

**COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT
(CSTD)**

Geneva, Switzerland

Contribution by

Philippines

to the CSTD call for information sharing on initiatives against COVID-19

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PHILIPPINES' INITIATIVES RELATIVE TO COVID-19

SUMMARY

The Philippines has the third highest number of positive cases among the countries in the Southeast Asian region. While the country's Department of Health (DOH) is at the forefront of the fight against COVID-19, the different agencies of the Philippines significantly aid in responding to the challenges arising due to the pandemic.

The government of the Republic of the Philippines bases its decisions, including the enforcement of community quarantine (enhanced, modified enhanced, or general) in different regions and provinces, from scientific studies and data. The Department of Science and Technology (DOST) and the Department of Information and Communications Technology (DICT) implement various science, technology, and innovation (STI) initiatives relative to COVID-19, in collaboration with other government agencies, universities and colleges, and the private sector.

These interventions include the following:

- Enhancing the testing of individuals to detect possible infection of COVID-19;
(*GenAmplify™ COVID-19 rRT-PCR Detection Kit and Specimen Collection Booths*)
- Supporting to increase the health system capacity of the country;
(*RxBox, Ginhawa (ReliefVent), respirator, modified oxygen concentrator mask, non-contact thermal scanner, AI-powered thermal scanner system, 3D-printed and bamboo-framed face shields, and REwear face masks*)
- Developing and utilizing both new and existing applications, portals, telecommunications, and electronic systems;
(*Rapidpass System, Health Alert Watch for Community Emergencies, StaySafe.ph, Telemedicine Phase 2, FASSSTER, TanodCOVID, Project RAMDAM, Enhanced TRAMS, CHERM, Philippine Humanitarian Assistance Registry, Donation and Supply Chain Management System, ReliefAgad, dashboard.gov.ph, GovtAssist, www.covid.gov.ph, wfh.gov.ph, POC Emergency Radio Dispatch System, DICT's provision of Internet Connectivity, and PREGINET*)
- Providing Information, Education, and Communication materials/platforms, online training, and expert advisories;
(*Online Training/ Webinars, Cybersecurity Public Advisories, CERT-PH COVID-19 Cyber Related Feeds, Philippine National Public Key Infrastructure, Emergency Dispatch System, Advisories on Electronic Prescriptions, Ethics Guidelines for COVID-19 Hospital Care, Provision of virtual consultancy services to micro, small, and medium enterprises*)
- Clinical Testing and research on Virgin Coconut Oil and its components to supplement medicines and diet of COVID-19 patients; and
- Conducting relief operations and donation drives
(*DOST-SEI scholars including Bangon-Marawi graduate-scholars, TAMBULIG, and Project HERO – distributing various food items and disinfecting supplies and materials; and allowing use of DOST-developed Hybrid Electric Road Train and e-trikes for mobilization of frontliners*).

COVID-19 TESTING

<p>GenAmplify™ COVID-19 rRT-PCR Detection Kit</p>	<p>The GenAmplify™ COVID-19 rRT-PCR Detection Kit is locally developed by Manila HealthTek and was supported by the Department of Science and Technology (DOST). The detection kit offers a real-time detection of novel corona virus (COVID-19) in respiratory samples using a one-step multiplex real-time PCR platform. It is now currently mass produced after securing the approval from the Philippines' Food and Drug Administration (FDA). <i>Status: Ongoing production</i></p>
<p>Specimen Collection Booths (SCB)</p>	<p>The DOST also funded and supported the development of Specimen Collection Booths (SCB). More than a hundred SCBs were already produced and deployed to selected hospitals and the Coast Guard. The design created by DOST and FAME, Inc. was released to the public, especially to the fabricators and engineers, to help augment the government's drive to beat COVID-19. <i>Status: Design available, Booths deployed, More booths for delivery</i></p>
<p>Personal Protective Equipment (PPEs)</p>	<p>The DOST-Philippine Textile Research Institute (PTRI) launched REwear™: reusable, washable and re-wearable face masks. Lastly, the JKQ Uniform Solutions Inc., a current DOST Cebu SETUP beneficiary has finalized an innovative version of PPE overalls using water repellent taffeta fabric with silver black lining (SBL). Nicodemus Exclusive Apparel (NEA), also a SETUP beneficiary from Naga City, mobilized their own resources and manpower to produce PPE suits. Face shields were also produced for the use of doctors, medical practitioners and other frontliners. One type of face shields is produced through 3D printing (by DOST-Metals Industry Research and Development Center) while the other is made of bamboo frames (by DOST-Forestry Products Research and Development Institute). <i>Status: Ongoing production</i></p>

