

Annual Report 2020



**Grow
World-Class
Technocrats
for the Real
World**



**PAPUA NEW GUINEA
UNIVERSITY OF TECHNOLOGY
Annual Report 2020**



Vision

To Grow World-Class Technocrats for the Real World

Mission

To grow world class technocrats through high quality and experiential teaching and research and ardent application of science technology and innovation

Guiding Principles

- **A sense of Community**
- **Commitment to Excellence**
- **Providing Service to Students**
- **Upholding Freedom of Thought, Enquiry and Expression**
- **Anticipation and Response**
- **Critical Assessment of our Performance**
- **Integrity**
- **Equity, Access and Participation**





Priority Objectives 2020 - 2024

1. Strengthen and Embed Institutional Governance

- 1.1. Consolidate, harmonize and realign the PNG University of Technology Act and Higher Education Act with other subsidiary Acts and Regulations.
- 1.2. Streamline Council and Committees for effective leadership and performance.
- 1.3. Develop and adopt a structured and coherent framework for the development, attraction, retention and succession of Council members, Council secretariat and senior management.
- 1.4. Develop a performance management system based on balanced scorecard to operationalize, manage, monitor as well as track progress and accomplishments of the Strategic Plan.

2. Academic Excellence

- 2.1. Prepare scope of works and outsource to competent professionals to undertake comprehensive Higher Education Industry diagnostics and analysis. This should incorporate a supply/demand matrix to ascertain the gaps between what the PNG University of Technology is currently offering and the need and expectations of our 'real world' stakeholders.
- 2.2. Inculcate and model PNGUoT graduate attributes among all students.
- 2.3. All professional courses will be benchmarked or accredited to international or industry standards by 2024.
- 2.4. All subjects will have subject files and will be digitally available.
- 2.5. All faculty will attain PG Certificate in student-centered learning and teaching.

3. Research Innovation and Training

- 3.1. Strategize to conduct research that meets industry and community demand.
- 3.2. Strengthen research on environment conservation and climate change.
- 3.3. Research Centers will expand and strengthen links with stakeholders for appropriate developments.
- 3.4. Post Graduate training will flourish by producing qualified professionals with Masters and PhD degrees while building a strong research culture within the University.

4. Organisational Effectiveness and Performance

- 4.1. Develop a strategic institutional leadership and talent framework to attract, retain and develop highly professional and competent administrative and academic staff.
- 4.2. Improve and expand human resource management, systems and processes.
- 4.3. Realign workforce planning, reward achievers in recognition of excellence with our real-world learning.
- 4.4. Develop continuing professional development (CPD) framework for our academic technocrats, incorporating a wide range of collaborative and individual activities, including working with educational designers, attending workshops having discussions with peers, presenting at conferences, being mentored and undertaking professional reading.
- 4.5. Consolidate and enhance existing security and safety programs by tailoring the program to each unique situation and campus setting such as:
 - 4.5.1. Overall Campus Security.
 - 4.5.2. Emergency Management.
 - 4.5.3. Occupational Health and Safety Services.
 - 4.5.4. Video Surveillance.
 - 4.5.5. Perimeter Fence, Security & Street Lights.
 - 4.5.6. Legal Matters.
- 4.6. Empower the University community through information technology that enables:
 - 4.6.1. Effortless access to data, information and knowledge.
 - 4.6.2. Effective and efficient use and deployment of information technology to automate administrative functions and systems.
 - 4.6.3. Rapid and profound innovation in teaching, learning and research.
 - 4.6.4. Seamless collaboration across communities and disciplines.
- 4.7. Expand network capacity to deliver online courses remotely.

5. Access, Externalization and Infrastructure/Utilities

- 5.1. Inspect all institutional properties and assets (staff accommodation, office, lecture halls, academic buildings, etc.) incorporating a comprehensive report of each asset (age of property, engineering and architectural soundness of structure, state or condition of property). Develop a comprehensive asset register and inventory of the assets including white goods (furniture and fittings). This asset register will become the repository for the asset data, which will provide the structure within which asset history is recorded and will include maintenance, modifications, upgrades, breakdowns, spares replacement as well as performance or productivity information.
- 5.2. Fully integrate asset register into the asset management and financial systems. This ensures that asset transactions are updated on a real-time basis and that data integrity is maintained between the asset register and the other systems.
- 5.3. Review cost-effectiveness, economies of scale and utilization of public utilities such as water, power (including stand-by generators and solar-powered lights, sewage system and garbage collection and disposal).
- 5.4. Develop “Business Case” for UNITECH Master Plan as a City within a City and in addition as one of the strategic objectives to supplement the medium to long term goal of financial self-sufficiency (See Strategic Domain 6).
- 5.5. Deliver Courses online to increase intake of students.

6. Financial Self Sufficiency

- 6.1. Consolidate internal controls, policies and procedures that protect the assets of the PNG University of Technology.
- 6.2. Create reliable financial reporting, promote compliance with laws and regulations and facilitate effective and efficient operations. It is important to form internal controls for:
 - 6.2.1. Handling funds (received and expended).
 - 6.2.2. Preparing appropriate and timely financial reporting.
 - 6.2.3. Conducting and completing timely annual audits of financial statements and core processes.
 - 6.2.4. Evaluating Bursary staff and programs.
 - 6.2.5. Maintaining inventory records of real and personal property.
 - 6.2.6. Implementing personnel and conflict of interest policies.
- 6.3. Leverage and grow effective business
 - 6.3.1. Review and streamline the UNITECH Habitat to ensure it effectively performs its functions as a conservation and nature park, preservation and research into local animals and plant species and a Business Hub to sustain and maintain its operations.
 - 6.3.2. Ensure effective marketing and implementation of the Business Plan of the PNG University of Technology's Master Plan – City within a City.

7. Industry Partnerships and Internationalization.

7.1. Interface with Stakeholders

- 7.1.1. Develop sustainable networks, partnerships, communication media, and activities between the PNG University of Technology and communities at local, national, regional and international levels. (Engagement activities between communities and higher education may be formal or informal. Example engagement initiatives include establishing relationships, collaboration initiatives, business ventures, co-sponsored meetings, conferences, sports events, research projects and many others.
- 7.1.2. Collaborate with James Cook University to develop a sound business case to assist indigenous landowners of Wafi/Golpu in business training, development and incubation as well as social, economic and environmental transition.
- 7.1.3. Expand and consolidate the PNG University of Technology alumni network.

7.2. Brand Marketing and Differentiation

- 7.2.1. Review the iconographic expressions of PNG University of Technology's identity and develop a unique brand to create a unique differentiation vis-à-vis other Universities providing similar programs and experiences in university education.
- 7.2.2. Public Relations Office will be active in promoting PNGUoT through all media.

7.3. Partnership with Overseas Universities

- 7.3.1. Conclude stage three of PNG University of Technology and James Cook University Twinning arrangement and ensure effective implementation and deployment.
- 7.3.2. International relations with multi and bilateral partners will be strengthened. Collaborate with Board of UNITECH Development Corporation and its subsidiary, National Analytical and Technical Laboratory (NATLS) to streamline and make them become “viable going concerns”.



Vice Chancellor's Overview

This is the first time PNGUoT has prepared an Annual Report and I am very delighted that the report comes at a time when PNGUoT has, once more, secured a sense of direction with the launching of the Strategic Plan 2020 – 2024 in July 2020 that encapsulates the ideals of our envisioned future. Much of the preparatory work, done by key Council and Executive Management members (leading up to the final strategy) was based on review and assessment of reports from consultants and external institutional auditors as well as in-house SWOT analysis of Unitech as an organization. PNGUoT's Strategy for development comes with a Vision to grow world-class technocrats by 2024 enacted by a Mission to develop such world-class technocrats through high-quality experiential teaching, research, and ardent applications of science, technology, and innovation for the 'real world'.

Our Mission is supported by seven Strategic Domains or Foundational Pillars. The Domains are; (1) Institutional Leadership and Governance, (2) Academic Excellence (3) Research, Innovation and Training (4) Organizational Effectiveness and Performance (5) Access, Externalization and Infrastructure (6) Financial Sustainability (7) Community, Industry and International Partnerships. Our values include high ethical standards, professionalism, diversity and inclusivity, innovation and initiative, plus pride and passion. PNGUoT is also committed to ensuring that students develop academic and personal qualities and graduate with attributes as being (a) a life-long learner (b) a critical thinker (c) an effective communicator (d) a cultural modernist (e) morally upright and (6) technologically savvy.

The new Council membership (introduced in 2013 after the 2012 crisis) consisted of highly reputable persons who provided stable governance for the institution. Sir Nagora Bogan, who was Chancellor from 2013 - 2017, led the restoration of stability in governance with observance of policy, processes and procedures with accountability and visibility. Dame Jean Kekedo participated actively ensuring that the best persons were appointed to key executive positions at the University. Dame Kekedo's services continued with her elevation in 2017 to the position of Chancellor, whose term is still current. We are grateful to the other present members of the Council who have taken to heart the concerns of the University and are actively engaged in policy formulation and decision making on governance issues. Sir Bogan is especially acknowledged for his efforts in guiding and drafting the Strategic Plan 2020 – 2024. While some confusion over the appointment procedures of leadership at Council and Executive Management levels remains, it is expected that these matters will soon be resolved.

Concerning Domain 2 on Academic Excellence, PNGUoT is making good progress on accreditation of the engineering programs. PNGUoT is already been granted provisional accreditation by Engineers Australia. The Dean of Engineering, Dr. Moses Kavi, is working closely with the University Management to ensure that the strategy adopted to achieve objectives required for full accreditation is in order. Associate Professor Augustine Moshi, the PVC Academic, is to be commended for his steadfast and meticulous attention to detail related to the accreditation program. I also commend the Industry Advisory Board, under the leadership of Mr. Luke Liria representing Kumul Petroleum Holdings Limited (KPHL), who have financially supported the University to secure laboratory equipment. Other companies represented on the IAB include ExxonMobil, Oil Search, Ok-Tedi, Newcrest, and the PNG Institute of Engineers. I expect that all other degree courses of the University will also be similarly accredited or benchmarked to international or industry standards in the near future.

The Academic Quality Assurance Team of PNGUoT has also been active and has been conducting an assessment to ensure that staff are delivering quality teaching and learning to students. This includes the preparation of subject files for each unit and assurance that all learning materials are digitally available to all students. The Teaching & Learning Methods Unit (TLMU) is tasked to provide training to staff with skills for students centered learning with a focus to inculcate the graduate attributes among all students.

The ultimate goal of PNGUoT is to be the hub of science and technology for PNG and the Asia-Pacific region. This will be achieved through research, innovation and the application of knowledge generated to provide solutions to issues arising from within industry and communities.

We also have the largest post-graduate program in the country with over 200 students. Our research program topics are in Agriculture, Forestry, Fisheries, Energy, Engineering (Mining, Mineral Processing, Electrical, Civil and Mechanical), Environmental, Physical and Chemical Sciences, Climate Change, Building Construction and Architecture, Information Technology, Surveying and Geographical Information Systems and Communication for Development. PNGUoT is, in turn, building academic staff capacity with the recruitment of our graduates qualifying with Masters and PhD degrees.

PNGUoT is making headway in automating its learning and management systems. UNI10 is a learning management system that has recently been installed to integrate various students' records including admission, registration, examinations, transcripts and boarding and lodging into one platform for ease of operations. This system will later be interfaced with the PNGUoT accounting system to manage online fee payment and finances. The Registrar's Office has employed the iChris platform to automate and manage HR services including recruitment, contracts and performance of staff. Academic staff are using Google Classroom to manage teaching and learning for students. Given the challenges posed by the onset of COVID-19, staff are now using Zoom for interactive teaching with students online.

Part of this Strategy assumes the provision of effortless internet access. While PNGUoT did have a network capacity, it only delivered an 80Mbps with a Wi-Fi coverage barely reaching staff residencies and students halls of residence. The COVID-19 crisis has impacted the teaching and learning delivery methods between all staff and students and thus compelled the management to invest in the expansion of the internal internet network to transmit wider bandwidth of 200Mbps through a bigger in-house optic fiber network, along with a wider Wi-Fi network reaching all students and staff with stronger signals. PNGUoT projected a student intake of 15% for 2020 in alignment with the strategy to expand access. However, with the introduction of the student Higher Education Loan Program (HELP), more students were able to obtain government loans to pay school fees. The total increase in intake was therefore 30% compared to 2019, which has brought up the total undergraduate student numbers to 3000. This increase exhausted all the dormitory space available to students. Bed spaces had been reserved for TESAS students; however, due to the reduced number of TESAS qualifying students, more spaces became available. These extra dormitories were all taken up by self-sponsored students contributing to increase in internal revenue for the University. Furthermore, PNGUoT is currently externalizing its courses through a satellite campus and is planning to deliver more courses online. These actions will allow us to expand intake in 2021 and beyond. The University has struggled to secure PIP funding for new dormitories and cannot presently accommodate these increasing number of students on the main campus. Every effort is thus being made to secure K 10 million funding from Incentive Fund to build a 150-bed dormitory for female students.

In terms of infrastructure, PNGUoT has now turned the corner towards financial stability. It began when the Council resolved not to renew the student messing contract to iPi Catering Ltd at the end of 2019. Since in-sourcing of catering, the Management has annual savings of nearly K 6 million per year. These savings have been used elsewhere including maintenance of our aging infrastructure, increasing funding to our research activities, community development programs and ICT and Library improvement services. Solar street lights have been installed to improve security. CCTV cameras have been installed in the mess and the main gate and work on the students' residences border with the settlements are ongoing.

Sincerely,



Associate Professor Ora Renagi OL PhD
Vice Chancellor



Members of the University Council

1. Dame Jean Kekedo (Chancellor)
2. Mr. Sam Koim, OBE (Pro-Chancellor)
3. Mr. Michael Pearson
4. Mr. Graham Bidang
5. Mr. Wailyo Mapiso
6. Mr. John Byrne
7. A/Prof Sujoy Jana
8. Sir Nagora Bogan
9. Mrs. Anna Wissink
10. Professor John Pumwa
11. Mr. Paul Isan
12. Professor Gariba Danbaro
13. Professor Frank Griffin (UNPG Vice-Chancellor)
14. Professor Kaul Gena (PVC Administration)
15. A/Prof Ora Renagi, OL (Vice-Chancellor)
16. Mrs. Veronica Thomas (Registrar)
17. Mr. Diraviam Tharmaraj (Bursar)
18. A/Prof Augustine Moshi (PVC Academic)
19. Mr Emil Karsir (NSA Rep)
20. A/Prof Srinkanth Bathula (NCSA Rep)
21. Mr. Anthony Anugu (NASA Rep)

PNG University of Technology Organizational Structure

The PNGUoT Organizational Structure of the University is derived from the PNG University of Technology Act, 1986, the University Statutes (by-laws) and the University Staff Establishment. The University Council membership is established under Section 9 of the University Act. The Council is made up of 28 members from various representations including members of Parliaments, the Higher Education Minister and Department, the universities and the civil society.

The Senior Executive Management, are identified as the Officers of the University under Section 25 of the University Act and the University Statutes No. 1/1995.

The Officers of the University are the;

1. Chancellor
2. Pro Chancellor
3. Vice Chancellor
4. Deputy Vice Chancellor
5. Province Chancellor-Academic
6. Pro Vice Chancellor-Planning and Development
7. Pro Vice Chancellor-Administration
8. Registrar
9. Bursar
10. Librarian

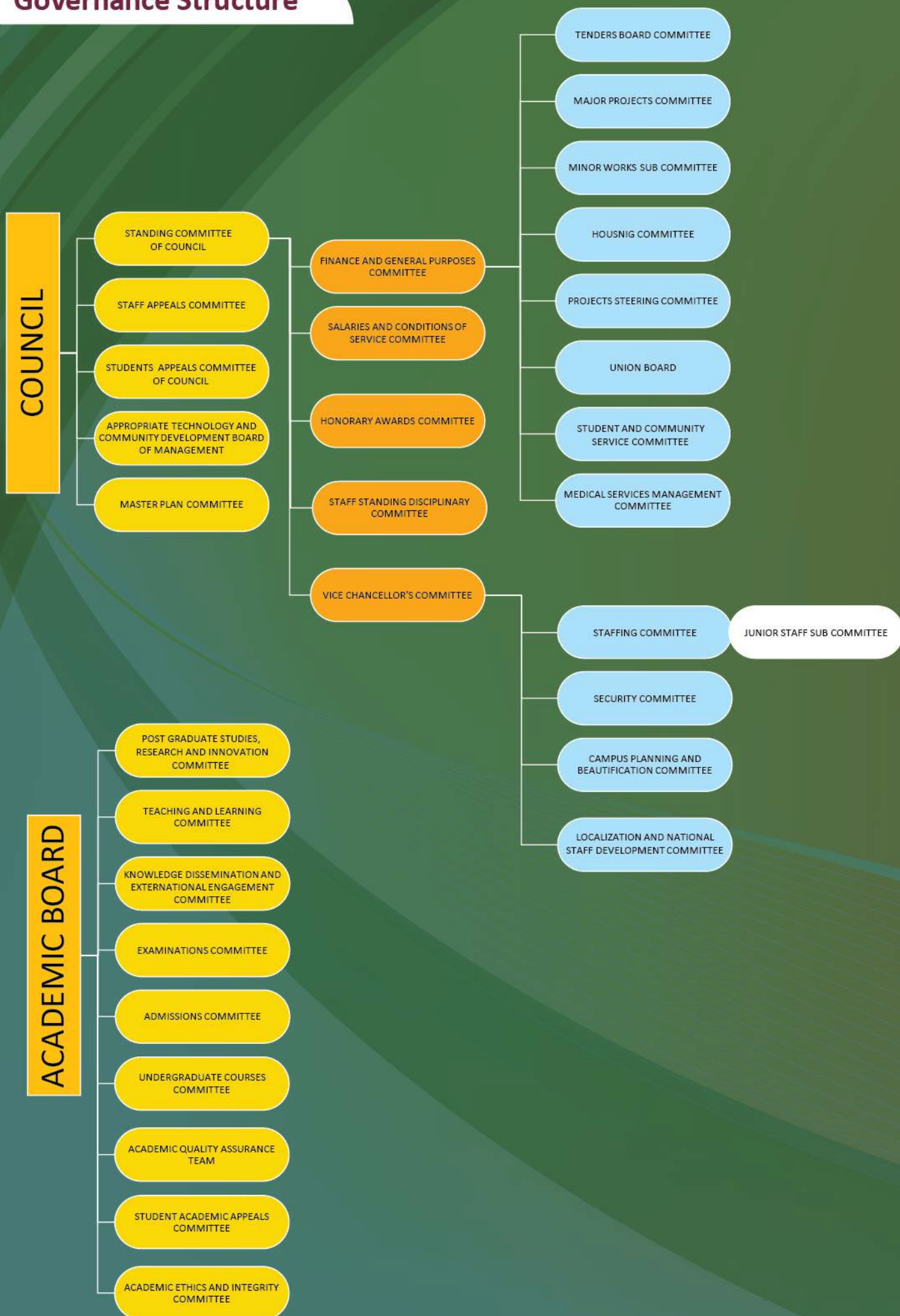
Under the Officers of the University, there are 13 Academic Departments and about 20 non-Academic departments and sections and units that supports the officers of the University in implementing the University's purpose of establishment, including the University's visions and missions. The academic and non-academic department, sections and units are derived from the University's Staff Establishment (established positions) as approved by the National Department of Personnel Management.

