

SEAMEO-The University of Tsukuba Symposium IX

Theme: Resilience for Global Citizenship Sub-Theme: Challenges in Education under COVID-19

"Reshaping Research and Development in Higher Education Institutions amidst the Pandemic"

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Assessing the Impact of COVID-19 pandemic on Agriculture production in Southeast Asia

Disruptions in agriculture food systems create supply and demand shocks on economic performance and food security.

COVID-19 pandemic reduce production vol. by 3.11% or 17.03M tons due to decline in agricultural farm labor affecting 100.77M people.

COVID-19 cause 1.4% decline in GDP of the SEA, equivalent to 3.76B USD.







The pandemic has underscored the connections between supply chains and our consumption patterns, and the urgent need to redefine agricultural systems as food systems.



Also underscored the role of universities to produce graduates with a transformative mindset who are adept in understanding the growing complex social concerns and are able to effect positive change now and in the future.

Questions to the Universities in this time of COVID-19 pandemic



What are the major priority areas for research to accelerate transformation toward sustainable agricultural food systems?



How can the human capital, like their research and academic initiatives, be fully maximized to solve the societal concern in times of COVID-19?



As research funding will be limited, what innovative solutions needed to enhance capability in knowledge generation?

Proposed key priority areas for research in agriculture and allied fields

Biosphere

Ecosystem/ Landscape

evels of Analysis

Population/ Communities

Genes, cells, organisms

Food Security Pillars

Accessibility

Stability

Utilization

- Local and international trading system
- (National) Food reserves
- Remote sensing, Artificial intelligence
- Big data system
- · Organic and traditional farming
- Commercial and Industrial farming

Availability

- Urban agriculture
- Precision farming
- Integrated pest management
- Zoonotic diseases
- · Abiotic stress-tolerant crop varieties
- Conservation agriculture
- Pest and disease control management
- Nutrient-enrichment of food
- School, home, and community gardens land use policies
- Participatory varietal selection
- Nanotechnology
- Transgenic technology
- Biotechnology

- Transport and logistic system
- Use of online platform and internet-based solution
- Automated weather stations and systems
- Land conversion and optimization
- Biofuels
- Good Agricultural Practices (GAP)
- Crop insurance system
- Integrated on-farm value adding
- ICT-based farming
- Efficient irrigation system
- Industrial farming
- Cold storage facilities
- Postharvest technologies
- Digital farms
- High-pressure hydraulic system
- High-speed, high-precision equipment
- Hydroponics/aquaponics
- Remote sensing
- Genetic breeding
- High-throughput phenotyping
- Tissue culture/embryo rescue
- Bioinformatics
- CRISPR-CAS
- Genomic selection
- Medical trials

- Financial technologies
- Environmental risks and management
- Weather-index based agricultural Insurance
- Risk Communication
- Agricultural policies and regulations
- Environmental governance
- Community bioefficacy trial
- Weather variability and forecasting
- Price fluctuations and economic factors of production
- GMO labelling
- · Genes insertion stability

- Transboundary food quality standards
- Trade regulation and standards
- Circular economy
- Registration and certification systems
- Responsible consumption behavior promotion
- · Food quality and safety
- Food technology for health and wellness
- Product traceability
- · Food quality and safety
- Food technology for health and wellness
- · Food sensory evaluation
- Food processing
- · Halal awareness and standards
- Bioefficacy and bioavailability of novel products
- Food safety
- Pesticide use and regulations

Transdisciplinal

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Modalities

Interdisciplinal

Multidisciplinal

Disciplinal

Farmer/Producers

Processor/ Manufacturing

Distributor/Retailer

Consumer

Agricultural Value Chain

UNIVERSITIES



ENGINES OF SOCIAL
INCLUSION –
BROUGHT INNOVATIVE
WAYS OF BRINGING
PEOPLE INTO THE
LEARNING
ENVIRONMENT



KEY INSTITUTIONS FOR MEETING THE SDGS –
GLOBAL CHALLENGES
THAT FACE HUMANITY
AND THE PLANET



CONTRIBUTIONS TO THE SOCIETY
HAS IMPACT ON HIGHER
EDUCATION AND RESEARCH AND
THE EXTENT TO WHICH IT BRIDGES
SOCIAL AND CULTURAL
INTERACTION BETWEEN ITSELF
AND THE COMMUNITY



Role of Universities



Addressing disparities between the wealthiest and the poorest and the balance between the planet and mankind



Ensure SDGs are included in local agendas, proposing changes to education, research and engaging with local and global communities on sustainable development



Lead the way in developing a sustainable and responsible pathway to address the current challenges in the ARD landscape



Educate the current generation with the necessary knowledge, skills, attitudes, competencies, and partnerships to help produce new SDG leaders



Pursue public goods through alignment of its interests with those of society



Conduct transversal reviews and refinements of curricula to ensure the mainstreaming of SDG issues across curricula







Widen and extend access to and successful participation in higher education by serving the needs of an increasingly diverse student interests



Must put in place resilient education systems that can provide students with access to continuous learning opportunities throughout unpredictable and disorganized periods of disasters and recovery



Capitalizing on Research for Development and Innovations Potential of Universities



The need to support local capacity toward being self-sufficient through well-planned local food production systems.

Basic research and Policy support are needed towards:

- Development of new and relevant crop varieties and livestock breeds
- Seed and livestock production and distribution of technologies
- Agricultural systems technologies
- Post-harvest management
- Farm produce transport and logistics systems
- Facilities supporting food quality, nutrition, and safety maintenance
- Diversified farming





Capitalizing on Research for Development and Innovations Potential of Universities



Support more studies and activities related to improving design of financial technologies for farmers, and encouraging wider participation in these financial systems like loans and credit systems and agricultural insurance facilities, among others.



Encourage more programs and budget allocation, as well as private initiatives related to agriculture, such as farm- based small-and-medium enterprises.



Massive promotion of sustainable and responsible consumption pattern that provides strong signals for agricultural products that support and observe cleaner production, environmental conservation, and social inclusion.



Capitalizing on Research for Development and Innovations Potential of Universities



The growing interest in agriculture needs to be sustained with more targeted capacity building activities of relevant government agencies and groups to specifically promote and generate more agri-entrepreneurs



More studies to ensure the balance between trade priorities and food security goals particularly under the tenets of ASEAN Economic Cooperation.

Effective coordination mechanisms among countries to reduce trade and food insecurities both at the national and regional levels



SEARCA established UC in 1989





To pursue agricultural human resource development in Southeast Asia by linking top agricultural universities in the region to facilitate free exchange of information, facilities, and expertise