TECHNOLOGIES

<p>RxBox</p>	<p>Developed by researchers from University of the Philippines (UP) Manila and UP Diliman with support from DOST-PCHRD, RxBox is a biomedical device capable of measuring a patient's temperature, blood pressure, heart rate, oxygen saturation, uterine contractions, and electrocardiogram readings. It will be used for bedside monitoring of the vital signs, oxygen saturation, and electrocardiogram readings of patients diagnosed with COVID-19, especially those in severe or critical conditions</p>
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	<p>who need continuous monitoring. The use of the RxBot can reduce contact between COVID-19 patients and healthcare workers and will also provide an efficient way for the latter to monitor multiple patients at the same time. <i>Status: Ongoing coordination</i></p>
Ginhawa (ReliefVent)	<p>To address the need of hospitals for ventilator systems, a project team from UP-Manila, funded by DOST, developed a portable ventilator system called Ginhawa (ReliefVent). Ginhawa is a ventilator that can be used for both children and adults, with a projected cost of 40% lower than other portable ventilators in the market. <i>Status: Final production of three (3) prototypes</i></p>
Artificial Intelligence – Powered Thermal Scanner System	<p>The AI-based Thermal Scan Solution mounted in drones or station bays is able to scan and identify people with high temperature in the queue at check points to reduce screening time and closer exposure of uniformed and medical personnel to possibly infected people. <i>Status: Ongoing coordination with local government units for deployment and data gathering</i></p>
Respirator venturi valves and modified oxygen concentrator mask	<p>The DOST-Industrial Technology Development Institute (ITDI) has developed and delivered to the National Children’s Hospital two samples of respirator venturi valves for test fitting using their existing respirator. Also designed and 3D printed for testing is a modified oxygen concentrator mask with filter attachment for attachment to a commercially available nebulizer mask.</p>

PORTAL

www.covid19.gov.ph	<p>Launch of Laging Handa website for exclusive updates on the COVID-19 situation in the Philippines - an initiative of Presidential Communications Operations Office (PCOO) in partnership with DICT, reflects the current figures of COVID-19 individuals, initiatives and programs laid out by the national and local government, communication services for any concerns during this situation. <i>Status: Operational</i></p>
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wfh.gov.ph	A website designed to provide information on working remotely or working from home. The website is especially valuable to government employees who are new to the arrangement as it provides free to use professional tools, as well as learning materials on cybersecurity and basic to advanced usage tutorials of different applications, and training materials for users to be able to enhance or gain additional new skills. <i>Status: Ongoing Development</i>
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TELECOMMUNICATIONS

POC Emergency Radio Dispatch System	Enhancement of Department of Health (DOH)'s technical capabilities - the provision of LTE Push-To-Talk Over Cellular (POC) Radios and a centralized POC Emergency Radio Dispatch system for easier streamlining of logistical operations of DOH and its ambulances. <i>Status: For Delivery</i>
Provision of Internet Connectivity	Provision of free internet connectivity and access to COVID-19 facilities - more than 30 COVID-19 monitoring and control centers, including designated quarantine areas, lodging for frontliners, and emergency operations centers are now Internet-connected through the Department of Information and Communications Technology's (DICT) Free Wi-Fi for All Program. <i>Status: Ongoing implementation</i>

APPLICATIONS AND ONLINE PLATFORMS

Rapidpass System (RPS)	This is a special QR code that allows accredited frontliners and authorized personnel/vehicles to get verified and pass through checkpoints in NCR faster, lessen physical contact, which is highly discouraged during the coronavirus crisis. https://dict.gov.ph/rapidpass/ <i>Status: Ongoing implementation</i>
Health Alert Watch for Community Emergencies	This aims to streamline and centralize information sharing among government agencies (e.g., DOH, IATF for COVID-19, LGUs), and hospitals through providing Executive Information dashboards. This shall include assistance in Business Intelligence, Data Science, Technology Infrastructure, Software Development, and Systems Architecture. <i>Status: Ongoing Development</i>