Attached is the illustration of the Organizational Structure.

Organizational Structure



Governance Structure





2020 HIGHLIGHTS



February
Unitech students received Career Trackers awards at Stanley Hotel Port Moresby



March
An International Women's Day celebration was organized by the Communication and Development Studies department to commemorate and celebrate the women's successes based on theme Each For Equal. Pictured below, Late Mrs Aisi (then CDS Deputy HoD), Dr. Rachel Aisoli-Orake, Mrs. Lucy Maino and Ms. Imelda Ambelye and top, CDS female students.



April
(Left) Ms. Grace Wantepe, Deputy HoD of the Civil Engineering department doing a demonstration at the Civil Engineering Structures Lab with Sebron Hiob in the background.
(Below) New state-of-art Unit for Studying Deformation of Trusses equipment donated by Oil Search Limited to the Civil Engineering department at cost of K100,000.00



US Ambassador visit Unitech



First Student Senate elected under new system

June



Opening of the new DODL Building



Launching of PNGUoT
2020-2024 Strategic Plan



Online Non-School Leaver Applications
Launched by Pro Vice Chancellor
(Academic) Dr Augustine Moshi.

July



Launching of the NSL Online application.
Pictured (L-R) Registrar Mrs. Veronica
Thomas, SAR (Academic) Mr. Gabriel
Paul, Pro Vice Chancellor (Academic)
Dr. Augustine Moshi, Chairman of
Admissions Committee, Prof. Gariba
Danbaro, ICTS Commercial Programmer
Mr. Koi Norum and Deputy Registrar
– Academic Mrs. Naomi Wilkins.

Occupational Health, Safety and Risk Management in-house training conducted by the OHS Officer, Mr. Derek Sembo (standing left) with the Estates, Services and Projects Department.



August to September

Bursary Team dressed in PNG colours for the Independence Day celebrations. Bursary department came second place in the Best Decorated Department competition.



HR Team conducting an HR awareness with Head of Departments

Postponed graduation due to Covid19 staged



November



DEPARTMENTAL BRIEF





The Department of Agriculture offers a science-based agriculture curriculum for undergraduate and postgraduate degree programs besides conducting basic and applied agricultural research and disseminating relevant information to the community. The Department aspires to be a leading tertiary and postgraduate agricultural science education provider in the Pacific region.

Academic Programs

The Department offers two undergraduate programs. The Bachelor of Science in Agriculture [B.Sc. (Ag)] is a full-time, on campus, four-year study program, while the Bachelor of Agriculture and Rural Development (B.Ag. & R.D.) is a flexible and distance mode administered program. The Department also offers three postgraduate degree research programs, the Master of Science in Agriculture [M.Sc. (Ag)], Master of Philosophy (M.Phil.), and Doctor of Philosophy (PhD). The M.Sc. (Ag) program is a combination of course work and research, while PhD, and M.Phil. study programs are research-only degrees. The number of students enrolled in the B.Sc. (Ag) and BARD program in 2020 was 153, and in line with the strategic plans of the University, the Department admitted 54 students in the first year compared to the 37 students in 2019 - a massive 45% increase in intakes. In 2020, twenty-nine students graduated with B.Sc. (Ag.) and 12 with BARD degrees. Current postgraduate enrolments stand at 18 students, of which three are in PhD, eight in M.Phil., and seven in M.Sc. (Ag.) programs. In 2020, three students graduated with Postgraduate degrees.



The curricula of our programs are reviewed regularly to be able to deliver up-to-date and relevant information to students. As an on-going exercise, the year three curriculum of B.Sc. (Ag.) was reviewed in the reporting year and a refreshed curriculum is in the process of approval for implementation in 2021.

Staffing and Infrastructure

The Department has 15 qualified academic staff, 11 with PhDs together with a wealth of teaching experience. Currently, one staff member is on study leave pursuing a PhD at the Queensland University of Technology, Australia. Staff members use a variety of Learning Management Systems for both classroom and distance modes of teaching, and the Department offers a robust curriculum. All classrooms include audio-visual aids for the effective delivery of classroom teaching. Annual procurement of glassware, re-stocking of chemicals, and maintenance of lab equipment has ensured sufficient skill development in students through lab sessions. The Department filled three vacant Technical Officers (TO) positions and the new TOs came on board in 2020 assisting in lab operations. In 2020, the Vice Chancellor's office kindly allocated K 100,000 to allow needed facelift infrastructure work at the Farm. The recruitment process for filling the vacant positions of two TOs in the Farm is in progress besides initiating steps to fill casuals. The scoping work for two staff houses, a cocoa nursery, 2000 bird-shed, slaughter shed, and power upgrade on feed mill besides major maintenance work on farm buildings have been initiated. A tractor engine was graciously donated to the farm by Ela Motors. The expansion plan for establishing bee-keeping facilities and designing a fish pond is underway.



Research Activities

Research work in the Department is aimed at understanding biophysical, social, and marketing issues constraining crop and animal production in PNG, sustainable animal and crop production options at national and trans-national levels, and developing technologies for the processing of crop production. Research is undertaken by final year students, postgraduate students, and academic staff. In 2020, thirty-three final year students undertook supervised research work in AG403/AG404 special projects I/II. Among the students, 11 (33%) of the students are working on problems related to crop protection, six (18%) students on socio-economics, five (15%) on crop improvement, five (15%) on crop production/management, five (15%) on environmental management and one (3%) on animal production. Research topics of the Postgraduate students are highly relevant to meet the requirements of the stakeholders, and several of the postgraduates are jointly supervised by staff from New Britain Palm Oil Limited (NBPOL), Ramu- Agri Industries Ltd, and Oil Palm Research Association. Departmental staff solely or in collaboration with postgraduate students has published 14 peer-reviewed journal articles in 2020. Few more are currently in press. Dr. Gwendolyn Ban, an upcoming researcher of the Department participated in a competitive project call of the Australian Centre for International Agricultural Research (ACIAR) and secured funding of A\$ 6719. She will be working on a project entitled "The effect of subsidized shipping on the production of vegetable crops during and post-COVID19 in Papua New Guinea" with collaborators from the University of New England, Australia. Dr. Ronnie Dotoana is leading the ACIAR Sweet Potato Crop Protection project (in collaboration with Charles Sturt University, University of Southern Queensland, National Agriculture Research Institute [NARI], and the Fresh Produce Development Agency [FPDA]). This project has completed trials in Asaro Valley, EHP, with trials in Morobe (Situm and Farm sites) underway. Preparation of *Metarhizium* culture and other inputs for the trial has been completed.

Industry Relationship

The Department places all its third-year students in various industries to expose them to real workplace situations. Out of the 27 students, twenty of them secured industrial placements in 2020 despite the travel restrictions and business meltdowns in the industries due to the COVID-19 pandemic. Three were placed in Hargy Oil Palm Ltd (HOPL), three in Trukai Industries Ltd, three in FPDA, two in West New Britain Provincial Govt, two with Food and Agriculture Organization (FAO-PG), five students with PNG Biomass Ltd, one with Innovative Agro Industries, and one in Crocodile Farm (Mainland Holdings Ltd). This is a testimony of the quality of students selected and educational training provided by the Department. The Department undertook consultancy work with Grow PNG, a subsidiary of Grow Asia through UNITECH Analytical Services Laboratory in 2019. The consultancy work on soil survey, analysis, and reporting was completed in 2020 and the technical/analytical report was successfully submitted in 2020.



The Department continued establishing linkages for new collaborative projects with overseas research collaborators and partners. A team from the Institute for Social Science Research, Faculty of Humanities and Social Sciences, University of Queensland as well as a faculty from Charles Darwin University, Darwin have expressed interest to collaborate with the Department in upcoming ACIAR projects. The Commonwealth Scientific and Industrial Research Organisation has also expressed interest in a joint project in 2021. Discussions have materialized for the UNITECH Biotech Centre to participate in a project entitled "Assessment of Vanilla Diseases in Sepik Region". Under this project, UBC will provide laboratory services to the FAO-PG team under the 'Support to Rural Entrepreneurship, Investment and Trade in Papua New Guinea' (EU-STREIT PNG) program.

Community Engagement

The South Pacific Institute for Sustainable Agriculture and Rural Development (SPISARD) completed the reporting of a summary of discussions for the seminar held in October 2019. This report was submitted to the University management for seeking further guidance on drawing future directions and prospects to the Institute. The Acting Director of SPISARD, Dr. William Kerua, left the University on 31 August 2020, complicating progress. Even so, up to 200 community workers are being negotiated from the 'Lae Hands Up Program' to provide labor for the farm. About five interns from the Lae Polytechnic College are presently under training in UASL. In the next six months, the farm also plans to train about 50 industrial training students from various vocational training centres, colleges, and universities.



Socio-economic remodelling of major economies across the world has brought about sweeping changes in education delivery models, triggering realignments and forging partnership among global professional bodies as pillars for interactive exchange in the knowledge economies and competent professional mobility. This is having a direct effect on the Architecture and Construction Management Educational delivery in the Australasian Region. In 1997/1998 the first phase of external benchmarking by the Department gained accreditation for the programs with the Commonwealth Association of Architects (CAA - London) and the Australian Institute of Builders (AIB – Australia) respectively.

The Department failed to continue this accreditation in 2010 after 13 years, due to lack of funding support. Despite this, the Department pursued and took up full membership with the Association of Architecture Schools of Australasia (AASA) in 2011, which now, paves the pathway for attaining accreditation with the Architecture Accreditation Council of Australia [(AACA) - under the Bologna Accord (a European Education Model)]. As a result, the PNG School has begun the second phase process of external competency benchmarking in 2017 by reviewing the programs, curriculum redesign, building a new breed of faculty members and, upgrading academic infrastructure in compliance to; the PNGNQF, AQF quality assurance strategies, and accreditation certifications and PNGUoT development strategy.

This has compellingly demanded rethinking and resetting of architecture and construction management education in PNG to enable graduate relevance, competency, and fitness at optimal competitive placing, in-country and abroad.

The rethinking also promotes the uniqueness of contextual Architecture and Building offering in the Australasian Region, and the world. In articulating this outcome, the school has now customized its current undergraduate program from the traditional five-year undergraduate program to a three-plus-two in

Architecture following the Bologna Accord and, a four-year Bachelor in Construction Management plus a one-year Master program benchmarked to the University of New Castle Australia. This whole process will take time but, every small step is now being taken, commencing 2020 to arrive at producing relevant and competent graduates.

The re-visioning and re-missioning

The above rethinking and re-scoping were made in adding value to what is current, and which will enable greater meaning and purpose, to be compatible in the international interactive education as an institution, and professional dynamics of our graduates. This is done whilst embracing the need to enable quality manpower at credible standing, compatibility, accreditation, membership, and collaborative partnerships with other Australasian schools and other partner affiliations such as, CAA, AIA and UIA.

Teaching and Curriculum

In meeting the above goals, the current programs/ curriculum went under major 'surgical refitting' in 2018 and redesigning to customize that ideal graduate; for an optimum marketability outcome. The traditional five-year undergraduate delivery is now segmented as mentioned above and refitted with both undergraduate and postgraduate attainment within the five-year period by the 3+2 and 4+1 delivery within the benchmarked (PNGNQF and Australian AQF) quality assurance frameworks. The phasing-out the traditional five-year undergraduate program commenced in 2020. The full benefits of these sweeping changes will be appreciable at the outcome of the Masters' graduates.

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Graduate Feedback

Graduate feedback and faculty membership in the professional boards and committees (PNGIA, PNGIOB, IEPNG & PNGBOA) consistently evaluated graduate performance and their Continuous Professional Development (CPD) assessment in the industry. This is factored in the changes mentioned above. The dynamics of technological innovation are giving boosted propulsion in production, interacting professional competence, and exchange. This has changed the traditional performance fit-out. The computer chip has now prompted prominence for portability or mobility of architectural and construction management office, practice, delivery, and smart professional conduct, and with ethical awareness of socio-cultural, and environmentally conscious and within economic-flexibility and feasibility. This is the epitome of the next graduate, anticipated out of the new programs.

Final Year Project benchmarked to Industry Expectation

Final year research projects are designed to address real issues experienced in the PNG Building Industry and, the creative impulse in developing or finding solutions for these issues. A research report is presented as an assessment by all students. The architecture students take this report further into a capstone 'Design Thesis' production such as - shopping malls, airport terminals, hospitals, hotels, civic buildings, provincial HQs, new academic Departments, institutional libraries, urban mix-use complex, and other projects of similar scale based on their research work. Many of these projects are taken further by community groups and government organizations as a prototype for their development needs and project submissions.

Research and Publication

Research and Development had little activity in the Department in the 2019/2020 period due to heavy load-sharing by inadequate (42%) staffing level. A number of research works commenced in 2017/18 but this did not continue because of external preconditions. Despite this status, the Department was given a K100,000.00 boost to build a research station to commence research work in climate-change effects of existing institutional infrastructure, (a research submission made in the early 2000 period). A number of international 'gold awards' on research publications and presentations were awarded to current academic staff, and there is still a lot of potential and volume available.

Consultancy

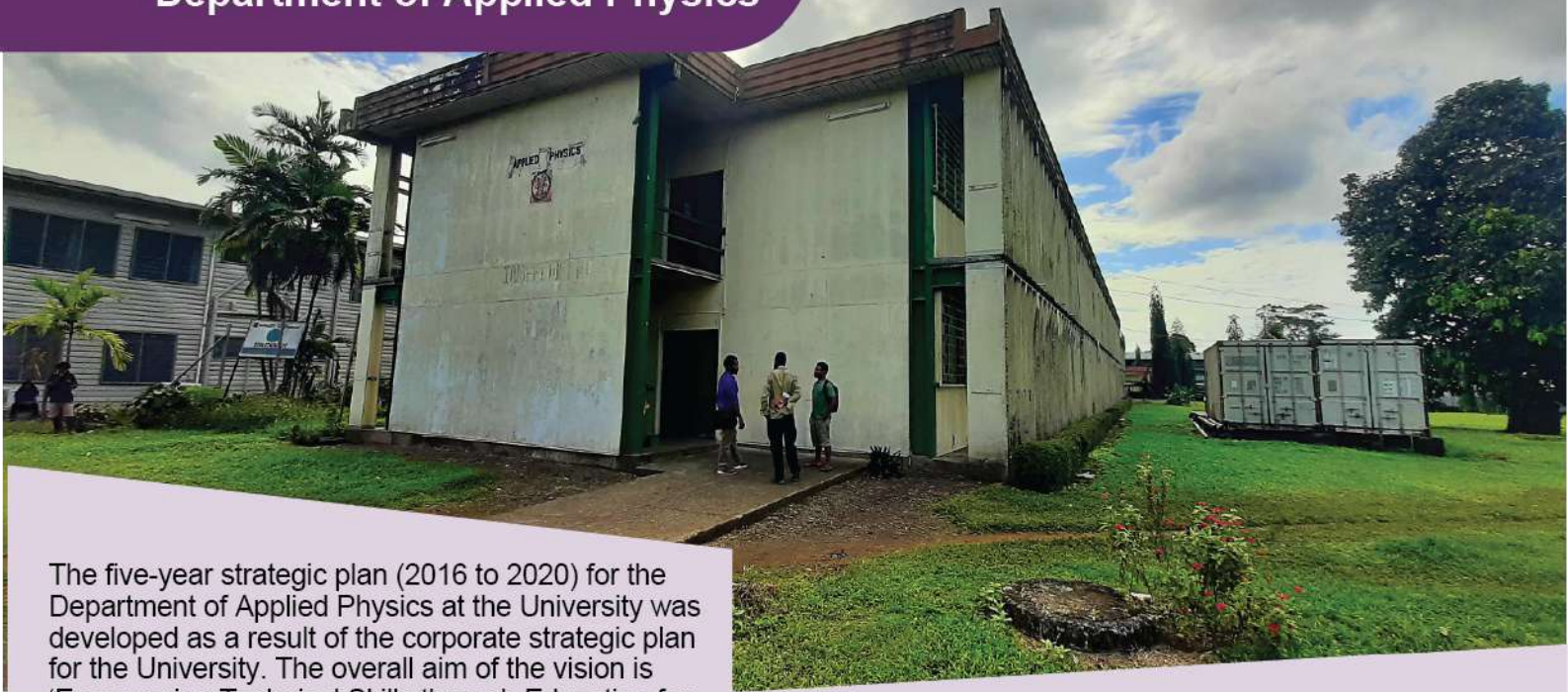
There is a huge potential and possibility in the Department with industry competent, licensed, and registered, capabilities in the faculty members. Yet, there was very little activity in consultancy work in 2020 compared to previous years.

Community/Industry Engagement

Community engagement is conducted by way of community design projects, final year capstone projects carried out in major assignments every semester. This year senior Architecture students were involved in a number of community-based project proposals, like UNITECH land-use reassessment & proposal, the Unicity Shopping Centre, the UNITECH Amphitheatre Canopy, the new UNITECH Chapel, the Erick-Woo (Eriku) commercial precinct redevelopment, and the Lae Lagoon redevelopment for the Lae City Authority. Staff were engaged in a number of industry committees and Boards. (National Polytechnic Council, NRI Council, PNGIA, PNGIOB, BOAPNG, and UNITECH community groups/organizations).

Staffing Quality/Qualification Progress

This has been a major challenge for a number of years. The Department is making the needed effort to have staff on the deck each academic year. A staff member is completing his PhD studies from QUT this year, whilst one is preparing to take up PhD studies at UNSW in 2021. One has completed his Master's studies at UNRE whilst another is doing his MPhil in Architecture at PNGUoT.



The five-year strategic plan (2016 to 2020) for the Department of Applied Physics at the University was developed as a result of the corporate strategic plan for the University. The overall aim of the vision is 'Empowering Technical Skills through Education for Quality Graduate'. The vision, mission, and the core values of the Department are strategically aligned with the vision, mission, and core values of the University's vision 2030 and the Government of Papua New Guinea's Vision 2050 strategic plan.

The main objective of the Department is to produce graduates of international standards who can be marketable both locally and internationally. It is the Department's wish that the graduates are of high quality both ethically and morally, stocked with analytical skills to apply at any level including entrepreneurship to create wealth to alleviate poverty. To meet the high standards of quality graduates, the Department had planned to develop human resources and upgrade existing facilities to the international level through institutional accreditation. Despite the physical size of the Department, the academic activities of the Department are expected to produce graduates with excellent output. Both the staff and students are expected to feel content with satisfaction with the level of academic achievements in all areas of activity within the Department and the University as a whole.

2.0 The Objectives of the Department

The Department's objectives for another five years were planned and implemented starting in the year 2016 up until this year 2020. The Department has achieved almost 80% of its objectives and within another three years' time, it expects to archive over 90% of the plan. However, resourcing and other factors restricted it from archiving all its plans. Despite these, the Department has progressed in achieving most of its objectives.

