

3rd Regional Forum on Sustainable Agricultural Mechanisation in Asia and the Pacific



“HUMAN RESOURCE DEVELOPMENT FOR SUSTAINABLE
AGRICULTURAL MECHANISATION”

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INTRODUCTION



- Located in the latitude and longitude of 18.1667° S and 178.4500° E.
- It is a tropical region ($18^{\circ}\text{C} - 32^{\circ}\text{C}$)
- Its terrain is mountainous, and this influences the quantity of rain received during the year.
- Two distinct seasons, a dry season and wet season. (May – September (dry), November – April (wet))
- Farming systems vary depending upon the weather conditions
- Farmers choose crops depending upon the rainy period and water availability, and market to their benefit.



- The agricultural sector plays a vital role in economic development in the Fiji Islands.
- Sector not only guarantees food security
also contributes to employment generation
foreign exchange earnings
livelihood improvement in the country
- Fiji is also experiencing challenges of Climate Change





- The Ministry of Agriculture in the Fiji Islands drafted the Agriculture Sector Policy Agenda 2020. The policy agenda highlighted the vision for the agriculture sector to “build up a sustainable community and establish a diversified and economically and environmentally sustainable agriculture economy in Fiji”.
- Building modern agriculture as an **organized system of producing**, processing and marketing crops, livestock and aquaculture products,





- Developing integrated production, processing, energy and transport infrastructure for agriculture
- Improving delivery of agricultural support services
- Enhancing capabilities to generate and secure investments through foreign investment, private-public-partnerships and other innovative business arrangements, and
-) Improving project implementation and policy formulation capacity within the Ministry of Agriculture and its partner institutions.



Overview of the Higher Education and Research Institution that offer Agricultural Engineering/Mechanisation Program, and their program settings in your country



- The Agricultural Engineering programs (Certificate IV and Trade Diploma programs) have been offered by the College of Engineering, Science and Technology (CEST) under the School of Mechanical Engineering in the Fiji National University since 2006.
- Currently, the Trade Diploma in Agricultural Engineering is run as a bridging educational program for the individual students career between engineering tradesman (Certificate level) and professional agricultural engineer (Bachelor Degree in Agricultural Engineering) to boost Fiji's human resource capacity to sustain productivity in the agriculture and natural resources sectors, and contributing significantly to Fiji's growing economy.



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- Thus, by adequately equipping the graduates with basic knowledge and skills in engineering and sciences, economics and entrepreneurship, rural development and extension, and computer technology and information management for applications in agricultural machinery and appropriate mechanisation systems development, agricultural infrastructure design and construction, agri-industrial processing and manufacturing, agricultural resources management, integrated agricultural systems analysis and rural development and extension, they can be Fiji's vital human resource to help the country address the critical problems and constraints currently experienced by the agriculture and natural resources sectors especially with the threat posed by the adverse effects of climate change worldwide and ensure sustainable productivity and development for the country in future.



Briefing of your Institution and specific Programmes/Research Focus



- In response to the changing needs globally brought about by the encouraging fast growth of technology and agricultural developments taking place in the country and worldwide due to increased demand consumption patterns and improved economic growth, the FNU through CEST is proactively developing a new program, the Bachelor Degree in Agricultural Engineering to address these positive developments
- This higher educational degree in agricultural engineering will be primarily research-orientated and technologically-capacitated to face the current and future technological challenges in the agriculture and natural resources management and operational demands and concerns focussing mostly on cutting-edge technological development, value adding strategies and environmentally-enhancing systems/approaches



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- Major research and technology development programs to strengthen the offering of Bachelor Degree in Agricultural Engineering will be focussed on key areas such as:
 - Precision engineering systems for agricultural production and natural resources conservation
 - Low-input and resource-efficient/cost-effective technologies and systems:
 - Green and renewable/sustainable technological systems for agri-industrial production and manufacturing enterprises: and
 - Waste recycling/ re-use and resource management engineering and climate- change sensitive/resilient techniques/measures.



The Needs Assessment, challenges and constraints faced of the Higher Education and research institutions for human resource development of agricultural mechanisation in your country



- The Agricultural Engineering programs are basically designed to develop agricultural engineering graduates equipped with some basic knowledge and skills on technology development and enterprise development and management of agriculture and natural resources sector production system to contribute significantly in improving and sustaining production and productivity of the sectors by (1) creating jobs and livelihood opportunities in the rural communities, thus helping to solve the unemployment problems, (2) conserve and efficiently manage renewable and marginal natural and agri-ecological resources, and (3) adding value and opportunities to farmers and other agri-industry players and stakeholders that will redound to improve Fiji's socio-economic development and sound environment and resource management.



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- Transformation and sharpening of skills and capacities of agricultural engineering graduates to meet the rising and demanding needs of the various agri-industries, Fiji Government, NGO's and other key stakeholders in the country, in the Region, and in other developing countries worldwide.



Suggestions for regional co-operation on higher education and joint research of human resource development of agricultural mechanization



- Regional advocacy MOU for ISO/IPENZ/ other advantageous international accreditations and world-class recognitions of FNU agricultural engineering graduates regionally and globally.
- MOUs and specific MOAs for Joint Regional Scientific Exchange, Research, Training and Extension among relevant agricultural engineering institutions/organisations and various governments in the Region
- Establishment of the Regional Agricultural Engineering Database Centre and Management Information System to strengthen and reinforce existing agricultural engineering databases/information systems and create more responsive and efficient information resources in the Region and linked with available satellite and GIS-enabled systems.



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- Establishment of a Regional Agricultural Engineering Centre to support educational, research, training, institution capacity building, and enterprise development of the agri-industrial sectors as well as support environmental management initiatives of various concerned institutions/organizations and countries in the region.



Contributions from your institution for such regional cooperation



- At present, the Agricultural Engineering Department of the School of Mechanical Engineering, Science and Technology of FNU have the highly capable staff coming both locally and foreign, with necessary qualifications (from Certificate level to PhD degree), skills (with more than 30 years accumulated) and experiences (from both public and private sectors) to support any Regional programs to develop Regional capabilities in agri-industrial enterprise/business development and environmental resources management.
- Available agricultural engineering technologies developed through the years comprised of agricultural machinery and mechanization systems, renewable energy resources development, precision engineering and IT-enabled systems, updated research capacities and business management skills, and resource conservation and recovery systems and knowledge.



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- World-class and adaptable/ high class level of research and development (R&D) proposals prepared for funding and resource generation strategies, and strategic business planning and development.
- Extensive network and linkage both local and international for agricultural engineering development programs and initiatives.





THANK YOU

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**VINAKA
VAKALEVU**