

2020

PhilRice R&D Highlights



Information Systems Division

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Information Systems Division

Division head: **Luis Alejandro I. Tamani**

EXECUTIVE SUMMARY

The Information Systems Division (ISD) provides technical services and develops information and database systems, data network, and system process documentation for rice and rice-based information. This ensures the quality of delivery and conduct of research, development, extension, and support to operations through the application of Information and Communications Technology (ICT). To achieve its goals, ISD implemented four projects: (1) Business Continuity, (2) Corporate Management Information System (CoreMIS); (3) Sustainable Agricultural Information Systems (AgIS) for Rice Production, Research and Development Works; and (4) Modernized Rice Farming through Precision Technology and Intelligence Information Systems. These projects significantly contributed to achieving the strategic PhilRice outcomes: (1) advanced rice science and technology as continuing sources of growth; (2) enhanced partnerships and knowledge management for rice research for development (R4D); and (3) strengthened institutional capability of PhilRice (and partners).

The Business Continuity Project covered network infrastructure and ICT maintenance. With the emergence of the COVID-19 pandemic, the importance of ICT became evident. There was more use for virtual communications due to travel restrictions and physical distancing that resulted in work-from-home arrangements. A bigger bandwidth was required to improve the quality of webinars and videoconferencing, which became the new normal for inter-branch and inter-agency meetings. The internet bandwidths for Batac and Isabela branch stations were increased to make it at par with the other branch stations. The ISD personnel participated in the online CERT-PH National Cyber Drill 2020 to gauge and further improve the Institute cybersecurity incident's handling capacity. More than 1,300 ICT maintenance service requests were resolved. These were categorized into hardware and software, network, telephone, video conferencing, webinar activities, and other services.

For the Corporate Management Information System (CoreMIS), the continuing development and enhancement of its information systems contributed to the ease-of-doing-business. It helped the Institute complied with emerging

procedural or reportorial requirements from other regulatory agencies such as COA, DBM, and CSC, as well as in their accounting and auditing rules. The system also lessened the time of reporting and improved the accuracy of reports, thereby making the management planning and decision-making more efficient. The in-house-developed information systems were now accessible in the intranet portal thru a single sign-on. The databases were integrated to create a single source of information and minimize or eliminate data entry errors and duplication.

The Sustainable Agricultural Information Systems (AgIS) for Rice Production, Research and Development Works Project developed the Project Management Information System (PMIS), which will contain information on all PhilRice projects. The Activity Monitoring Workplan interface was designed to facilitate an apple-apple inputting of targets that links programs, projects, study, or component, which will complement the sectoral and institutional goals. Other activities involved developing information systems for the research and development sectors and maintaining and updating the DBMP-based database system. A web-based Germplasm Management System (GEMS) portal was also developed in collaboration with the Genetic Resources Division (GRD), allowing users to view seed passport data and initiate seeds and data requests.

The Modernized Rice Farming through Precision Technology and Intelligence Information Systems, under the Rice Farm Modernization and Mechanization Program, covered activities relating to applying ICT to agriculture. Specifically, mobile applications, information systems, data analytics, and robotics are being developed under the project.

The use of ICT, particularly during pandemics such as the COVID-19, is still emerging. This includes the direct use of ICT in agriculture (e.g. robotics), mobile applications, and information systems. ISD will also conduct collaborative works on data analytics using the data handled and collected by the Institute. ICT infrastructure should be made more stable to address the growing needs of the Institute.

Business Continuity

Consolacion D. Diaz

Business Continuity covers the ongoing management of ICT security, connectivity and disaster recovery for resiliency, systems administration, maintenance, and improvement of ICT infrastructure and communication requirements. The ICT infrastructure includes computer (fixed and wireless) and telephony networks, mobile telephony, network operation services (DNS, DHCP, NTP, IP routing, etc.), servers, data storage system (including backups), virtualization, computer hardware, software, and ICT services. During the year, more than 1,300 ICT maintenance-related service requests were resolved. These included requests relating to hardware and software, network, telephone, videoconferencing, and webinar activities. Computer and network-related services had an overall Excellent rating.

The fast growth of the PhilRice Local Area Network (LAN) means a buildup of ICT assets and increased demand for bigger bandwidth requirement for internet connection. Given the COVID-19 pandemic, a new normal setting was created that provided the opportunity to recalibrate working systems. Virtual communications became the norm due to the necessity of social distancing, travel limitations, and mass gathering restrictions. Hence, a bigger bandwidth was installed and used to allow for more frequent and even simultaneous videoconferencing and webinars. The internet bandwidths of PhilRice Batac and Isabela were likewise increased to make it at par with the other branch stations. The ICT services, including the occurrence of security issues such as systems intrusion and malware infection, will impact the continuity of institute operations. More than 58,000 spams, 697 viruses, five bad recipients were blocked in the inbound traffic. Backup schedules depend on the function of the system and databases. The ISD staff also participated in the online CERT-PH National Cyber Drill 2020 to help gauge and further improve the cybersecurity incident handling capacity of PhilRice.

Corporate Management Information System (CoreMIS)

Luis Alejandro I. Tamani

The Corporate Management Information System (CoreMIS) project was created to support the research, development, and extension operations of the Institute. Three major Information Systems (IS) were designed primarily for general administrative support services, namely (1) Financial Management Information Systems (FMIS); (2) Human Resource Information System (HRIS); and (3) Property and Supply Inventory System (PSIS). As part of their continuous development and enhancement, a major financial reporting module was added in the FMIS in compliance with auditing and accounting rules. New modules for PRIME III accreditation were created in addition to enhancing the existing HRIS modules. For PSIS, a procurement module that is now in its beta version and a property module were created but still under development. These ISs contributed to improving ease of doing business and complying with the Institute's emerging requirements and accounting and auditing rules. These also lessened the time of reporting and improved the accuracy of reports, which aid the planning and decision-making of the management.

Apart from these and the ICT maintenance for ISD, ISs were also developed in support of other division services such as the Sensory Information System for the Rice Chemistry and Food Science Division and PPD Systems (assistance, vehicle dispatch, and farm operations) for the Physical Plant Division. The other information systems development from other projects were also interfacing with CoreMIS at the database level.

Lastly, an Intranet portal was developed for a single sign-on for all in-house developed ISs. The databases were designed to provide a single source of data to eliminate duplication. Rapid application development was being used in systems development to hasten systems deployment.

Sustainable Agricultural Information Systems (AgIS) for Rice Production, Research and Development Works

Arturo C. Arocena Jr.

The need for Information Systems (IS) in applied agricultural production and research leads to the formulation of Agricultural Information Systems (AgIS), which is rapidly becoming a necessity. AgIS can empower rice stakeholders in gathering, processing, manipulating, and sharing quality and timely information.

Under the AgIS project, ISD developed the Activity Monitoring Module (AMM) under the PMIS and the web-based GEMS portal. The AMM is a system that ensures all individual targets are aligned to the Institute's major final outputs. It was provided with an interface for updating personal accomplishments that the system consolidates and summarizes for the project, program, sector, and executive officials for monitoring purposes. The web-based Germplasm Management Portal, an online system counterpart of the internal database maintained and managed by GRD, facilitates online data requests and documents all transactions, with an option for the requisitioner to monitor the progress of the approved data access.