

DOST-ADVANCED SCIENCE AND TECHNOLOGY INSTITUTE

FY 2019 R&D Projects

2019 Project/Program/ Activity Name	Brief Description	Beneficiaries	Status
Department of Energy (DOE) Project Phase 3: 1) Development, Enhancement, and Adoption of the Department of Energy – Online Service Management System (DOE-OSMS) for Legal Services Information System (LSIS) and Energy Services Information System (ESIS); 2) Development, Enhancement, and Adoption of the Department of Energy – Critical Energy Installation Information System (DOE-CEIIS); and 3) Development of the Department of Energy - GIS Geodatabase (DOE-GIS) and Upgrade of the Energy Resource Information System	The project involves development of three DOE information systems, namely: 1) On-line Service Management System (OSMS); 2) Critical Energy Installation Information System (CEIIS); and 3) GIS Geodatabase. The OSMS is a web-based application that enables the DOE's various stakeholders to create their own account in the system, which will be used to access, store, track, and retrieve the system's offered services. The CEIIS is a web-based GIS application that provides efficient access, timely and accurate information to various critical energy installation stakeholders, i.e., consumers, businesses, other concerned government agency and the general public. Lastly, the GIS Geodatabase is a web-based application that collects and builds database of energy contract areas, and application.	DOE; General Public	Completed
Development of Housing Beneficiary Monitoring and Evaluation System (HBMES)	The Housing Beneficiary Monitoring and Evaluation System (HBMES) is being developed in support of the Housing and Urban Development Coordinating Council's (HUDCC) monitoring and evaluation function of determining the prospective number of housing beneficiaries. This database system will consolidate information on housing beneficiaries (awarded) and is accessible to HUDCC, Key Shelter Agencies and other intended users.	HUDCC; Key Shelter Agencies; General Public	Completed
Gul.ai: AI and IOT-Assisted Indoor Microfarming (Year 1)	A Small-scale controlled-environment hydroponic system for experimentation on plantgrowth. To provide a system that allows for small scale experimentation on small plants using the hydroponic method and provides remote monitoring and management of the plant's growth and its environmental condition.		On-going
Development of a Philippine Indigenous Instrument Sounds Database	The project focuses on the development of a digital database that will compile audio recording of Philippine indigenous music instruments and make them available to the public. The database will include instruments that are played in different pitches, dynamics and styles. Given that the database will be available to the public, Filipinos will be able to include Philippine sounds in their creative work. An online portal will be developed as an interface for the sound files.	Music Industry; General Public	On-going
Development of Intelligent Data Analysis System (IDAS)	A databank of analyzed drug samples that will aid in determining production methods, through clustering and pattern recognition of interrelated drug samples.	DOST-ITDI-ADMATEL and its partner agen	On-going
Enhancing OneLab for Global Competitiveness – RDIs Component (OneLab) ver. 2	The project involves the establishment of a referral system that will primarily integrate the laboratories within the DOST system and eventually with partner laboratories from the private sector.	DOST-RDI Laboratories; Industries i.e. electronics, manufacturing companies	Completed

Remote Sensing and Data Science: DATOS Help Desk	The DATOS Project, funded by the Department of Science and Technology (DOST), builds on and integrates past and ongoing DOST-supported projects and related initiatives on disaster mitigation by providing a 24/7 help desk pre-, during, and post- disaster events that would provide remote sensing and data science applications support to critical activities on disaster mitigation, analysis, and advice. These activities require on-demand access to data currently available in the ASTI Computing and Archiving Research Environment (CoARE) and the Philippine Earth Data Resource Observation (PEDRO) Centers. Aside from the operations aspect, the Project also intends to conduct further research on RS and GIS, and data science in the context of these fields.	Institutions involved in Disaster Risk Reduction efforts for Post-hazard assessment and those involved in environmental assessment; Research Institutions	On-going
EPDC as Platform for Inclusive Innovation Program (EPIIC) - Project 2: Electronic Products Inclusive Innovation Center	Its mission is to enable and encourage innovative solutions that have the potential to add significant value to the Philippine economy. In pursuit of this mission, the DOST-ASTI shall take advantage of the Electronics Product Development Center (EPDC) to carry out research and development initiatives that can improve the competitive advantage of the local electronics industry. The medium for this effort shall be the Electronic Products Inclusive Innovation Center (EPIIC).	Electronics Industry; Academe; Research Institutions	On-going
Automation of ASTI Research and Development (R&D) Workflows and Processes: Phase II	The project aims to improve the R&D processes of DOST-ASTI through automation and creating online presence of applicable R&D activities. It involves streamlining of R&D processes, creation of process models on the applicable R&D activities, and development of automated processes.	ASTI ; Other DOST Agencies	Completed
Automated Electronic Survey System	The AES project aims to reduce the cost of conducting paper-based collection, processing and aggregation of data by providing a reusable standards-based transparent framework of technologies, systems and protocols. The system will address the need of users who require a high level of visibility into the functionalities of such a system for purposes of determining the credibility and accuracy of the results. It will also provide an open, transparent, and secure development framework that will enable better interoperability/integration with other products and widen the number of potential competent third-party providers who may offer better support, maintenance and technical services.	Commission on Elections	On-going
NTC Fixed and Mobile Benchmarking System: Regions 1, 4, and 12	The Project aims to develop a fixed and mobile broadband benchmarking system that will be used as a platform to enable the National Telecommunications Commission (NTC) Regional Offices 1, 4 and 12 to perform audit and assessment of Quality of Service (QOS) of Internet Service Providers (ISP) in the Philippines. It will also put in place the infrastructure, systems and processes that will support and sustain continued cooperation and exchange between the NTC and the DOST-ASTI in the area of fixed and mobile broadband measurements and related technologies.	NTC	Completed