3.0 Planning and Execution of the Strategic Plan.

Taking stock of what we had, the implementing stage was another mountain to climb. We found that we had only a few Lecturers, the Department is small with only a few rooms, the Department had been a service Department, with only first-year laboratory and only few senior-level subject laboratory equipments available.

3.1 Staffing

With these lecturers and those who were on the ground, the Department strategized and started implementing some of the strategic plans. It involved the recruitment of qualified lecturers. In 2016, we recruited five (5) new Lecturers; two Professors, one Associate Professor, and two Senior Lecturers. After that, the Department recruited again and it now has the following teaching staff as listed below. It also recruited Technical staff who are first degree holders to boost our academic quality.

3.1.1 Academic Staff;

1. 2 Professors (PhD Holders)
2. 2 Associate Professors (PhD Holders)
3. 4 Senior Lecturers (3 PhD Holders and 1 Masters)
4. 4 Lecturers (Masters Holder)

Total 12 Academic Staff; one not here yet, one on study leave for their PhDs Out of those five (5) Masters, three are doing their programs now and one will start next year (2021). Within three years' time, they should complete their PhD programs. We hope to recruit a few more academic staff to fill up some more vacancies we have.

3.1.2 Technical Staff;

We have a total of five technical staff.

1. 1 Chief Technical Officer (BSAP degree)
2. 2 Senior Technical Officer (BSAP degree & Polytech certificate)

3.1.5 Post Graduate Students in the Department

1. 2 MPhil students
 2. 6 MSc students
 3. 10 MTECH students
 4. 3 PhD students
- Total: 21 PG students

3.2.1 Undergraduate programs in the Department

1. Bachelor of Science in Applied Physics with Electronics and Instrumentation (BSAP)
2. Bachelor of Science in Radiation Therapy (BSRT) – Shelved in 2017
3. Bachelor of Engineering in Biomedical Engineering (BEBE)

3.2.2 Post Graduate programs in the Department

1. Master of Philosophy in Applied Physics (MPhil)
2. Master of Science in Applied Physics (MSc)
3. Master of Technology in Exploration Geophysics (MTECH)
4. Doctor of Philosophy in Applied Physics (PhD)

3.3.0 Research and Publication

In the Department of Applied Physics, there are different areas of specialty that teach and do research. Lecturers are grouped in their field of specialty to do research and publication, with these research groups often overlapping. For example, a nuclear physics group doing environment research using radioactive materials or a geophysics group doing geothermal energy which is done under energy, and so forth.

3.3.1 Research groups in the Department

1. Geophysics Research Team
2. Energy Research Team
3. Nuclear Physics Research Team
4. Material Physics/Nanotechnology Research Team
5. Environmental Physics Research Team
6. Electronics and Instrumentation Research Team

3.3.2 Research and Publications

The Department has strategized different activities and groups to support research in the Department. Each research group is expected to do research, publish papers and supervise PG students. Some of the activities that each group has done are:

1. We have signed MOU with Mineral Resource Authority (MRA) to work together to share data and equipment to do research in the area of Exploration Geophysics. Already our Department is benefitting from using data from MRA to do research for PG students. More than eight (8) papers have been published and expected more papers to be published in near future. We bought a geo-soft program that helps us interpret and analysed data for geothermal studies and other geophysics-related work. To fully function geophysics section, we are in the process of preparing grant applications to outside funders for all the Geophysics equipment.
2. Using Research Committee funded equipment; there is many research activities going on in the area of Nuclear Physics. One student graduated already with Masters' in that area, another Master's student is completing this year and two PhD candidates are working on their PhD programs.

We have published a couple of papers in international journals and expect more to be published.

3. In the area of Material Science/Nanotechnology, through Research Committee and Department-funded equipment, there are researches going on within the Department and collaborative researches with overseas universities as well as with other Departments within the University. A paper was published and two are submitted for review and publication. A couple of Master's and PhD candidates are working on their research in that field.
4. The Energy team has worked tirelessly on energy-related research through inter-Departmental collaborative research activities under PNG University of Technology Sustainable Energy Research Institute (SERI). The incubation laboratory carries out collaborative research and industrial support to the energy needs of interested communities and overseas energy partners. Members of the research team include Applied Physics, Electrical Engineering, Mechanical GIS, and others. A student is doing PG studies in this field.
5. In the area of Environmental Physics, work has been done in consultancy and research. For example, a Master's student in the program is doing intensive consultancy, generating funds for the University and doing research. One of the expensive pieces of equipment needed for this research was donated to the Department by overseas collaborators. We are soon expecting one publication in this field.

4.0 Results and Achievements

After almost five years of the strategic plan, the results are given below. While due to other restrictions, we could not fully achieve what we have planned, we nonetheless achieved almost 80% of our objectives, and within another three years, we expect to meet over 90% of them.

4.1 Highlights and Developments

Although the Department is small in infrastructure, the Department has grown academically to be comparable with any other Department on campus. Our Post Graduate program has grown from two students to over 21 students (both Masters and PhDs). Our academic staff has increased from a few PhD holders to about 70%. Within two to three years' time, PhD holders will increase to about 90%. Research activity has grown substantially, with publications.

The Applied Physics Department building will be extended towards the car park with two rooms downstairs and two rooms upstairs funded by the National Institute of Standards and Industrial Technology (NISIT) by end of this year (2020). One or two of the rooms will be occupied by National Radiological Laboratory which will be used for dosimetry measurements, research, and any other radiation activities within the country. The National Laboratory was awarded to us from our application by International Atomic Energy Agency (IAEA) through the regularity agencies in the country.

The Department of Applied Sciences is committed to the training of students both at undergraduate and graduate levels of the highest quality. The first graduates passed out in 1978 under the banner of the Chemical Technology Department.

Currently, the Department runs two-degree programs, a Bachelor of Science in Food Technology and a Bachelor of Science in Applied Chemistry. The Bachelor of Science in Food Technology is the only program in the South Pacific apart from Australia and New Zealand.

Most of the current teaching staff have post-graduate level qualifications at Masters and PhD levels from overseas universities. They also have industrial experiences both within the country and abroad.

For the last 10 years, the Department on average has produced around 25 graduates every year, with 90% finding employment within six (6) months after completing their degree programs. This places the Department of Applied Sciences employment rate to be among the highest in the University.

The Department is well connected to government Departments and also food, agriculture, chemical, and mining industries through research, short courses, and consultancies. These partnerships have also helped in many ways to both the Department and University that has reflected well in the employment status of our graduate employment opportunities.

A notable outcome of such Department-industry partnership is seen in equipment and building renovations (at the cost of more than K 5million) being made, paid for by the National Fisheries Authority (NFA) over the last five (5) years. This partnership is active and current.

Apart from teaching and consultancy, research, innovation, and entrepreneurship are also priority areas of interest. Therefore, final-year student projects are targeted towards solving both community and industry needs. Joint industry-Department research activities have seen some adaptable, innovative solutions being discovered.

The Department encourages high-quality need-based (impact) research at both undergraduate and post-graduate levels and continues to produce around two publications per year. In line with the University and the national vision to produce high-quality graduates at higher degree levels, in the last four (4) years the Department has successfully produced two PhDs and several MPhil graduates. In its goal to produce one PhD and three MPhils every four years, two national academics are now enrolled for their PhD studies in the Department, while one is doing his PhD studies at James Cook University in Australia.

The Department continues to impart high-quality throughput of its graduates, hence, its strategy is in place to contain and adopt the use of the best teaching practices to maintain quality. This has been reflected well in Academic Quality Assessment (AQAT) exercise results by the University, in which the Department of Applied Sciences has been in the top three out of the thirteen (13) academic Departments for the last three years now.

Department of Business Studies

The Department of Business Studies is the largest Department of the thirteen academic Departments at the university with more than 600 undergraduate and postgraduate enrolments each year. It is a multidisciplinary Department with a proven track record of producing national, Pacific-Region and international leaders. Our alumni have led PNG's industrial and governmental sectors for decades.

Vision Statement

Our vision is to develop the Department of Business Studies into being the most innovative, entrepreneurial, and student-centered Department of the PNGUoT in PNG and the South Pacific region. Our mission is to pursue national and international excellence in teaching, learning, research, and community engagement in the areas of Accounting, Applied Economics, Entrepreneurship, Information Technology, and Management.

Programs

Department of Business Studies offers four main undergraduate programs in Accounting, Applied Economics, Management, and Information Technology, giving students an option to apply directly to each stream. The streams provide our students the ease to build bridges between knowledge, skill, and practice. It also offers postgraduate programs including a PhD in Information Technology, Applied Economics, Finance and Banking; and Master of Philosophy in Information Technology, Economics, Finance, and Banking. It also offers a Master's in Business Administration (MBA) and an Executive Masters in Business Administration (EMBA) program.

Recent Establishment of National Entrepreneurship and SME Innovation and Incubation Centre

The Department has recently established a National Entrepreneurship and SME Innovation and Incubation Centre. The focus of the Centre is to capture the GovPNG vision and goals 2030 to increase more SME's in Papua New Guinea. It is looking at four main objectives; SME incubation; Innovation and training; Mentoring and Business Model development and short course training. The Centre is in its initial stages of development and is expected to roll out its programs by early 2021.

The Department also has a research centre for big-data analytics and intelligent systems. It is building a PNG–China Centre of Business Studies and a PNG-Australia Centre of Governance and Policy Development. The centre is headed by Professor Zhaohao Sun (PhD) who has published extensively, improving the Department of business studies research profile.

Future Programs Under Development

The Department of Business Studies is developing other comprehensive postgraduate programs, including an Honours in Applied Economics, as well as Postgraduate diplomas, Masters and PhD programs in Accounting and Management. The programs are currently aiming to drive various aspects of national strategic visions and development efforts of the University and the Government of Papua New Guinea, as well as regional and global competitiveness, innovation, and entrepreneurship in an increasingly complex business environment.



Professional Academic Staff

The faculty is staffed by a dedicated, nationally and internationally recognised team of academics whose teaching is innovation and entrepreneurship driven and supported by their active involvement in relevant industries, professional associations. All our academic staff have qualifications from reputable Universities in Australia, USA, UK, China, and other universities in the world. Following the university's accreditation requirements, most of our staff have a minimum of a master's qualification or above. Our aim as a Department is to see young national academic staff graduating with PhD's in their respective specialties to lead in providing academic leadership. So far, we have one national staff who graduated with PhD in Economics (2020) and two master's degrees from reputable universities in Australia.

Research and Consultancies

The faculty pursues excellence in teaching/learning, research, consultancy, and community service supported with innovative and interactive blended technologies. Academic staff have an established research record with a commitment to conducting competitive research with a national and international reputation.

For the past fifteen years, the Department has conducted various short-term tailored training and consultancies for both the private and public sectors. This outreach partnership is still continuing under the new brand name, "The National Entrepreneurship and SME Incubation and Innovation Centre".



Student Learning facilities

The Department has been committed to providing our students with excellent education opportunities using state-of-the-art ICT technology and equipment. Currently, the Department is transforming and improving its infrastructures to meet the expectations of providing lectures online. Due to the COVID-19 pandemic, all our programs are being delivered through online modes, using Google Classroom and Moodle. This will be a new approach going forward.

Satellite Campus Accounting Diploma Program

This is another recent milestone achievement in the establishment of a satellite campus at Simbu Province.

The centre was established in 2018 with her first intake of diploma program in Accounting. This was the first of its kind for the Department to expand out of Lae. Its inaugural graduation of her pioneer students was conducted at the end of the year. The Department highly appreciates and thanks the committed staff for the successful development of course modules, on-site lectures, and completion of the program.

Entrepreneurship Training and Partnership with Global Handong University, South Korea

The Department has embarked on building international partnerships since it was first established. Recently, it has partnered with Global Handong University in training more than forty Papua New Guinean SME owners on entrepreneurship mindset and design thinking. The training was highly appreciated by the participants and the Department acknowledge and thank the Global Handong University for this great initiative. The Department invites all our stakeholders to join us in building our nation through human resource development and creating more entrepreneurial mindsets.



The year 2020 has been challenging for the CDS Department in many aspects of both its academic and administrative activities. Top on the list was the challenges created by the sudden emergence of the world pandemic Corona Virus (COVID-19) which disrupted the smooth flow of its teaching and learning activities for the entire year. Yet, we persisted!

1. The Teaching and Learning Activities of the Department.

The teaching and learning activities of the Department continued under new normal COVID-19 protocols about mid-way into the first semester and continuing throughout both semesters of the year, with sporadic periods of contact small-group seminars arranged by individual staff. Online teaching became the normal mode of preparation and delivery of lessons with Google Classroom being the main platform used by the teaching staff for both undergraduate and post-graduate programs.

Progressive assessment done by the Department early in the second semester on these teaching arrangements indicated mixed reactions and feedbacks from both staff and students. Ongoing monitoring and evaluation are thus being done by the Department's own COVID-19 overseer (Dr. Orake) to facilitate the smooth flow of its teaching and learning activities under these new normal protocols.

The Department's PG program has been minimally affected with the departure of three senior members of staff in 2019 (Professor Golam Khan, Dr. Apoi Yaraepa and Dr. Francis Essacu). And with Dr. Gary Sali's recent departure to take up the Deputy Vice Chancellor's post, only two senior members of staff (Professor Eric Gilder and Dr. Aisoli-Orake) are now loaded with the supervision of 13 MCS and two PhD students between them until new senior staff are recruited.

The Department continued its external teaching activities at the SUSU campus with the completion and delivery of course modules for the second-year students in the Diploma program. The first graduation took place in December when ten (10) pioneer students received their Diploma in Communication and Development Studies.

The CDS Department has also completed and submitted its Subject Specifications (SS) to the UGCC for the third-year subjects under the restructured four subjects per semester arrangements that commence next year. The SS for year four subjects will be done next year for 2022.

2. Graduate Feedback from Industry Partners and Stakeholders

Due to COVID-19, the first meeting of the CDS Industrial Advisory Committee (which was initially scheduled for May) was deferred to the 26th November 2020. The meeting coincided with the launching of the CDS Office Building Concept Plan which was held at the Lae International Hotel later in the evening of the same day. Over 30 industrial partners, as well as potential sponsors, were invited to attend the launching dinner.

Former graduates of CDS are now coming on board to participate in the Department's Industrial Training field attachment programs. While suspended due to COVID-19, many more professionals are showing interest in the Department's short course on Work Place Safety and Risk Management, so it will re-commence in 2021.

3. Final Year Projects Relevant to Employable Graduates

Both our final year (4th year) undergraduate and post-graduate (Masters and PhD) students are required to complete research projects in order to present seminars and submit reports as part of their respective study programs.

Many of our final-year undergraduate students found employment during their Industrial Training experiences and join the workforce right after graduation. One example in mind is Ms. Faustina Muriki who was employed while doing her IT with the Morobe Provincial Administration last year, and then joined them early this year after successfully completing her studies. She was doing a project on Gender-based Violence with the Division of Community Development together with five other students.

Our top MA graduates also have gained employment in the Department as part-time tutors over the years (including two this year) after successfully completing their dissertations leading to the MCS degree.

4. Research and Highlights of Publications

Highlights of staff research and publications for 2020 included:

A. *Ongoing International Partnership Research Projects:*

Aisi, M. (co-researcher). "The project entitled 'Addressing Family and Sexual Violence in Lae: The Potential of a Family Centred Approach', built upon a pilot study conducted in 2018, which examined the relationship between women's experience of seeking support for family and sexual violence (FSV) and their children's wellbeing and opportunities for education in Lae, PNG's second largest city.

B. *Peer-Reviewed Publications:*

1. *Journal Articles:*

Ambelye, I. (2020). English and its Power in Papua New Guinea. *Journal of Communication, Politics & Society (COMPOS)* 1 (2): 45-63. Retrieved: <http://composjournal.com/currentissue/ISSU.pdf>

Gilder, E. (2020). Towards a Post-Pandemic Postmodern Society: Is the Pandemic a Deconstruction of the Postmodern Society? *Postmodern Openings* 11 (2): 1-11, DOI: <https://doi.org/10.18662/po/11.2/153>
Retrieved: <https://lumenpublishing.com/journals/index.php/po/article/view/2924/pdf>

Milba, J. & Essacu, F. (2020). The Role of Communication in Forest Management Agreement and Timber Rights Purchase Acquisition Processes and Practices in Papua New Guinea, *Journal of Communication, Politics & Society (COMPOS)* 1 (3): 13-24. Retrieved:

<http://www.composjournal.com/currentissue/Final%20File.pdf>

Starza, P & Sali, G.W. Communicating an Integrated Clan Based Approach to Tribal Warfare in the Enga Province, PNG, *Journal of Communication, Politics & Society (COMPOS)* 1 (3): 1-12. Retrieved:

<http://www.composjournal.com/currentissue/Final%20File.pdf>

2. *Critical Collection of Essays:*

Sali, G. (2020). A Public Intellectual's Collection of Policy Discourses on Crime and Corrections in Papua New Guinea. Sibiu [RO]: Editura Universității "Lucian Blaga" din Sibiu. ISBN: 978-606-12-1780-9.

C. *Scholarly Presentations:*

Aisoli-Orake, R., Bue, V., Aisi, M., Ambelye, I., Betasolo, M., Nuru, T., Kialo, D., Akanda, S., Denano, S., Yalambing, L. (2020). Women in Higher Education: A Case of the PNG University of Technology. A Conference Reflection Paper presented at the PNGUoT Women in Higher Education (WIHE) Seminar, PNGUoT, Lae (PNG). August 11).

Gilder, E. (2020). Public Defense of Habilitation Dissertation, "Rhetorics in English Literary and Non-Literary Discourse" (Philology), "Lucian Blaga" University of Sibiu, School of Doctorate and Postdoctoral Studies.

Centrul de Reuniune Academică, Str. Banatului nr. 6 (Sibiu: Romania), 28 January. Program:

<https://doctorate.ulbsibiu.ro/wp-content/uploads/an-gilder.pdf>

Gilder, E. (2020). Logos, Pathos and Ethical Practices across Selves, Time and Space in a Pandemic Era (Plenary Speaker), 14th LUMEN International Scientific Conference "Rethinking Social Action. Core Values in Practice RSACVP2020", Iasi, Romania, 22-23 May. Online Presentation:

Retrieved: <https://youtu.be/s66waZzhVh8>; Program: http://conferinta.info/wp-content/uploads/2020/05/Program_14th_LUMEN_RSACVP_2020.pdf; Abstracts: http://conferinta.info/wp-content/uploads/2020/05/Working_papers_volume_LUMEN_RSACVP_2020.pdf

In addition, Professor Gilder and Professor Silvia Florea (of the UNESCO Chair Office at the Lucian Blaga University of Sibiu, Romania) are accepting submissions for the 2020-2021 issue of our Department's international journal, JCDS: *Journal of Communication and Development Studies*. In line with the conditions of receiving laptops (which require each staff member to produce at least one article each year), several staff members have submitted manuscripts for publication consideration.



5. Community Outreach/Industry Engagement and Consultancies

Both staff and students are engaged in community outreach and/or consultancy programs as part of the course requirements as well as through academic interests.

At the beginning of 2020, the Department met with an industry partner (National Gaming Control Board) in Port Moresby to discuss the Industrial Training engagement of our final year students under the MOA signed between PNGUoT and NGCB last year.

