



**WORLD FEDERATION OF ENGINEERING ORGANIZATIONS
FÉDÉRATION MONDIALE DES ORGANISATIONS D'INGÉNIEURS**

**UN STI Forum
Thematic session 1: Science, technology and innovation at the COVID-19
Conjuncture
Written Statement
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Excellencies and Honorable Delegates. I am Dr. Juana Tapel. It is a privilege to present this intervention on behalf of the World Federation of Engineering Organizations the only global platform for engineering and shared practices, representing 100 nations and some 30 million engineers. The Federation is Co-Chair of the Science and Technology Major Group of Stakeholders.

We are living in a very challenging global ecosystem beset with Covid-19 pandemic, inadequate food supply, climate change, pests and diseases, among others. As an Agricultural and Biosystems Engineer (ABE), I employ a broad system engineering approach, covering micro and macro ecosystems. An ABE ensures food security and environmental protection for sustainable agricultural production, resilient infrastructure and machinery, and enhances bioprocesses and biosystems, while mitigating climate change.

In the Philippines, Covid-19 pandemic has negatively disrupted agricultural production and food security due to national lockdowns. Smallholder farmers were not permitted to purchase essential supplies resulting in reduced food production efficiency. There were food shortages in the metropolis but an oversupply in production areas because of unforeseen distortion in distribution systems.

Access to safe and nutritious food was also limited as many people became jobless due to closures of many businesses. Challenging transportation and distribution resulted in wastages due to food perishability.

Similarly, agricultural machinery suppliers were unable to service and supply machinery, indirectly impacting food supply. Decomposing foods contributed to climate change through methane gas emissions.

Engineering and Technology offer innovative solutions:

1. Harnessing digital technology in the logistical distribution of agri-fishery products - Expanding digital opportunity for all, including farmers and agribusiness, will improve the food system outcomes in both rural and urban areas with reduced costs and improve access to information, knowledge and markets and advance the Sustainable Development Goals.
2. Offering QR coded IDs for agri-fishery machinery servicing - Ensuring unhampered passage in check points for technicians and servicing. Unique QR Codes on machinery, ensure that the farmer can use identification when accessing parts of service in case of a break down;

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3. Minimizing food wastage with appropriate infrastructure and timely distribution across value chains - an outcome of many drivers: the market economy, resource limitations, climate, legislation and cultural differences, being just a few.
4. Utilizing agri-fishery products as “relief” assistance in affected areas or quarantine facilities. These agri-fishery products offset the high cost of nutritious food during the height of lockdowns.

The pandemic conveyed positive impact also by giving Mother Earth the chance to cleanse herself. And ABEs had continued harnessing engineering and technology in these aspects;

1. Tapping nanodevice technologies to develop advance sensors and systems for precision agriculture to optimize inputs in food production.
2. Employing cellular and molecular processes to ensure food safety and reduce potential impact of spoilage on human health.
3. Internet of Things (IoT) and Artificial Intelligence (AI), harnessed through robotics, image analysis, mobile connectivity and others to ensure a food-secured nation that can withstand “shocks” brought about by natural and manmade calamities.

Other strategies and mechanisms in ABE practice in the Philippines used during the COVID-19 pandemic included Geographical Information Systems (GIS) and remote sensing for project management and monitoring and support for machinery, farm-to-market roads, post-harvest and irrigation projects.

An ABE engagement is crucial for agricultural projects planning and implementation to enable national economic recovery. Utilization of innovations in technology, robotics, and drone technology in pest management need to be enhanced. Other alternative approaches including online platforms, text, mobile phones for client consultation and project monitoring are intertwined with environmental management.

ABEs in the new normal are strong and resilient partners in agricultural sustainability and economic recovery, leading the way in utilizing alternative technological platforms (virtual platforms) in delivering services. They boost the economy with direct community approach through the practice of their profession.

It's time to turn this crisis into an opportunity as we move towards the “new normal”. Our global responses to COVID-19 must include farmers and small landholders as one of the vulnerable yet essential services. Engineers in agriculture sectors can transform food systems for security, sustainability, and resilience in a healthy environment.

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