 2021 (from Jan 01 to Dec 31)
- b. We have guided the different processes (APWB 2021, Progress 2021, AR 2021) that are happening in the system and provided technical assistance as requested.

2.4. Adjustments and improvements developed for AICCRA needs

2.4.1. General Improvements

- Adjusted MARLO URL from CCAFS to AICCRA ([see screenshot](#))
- Included the official AICCRA Logo ([See screenshot](#))
- Defined dropdown years into the system between 2021 and 2023 ([See screenshot](#))
- Renamed the word projects to clusters into the system ([see screenshot](#))
- Updated AICCRA terms and condition information ([See screenshot](#))
- To improve the interoperability within the control lists of the One CGIAR, we have connected the MARLO-AICCRA List of institutions with the ones that are coming from [CLARISA](#), this way, later on, there will be opportunities to integrate the MARLO data with other Management Information Systems developed within the institution.

2.4.2. Admin Section (Not available for Cluster leaders)

- We aligned the partner's request process with CLARISA, so that we are more aligned with the data compiled in the One CGIAR and to seek opportunities for data interoperability with other platforms in the CG.
- Due to the number of requests to move deliverables from one Phase to another (in the CGIAR CRP world), we have adjusted an admin panel that can allow a MARLO Admin to move deliverables from phases (Planning, Progress, Reporting) without losing the initial identifier or any information inputted ([see screenshot](#))
- We have developed an activity management module so that all activities are centralized and set up in a single place ([see screenshot](#))

2.4.3. Home page

- We have added a description in our landing page about the definition of a Cluster in MARLO.





- We have created direct accesses to the most used entities within a cluster so that people can be directed to them without having to use several clicks ([See screenshot](#))
- We have adjusted our legal conditions (Privacy Policy, terms, and conditions) which mainly refers to how the information is used in MARLO ([see section](#))

2.4.4. Overall Performance Indicators

- We have adjusted the name of this section from impact pathway to Overall Performance Indicators
- We have added the possibility to see which clusters are contributing to each of the indicators ([See screenshot](#))
- We have adjusted the name of Outcomes to performance indicators
- We have created a submodule to set up additional questions for each of the indicators during progress and annual reports ([See screenshot](#)). This module has also the possibility to share a PDF with concrete guidance on how to properly evidence an indicator.

2.4.5. Cluster level sections

- We have adjusted the "Component" wording instead of "Management Liaisons"
- Added tags for all clusters to indicate a specific type according to our internal structure (Country, Region, Theme, or Management) and we also established a color code for easy reference ([See screenshot](#))
- We have taken out the project highlights section that we used to use in CCAFS.
- We have taken out the policies section as this does not apply with AICCRA.
- We have replaced Project for Clusters in all MARLO jargon ([See screenshot](#))
- Updated the URL in the Cluster section and respective sub-sections ([See screenshot](#))
- We have adjusted the Cluster identifiers to avoid possible duplicate with CRP Projects ([See screenshot](#))

2.4.6. Contribution to performance indicator

- We have reordered the list of indicators that are mapped to a specific cluster so that they are easy to reference ([See screenshot](#))
- We added the possibility to see all deliverables, innovations, and OICRs mapped with each indicator ([See screenshot](#))
- We have improved the screen in a way that we can see all information inputted during the progress and annual report ([See screenshot](#))
- We have developed a module to track Progress towards our performance indicators which differs from the Planning and Annual Report phases ([See screenshot](#))





- As per requested by Bruce Campbell, we have added a new field to track specifically the target agreed with PMC for each performance indicator mapped to a specific cluster ([See screenshot](#))
- As per a conversation with Sophia Huyer, we have added a module to display trainees' information when there are deliverables with a Capacity Development component ([See screenshot](#))
- We have developed the functionality to add additional questions for each indicator in the Progress and Reporting phases ([See screenshot](#))

2.4.7. Cluster's activities

- Since the list of activities are standardized overall the project, we have adjusted the activities section at the cluster level in which cluster leaders can select the specific activities that are mapped to the respective cluster ([See screenshot](#))
- Since all deliverables must be mapped to at least one activity, we have created a rule in the system with clarification messages so that cluster leaders can identify which deliverables are not mapped to any activities ([See screenshot](#))
- If there is at least one deliverable that is not mapped to any activity, the green check-mark will not be displayed in the activities section.