In May, the Department (through its Acting Head of Department, Mr. George Wrondimi) did a one-day awareness on COVID-19 at the 12 Mile Community outside Lae. The mixed community has a population of over 500 people. During the Independence weekend, one of our staff members (Mr. Mitio) spent time with the landowners at Wafi-Golpu to discuss and raise landowner issues at the mining lease area.

Throughout 2020, Professor Gilder has participated in consultancy work with the PNGUoT/SERI project as a contributing member of their topical area of concern dealing with the consumers of renewable energy, and as Chair of the Project Implementation Committee (overseeing a UNDP solar-electricity project carried out between SERI and an Indian partner organization, TERI).

Externally, on the national level, Professor Gilder remained on the DHERST roster of HE Quality Audit Experts for 2020. On the international level, he served on the Advisory and/or editorial board for a number of prestigious publications, most notably The University of Bucharest Review (Department of English and the Center for Cultural Identity, indexed in ERIH-PLUS, SCOPUS, EBSCO, MLA International Bibliography), American, British and Canadian Studies review (Lucian Blaga University of Sibiu, Romania, indexed in MLA International Bibliography, Web of Science – Emerging Sources Citation Index, EBSCO, SCOPUS, ERIH-Plus), and the East-West Cultural Passage review (Lucian Blaga University of Sibiu, indexed in KESLI-NDSL (Korean National Discovery for Science Leaders), DeGruyter – Sciendo, EBSCO). He also reviewed submissions for Studia Philologia of the "Alexandru Ioan Cuza" University of Iași, Romania, indexed in OCLC. With continuing cooperation with the UNESCO Chair in Quality Management of Higher Education and Lifelong Learning at the Lucian Blaga University of Sibiu (LBUS), Professor Gilder maintained the output of our Department's journal, JCDS: Journal of Communication and Development Studies, co-published with their imprint and having Prof habil. Silvia Florea serving as an Associate Editor. He has also continued to serve on PhD Committees in the Department of Anglo-German Studies at the Lucian Blaga University of Sibiu, and (since August 2020), as an affiliated habilitated Professor in Philology at the Institute for Doctoral and Post-Doctoral Studies (IOSUD) at LBUS.

6. Awards and Commendations

On 9 April 2020, Professor Gilder was accorded a habilitated Professorial status by the Romanian Minister of Education after sustaining a public defense of his habilitation dissertation, "Rhetorics in English Literary and Non-Literary Discourse" (Philology), at the Lucian Blaga University of Sibiu, School of Doctorate and Postdoctoral Studies. As noted by the then HoD, A/Prof Garry Sali, "this is an achievement that we are proud of because you have achieved this while working with us here in the CDS Department and PNGUoT as Professor. . . We know that obtaining this status means that you have the [legal] right to direct doctoral studies and theses (in the domain indicated), a right that has international recognition. This recognition will add value to the status of our Department's PhD program and postgraduate studies in general" (Sali, via email of 5 May, 2020).

As concerns student academic awards, the MER for 2019 has already been approved by the Academic Board for an announcement.

7. Conclusion

Overall, 2020 can be recorded as a challenging year for CDS Department due to the impacts of COVID-19 right across the board. Nevertheless, the core function of teaching and learning continued through online teaching for both undergraduate and post-graduate programs, as well as for the satellite campus at Kundiawa (SUSU). Research and consultancy activities on the part of select staff also proceeded despite difficulties in travel.

As an indicator of its standard-setting for innovation, the CDS Department has been chosen by the SEMT, along with the DBS to trial full-scale online teaching by 2022. The Department has thus provided staff members with individual laptops, tablets, and Mi-Fi as part of the preparations for staff to have the necessary teaching aids to meet that challenge.

All staff members are being informed to physically prepare their teaching materials and lecture modules and, more importantly, to mentally adjust their mindsets to go full-scale online come 2022. Hence, 2021 is regarded as a year for reorganization and preparations to up-skill and upscale the Department's capacity in all areas for the new mode of teaching and learning.

That process has already commenced with two hours of training on Moodle as an optional platform for staff to choose among others (e.g., Google Classroom). Initial training was recently conducted by the TLMU, with attendance by CDS staff members being 100 percent. After receiving feedback from the staff, TLMU will conduct follow-up training for the Department.

CIVIL ENGINEERING

Department of Civil Engineering

The Department's progress is noted in the Department Mission: "to provide an opportunity to grow world-class Civil Engineers or technocrats through high-quality experiential teaching & learning, research, and development, external collaboration & Partnerships. It also embraces consulting engineering, commercial testing, and active community services with an ardent application of scientific and technological knowledge and innovation in Civil Engineering".

Real World Experiential Learning (Teaching Activities, Curricula, Capability)

We have introduced a new, refreshed program in Bachelor of Engineering in Civil Engineering (Honours) which started in 2019 and gained provisional accredited status to the Washington Accord facilitated by Engineers Australia in 2020. Given the threat brought by COVID-19, we offered some lectures online or in the classroom (asynchronous or synchronous) with the proper precaution to avoid contracting the virus. The major in Structural Engineering and minor in Geotechnical Engineering will commence in year three. The laboratories have been improved through the acquisition of laboratory equipment in the Structures Laboratory and Hydraulics Laboratory. These achievements are (after more than two decades) to meet world standards in terms of training our future civil engineers. Our graduates should now be ready to meet the challenges of the country or wherever they are commissioned. All laboratory activities include hands-on or experiential learning.

There has been an updating of the Master in Engineering (Civil Engineering) with majors in any of the following: Structural Engineering, Construction & Management Engineering, Geotechnical Engineering, Water Resources Engineering, Transportation Engineering, and Environmental Engineering. (Environmental Engineering is a new addition in the specialization but the subjects offered are the same as the Master of Science in Solid Waste & Resource Management.)

The application of technologies in the classroom had been exhaustively used such as the use of Google Classroom, training on tSMAS, training on Moodle conducted by TLMU, and continued classroom modernization by fixing all projectors in the classrooms and air conditioning. Some online examination (CE 451) was completed in semester one of 2020 using the software Pro-Prof.

The teaching staff in 2020 at the DCE were majority nationals with 83% (including part-timers) and 17% expatriates. Of the 2019 academic staff, 69% were Nationals (including part-timers) and 31% Expatriates. The decline of expatriates in 2020 is caused by the pandemic impact when during their recreation leave, they were unable to return due to travel restrictions that held them in their home countries.





World Class Technocrats (Graduate Feedback)

The accreditation process paved the way for our Department to employ an Engineering Management System. It provided an opportunity to engage the industry partners such as the Departmental Industrial Advisory Committee (DIAC), the students and staff collaboration with Student-Staff Liaison Committee (SSLC), Teaching & Learning, Curriculum Committee (TLCC), Research, Development & Engagement Committee (RDEC), Departmental Executive Committee (DEC).

Our Industrial partners had confirmed that our graduates can communicate, can solve problems whenever they arise, can cope and participate successfully in teamwork activities, work in an ethical way, and are innovative in their approach to do things. Our graduates have lifelong learning attitudes as seen from some of them that are returning to Universities here and abroad to gain further education. These are outcomes of the core values of the Department: "To live a culture of a world-class Civil Engineers or technocrats who are honest and with the accountability of what they do, who are aware and with inclusiveness in a culturally diverse world, who are resourceful, works innovatively and creatively to meet the fast pace of development with sustainability, and who can work as a team to achieve the vision and mission."



Student-Centred Learning Environment (Student project)

The creation of an in-house industrial training (IIT) team in November of 2019 assisted the industrial training requirement of eight final-year students and two third-year students. In January 2020, three final-year and two third-year students continued the IIT. Due to the COVID-19 threat, the IIT commenced in its first batch during the semester in semester two with 15 participants – five students each from final, third, and second years of study. The IIT can secure the Malahang Industrial Centre Drainage Upgrade (Phase One) as a project team consultant, preparation of tender documents for Gawi Wosera District of East Sepik Province, the completion of the as-built plan of the Department of Civil Engineering Main Tololo Building, Hydraulics Building, and Structural Building, and the university road upgrade and housing.

The first-year subject Engineering Design (EN124) highlighted the utilization of waste to minimise the disposal of waste to landfills made 54 projects last year, and this current year gained 52 projects. The 2019 project "handwashing basin" had saved the DCE in combating COVID 19 pandemic threat on campus and the country. Some of these projects were also featured in the National newspaper. The Engineering Design 2020 Show was on 14 October at the DCE Foyer. The year-two projects were Structural Design (CE 222) of the additional floor of the Tololo Building and the fountain of DCE (CE 223). The year-three projects were Culvert Design (CE 302), Community Water Supply (CE 322), and Highway Design (CE 342). There were 18 final year projects and several projects of the Master of Engineering and Master of Science in Solid Waste & Resource Management.

Ardent Application of Science, Technology & Innovation (Research & Publication)

On 4 July 2019, the Global Journal of Civil Engineering that runs online thru SSRN was launched with 12 papers presented from Global Virtual Conference in Civil Engineering (GVCCE) 2016-18. The GVCCE was held virtually in 2019 with five conference papers presented, and for 2020 is scheduled for 12-13 of November 2020. Research contributed by our academic staff (via publications in non-indexed articles) were seven and this year GVCCE 2020 included 18 final year projects, 5 postgraduate papers, and 3 overseas papers.

The Research Committee funded the Project "Water Resources Assessment for Lae City Urban Development" worth K4942. The PNGUoT Project Office also funded the project: Rehabilitation of 49-year-old Sewage Pond. There were two academic staff who will be completing MPhils this year and one support staff to complete a Master of Science in Solid Waste & Resource Management (MScSWRM). The two other MScSWRM who are finishing come from the Forestry Department and Ok Tedi Mining Limited (OTML).



Active Community Interface & Collaboration (Extension & Consultancies)

The pre-launching of the Civil Engineering Alumni Association and the creation of the PNG Society of Civil Engineers led to a meet-up with graduates of the Department and alumni at a Homecoming celebration held on 13 of November 2020. A June trip to Port Moresby also paved the way to visit NISIT, IEPNG, and the high-rise building projects of China Steel Corporation. In the NIST visit, the accreditation of our laboratory was revisited and also provided the DCE staff to have a look at the NIST testing laboratory. The IEPNG meeting enabled 80% of DCE staff to submit their individual IEPNG registration bids.

Some activities our staff participated in the community development were at Ramu Two Project impact areas (Markham Community), Labu villages, Busamang villages and Poasang Dump communities. Our collaboration with the Government of Morobe Province (also Huon District, Finschhafen District) is providing an avenue for the Department to be of service to the locality.

Markham Culvert will build a Rone Lane Student Centre (a two-story fully furnished and air-conditioned student facility) at the Department. It is an addition to the original one-room Civil Engineering Student Centre that was built for the civil engineering students to study and train.

Civil Engineering Other Highlights in 2020

Participation of DCE in the sponsored one-week industrial visit to the mine site of Oil Search & ExxonMobil enabled it to know the actual scenario of graduates that will cope with the demand of the day. The establishment of the 2020-2024 DCE Strategic Plan aligned to the University Strategic Plan, 2020 Asset Registry, 2020 Risk Matrix, 2020-2024 Operational Plan, Training Plan, Succession Plan guides DCE toward future success. This Strategic Plan provides an opportunity to renovate the drawing-room for a Design Lab, renovation of the Structures Lab, the renovation of Hydraulics Mezzanine, and the student nook. All of the improvements and detailed activities of the Department will be covered in the DCE Magazine to be launched soon.

Civil Engineering





Electrical Engineering is a science-oriented field that is concerned with many disciplines such as power systems engineering, electronics, and communications engineering, electromagnetics, control systems engineering, and computer engineering. Further, it encompasses many other sub-disciplines such as electric machines, power electronics, antenna and propagations, instrumentation and process control, mechatronics and robotics, industrial electronics and automation, biomedical engineering, consumer electronics, sensors, and measurements, and computer networking. In fact, almost all technologies in modern life (from nano and microscale devices to small-scale devices, and large-scale systems) rely on electrical engineering.

The Department of Electrical and Communications Engineering offers degree programs in Electrical Engineering at both undergraduate and post-graduate levels.

The undergraduate degree in Bachelor Electrical Engineering (Honours) is a four-year program with a specialization in Communications and Power Engineering defined as Majors. The students cover mathematics and physics in addition to the core curriculum in either power engineering or communications engineering and other required electives. In the final year of their studies, students undertake research projects on various topics in Electrical Engineering. The students show their ingenuity and innovation in researching various topics and building prototypes or undertaking simulation models and presenting their work at the end of the academic year. The research projects are designed to trigger the engineering curiosity of students and finding new methodologies to foster innovative design that employ the synergistic effect between design and innovation as the key in promoting engineering ingenuity.

The Department of Electrical and Communications Engineering also offers postgraduate research degrees leading to the degree of Master of Philosophy (MPhil) and Doctor of Philosophy (PhD). Currently, the ECE Department has a total of 10 research students, four PhDs, and six MPhils. One of the priorities of our PG research program is to locally train national academic staff. The Department projects that about 70 percent of the full-time academic cadre will be filled with national members of staff, of which a minimum of 80 percent will have a PhD degree, complemented with accomplished expatriate members of staff, all expert and able to work together giving significant research leadership in the global scenario.

The University recently launched its Strategic Plan 2020-2024 with a corporate vision "to grow world-class technocrats by 2024 and beyond", and to fulfill this mandate, major academic reforms involving course reviews and designs to improve the quality of teaching and learning, and the process for achieving full accreditation of its engineering programs through the Washington Accord started in 2015 and is in progress. As part of this reform, the PNGUoT Academic Board (AB) passed a resolution for a four (4) subject per semester plan, with the view that a smaller number of subjects per semester will encourage in-depth coverage of the subject material. Thus, the Electrical Engineering and Communications (ECE) Department proposed to restructure its course to include four subjects by eliminating duplications and similarities in common subjects (a move that will ultimately help to produce graduates with desirable graduate attributes). Furthermore, in the pursuit of the accreditation mandate, and to satisfy the requirements of the accrediting body, the Institution of Engineers Australia (EA), the ECE Department is undergoing major academic reforms. These include;

1. Program Name Change

The name of the degree program has now changed from Bachelor of Engineering in Electrical Engineering to Bachelor of Electrical Engineering (Honours). The program offered by ECE is the “Bachelor of Electrical Engineering (Honours)”. This degree will be effective in 2022 and thereafter.

2. Majors Offering

The program name changes now make it possible for the ECE Department to offer one degree with two majors:

- i. Bachelor of Electrical Engineering (Honours) – Communications Major
- ii. Bachelor of Electrical Engineering (Honours) – Power Major

The name of the majors will not be displayed on the degree. The degree will just be “Bachelor of Electrical Engineering (Honours)”. However, details of the majors will be displayed on the transcript.

The majors are defined through elective subjects and available in the third year of the program commencing in 2021.

In aligning itself with the strategic plan of PNGUoT, the ECE Department is committed to being at the cutting edge in teaching and research in the generation and application of electrical engineering knowledge in graduating globally competent professional electrical engineers of high ethics and human values.

The ECE Department's basic commitments, in keeping with PNGUoT's corporate vision, are:

1. To attract high-quality faculty and well-prepared students
2. To continuously improve and revise its academic programs
3. To be a Department that is fully integrated with Papua New Guinea industry and community, changing society and creating wealth.
4. To provide a depth of quality and multidisciplinary learning and applications through classroom, laboratory, and research programs that have measurable outcomes.
5. To provide research and Innovation work that is beneficial to the local community and contributes to knowledge and experience to international challenges in science and technology and their functions in society.





Another academic year is over and the Department appreciates all our stakeholders and partners especially students, their parents, and sponsors for all the support rendered this year. 2020 was an extraordinary year as the COVID-19 pandemic had displaced our normal research, teaching, and learning approaches and everyone had to adopt and adapt swiftly to the “new normal” practices thus completing the academic year successfully was an achievement that all can appreciate and share.

The Forestry Department’s mission is to produce professionals, both men, and women; with scientific and technical production skills and expertise needed to manage Papua New Guinea’s forest resources sustainably, and, at the same time, tailoring the curriculum to meet regional and global job market environment. It is our teaching and training philosophy that a well-managed forest is an asset to local, national, and regional economies for current and future generations.

The Forestry Department has been training professional foresters for PNG and the region at the Bachelor’s Degree level since 1972 with first graduates in 1976. To date, our graduates are employed as scientists, administrators, and managers in the public and private sectors, NGOs, and CBOs locally and within the Asia-Pacific Region. Others become entrepreneurs and community leaders serving various roles throughout the Pacific region. As we take pride in our rich history, it is our vision to strive for improved training, teaching, and research standards through international accreditation in the coming years.

Undergraduate courses and revised curriculum

The Department has two campuses, the Taraka Campus and the Bulolo University College Campus, offering both Bachelor in Forestry Science and Diploma in Forestry programs. The Bachelor’s degree is a four-year program partially taught at both campuses while the three-year Diploma program is taught solely at the Bulolo University Campus. The curriculums for the two programs place emphasis on forest management, environmental protection, and multi-purpose forest resource surveys including wood technology and forest-people interactions. The course work is complemented with field trip components to surrounding forest areas, forest industries, and communities including a semester of industrial work placement for the students.

This is the second year of implementing the revised bachelor’s degree curriculum whereby many of the subjects taught in the past are condensed into four main subjects per semester while increasing teaching hours per week to six (6). This review was done to all subjects at the university to be on par with the changing trends of higher learning teaching in the region facilitating a pathway to accreditation. (The review is continuing and the Department is excited as it expects the first graduates of this revised curriculum in 2022.)