<p>StaySafe.ph</p>	<p>StaySafe.ph is a community-driven social distancing system that enables the COVID-19 case mapping and monitoring, symptoms reporting, medical consultation, and contact tracing to be used by the Philippine Government to manage the pandemic. It also features modules on COVID-19 case heat mapping, company and Philippine Local Government Units (LGU) response, and text blasting, among others. <i>Status: Ongoing implementation/enhancement (integration)</i></p>
<p>Telemedicine Phase 2</p>	<p>Telemedicine service 1555 (with telemedicine partners Globe, KonsultaMD), integration with other DOH, IATF platforms; This project aims to streamline and centralize health information sharing between communities, health workers, and the public. The project shall enable the Philippine local government units to adopt telemedicine technology through remote consultation, electronic medical records systems, and telemedicine kits. This shall provide access to basic healthcare to the public and minimize the need to visit hospitals and other health centers in order to contain and address the COVID-19 pandemic. <i>Status: Ongoing implementation/ enhancement (integration)</i></p>
<p>FASSSTER dashboard</p>	<p>FASSSTER or Feasibility Analysis of Syndromic Surveillance using a Spatio Temporal Epidemiological Modeler for Early Detection of Diseases which is an information system created to provide model on the behavior of the COVID-19 through time and space. FASSSTER dashboard generates disease models that enable users to project the effect of interventions such as community quarantine, social distancing, and optimal testing on the total number of confirmed cases, deaths, and recoveries over time. Daily updating of COVID-19 projections, through collection and processing of data from DOH's COVID-19 information systems is being conducted. <i>Status: Ongoing utilization</i></p>
<p>Project “RAMDAM” or Relief Allocation Management, Distribution and Monitoring</p>	<p>A tool designed to aid LGUs in their relief operations thru interactive visualization, transparent reporting, and updated monitoring with residents feedback and request mechanism that allows immediate response to communities and individuals in distress. <i>Status: Ongoing implementation</i></p>
<p>Center for Hazard and Environmental Resource Mapping (CHERM)</p>	<p>The DOST’s Center for Hazard and Environmental Resource Mapping (CHERM) has been utilized in response to the pandemic. CHERM was able to map COVID-19 suspected and confirmed cases in the country’s region CALABARZON (provinces Cavite, Laguna, Batangas, Rizal, and Quezon).</p>

<p>Tracing for Allocation of Medical Supplies (TRAMS)</p>	<p>The Tracing for Allocation of Medical Supplies (TrAMS) project of DOST and the University of the Philippines is an online system composed of geographic and tracking information of hospital's medical supplies. The system is based on crowd sourced or volunteered information which could aid in the allocation of the medical supplies needed by each hospital. Government agencies, donors and other interested parties may use this system as a tool for effective response and distribution of the supplies.</p> <p>This system aims to track the medical resources needed by the hospitals across the country and to display it on the TrAMS website in order for donors to be able to identify and supply to the hospitals. This form will serve as the main platform to gather resource information of hospitals.</p> <p>TRAMS is now being used in response to COVID-19.</p>
<p>Philippine Humanitarian Assistance Registry</p>	<p>The goal is to create an accessible portal which shall contain comprehensive information on all (Domestic and International) humanitarian assistance related to the COVID-19 pandemic. This shall promote transparency through the display and tracking of foreign and local aid/donations to be given to the Government and distributed by the OCD to the target beneficiaries. <i>Status: For Deployment</i></p>
<p>Donation and Supply Chain Management System</p>	<p>The objective is to efficiently allocate and manage the logistics of medical supplies and other donations related to COVID-19</p>
<p>ReliefAgad</p>	<p>This is a quick relief system that will enable DSWD and LGUs expedite the capture of SAP data and interface with any electronic payment system for faster cash relief to targeted beneficiaries. <i>Status: Ongoing development</i></p>
<p>dashboard.gov.ph</p>	<p>A unified website on COVID-19 being developed for the use of the Presidential Communications Operations Office and the Office of the. Presidential Spokesperson. The website will aggregate COVID-19-related data from government websites as well as integrate all existing COVID-19 websites under one content management system. <i>Status: Ongoing development/ modifications</i></p>