2.4.8. Outcome Impact Case Reports and MELIA Studies

- We have adjusted the name of this section from "Evidences" to "OICRs & MELIAs". This way, we hope it is easier to understand for all cluster leaders.
- We have removed all the fields that were related to CRPs Performance Results Framework (E.g., SRF, Sub-IDOs, etc.)
- We developed functionality to map OICRs with performance indicators ([See screenshot](#))
- We have developed the functionality of share OICRs and MELIAs between clusters ([See screenshot](#))

2.4.9. Deliverables

- We have developed a mapping field in which a deliverable must contribute to a specific performance indicator already mapped to a specific cluster. This way we are now able to better support our evidence towards our indicators ([See screenshot](#))
- We have added some clarification notes for everyone about the need to disseminate our knowledge products into CGSpace. We have put in place a template to be sent to Margarita Ramirez via email ([See screenshot](#))
- We have developed the functionality to map activities into the deliverables section ([See screenshot](#))





- We have improved the capacity development section, new fields added to collect more information concerning AICCRA project trainees as per suggested by Sophia Huyer ([See screenshot](#))
- We have adjusted the questions in the quality check section ([See screenshot](#))
- We have adjusted the metadata information required for each deliverable and have taken out some fields that we were not going to use on any analysis (E.g., language, country, keywords, etc.)
- We have developed functionality of share deliverables between clusters ([See screenshot](#))
- We have added a new type of deliverables to track "Capacity Development Events" and "Partnership agreements" ([See screenshot](#))

2.4.10. Innovations

- We have removed all the fields related to the CRPs architecture
- We have developed the functionality of sharing innovations between clusters ([See screenshot](#))
- We developed the functionality to allow the user to map innovations with performance indicators ([See screenshot](#)). However, as of now, there are no innovations reported in AICCRA yet.

2.4.11. Summaries

- We have developed a "Brief summary" report for which the main focus is on what clusters have indicated as progress or annual report per indicator ([See screenshot](#)). We have also added the option to download all clusters information at once.
- We have updated the capacity development report with the new fields added in the deliverables section and the respective links towards our performance indicators.
- We have taken out the following reports from the system as they were used only by the CRP version: impact to covid-19, studies, policies, highlights, LP6

2.5. Business Intelligence module

- a. The first version of the BI module was released with a dashboard that summaries how we are performing towards our indicators and how deliverables are supporting those achievements. ([See screenshot](#))
- b. We have also recorded a short 3-minute video that explains how to use the dashboard ([Watch it here](#))
- c. We have developed another dashboard to see all deliverables reported in the system and how they are mapped towards our performance indicators, activities, partners, etc. ([See screenshot](#))





3. List of online sites

A set of online sites are made available for the MARLO-AICCRA project as part of the development process:

1. Testing environment hosted in the Palmira/Cali campus:
<https://aiccratest.ciat.cgiar.org/>
2. Production environment hosted in Amazon Web Services in Virginia (EEUU):
<https://aiccra.marlo.cgiar.org/>
3. User Manual: [Link here](#)
4. Source code: <https://github.com/CCAFS/MARLO> => Branch AICCRA
This is the location where all the code that is being developed for the entire platform is being uploaded.





AICCRA
Accelerating Impacts of CGIAR
Climate Research for Africa



About AICCRA | Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture. It is led by the Alliance of Bioversity International and CIAT and supported by a grant from the International Development Association (IDA) of the World Bank. Explore AICCRA's work at aiccra.cgiar.org