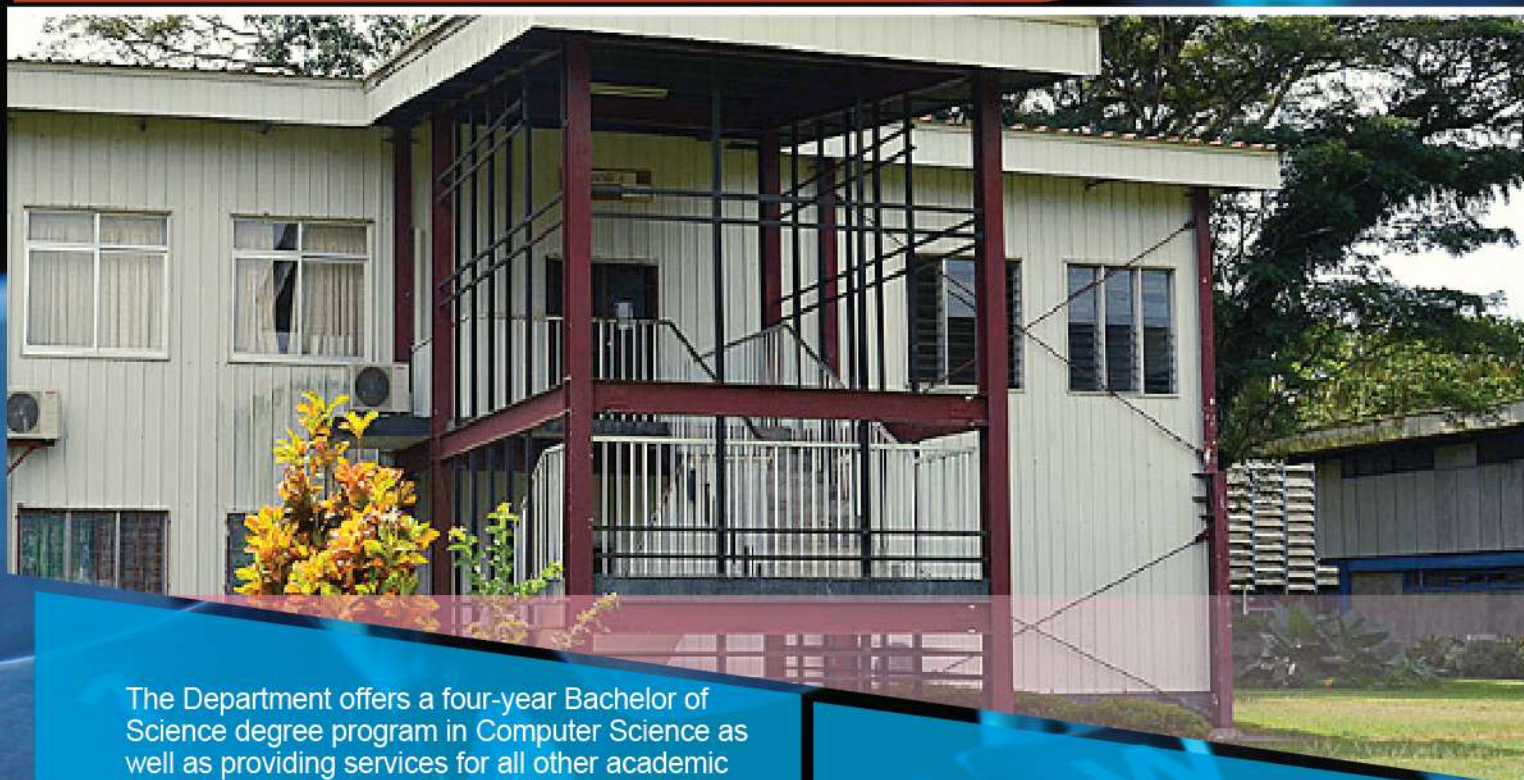
The postgraduate programs consist of MSc, MPhil, and PhD in Forestry for a duration of two years for each master's degree and three years for PhD studies. The PhD studies are dependent on the availability of supervisors. Since 2014, about four on average postgraduate students graduate with three more students to graduate this year at the master's level. There has been an increase in the number of students interested to do postgraduate studies in recent years. The Department currently has about seven MPhil and one PhD candidates undertaking their postgraduate studies.

There are 16 current full-time faculty members teaching in both campuses, four with PhDs and the rest with master degrees in various forestry fields. Two of the faculty members (Mr. Peter Edwin and Mr. Diaiti Zure) are currently undertaking their PhD studies abroad and are expected to join the Department as early as 2022, while Mr. Eko Maiguo is in the process of completing his PhD dissertation. Two faculty members - Mr. Leonard Wana & Mr. Haron Jeremiah - took up Post Graduate Certificate in Higher Learning and Teaching last year and are expected to graduate. Last year, Mr. Billy Bau and Dr. Cossey Yosi attended this course and will graduate in November 2020. The Department is also upgrading the qualifications of instructors, administration, and technical Officers where one instructor (Mr. Louis Veisami) and a technical Officer (Mr. Leroy Moripi) will be graduating this year with MPhils, while one (Mr. Charles Feriwok) is in the process of completing his MSc course work by early next year. Two (2) other female administration staff (Ms. Barbara Steven and Mrs. Catherine Aisi) are also upgrading their qualifications to Diploma level at various technical colleges within Lae city.

The Department's engagement in research, consultancy and community development projects this year has been affected by the COVID-19 pandemic, even so, final year and postgraduate student projects and field trips, engagement with stakeholders were maintained. Four students are currently doing their research projects with Markham Valley Biomass Ltd while few others are engaged with forest industries and communities around Lae city. The final year students also undertook a field trip to Eastern Highlands Province in September visiting tree farmers and local forest product industries in which research and training areas were identified for potential future engagements. Binatang Research Centre (BRC) has been always supporting our postgraduate programs in terms of student supervision, we currently have four students engaged with BRC for their research projects.

As part of the newly revised curriculum, the Department was in regular contact with a couple of industries to engage our students during the 2020 holidays as part of their industrial experience. Many companies indicated favorable responses including National Forest Service, PNG Forest Product Ltd, PNG Biomass, and others around the country. The Forestry Department wishes to thank these companies and institutions and look forward to maintaining and improving these partnerships in training the human resource for the forestry sector.

The Department wishes to congratulate the following staff: Mr. Veisami and Mr. Moripi graduated with their MPhil degrees, while Mr. Bau and Dr. Yosi graduated with certificates in Post Graduate Student-Centered Teaching. Congratulations are also due to Ms. Barbara Steven and Mrs. Catherine Aisi for being accepted into National Polytechnic Institute and Mapex Training Institute respectively to upgrade their present certificates to diploma levels. Finally, we extend our appreciation to all our stakeholders and partners who have supported us in any way to successfully complete this academic year. The Department looks forward to more and improved collaborations and partnerships in 2021.



The Department offers a four-year Bachelor of Science degree program in Computer Science as well as providing services for all other academic Departments. This service to other Departments involves the teaching of specifically tailored ICT and mathematics subjects.

Our mission is to produce quality graduates in computer science with standards comparable with other universities in the region, as well as providing suitable and relevant service subjects to meet the requirements of other academic programs.

Teaching Activities

The Department revised its computer science subjects to adhere to the requirements of the engineering programs accreditation process PNGUoT is currently undergoing. The new curriculum has four-subjects per semester and each subject will have a six-hour contact time per week. A total of 32 subjects enables the students to cover all areas of Computer Sciences that includes ICT, Networking, Databases, Programming, Operating Systems, Software Engineering, and Artificial Intelligence. This gives our students the advantage of having been introduced to all areas of computer science before going into an industry where they will begin specialise.

The mathematics service subjects have also undergone a lot of changes. Most of the other Departments that Departmental staff teaches have preferred to trim down on the number of mathematics subjects by compacting the syllabuses. This often means two subjects in a year are combined into one and taught in one semester. This has decreased the number of subjects the Department teaches per Department but the contents are more compact and rigorous.

The current staff profile includes one Professor (Dr. Sc), two PhDs, six Masters, and six Bachelor's degree holders. In addition, the Department engages three to five part-timers each semester to make our programs operational. Staff are generally very committed and competent.

Graduate Feedback from Industry

The Department has received calls since last year from Oil Search, PNGFM, Nasfund, major banks, and other companies interested in engaging our fresh graduates. The demand for Computer scientists is increasing with the rise in new technological developments around the globe. Yet, the Department has not received any written acknowledgment on its recent graduates' performances in the industry, but we have received verbal feedback. (For example, we have heard favourable reports of our graduates working in the banking industry.) We know different industries will require different skills and so the Department aims to provide the basics for its students to be adaptable before they enter the job market. Specialized training in varied industries is necessary because of the diversity and constant evolution of technology.

The mathematics provided to other disciplines ensures that the graduate has sufficient mathematics knowledge for logical reasoning, identification of appropriate mathematical tools for problem-solving, and competent computation ability. The HoD's visit to Kutubu Oil and Gas project site last year (2019) gave him the opportunity to meet and talk with graduates from other disciplines where mathematics has been a vital ingredient in their performance at the workplace.

Final Year projects

Our student projects mostly cover the areas of databases, programming, and networking. Students are able to create a database to store information. They then write programs to process and retrieve these data from a database. Then they build a website through which one can access these data. The website will contain icons that one clicks and it automates a program to retrieve the data, processes it, and displays the data for use. This procedure has been used in many applications, such as ordering and buying items online, doing registrations online, using office filing systems, etc. For example, one student is currently working on Archives Database for the PNG Judiciary as her project, which will be of great utility in that the Archive's paper files are kept in huge containers.

Research and highlights of publications

Our research areas in Mathematics depend on the staff composition. Currently, our main areas are topological groups and rings, mathematical modelling and differential equations, statistics and discrete mathematics. In Computer Science, current interests include database systems and the building of computer apps that can store, process, and retrieve data.

Our sole Professor, Mihail Ursul, is an all-season writer and he continues to contribute one paper each year for publication in distinguished journals. Mr. Mirou is our only staff undertaking PhD studies and his research is on the application of ICT in Agriculture.

Three other staff (Mr. Abuzo, Mr. Tom, and Mr. Angra) are currently enrolled in the Master of Philosophy program at PNGUoT. Two others (Mr. Nerit and Mr. Tahie) are enrolled with TMLU to obtain Post Graduate Certificates in Student-Centred Teaching.

Community and Industry Engagement

The Department is involved in the writing of Department of Open and Distant Learning (DODL) Mathematics exams each semester, PNGUoT's non-school leaver entry examinations each year, and the PNG Grade 12 national examinations each year.

The Department's engagement in the industry so far has been with ACIAR through the Melbourne University to build a database of forest data. This has been completed. Its second engagement which is still in progress is with FAO through NARI in building an app to collect and store information and then later statistically interpret the data.

Consultation

Within the PNGUoT, the Department continues to provide statistical support to research activities for both staff and students. The Department has also assisted sections of the university with the development of packages such as the water-billing system for PNGUoT. The system is still under consideration by the senior management.

Technical training is also provided to personnel in the ICT industry focussing on software design and development with cutting-edge technologies.



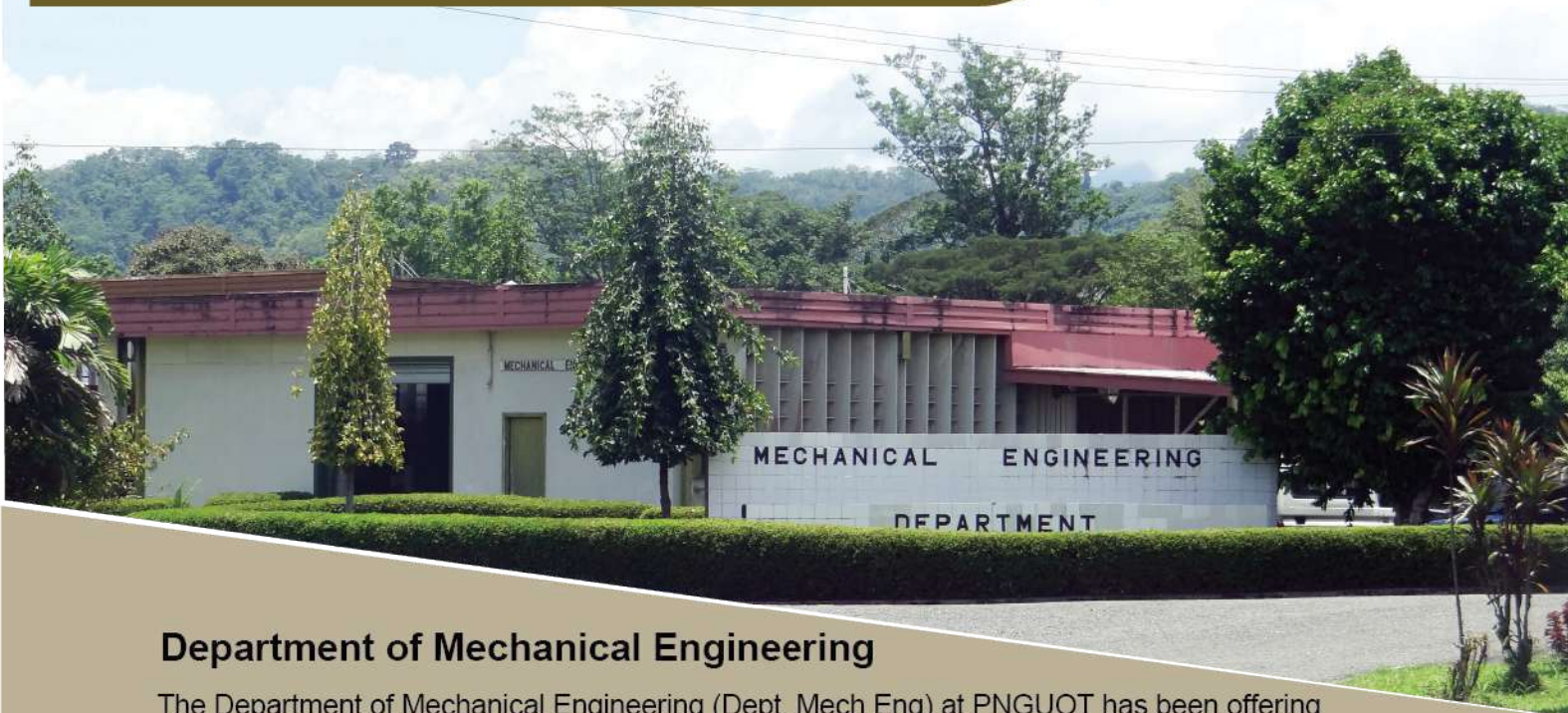
Other Achievements

The Department has its own assessment system application (called tsMAS) that stores, processes and retrieves its assessment records for various University requirements. It has been trailed for three years and has worked well for the Department. This year, the Department has done a presentation to Senior Management to consider its use university-wide. The system is home-grown and all technical and administrative issues can be handled locally.

The Department also held regular seminars on a wide range of topics. This year (2020), presentations were targeted to overcome the covid-19 restrictions on face-to-face teaching. Thus, presentations were on:

- 1) Use of Voice-over-power point and Camtesia for the product of lecture materials by Mr. Mirou and Mr. Abuzo.
- 2) Use of Google Forms to create online quizzes and tests by Mr. Mirou.
- 3) Additional features of tsMAS. From an Assessment Management System to a Learning Management System by Mr. Nerit.
- 4) Use of Moodle as a Learning Management System by Dr. Nuru of TLMU.





Department of Mechanical Engineering

The Department of Mechanical Engineering (Dept. Mech Eng) at PNGUOT has been offering quality undergraduate education through student-centered teaching and learning for 2020. The Department also has been delivering postgraduate and PhD programs over the year.

Continuous efforts have been made by the Department to collaborate with industry and develop linkages with international institutions and partners. Currently, the Department is in the process of developing a partnership with the University of Malaysia Perlis.

To support its sustainable growth, the Department has developed a strategic plan for 2019-2024. An operational plan and a succession plan also have been prepared based on this strategic plan.

The Department is also engaged with the communities in PNG to deliver projects for mutual win-win situations and benefits. Students are also encouraged to align the objective of their final year projects to solve the socio-environmental problems of PNG.

The Dept. Mech Eng has recently got its bachelor's degree program provisionally accredited by Engineers Australia. In compliance with accreditation guidelines, the Department has also developed a new syllabus which was introduced in 2019.

Vision

To be a nationally and regionally recognized mechanical engineering Department that attracts, rewards, and retains outstanding students, academic and support staff.

Mission

In view of the growing and continuous development in the industrial fields in the Pacific islands and keeping abreast of the continuous scientific and technological development in the field of mechanical engineering, the mission of the Department is:

- To produce competent, ethical, and moral graduates of high quality and in sufficient numbers to serve the needs of PNG and the neighbouring countries of the South Pacific in the field of Mechanical Engineering.
- To develop a strong graduate program to enhance research activities and active commercial and community service operations to further serve the needs of the country and the South Pacific region.

Teaching Curricula

The Department has adopted the policy initiated by the PNGUoT to get its engineering program accredited by Engineers Australia. In this process, the Department identified the requirements for redesigning the course structure through the assistance of the external accreditation adviser and inputs from the industry.

The revised curricula prescribe an offering of four subjects per semester. It also has a provision for offering two majors (Design of Mechanical Systems; Energy, Fluid and Heat Transfer Systems) and two minors (Materials and Manufacturing; and Mechatronics)

Few new elective subjects based on industrial inputs and societal needs were also proposed. The new course structure is already implemented in 2019 for the first year, in 2020 for the second year, and in 2021 for the third year, and the final roll out in 2022 for the fourth year.





Teaching experience

The current academic staff of the Department is comprised of a balanced pool of faculties comprising of young, middle-level, and experienced faculty members. Possessing both national and expatriates with excellent academic and research backgrounds from all major areas of mechanical engineering are one of the major strengths of the Department.

Graduate Feedback

The courses offered/taught in Mechanical Engineering are tailored to conform to industry standards and requirements. The courses are designed to enable our graduates to adapt and effectively mitigate the real challenges encountered by the industries operating in PNG as well as in other parts of the world.

One of the many challenges faced by graduates is correctly applying the knowledge gained in class and translating it into practical applications in the industry. Via the new initiative of industry visits, the introduction of capstone projects in the final year, and the use of the problem-based learning approach, the challenge can be met. We are modernizing our laboratories and getting them equipped with new types of machinery to provide adequate laboratory experience to our students.

Final Projects and Relevant Preparation of Employable Graduates

Students are given hands-on training through projects and group work to equip them to handle the challenges of the workplace. Our students are allocated final year projects in the first semester of their fourth year. The project allocations are based on their choice and designed to develop analytical, decision making, R&D skills in them as required by employers.

Research and Publications

Total Number of Publications in 2020: 15
o In International Journals: 14
o At International Conferences: 1

Community and Industry Engagement-Consultancies

The Dept. Mech Eng staff have been providing consultation service to Angau Memorial General Hospital for the improvement of the effectiveness of their incinerator.

An academic staff member is serving on the PNG Science & Technology Council (PNGSTC), and has

been involved in activities such as strategy formulation, development of policies and procedures on researches done in Papua New Guinea.

Two academic staff members serve on the Technical Vocational Education & Training (TVET) Committee to review tertiary institutions in compliance to meet the PNGNQF.

The Department is also engaged with the following consultancy projects that generated revenue amounting to K 72750 for the university were:

- Corrosion Control and Monitoring Technology for Structures of Old Plant OKTEDI, and;
- Analysis of Marine Corrosion in PNG Ports using Cathodic Protection.

Awards for Best Performance

PNGUoT Mechanical Engineering faculty members were noted for gaining prestigious International conference research awards (one for 'Best Track' paper at the IEOM Conference at Toronto, Canada in October 2019, and the other for an 'Excellent' paper award at the IIER International Conference, Brisbane, Australia, June 2019).

Staff Post-Graduate Studies Development

Three members of the academic staff, Samuel Dunstan (UK), Steve Ales Korokan (NZ), and Brian N'Drelan (PNG UNITECH) are in the final stage of their PhD candidacies.

One faculty member oversaw the installation of all the computers in the computer laboratories of the four engineering disciplines.

A few of our staff are appointed as external examiners for PG and PhD theses by several foreign Universities. An academic staff has delivered one keynote speech at an international conference and shared his research work as an invited speaker in two faculty development programs in two foreign universities.

Department of Mining Engineering

The Department of Mining Engineering runs two (2) Engineering Degree Programs. The Bachelor of Mining Engineering Program enrolled its first intake in 1989 and the Bachelor of Mineral Process Engineering in 1991, graduating its first pioneer classes in 1993 and 1995 respectively. Currently, it is the only Mining school in the South Pacific (outside of Australia and New Zealand). Annually, the Department also enrolled foreign students, especially from the South Pacific Island countries. The Department also offers postgraduate programs by research (MPhil) and is planning on expanding it to MSc, ME, and PhD programs.