GovtAssist	A centralized repository of all incoming requests for services offered by the Department of Information and Communications (DICT). Aims to create a central database and ensure all requests are addressed in compliance with existing rules and regulations, particularly the Ease of Doing Business Act's 3-7-20 day rule. Further, it aims to facilitate the provision of reliable and efficient government services especially during emergencies. Providing assistance to government agencies this Covid-19 crisis, providing cloud VMs, issuance of digital signatures, and web hosting. <i>Status: Ongoing implementation/for enhancement</i>
TanodCOVID	It is an SMS-based system that can be used by a local government unit for surveillance and monitoring of symptoms related to the COVID-19.
PREGINET	Through the help of DOST-Advanced Science and Technology Institute (ASTI), the DOH's connectivity to Philippine Research, Education and Government Information Network (PREGINET) was successfully upgraded. The DOST-ASTI negotiated with its telco partner, Eastern Telecoms (ETPI) to double the network capacity to 1000 Mbps to support DOH's activities such as the use of multiple network-based communication platforms, data transfers, research, telemedicine, and other network-supported activities.

EDUCATIONAL/TRAININGS PROGRAMS

Online Training/ Webinars	<ul style="list-style-type: none"> • Conduct of Online Cybersecurity Trainings /Webinars as an alternative training method while on ECQ for COVID 19 related online threats: Intermediate Cybersecurity; Cybersecurity Awareness Training; Essentials of Cybersecurity; Understanding Cybercrime. <i>Status: Ongoing implementation</i> • Webinars were conducted on DOST Courseware in Science and Mathematics for Grades 1-8 started on 24 April and will be held in four sessions daily until 15 May 2020. Elementary science and mathematics teachers can use the DOST-SEI video conferencing application to interact and discuss these e-Learning materials. <i>Status: Ongoing implementation</i>
Cybersecurity Public Advisories	Publication of Cybersecurity Public Advisories amidst the growing threat of cybercrimes related to COVID 19 (fake news, etc). <i>Status: Ongoing implementation</i>

<p>CERT-PH COVID-19 Cyber Related Feeds</p>	<p>CERT-PH COVID-19 Cyber Related Feeds issued to critical information infrastructures, government agencies, businesses, supply chains and other cybersecurity stakeholders. <i>Status: Ongoing implementation</i></p>
<p>Philippine National Public Key Infrastructure (PNPKI)</p>	<p>Public Key Infrastructure (PKI) allows users of public networks like the Internet to exchange private data securely. DICT renders technical support for PNPKI installation & downloading of digital certificate. This is in response to the increasing need to ensure confidentiality, authenticity, integrity and non-repudiation of electronic transactions and documents during the COVID-19 crisis. <i>Status: Ongoing implementation</i></p>
<p>Emergency Dispatch System</p>	<p>(An integrated client-server software from Kirisun with 200 radio over IP units) Aims to promote an efficient way of mobilizing and managing emergency responders (i.e. ambulances) through providing an emergency dispatch system and communication radios. This shall streamline logistical operations of the DOH and DOH Ambulances to COVID-19 and non-COVID-19 patient referrals. <i>Status: For Delivery/ Commissioning</i></p>
<p>Advisories on Electronic Prescriptions</p>	<p>Advisory on the Use of Electronic Means of Prescription for Drugs - ensures the continuous access of Filipinos to prescription and maintenance drugs during the quarantine period using electronic measures. <i>Status: Ongoing implementation</i></p>
<p>Ethics Guidelines for COVID-19 Hospital Care</p>	<p>Version 1 of the e-book on Ethics Guidelines on COVID-19 Crisis-Level Hospital Care was prepared by the National Ethics Committee and the Philippine Health Research Ethics Board with funding support from DOST-PCHR. Different organizations are requested for endorsement and wide dissemination.</p>
<p>Provision of virtual consultancy services to micro, small, and medium enterprises (MSMEs) in the National Capital Region</p>	<p>37 MSMEs participated in the virtual consultancy, knowledge sharing, and sharing of best practices session with Entrepinoy Volunteers Foundation, Inc. (EVFI) consultants on the topic "Best Food Safety Practices during the COVID-19 Pandemic".</p>