Communications Relay Buoys for CoCoMoNets Project	<p>The Communications Relay Buoys for the CoCoMoNets Project originated from the research conducted by the Philippine-California Advanced Research Institutes called Village Base Station Project, which aimed at finding a solution to connect isolated coastal communities in Aurora Province with little or no mobile network signal by deploying low-cost, low-power, and 2G compact GSM base stations. However, despite the breakthrough, the spectrum usage and operational costs have been the major factors that limit the continuous operation and adoption of the community cellular networks (CNN) technology in the country.</p> <p>With its experience, the ASTI takes part in the investigation of relay buoy as an alternative backhaul solution. The project focuses on the study of the effects of sea conditions in the signal propagation which will then provide the design parameters of the relay buoy. The proposed technology may not only cater the sustainability requirements of the CoCoMoNets project but could also come up with a potential backhaul solution for other forms of communication systems.</p>	General Public LGUs	Completed
Development and Deployment of Advanced Spectrum Sensing Platform Network	<p>The project involves the use of a software-defined radio (SDR) and field-programmable gate array (FPGA) in measuring RF spectrum used for wireless broadcasting and telecommunications services. The system also includes advanced signal processing algorithms for providing important information about spectrum resources such as higher-order statistical processing and parametric signal analysis aside from the conventional energy detection schemes. The hardware devices will be deployed in different locations to collect real-time data. The spectrum data will be stored in a central server and database for post processing and analysis utilizing the storage and high-performance computing capabilities of the CoARE Facility.</p>	Institutions involved in Disaster Risk Reduction efforts for Post-hazard assessment and those involved in environmental assessment	Completed
Development of Extreme Weather Monitoring and Information Sharing System in the Philippines: Understanding Lightning and Thunderstorms (ULAT)	<p>This a project undertaken under the Collaborative Research Agreement with Japan International Cooperation Agency (JICA), Japan Science and Technology (JST) and Hokkaido University. It is an Official Development Assisted (ODA) project under the initiative of Japan's Science and Technology Research Partnership for Sustainable Development (SATREPS) Program.</p> <p>It aims to observe the country's weather behaviors by studying torrential rainfall and thunderstorm occurrences as parameters to eventually enable short-term forecasts. Through the automated weather stations developed by the Japanese experts, equipped with various sensors that measure both weather parameters and lightning occurrence, a network of 60 lightning instruments is expected to be established in the Philippines, particularly in Metro Manila, to collect torrential rainfall data and lightning events. If proven to be accurate, the project will be able to hasten weather forecasts benefiting disaster</p>	Institutions involved in Disaster Risk Reduction efforts Scientific Researchers	On-going
Synthetic Aperture Radar (SAR) and Automatic Identification System (AIS) for Innovative Terrestrial Monitoring and Maritime Surveillance	<p>The project aims to operationalize the distribution of SAR and AIS data to different government agencies. Various researches on applications for terrestrial monitoring, maritime surveillance, etc will be conducted.</p>	Government agencies; LGUs; Academe	On-going

Establishment of Agro-Meteorological Stations in Highly Vulnerable Agricultural Areas: A Tool for Climate Change Adaptation and in the Development of Local Early Warning System" (AGROMET cum CLIMATE CHANGE)	The Agromet cum Climate Change Project is jointly implemented by the ASTI and the Bureau of Soils and Water Management of the Department of Agriculture. It aims to develop a system for agrometeorological data gathered by the automated weather stations (AWS) installed in site-specific locations across the country. Primarily, the data are used for better-quality management of agricultural resources and empowering farmers to decide what to plant and when to plant their crops, both of which are essential on food security and economic development.	Bureau of Soil and Water Management (BSWM); General Public	Completed
Optimization of the Operational Capabilities of Hydromet Sensors in Line with International Standards (WMO Standard) for Effective Weather Flood Warning (CBFEWS) and Application to Research	This project involves retooling, repositioning and augmentation of the instruments, equipment and related facilities installed through the HYDROMET and HYBRID Projects to enable more efficient maintenance, calibration and accurate data collection that will conform with the highest standard of the hydro-meteorological observation. These hydromet stations will be eventually integrated and transferred to PAGASA.	Government agencies particularly those involved in Disaster Risk Reduction; LGUs; Private companies; General public	On-going
Development of ERP Procurement System Phase II	The Phase II of the project aims to develop procurement modules from Purchase Request to Purchase Order. To ensure that the project is consistent with the requirement of procurement laws and is usable to its client, end users, the Procurement Management Section, Bids and Awards Committees (BAC), BAC Secretariat and other groups involve in procurement will be engaged from the requirements gathering face until the validation of the developed system.	DOST-ASTI	Completed
Development of Social Sensing Network Application (ASTIgram) Phase I	A social sensing network application that will enable real-time participatory data collection and make use of sensor data from internal and external devices tagged in a photo, captured using smartphones or mobile devices. Photo and sensor data collected will be used to draw out insights and generate new knowledge and technologies that can be used across sectors.	General Public; Researchers; Citizen Scientists	On-going
Ground Receiving, Archiving, Science Product Development, and Distribution: STSAMINA4Space Program (GRASPED)	The STAMINA4Space program aims to integrate the operational activities of the ground receiving stations, satellite mission planning, image distribution, data processing, satellite assessment, and public relations for the Diwata microsattelites.	Research agencies Academic Institutions Government Offices	On-going