The Department has grown strength to strength since inception and has been producing mining and mineral process engineering graduates who are widely employed in the mining, petroleum, public sectors, and other earth resources extraction and construction industry both in Papua New Guinea and around the world.

In 2015, the Department embarked on the international accreditation of its degree programs and has made remarkable improvements since then. Its accreditation goal is the four-year professional engineering degree program (according to Washington Accord). Since 2015, we have improved our main Department building, laboratories, classroom as well as acquiring new equipment externally from industry and internal university support.

Our Mission is to produce quality employable graduates for the mining and resources industry who are competent engineers in the designing and extraction of PNG's natural resources.

Teaching and Curriculum Development

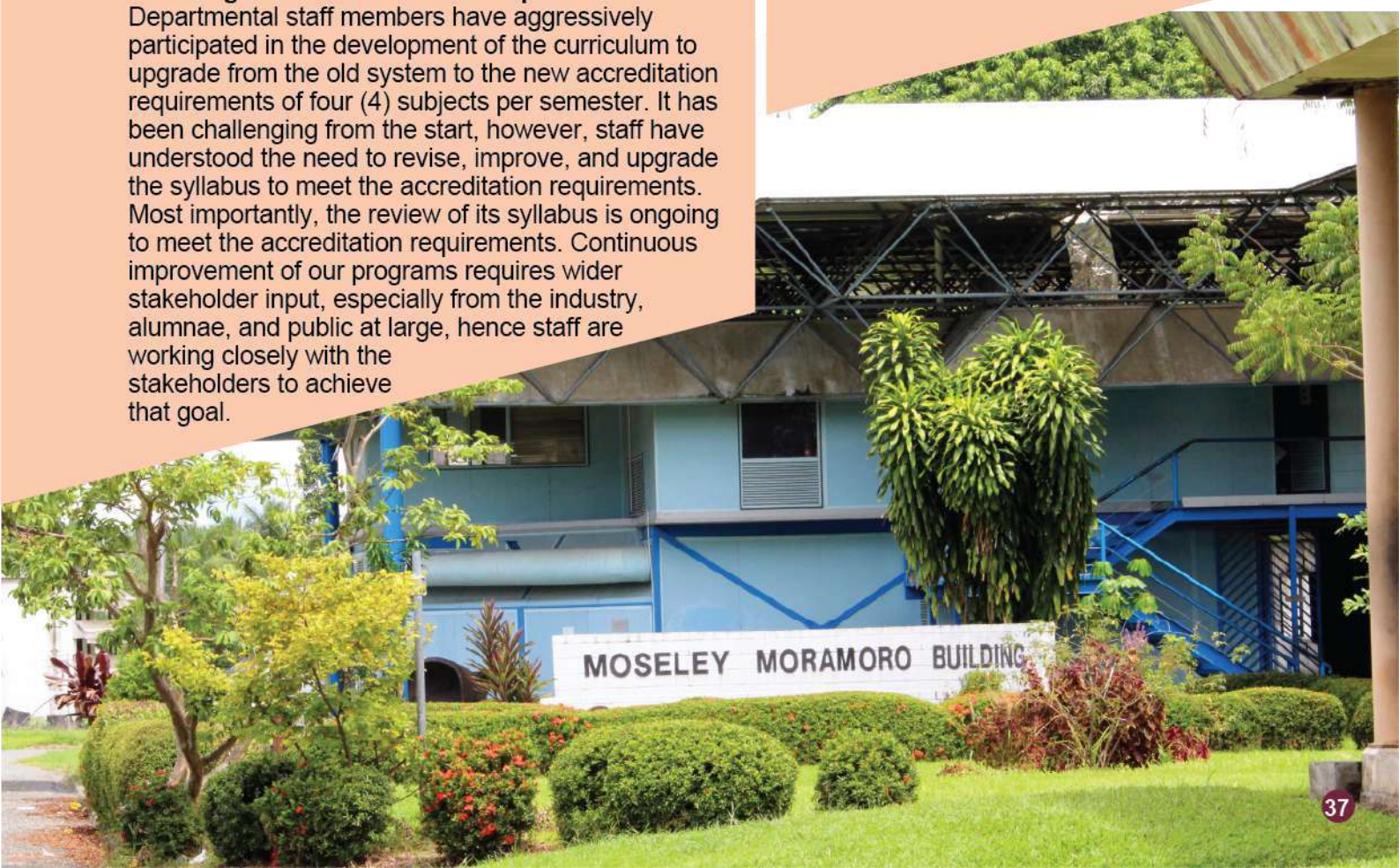
Departmental staff members have aggressively participated in the development of the curriculum to upgrade from the old system to the new accreditation requirements of four (4) subjects per semester. It has been challenging from the start, however, staff have understood the need to revise, improve, and upgrade the syllabus to meet the accreditation requirements. Most importantly, the review of its syllabus is ongoing to meet the accreditation requirements. Continuous improvement of our programs requires wider stakeholder input, especially from the industry, alumnae, and public at large, hence staff are working closely with the stakeholders to achieve that goal.



Graduates Feed Back – Industry and Graduates

We have received very good feedback from the industry on our graduates' performance who are employed in both Mining and Petroleum industry. A recent survey and feedback from the K92 mine showed that all mine engineers to mine superintendents are our graduates. In appreciation of that, the K92 Mine Limited has donated K50,000 to support the Department to continue to produce quality graduates.

One of our recent graduates employed by Kumul Petroleum Limited has secured a scholarship to do her Masters in Petroleum Engineering at the University of Adelaide, Australia. Comments from her employer were, "Stephanie is a fast learner and I have had to fast track her training and development plan to a junior engineer level. Because her original qualification in Mining Engineering, she has had to work doubly hard to grasp the fundamentals of Petroleum Engineering and, she has done that successfully."



Industry Based Final Year Project

Towards the end of last year (2019), and commencing this year, for the first time the Department was able to secure real-life industry-based projects for our final year students. The K92 Mine Limited through our partnership has given real-life mine operational problem-based projects to us. The Department intends to continue engaging with industry to bring in more such industry-based projects for our undergraduates and postgraduates research projects

Research and Publication

Our staff are actively engaged in research in their area of specialties and interest. Since 2018, a good number of our academic staff have been engaged in the major Wafi/Golpu Gold and Copper project as Independent Peer Reviewers of the Environmental Impact Studies. It was the first time in the history of the PNG Mining industry that our staff were engaged in a national project of such magnitude. Our senior lecturer, Dr. Ken Ail, has submitted two papers for publication to the Sustainable Minerals Engineering journal and they are currently under review.



Picture caption: UNITECH Mining Engineering Head of Department, Dr. Gabriel Arpa (left) congratulating K92 Mine CEO, Mr. John Lewins following the cutting of the ribbon to officially open the research and project centre.

Industry Engagement

The Department signed a Memorandum of Understanding with the K92 mine. This is the first time the Department has signed a MoU with a major mining company operating in PNG. The MoU capture, collaboration, partnership, and support for students' industrial training as well as staff and post-graduates research projects.

In 2019 and this year, there has been a number of projects conducted in both the processing and mining streams. The K92 mine is expanding and our input in terms of metallurgical test work and modelling adds value to the company's operation.

The K92 Mine has also taken 8 of our students on for industrial training and had allowed second-and third-year students for on-site visits in 2019.

The K92 Mine has partnered with the PNG University of Technology's Mining Engineering Department to establish the company's Research and Project Office within the University to conduct research into increasing the percentage of gold recovery from the mine's ore body.

The research and project office now housed within the Mining Engineering Department Complex will enable mineral processing engineers from K92 Mine and PNGUoT to collaborate to conduct research together on better ways in improving the mine's gold recovery rate.

As part of this collaborative partnership, the K92 Mine's Chief Executive Officer, John Lewins handed over K50, 000 to the Mining Engineering Department, and at the same time, officially opened the K92 Mine Research and Project Centre at the University.



Consultancies and Short Courses

The Department has conducted a number of short courses for the industry as part of its ongoing service to industry employee's professional development needs. Some of these courses were conducted at the request of the industry as they see the need to upskill their workforce. Two of such short courses as highlighted below:

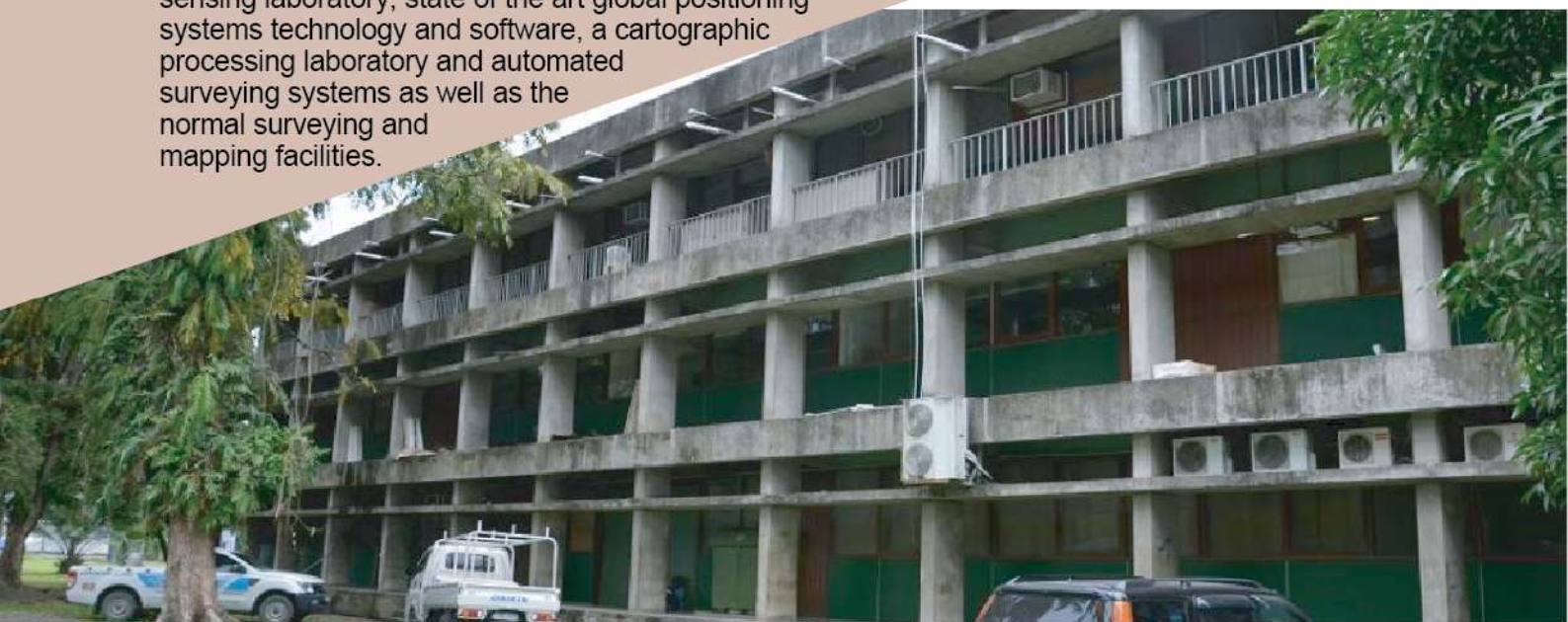
- Geomechanics and Structural Engineering Geology -1
- Mineral Economics – Techno-Economic Decision making, Financial Evaluation, Investment Analysis, Taxation, Royalty and Policy

Department of Surveying and Land Studies

The Department offers a number of subjects, which could be broadly described as the collection, collation, analysis, interpretation, and application of spatial and economic data associated with the land, and producing land professionals through three undergraduate courses, which are Surveying, Geographical Information Science (GIS) and Property Studies (property valuation and management and land management).

It emphasizes the application of technology for land professionals in the development of PNG. Land professionals are given wide exposure to the state-of-the-art technology, e.g., recent developments in the field of Remote Sensing (RS), Geographic Information System (GIS), and Global Navigation Satellite Services (GNSS), use of latest Total Stations and allied implements of the digital era in their respective disciplines.

The Department has good facilities including a comprehensive digital mapping, geographic information systems and remote sensing laboratory, state of the art global positioning systems technology and software, a cartographic processing laboratory and automated surveying systems as well as the normal surveying and mapping facilities.



1. Surveying Section

The Surveying Section's Mission Statement strives to produce world-class competitive graduates with in-depth knowledge and adequate level of motor skills in all aspects of surveying techniques relevant to the profession and allied field of Geomatics. We also strive to enhance the existing capabilities of the section's professional expertise through post-graduate studies and applied research in emerging state of art technologies. Hence, the section recognizes the significance of embracing emerging surveying and mapping technologies, which include GNSS, Automated Surveying and Mapping Systems, and Photogrammetry/Remote Sensing/ Drones.

(b) Teaching & Curricular Activities

Currently, there are 119 registered, full-time students in the section. The section's efforts to recruit teaching staff have been futile due to poor remunerations and stringent university requirements, particularly for competent and experienced citizen surveyors. The section lost a Professor and two lecturers through resignations, two Senior Lecturers due to deaths, and one through non-contract renewal.

In 2016, the section embarked on a training scheme to retain our Council Medallists and graduates having Degree with Merit under the university's GAP program. Recently, the section was fortunate to recruit the former Chief Mining Surveyor for Harmony Gold as PTO, and an experienced Cadastral Surveyor as STO2. The section's advertisements for an Associate Professor and a Professor in June 2020 are still pending. The section needs a senior academic at the level of an Associate Professor or Professor to provide academic and research leadership.

Most staff have a master's degree and the individual level of professional/industrial experience ranges from three to 40 years. The old course (Bachelor of Technology in Surveying) and the new course (Bachelor of Surveying) syllabi are being taught as parallel programs.

(c) Graduate Feedback

We continuously receive positive graduate feedback. Most senior surveying positions in the public and private sectors in PNG are occupied by our former graduates. Likewise, all practicing surveyors are former graduates and almost all the Chief Mining Surveyor positions are occupied by our former graduates.

In the last 10 years to date, our graduates are being employed as mining surveyors in mines across Australia. There are over 20 of our graduates currently working in different mines in Australia.

(d) Research by Students and Staff and Publications

All undergraduate and postgraduate students submit and defend a dissertation and/or thesis respectively in their final year, with due compliance with the University's plagiarism policy. Only a few individual staff in the section have conducted research and published papers. Therefore, the appointment of a Professor or Associate Professor with a proven track record in research and publications is seen as a sine qua non for improved research performance.

(e) Consultancies and Outreach

In 2019, the section worked with the Defence Force to establish GPS controls and survey the area for the new army barracks in Southern Highland Province. Over the years, Mr. Navua Kapi has been engaged by the Project Office in setting out areas for new housing projects including the SDA Residential College at PNGUoT.

Survey camps for BTSR/3 and BTSR/4 are planned and conducted yearly to benefit groups and individuals in the community who are willing to collaborate and work with the section.

2. Geographic Information Science (GISci) Section

The Mission Statement for the GIS Section focuses on the collection, storage, retrieval, analysis, and modelling of geographical data, while Cartography specializes in the best way to visualize and present the information.

The two disciplines are closely related to other disciplines like surveying, geodesy, photogrammetry, and remote sensing, which concentrate on ways to measure accurately and collect information about features on the Earth's surface. Together, these fields constitute the high-tech mapping sciences or geographic information science, or the science of analysis of spatial data.

(b) Teaching & Curricular Activities

Some of the numerous activities that the section carries out include:

- Visualizing and effectively displaying complex spatial and socio-economic interrelationships. We are involved in the design, production, and use of maps; charts from physical, economic, social and other data supplied from surveys, census, remote sensing, and existing maps.
- Conducting research in ways to improve the mapping process and develops more efficient ways of representing geographical features, creating and storing complex spatial objects, and handling features that change through time.

Consultancies

Consultancies undertaken by the GIS Section include, among others: Suitable rice farming areas in entire Papua New Guinea (sponsored by Trukai Industries Ltd.); Climate studies/climate change modelling/temp-rainfall interpolation by GIS; Exploring market accessibility of agricultural produce (in association with NARI); Rice suitability mapping for Morobe province using RS /GIS; Production of a tourist map (for the Tourism Development Corporation); Use of Remote Sensing to survey coffee plots in Eastern Highlands Province; Coastal monitoring and mapping; and Creation of a geographic database of land tenures (for East New Britain Province).





Unitech Dept of Surveying Lecturers (L-R) Navua Kapi, Dr Sallish Samanta, with McLaren Hoping (ConnectedPNG), Professor Jacob Babarinde and GIS Lecturer, Lewi Kari show off the drones.

Curriculum and Staffing

The implementation of a phased new curriculum structure of four subjects per semester has been completed for first and second-year programs while Year three is now in process. The faculty strengths comprise three holders of PhDs, including two Associate Professors, and five Master's degree holders including two who are about to complete their PhD programs.

There are 101 full-time BGIS students and 38 distance-mode BGEM students. The MSc RS/GIS program (distance mode) currently has no enrolled students but admissions are being processed for the Year 2021. A set of 13 students were eligible for Diploma/Degree awards in Geomatics in 2020. The MSc (DODL) RS//GIS program that started in 2013 has graduated 25 students.

Research Activities and Publications

All final year BGIS and BGEM students are required to carry out a supervised research project. The section has graduated two in-house PhD graduates (Cathy Koloa in 2019 and Joeli Varo in 2020). Five MSc and one MPhil completions are expected in 2020, while two Departmental staff members and two external students are currently registered for PhD studies. The Department's research activities revolve around the pivot land and allied resources' optimum utilisation, management and valuation, climate studies, Disaster Risk Reduction and Disaster Risk Management. The Department is actively involved in research and publications as indicated on the website (See publications under PNGUoT Research Report at www.unitech.ac.pg). Academic staff also attend local and international conferences from time to time.

3. Property Studies Section

It is the mission of the section to take a proactive and strategic approach to fully integrate all aspects of real property to enable the graduates to take on the challenges in the market of this country, other South Pacific nations, and the global property market, and to prepare students for a variety of vocations with interests centred on real property.

(b) Teaching & Curricular Activities

The section undertakes the following as part of its teaching activities at the undergraduate and postgraduate levels:

- Valuation – Land and property valuations for assessing market value (MV), statutory valuation, compensation assessments, indemnity/ insurance, financial investment analysis, and others.
- Land development and property management – focusing on the development process, lease management, repairs, property economics, and planning with other aspects of physical and financial management.
- Land Administration – Engages in carrying out Social Mapping, Land Investigations, ILG processes, and using the Land Administration Processes to formalise them.

The Section through Distance Learning (DODL) recently introduced a master's degree program in Urban & Regional Planning facilitated by Prof. Babarinde, which commenced in 2019. It is a very demanding course for Physical Planners in the land and property profession. Our post-graduate program in Property Studies has been rejuvenated after being docile for a while. The degree of master's in Property Studies (MPhil) by research is ongoing and avails for prospective students.

The Property Section comprises very knowledgeable faculties with vast industry and teaching experience cutting across the common areas of Property Development, Valuation, Viability Analysis, Property Management and Land Administration. Currently, there are 121 registered full-time students in the section. There are eight full-time faculty, including two PhD holders, five Master's degree holders, and a PhD student on study leave in Australia. The eight faculty members have expertise in teaching Valuation, Urban & Regional Planning, Property management, Property development, Viability analysis, Valuation and Land administration.