RESEARCH ON VIRGIN COCONUT OIL

The DOST is supporting a number of projects studying how the Virgin Coconut Oil (VCO) helps in fighting COVID-19:

<p>DOST and LGU to test efficacy of VCO in improving condition of COVID-19 patients</p>	<p>The DOST-Food and Nutrition Research Institute (FNRI) and DOST-CALABARZON coordinated with the local government unit of the City of Santa Rosa, Laguna and its health center to discuss the deployment of the application system for case study screening and enrollment and daily monitoring and reporting of clinical symptoms, medicine intake, and nutrition/food provided. The research is to test the efficacy of virgin coconut oil (VCO) in improving the condition of confirmed and probable COVID-19 patients.</p>
<p>In-vitro Study on the Efficacy of Lauric Acid and its Derivatives against SARS-CoV-2 (Ateneo De Manila University)</p>	<p>The project aims to test whether certain coconut oil components can diminish or prevent the infectivity of SARS-CoV2, the causative virus of COVID-19. The project will focus first on the determination of the anti-viral properties of the compounds and results will be used for further studies.</p>
<p>VCO and Omega-3a Adjunctive Therapy for Hospitalized Patients with COVID-19 (University of the Philippines)</p>	<p>The study will assess the possible benefits of VCO if given to patients with moderate to severe Covid-19, in addition to the drugs being assessed in the clinical trials.</p>

OTHERS

<p>Frontliner Logistics Assistance Gateway System (FLAGExpress)</p>	<p>This system will allow individuals and organizations to donate or report in-kind goods for our frontliners via the Office of Civil Defense (OCD). <i>Status: Ongoing development</i></p>
<p>Hybrid Electric Road Trains and e-trikes</p>	<p>The DOST, in partnership with LGUs and some academic institutions, continue to provide free transportation services using the DOST-developed Hybrid Electric Road Train and e-trikes.</p>
<p>Continuous Emergency Relief Operations</p>	<p>DOST agencies, Regional Offices and PSHS campuses continue distributing various food items, PPEs, medical and disinfecting supplies and materials. The DOST-Industrial Technology Development Institute (ITDI) provided 1,296 and 1,920 pouches of ready-to-eat arroz caldo for frontliners at NRC Police Office Camp Bagong Diwa and Marikina LGU, respectively. The DOST-MIRDC, to date, has produced 46,631 face shield frames using plastic injection technology. The ITDI also delivered one</p>

	<p>piece of venturi valve each to Rizal Medical Center and Philippine Children’s Medical Center for fit testing.</p> <p>As of 08 May, there are already 947 DOST-SEI scholars nationwide doing COVID-19 related volunteer work. Five of these scholar volunteers are working directly in laboratories or hazardous areas since March. A group of scholars also formed Project TAMBULIG: UEP DOST-SEI Scholars in Action who used their stipends and raised funds to distribute relief goods to 75 families along Catarman-Lope de Vega National Highway. The volunteers also include a group of DOST-SEI Bangon Marawi graduate-scholars from MSU-Marawi and MSU-IIT who pooled their March-May stipends to buy sacks of rice and other food items which they distributed to municipalities of Lanao del Sur and Lanao del Norte and UP Manila graduate-scholars who are currently in RITM.</p> <p>A group of DOST-SEI scholars named Project HERO initiated a campaign called #FeedPHBabies which aims to provide “baby-friendly” relief goods for babies aged 4-24 months belonging to families that are heavily affected by the ECQ. DOST agencies and regional offices continue distributing various food items (assorted vegetables, fresh mushrooms, ready-to-eat food arroz caldo, other food packs), medical (face masks, face shields, aerosol boxes) and disinfecting supplies and materials. The food items were developed by DOST-ITDI’s and regional offices’ Food Innovation Center (FIC). Liquid soaps, hand bar soaps and antimicrobial hand mists from forest-based materials such as cinnamon and bamboo activated carbon with lavender/manila elemi or eucalyptus oils were formulated by DOST-FPRDI.</p>
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