(c) Links with Industry, Graduate Employment and Feedback

About a quarter of our graduates find immediate employment after graduating at the end of each year. Due to the present COVID-19 dilemma, we might have serious challenges with fixing students for industrial work experience in 2021. The Section enjoys strong collaboration with the industry through the support of our Course Advisory Committee that meets bi-annually.

(d) Research Activities and Publications

Our faculties are increasingly expanding their research and publications profiles in both local and international peer-reviewed journals. Staff also attend local and international conferences and workshops as opportunities arise.

Despite setting a new stage of confusion and misery across the globe, the year 2020 was dominated by significant developments whose intentions were to strengthen our cause as DODL is “continuing to transform the dreams of willing learners” and strategically reposition the Department to outmatch other counterparts in the same business within PNG and beyond. Our target has been on finding solutions to the pressing human educational needs through increased access and externalization initiatives. Our agenda aligns with the PNGUoT Strategic Plan 2020-2024 and appeals to almost every domain in the strategic document. The DODL rebranding strategy takes stock of this situation and provides appropriate measures to ensure that the educational needs of the youth in the country are well attended to as sufficiently as possible.



Strengthening Teaching & Learning Experiences

The Department is resolute in its commitment to strengthening teaching and learning processes. Several developments in this regard have been observed thus; a well-guided curriculum review process for the Matriculation program, module review, design and development undertakings, active pedagogy training, the inclusion of creative and action-based learning models in the teaching process, training on research guided teaching and learning, and integration of technology in the teaching and learning process as a strategy to increase efficiency and access.

We are cognizant of the fact that research, discovery, and access to new knowledge are at the heart of a world-class education. In this regard, the Department is set out to venture into distance education research works as a strategy to open up our scholarship space to the rest of the world, and foster a vibrant community of regionally and internationally acclaimed scholars.

Strengthening Partnership with NDoE

Looking further afield, we formed partnerships to create and explore new opportunities, such as the partnership with the National Department of Education (NDoE) to offer new distance-based academic programs for teachers in science (Physics, Biology, and Chemistry), Mathematics, and Information Technology.

The curriculum design and development process for these PGD Programs is underway and the commencement date is 2021. Available reports indicate that most teachers for grades 11 and 12 in science, mathematics, and information technology have knowledge and skill gaps, and ignoring this problem may be a daunting enterprise that may have adverse consequences on the calibre of school leavers produced each year. This Teacher Support Development Project is intended to equip teachers with the necessary skills, knowledge, and attitude that are desirable in the teaching fraternity.

The Department has equally embarked on designing industry-oriented academic programs ranging from certificates to diplomas. They include; Monitoring and Evaluation, Marketing Innovations and Branding, and Project Planning and Management. When the process is done, MOUs shall be signed between DODL and the industries for smooth running.

Online Learning for Increased Access

At the forefront of kicking off this major shift is the Department of Open and Distance Learning, whose desirable target is to increase access to quality education to all the deserving nationals. Through DODL, PNGUoT has put in place a task force to ensure that at least two online academic programs (Bachelor of Arts in Communication for Development, and Bachelor of Business in Management) to commence in either 2021 or 2022. Again, as financial resources to put up physical facilities (dormitories and lecture theatres) shrink, the only feasible way to increase student enrolment to any recognizable percentage is through online learning. It is hoped that this strategy will culminate in unlimited access to a university education to thousands of previously unserved students across the country, significantly increase student enrolment, reduce the number of youths flooding the streets of PNG cities due to lack of university and college admission, and subsequently contribute to the creation of a knowledge-based society in the country.

The teaching and learning process for this arrangement is either a full-time online or hybrid mode. Learning platforms and other supporting learning software such as Moodle, Cisco Webex Meeting, Zoom (Video Communication), Google Classroom, Camtasia Video Recording (CVR), and proctoring software will be utilized for teaching, examining, and evaluating students.



New Study Centres for the Matriculation Program

As a response call to reach out to various categories of disadvantaged learners, DODL extended her presence in 2020 by approving more than five study centres for its Matriculation Program. They include Southern Highlands Teachers College-affiliate, Sepik Matriculation Centre-franchise, Dregerhaffen TVET Secondary-affiliate, Bougainville Technical College-affiliate, and Institute of Continuing and Flexible Education Goroka-franchise.

New Academic Programs

Apart from the Adult Matriculation Program (AMP), Bachelor of Agriculture and Rural Development, and Master of Science in Remote Sensing and GIS, DODL has conceptualized more context-specific market-driven academic programs ranging from certificates to degrees with conformity to the existing social, economic, and political demands within the country. They include Certificate in Marketing Innovations and Branding, Post Graduate Diploma in Monitoring and Evaluation, Post Graduate Diploma in Project Planning and Management, and a Post Graduate Diploma in Higher Educational Leadership and Management.

In the same spirit, an attempt to ensure that learning quality in terms of the rigor, scope, learning outcomes, and academic worth of courses and programs offered in the distance education mode meet the same standards as those offered through the internal traditional on-campus mode has been put in place.

Policy Documentation and Procedures

The Department of Open and Distance Learning has come up with several policies to guide and inform decision-making. They include; The Certification and Procedure Policy, The Payment Policy for Distance Mode and Residential, The Teaching-Learning & Assessment Policy, and the Students' Handbook 2020-2024 (work in progress).

Implementation Plan for DODL 2020-2024

The year 2020 demanded a new style of doing things in the Department. An Implementation Plan appealing to the Strategic Plan of PNGUoT 2020-2024 was put in place with measurable and attainable key performance indicators to track progress. This Plan aligns itself to the national and global trends in academia while toning down in the University's Philosophy, Vision, and Mission statements. It further provides a clear path with traceable indicators for the Department to follow in her quest for excellence and relevance. In the attempt to respond to the need for change, the Plan takes stock of the strength, weaknesses, opportunities, and threats that are affecting the Department directly and/or indirectly. This Plan also contains a Risk Assessment and Minimization Plan which plays a very important role in alerting the implementers of the possible risks and how to minimize them (converting threats into opportunities) for better results.

Conclusion

The Department of Open and Distance Learning is determined to upgrade its brand name to the expected desired levels as a competitive strategy to keep our University afloat and relevant in society. The Department has put in place waste-free operational processes, step-by-step changes in the modus operandi, and a result-oriented motivating system aiming at recognizing staff with a special talent in engineering innovations and initiatives. To this end, I thank the alumni, students, staff, partners, community, and the Senior Executive Management Team for the support accorded to DODL, year in year out.

RESEARCH CENTRES



APPROPRIATE TECHNOLOGY AND COMMUNITY DEVELOPMENT INSTITUTE (ATCDI)

"A leading institute in the country providing innovative community development services to local communities in Papua New Guinea."



Background

The Appropriate Technology and Community Development Institute (ATCDI) was initially set up in 1978 as a joint project of the PNG University of Technology (PNGUoT), the South Pacific Appropriate Technology Foundation (SPATF), and the Melanesian Council of Churches (MCC). It was originally called the Appropriate Technology Development Unit and later renamed the Appropriate Technology Development Institute (ATDI). ATDI was initially involved in developing and adapting suitable technologies that contributed to the improvement in the quality of life of communities in the country. In 1997, ATDI was amalgamated with the Community Development Committee (CDC) of the University to establish the Appropriate Technology and Community Development Institute (ATCDI) as it is known today.

Over the years, however, support from external partners slowly declined and finally ceased due to financial constraints, and the University was left alone to support the operation of the Institute. Currently, the support of the University comes in the form of salaries and employee benefits for staff on established positions however the Institute funds its own operation through revenue generated from fees charged in carrying out community projects and through sales of books and products.



ATCDI's vision is to be a leading institute in the country providing innovative community development services to local communities in Papua New Guinea. Our mission is to help improve the livelihoods of communities through research, development, application, and dissemination of technology. Sharing of appropriate skills and knowledge through training and dissemination of information to address the needs of local communities is part of this mission. ATCDI's core value is service to the community and in particular, those communities that are less serviced by the government.

ATCDI Programmes

In 2018, the ATCDI Board endorsed name changes to reflect activities carried out under the different programs. The five thematic program areas of ATCDI are Appropriate Technology, Food and Downstream Processing, Energy, Water Supply and Sanitation, and Community Development Information.

University Activities

Human Resources (HR) Activities

ATCDI participated in a number of important activities and initiatives undertaken by the HRM division in 2019 and 2020. These included the rollout of the revised criteria for appointment and promotion of non-academic staff, the update of job descriptions for all ATCDI positions and the awareness of staff performance appraisal.

Strategic Plan

With assistance from the HRM division, ATCDI was able to complete and submit a development template matrix in 2020. With the emergence of the strategic plan, ATCDI's focus for 2020 has been on creating and strengthening partnerships and networks and aligning its effort especially with respect to Strategic Domain 7 (Community, Industry and international Relations) Goal #1 (Interface with Stakeholders) and Objective #iv (Appropriate Technology and Community Development Institute will expand and be the Technology Transfer Centre rolling out training and development programs for Urban and Rural Communities). Several initiatives have been taken along this strategic domain and these are discussed further in this report.



Progress and Status of New Building Project

The ATCDI building was totally destroyed by fire on Sunday 26th June 2016 during the student unrest on campus. By the end of August 2017, the concept and schematic design for a new building was completed by the project office and forwarded to Atlas Steel Ltd to do construction and structural certified drawings for a 'prefabricated building'. Construction drawings were completed by the end of 2017. Contracts were awarded for the Prefabrication and Supply of Office Building Kit; Supply of Excluded Building Materials and Labour and Installation in 2018. Construction began in February 2019 and work is still in progress as of October 2020. At this stage, it is anticipated that the building will be completed and handed over to ATCDI by the end of the year or early next year.



Collaborative Activities and Partnerships

FREAGER Project

ATCDI participated in the project 'Facilitating Renewable Energy and Energy Efficiency Applications for Greenhouse Emission Reduction' (FREAGER) in 2019 and 2020. This is a United Nations Development Programme (UNDP) and Global Environmental Facility (GEF) project in PNG with some components of the project facilitated by the University of Papua New Guinea's Centre of Renewable Energy (CORE). In partnership with CORE, ATCDI contributed to the development of a 'Step-by-Step Guide for Developing Micro-hydro Power Projects in PNG' in 2019 and reviewed and edited two other guidebooks titled 'Step-by-Step Guide for Developing Solar PV Mini-grid Projects in Papua New Guinea' and 'Step-by-Step Guide to Implementing Energy Efficiency and Conservation Measures' in 2020. ATCDI was also engaged under this project to conduct training workshops in Goroka and two Districts of the Eastern Highlands Province (EHP) in July 2020. The Micro-Hydro Power Training Workshop for project beneficiaries was conducted for district officials and two village communities in preparation for UNDP/GEF funded hydro projects in the province.



Pawarim Komuniti Initiative

Pawarim Komuniti is a new Off-Grid Electrification Program funded by the PNG-Australia Partnership that was launched in 2019 to support access to clean energy in rural and remote communities in the country. Under the platform of the Sustainable Energy Research Institute (SERI) of the University, ATCDI participated in formulating an expression of interests for submission to this initiative. A hydro feasibility study that was done in 2020 for a 295 kW scheme to power Tipsit village and Kabwum DDA of the Kabwum District, Morobe Province was used to submitting an expression of interest to the Pawarim Komuniti Initiative by SERI in collaboration with a local electrical company in Lae as the lead applicant. ATCDI was included as a potential support organisation by two other companies submitting the Pawarim Komuniti EOIs. The companies were JID of Australia and Markham Biomass Limited. JID is currently engaged in the Angau Hospital redevelopment. JID submitted an EOI as the lead applicant to install solar refrigeration systems for 5 health centres and schools in the Morobe Province. Markham Valley Biomass Limited is developing the PNG Biomass Project located in the Markham Valley and has included ATCDI, SERI, and the Departments of Electrical and Mechanical Engineering as potential partners in their EOI to develop an off-grid training and testing facility. Partnering with PNGUoT on an off-grid training and testing facility will increase the ability of its Departments including ATCDI to build capacity and deploy off-grid solutions in more locations in PNG.



China-South Pacific Island Countries Technology Transfer Centre (CSPTTC)

The Yunnan Academy of Scientific and Technical Information (YASTI) from China supported by directives from the Chinese Ministry of Science and Technology (MOST) began having discussions with PNGUoT in 2015, to set up a Technology Transfer Centre for the South Pacific Island countries. YASTI is a public research institute affiliated with the Department of Science and Technology of Yunnan Province, China. ATCDI was identified as the Institution that the University would use to facilitate this initiative.

The China-South Pacific Island Countries Technology Transfer Centre (CSPTTC) proposed will serve as a platform for innovation and cooperation between China and South Pacific Island countries and aims to explore cooperative demands, create opportunities for utilising new and renewable energy technology and addressing climate change, enhance technology transfer and build capacities to address climate change issues and accelerate social and economic development in the region.

The concept was launched in May 2017 in Kunming City, Yunnan Province, China, where delegates from PNGUoT and other participants from PNG and South Pacific Island countries joined participants from China for an International Forum on China-South Pacific Island Countries Science and Technology Cooperation and Technology Transfer. Discussions are continuing with YASTI to progress this initiative and see the launch of the CSPTTC at PNGUoT in the near future.

Solar PV Workshop and Training

ATCDI assisted the Sustainable Energy Research Institute (SERI) of the University to organise a solar training workshop at PNGUoT in 2019. This workshop was conducted as part of the World Bank-funded Sustainable Energy Industry Development Project (SEIDP) initiative. A training consultancy firm - Global Sustainable Energy Solutions (GSES) of Australia conducted the workshop.

Land allocation to the University – Sagub Village

Whilst formal understanding and mode of cooperation of this University village concept project remain to be finalised, a piece of land estimated to be over 100 hectares was allocated to the University by a village in the Markham District for community development purposes in October 2018. The village is called Sagub village and is in the Ward 17 council area of the Umi-Atzera LLG, Markham District. Sagub village is located nearly 4 km off the main highlands highway and close to the main district administration centre of Mutzing. Mutzing is stationed along the highlands highway about 130 km from Lae.

The ATCDI Board of Management endorsed this initiative in November 2018 so that the ATCDI team could continue to facilitate and continue discussions with the village. Despite difficulties in communicating with the village advocate in 2019 and 2020, ATCDI is still pursuing this initiative with the village.



Program activities 2019-2020

NARI Galip Nut Depulping Machine and Nut Cracker

A concept design of a galip nut de-pulping machine and a nutcracker design have been developed by the Appropriate Technology program for the National Agriculture Research Institute (NARI). Work is progressing on completing the fabrication and subsequent testing of the de-pulping machine in 2020. Three nutcrackers have been built and are ready for trial and testing at the NARI Galip Nut facility in Kerevat.

Brick Mould Technology

This technology has been disseminated by ATCDI's Appropriate Technology program and has gained popularity with communities in the country over the years. Changes to fabrication techniques and material selection have been made in order to make the manufacture of brick moulds easier. An information guidebook on brick mould manufacture is now being put together and this information will be made available to small fabricators and vocational schools around the country to make brick moulds so that this technology can be made accessible to the community at large throughout the country.



Baking training

The baking training has been a popular training run by the Food and Downstream program. Due to the COVID-19 pandemic and the uncertainties with the situation, the training was not been conducted in 2020. There have been requests and inquiries and the program is making an assessment on the possibility of running at least two baking training sessions in the last quarter of the year. This program is embarking to package this training through funding and sponsorship so that this training can be conducted for more people in the community.



Installation of a 1 kW Pico-hydro Demonstration Unit

In 2020, a site in Gobadik village, Morobe Province was identified and work is in progress to install a 1 kW Chinese-made low head pico-hydro turbo-generating unit that was donated to ATCDI by the Adventist Development Relief Agency (ADRA) in 2018. This installation will be used for demonstrating and testing this technology for possible dissemination in the country.



Publications

ATCDI Senior Energy Engineer, in collaboration with other Academic staff members from the Mechanical Engineering Department, had two papers published in 2019 with one manuscript under review. These are listed below:

- Maika, N., Wahid, S., Implementing Gravitational vortex hydropower plant: Case Study. The manuscript submitted to a high-quality SCOPUS indexed Journal -2019. (Manuscript for Journal publication is under Review)
- Maika, N., Wahid, S., Waste to Energy-In developing countries. Department of Mechanical Engineering, PNG University of Technology, JP Journal of Heat and Mass Transfer, Vol 17, Number 1, page 59-75, Pushpa Pub House, India, 2019
- Wahid, S., Pumwa, J., Maika, N., Challenges of Engineering Accreditation: Developing Countries. Proceedings of the AAEE2019 Conference Brisbane, Australia, Copyright © Wahid, Pumwa & Maika, 2019.

The Teaching-Learning Methods Unit (TLMU)

"Our goal is to improve the fundamental processes involved of teaching and learning at the Papua New Guinea University of Technology (PNGUoT)."

People are at the heart of everything we at the Teaching and Learning Methods Unit (TLMU) stand for. Our goal is to improve the fundamental processes involved of teaching and learning at the Papua New Guinea University of Technology (PNGUoT). We act as a resource to the academic community here, enhancing instructional practices and deepening student learning; inform its practice through using and engaging in pedagogical research, and contribute expertise to the broader external discussions in higher education.

TLMU exists to inspire excellence, innovation, and inquiry in teaching and learning within and beyond PNGUoT. We collaborate with individuals, academic Departments, and academic support units to foster capacity in our learning community by promoting an institutional culture that values effective teaching and meaningful learning.

To achieve our mission, we:

- support exploration, integration, and evaluation of different approaches to teaching and learning
- listen to, question, encourage and celebrate PNGUoT educators
- anticipate and address evolving learning issues and opportunities within higher education
- offer expertise to foster leadership in teaching, locally, nationally, and internationally
- provide cross-disciplinary, institution-wide professional development programs
- support instructional and curriculum development for individuals, Departments, and faculties
- Communicate and support best practices in teaching and learning at PNGUoT
- Provide learning support to PNGUoT students

Other Core Activities

In partnership with the Department of Communication and Development, TLMU also runs a Post-Graduate Certificate in student-centered teaching; an in-service program that equips academics, who are not, trained teachers, with an introduction to pedagogical learning, encompassing both concepts and strategies. While this course focuses on ICT and the use of its transformative teaching tools, it also equips the participants with knowledge of Problem-Based Learning and current pedagogical trends in higher education.

Since its inception in 2015, over 40 staff have graduated from this program, which is offered in an evening schedule during the second semester. For 2020, we had 14 academic staff enrolled in this program.

TLMU also works with the Academic Quality Assurance Team and the Academic Departments in a cooperative spirit to inspire a culture of continuous improvement in subject offerings across all instructional modes so that student learning is enhanced. The Department also runs an online survey among students at the end of every semester to establish baseline expectations of teaching effectiveness in subjects. Data from these surveys then inform future content designing for the in-house targeted workshops and training interventions. Reports from these surveys are also employed by the SEMT for informing staffing decision-making.

Highlights of 2020 Proud Moments for TLMU

This year has been a very challenging one in the history of our existence, with the abrupt pivot to online teaching due to COVID-19; we stepped up to ensure continuity of learning by providing instructional support to the faculty as they dealt with the challenges of employing online Learning Management systems, unfamiliar conferencing technologies and new protocols of summative and formative assessments. Besides the general ongoing pedagogical support, TLMU also customized personalised training to the individual academic staff at their behest.

To establish the efficacy of the transition to online classes and the lessons learned from this transitional experience, a survey was run for both academic staff and students; the findings of which underpinned the series of in-service webinars that were held between July and August 2020.

To help staff take lessons from how other Universities around the world were dealing with teaching continuity in the time of COVID-19, TLMU organized several in-house webinars and three international webinars; one under the title 'Shifting Teaching and Learning online during COVID-19: Lessons learned through research and practice' facilitated by an internationally renowned educational technologist, Ben Daniel, PhD, who is the Head of Higher Education Development Centre, University of Otago, New Zealand. The second international webinar was facilitated by Dr. Michele Dale, who is a senior Academic Developer with James Cook University-Australia; webinar focused on 'Student-Centred Teaching in the era of Online Teaching; great online engagement for optimum learning outcomes'.

The third international webinar, 'Thriving in the face of a global pandemic: Options for students and young adults', targeted students and addressed relevant survey findings. This particular webinar was facilitated by Ms. Ruby Quantson, an international specialist in working with young adults. In summation, we at the TLMU support the PNGUoT family to promote real-world experiential learning through the ardent application of science, technology and innovation. We thus inspire the university to produce world-class technocrats for the real world.



ENVIRONMENTAL AND RESEARCH MANAGEMENT CENTRE

The Environmental Research and Management Centre (ERMC) is mandated to conduct environmental research and environmental management programs involving faculty and research affiliates working across disciplinary lines. The major challenge for the Centre continues to be equipping its laboratories to undertake research, consultations, and postgraduate training. Papua New Guinea continues facing significant environmental problems, which are, in most cases, inevitable outcomes of major development projects and resulting anthropogenic effects on water quality control and water supplies, and other related industries. On its establishment in 1993, the Centre was tasked to develop,

coordinate and oversee environmental research and conservation efforts in alignment with the national goals and strategies, such as that enshrined in the PNG National Constitution on the issue of sound and wise utilization and management of the country's natural resources. Since 2009, the Centre has been working in four main research program areas (seeking future research in those areas, and prospecting for funding in research fields where there is little or no research efforts in PNG), across the academic and research institutions. The multidisciplinary character at PNGUoT gives ERMC the opportunity to focus on four multi-disciplinary thematic areas of research, namely: Biodiversity Conservation & Community Development; Herbal Medicine & Natural Products Development using Green Chemistry; Mined Environment & Industry Waste Management, Monitoring and Rehabilitation; and Technology Imitation and Development.

OUR VISION & MISSION

As our Vision, the ERMC strives "to be a leader in the development and use of science and technology in relation to the understanding, stewardship, and conservation of PNG's natural systems". Our mission is thus to coordinate and solicit support from natural science and technological sciences here at the University of Technology to set up multidisciplinary research and development centre of excellence in PNG and the region.

STRATEGIC GOALS AND OBJECTIVES:

1. To acquire, install and initiate accreditation of the research facilities at the ERMC centre, with reliable electricity and air conditioning systems
2. To recruit and train postgraduate students to gradually take up positions of responsibility in relevant areas of research and development in the country
3. To carry out research that produces results that convince government endorsements and support
4. To institute professionalism (ethical and unbiased) in research and development at the PNG University of Technology and elsewhere

ERMC MAJOR ACTIVITY AREAS

The above objectives complement well with the major activity areas of the Environmental Research and Management Centre. ERMC was established to focus its activities in the following areas: Environmental management problems; Mining waste disposal problems; Rehabilitation of old mine sites; Air and water pollution; Soil degradation; Destruction of natural ecosystems; Sustainable agricultural developments; Sustainable forestry development; and now Climate Change.



FUNDING & OPERATIONAL BUDGET:

Since the year 2014, ERMIC has not received any recurrent funding from the University or any major funding from elsewhere. It is expected that certain administrative decisions are expected to be made to propel the Centre to take an entrepreneurial approach to contribute towards financial sustainability for the Papua New Guinea University of Technology. Seed money is required to make a start to overcome the funding constraints, and to serve the country. Since May 2019, the following proposals (seeking funding) have been submitted externally:

- (1) Establishment of a complete air pollution monitoring station in the city of Lae, in Papua New Guinea, for ambient gases and fine particulates. Research Proposal submitted to China National Cleaner Production Centre (CNCPC) & Chinese Research Academy of Environmental Sciences (CRAES).
Budget: 523,000 AUD;
- (2) Establishment of an Air and Water Pollution Research Centre in Papua New Guinea. Research Proposal submitted to Wellcome Trust. Budget: 1, 588,292.00 USD.
- (3) Capillary Electrophoresis for Environmental Applications in Papua New Guinea. Research Proposal submitted to Canada Fund for Local Initiatives (CFLI). Budget: 49,440.61 CAD;
- (4) Screening and Evaluation of Potential Medicinal Plants in Papua New Guinea Using Supercritical Fluid Technology. Research Idea submitted to Research Grants 2020, Merck Pharmaceuticals, under Drug Discovery category. Budget: 1,500, 000 USD;
- (5) Environmental Education on the Ecological Evaluation of Air, Water Bodies, and Sediments in Papua New Guinea. Research proposal submitted to Spencer Foundation. Budget: 495,000 USD.

FACILITIES, RESEARCH DEVELOPMENT, AND ACTIVITIES

The Centre has three laboratory spaces, a researcher work station for staff and postgraduate students, a library space, a conference room, three office spaces, an administration office, and a staff coffee room. Apart from the offices, all are empty rooms that have not been refurbished since the beginning. The laboratory rooms are empty, except for a refurbished Agilent 7100 Capillary Electrophoresis (CE) analytical instrument. With the help of the Research Committee, an amount of K85,000 has been secured to refurbish this CE instrument for postgraduate training in environmental research for cyanide compliance. The laboratories have to be operational and be accredited before one can undertake any serious analytical research and consultancy projects. Currently, though, various high-level instruments are available in locations within the university and could be called upon just if any consultancy work emerges.

In the Academic Year 2020, no major consultancy work was carried out through the ERMIC, except for the Peer Review of the Environmental and Social Impact Assessment and Permit Application documents for the establishment of the Ganef Solar Farm in the Markham Valley, which was received in the month of September, and the report has been submitted to the Conservation and Environment Protection Authority (CEPA).

However, in the past the ERMIC had embarked on projects, such as consultancy with Pogera Landowners Association to do an independent assessment of the quality of the drinking water for its members living within the SML; Miranda Consultancy; Wild rice diversity in PNG in collaboration with the UNITECH Biotechnology Centre; Investigating chromium uptake and accumulation in three wild rice species in PNG; Investigating genetic diversity and niche partitioning in several species of *Ixora* in the Wanag Conservation Area, Madang Province; Green Climate Fund Proposal Development; and independent peer review of the Wafi-Golpu Environmental and Social Impact Assessment document. So, evidently, the ERMIC has great potential, and with our current MOU with CEPA it is hoped that brighter times are yet to come.



Dr David Timi, receiving the PhD Certificate from the Chancellor, Graduation 2019



Dr Cilla Pemberton, CARPIMS Mobility Scholar from the University of West Indies with the Senior Executive Management Team of PNGUoT



Mr Sharan Singh, Director, Office of Institutional Advancement and Internationalization, University of West Indies, along with BULA and ACU Scholars at PNGUoT



Dr Ora Renagi, Vice-Chancellor, Speaking at the PG ORIENTATION 2020

The PNG University of Technology (PNGUoT) is the only technological University in PNG and the South Pacific Island Countries. Because of this uniqueness, the PNGUoT shoulders a special responsibility to produce postgraduates to fulfill PNG and South Pacific Island Countries' human resources demands.

Due to globalization and the rapid changes in technologies, competition, the postgraduate studies/program at the University is a necessity, not a luxury. Postgraduate education and innovative research are the most crucial approaches to remain at the top of knowledge evolution and accelerated technological change. Advanced knowledge, innovative and cutting-edge technologies, and skills are critical elements of a country's sustainable economic growth.

PNG can move forward as a highly qualified knowledge nation through a quality PG academic program. The educated and skilled workforce is the greatest asset for any country. The PNGUoT could be a powerhouse in producing highly qualified human resources for the whole of Pacific Island Nations if the existing PG programs can be further strengthened. Realizing the importance and reaping the benefits of postgraduate education, the PNGUoT started her journey by graduating with one PhD and a master's student in 1976. Since then, the University has aligned its postgraduate programs to meet the challenges of building skilled human capacity, empowering the youths, reducing the gender gap to achieve Vision 2050 to create a smart, wise, fair, healthy, and happy society. With the change of time, technological development, and experience, the PNGUoT embarked on "UNITECH 2030" and aligned its focus and direction with the Government policies promoting scholarships, externalization of academic programs, and Entrepreneurial quality development. These changes are required to discharge its proper role in nation-building by developing a highly skilled and trained workforce for the different sectors of PNG.

Initially, all the PG students were the overseas academic staff. Currently, most of the students are PNG Nationals, except some overseas students under EU Scholarship projects, like the Caribbean and Pacific Islands Mobility Scheme (CARPIMS), Building University Links for Actions (BULA), Association of Commonwealth Universities Scholarships (ACU). The PG Program was further invigorated since 2005 with the introduction of the Graduate Assistantship Program (GAP) Scholarship Scheme to attract highly talented students to continue their studies at the masters and doctoral levels, and the numbers consistently increased. In addition, to further strengthen the in-house PG studies, the Dean of Postgraduate School was appointed in 2013 to coordinate all the PG activities. As a result, the PG Studies at the PNGUoT is gaining momentum, and it will achieve the target set out in the University Strategic Plan (2020-2024).

The following are some of the highlights of the PG programs at the PNGUoT.

- All the academic Departments now have the PG programs up to the PhD levels.
- The University offers course-based postgraduate Certificates, Diplomas, Master's courses, and research-based MPhil and PhD.
- A few Departments are also offering the online Masters Program for greater accessibility to students
- The University offers 15 highly competitive Graduate Assistantship Program (GAP) scholarships to attract exceptionally talented students to study at Masters and PhD levels every year.
- There are 20 PhD and 34 Masters, 01 PGD, and 02 PG Certificate programs on offer with more than 160 students
- Up to 2020, a total of 458 PG students graduated, including 20 PhDs.
- From 1976 – 1999 (24 years), 74 students graduated, but from 2000 – 2020 (21 years), 384 students graduated, which is a big jump.
- The University also awarded honorary Doctor of Technology degrees to 12 distinguished Papua New Guineans and one Australian for their remarkable contribution to the PNG society.
- To strengthen the scholarship characteristics and showcase PG studies and research capabilities, communication and presentation skills, and dissemination of research findings to the broader community, the University organized the Postgraduate Research Seminar, an annual event since 2011, a hallmark of the PNGUoT. Every year 60 to 70 PG students make their research presentations. In addition, the University academics, students, staff, and other stakeholders from the related organizations, institutions, industries, and business houses from all over PNG attend these seminars.
- As a part of internationalization, The PNGUoT is a partner to the University of Valladolid, Spain, and the University of, Portugal, under EU-funded Project ERASMUS-Plus. The PNGUoT also has bilateral agreements with several universities in Australia, India, Japan, China, Fiji, and Hungary for staff/student mobility
- At the DHERST initiated External Assessment of Universities in 2019, Postgraduate Studies' criteria were fully achieved, milestone achievement and recognition of PG studies at PNGUoT, and a proud moment for the PNGUoT family.
- A total of 33 students graduated with PG degrees in 2020.
- In 2020, the University achieved another milestone by launching the online application for PG student intake.

The PNGUoT is committed to strengthening the in-house PG programs to build a skilled and qualified knowledge nation. All the academic departments are equipped with highly qualified, professional staff with experience in PG supervision. They are on the proper footings to meet the challenges of the coming days in delivering a skilled workforce for academia and industries for PNG and the global market.



Mr. Shantanu Singh, Director, Office of Institutional Advancement and Internationalization, University of West Indies, Trinidad & Tobago, alongside the Senior Executive Management Team of PNGUoT



Postgraduate Students' Research Seminar 2018



CARPIMS Students with PNGUoT Senior Executive Management Team



PG Seminar 2019



Dr. Cathy Koloa, receiving the PhD Certificate from the Chancellor, Graduation 2019

FINANCIAL REPORT



Success Story

In recent times, the Council and Management took great strides in re-structuring the Finance Department (Bursary) and turned around the Bursary into a vibrant Department. They recruited the right qualified accounting professionals to remove bottlenecks, clean up the books and streamline financial processes. Financial manuals and policies on delegations and centralized procurement have been approved by Council and properly implemented, monitored and reviewed by the Management from time to time. Adequate internal control system has been adopted to improve processes and arrest financial leakages, avoid fraud and misapplication of funds.

Unitech had faced lot of challenges in previous years with cash flow crises however efficient financial planning and stringent internal controls helped the management to manage the operations successfully. Council and Management are able to get accurate financial reports from Bursary to make appropriate financial decisions at the right time. Prudential Financial management is key and important for the success of Unitech's operations. Council is making calculated and informed financial decisions under the leadership of Chancellor Dame Jean Kekedo and the these decisions are being effectively implemented by the Management under the leadership of Vice Chancellor Dr. Ora Renagi OL.

Financial Management is key to the success of any organization and Unitech realizes this as critical. After many years of operating under a deficit budget Unitech has now earned 'Operating Surplus' through their cost saving strategy and internal revenue. Unitech is a "Not for Profit Organization" and aims to Balance the Budget (matching the Expenditure with its revenue). The operating surplus is been invested for laboratory improvements and learning facilities and an amount of K 2.72 million has been spent for lab equipment and wifi facilities in 2020. Unitech keenly observes compliance with statutory requirements including timely payment of taxes as a good corporate citizen.

Credit Worthiness:

Unitech was unable to get credit supply from suppliers and procured the Goods on "Cash on Delivery (COD)" basis only several years ago. Given our prudent financial management, Unitech has currently secured 35plus credit suppliers and is now able to procure K 3 million worth of Goods & Services on credit basis. This helps to meet the time-gap between the release of warrants and receipt of grant payments. Unitech's goodwill has improved in the suppliers' market.

Internal Revenue generation and Cost Cutting Strategy:

Unitech is continuously finding alternative strategies for generating internal funds to support operations. Cost cutting strategy is effective in saving costs without compromising quality of service. High-cost catering contract was terminated and replaced by in-house-catering which brings huge savings into operational cost of K5 m per year. Through the cost cutting exercise, the costs on internet, consultancies and other expenses are reduced considerably.



Real Time Processing and On-line settlement:

Bursary has adopted a new banking technology which provides care and avoids paper-based printing of cheques. Processing time for payments are considerably reduced and bills are settled on the date due. On-line banking (electronic payment) is providing a lot of convenient for Unitech's operations and 95% of payments are being processed through on-line services now. Advantages of this improved systems are;

- * minimise cost
- * saves managerial time
- * avoids lot of paper-based documents
- * no-need to wait on the bank queue
- * beneficial to staff and suppliers

Audit of Accounts:

In 2013, a backlog of audits were completed and a 'disclaimer' audit opinion was stated for Unitech. However, the accounts have improved since 2014 and the audits successfully achieved "unqualified audit opinion". Unitech has received consecutively "Unqualified Audit Report" from Auditor General Office since 2014 that indicates Unitech's books are in order and finance are managed well. This is a critical factor in ensuring that Unitech can be trusted in terms of accountability and transparent in use of funds.

Donor Fund for Specific Purposes:

Unitech receives good funding support from Donors and the amount received from them are earmarked for only specific purposes. These funds should not be diverted for any other purposes and reported transparently to the Donor for its usage. Donors support accreditation and research and an amount of K1.82 million has been received for accreditation. The Incentive Fund has sanctioned K10 million for the construction of the 150-bed female dormitory.

Government Support:

The University largely depends upon public funds to meet its operational costs. The largest single component of our income is derived from the re-current grant from the National Government. Council and Management are very thankful and appreciate the Government for increases in the budget appropriation of personnel emolument and direct payment of utility bills to the Utility Companies. Unitech is however looking forward to an increase in Capital funding from Government and Donors for the development of infrastructure facilities. Unitech is actively pursuing plans to achieve financial sustainability in the near future.

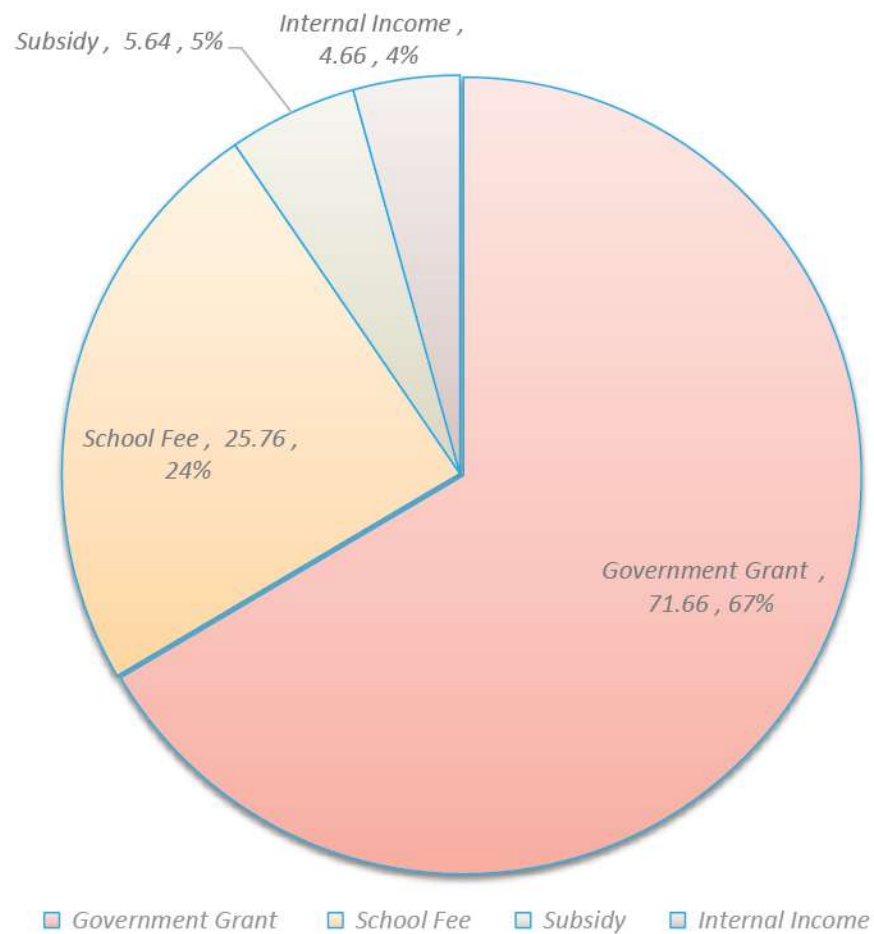
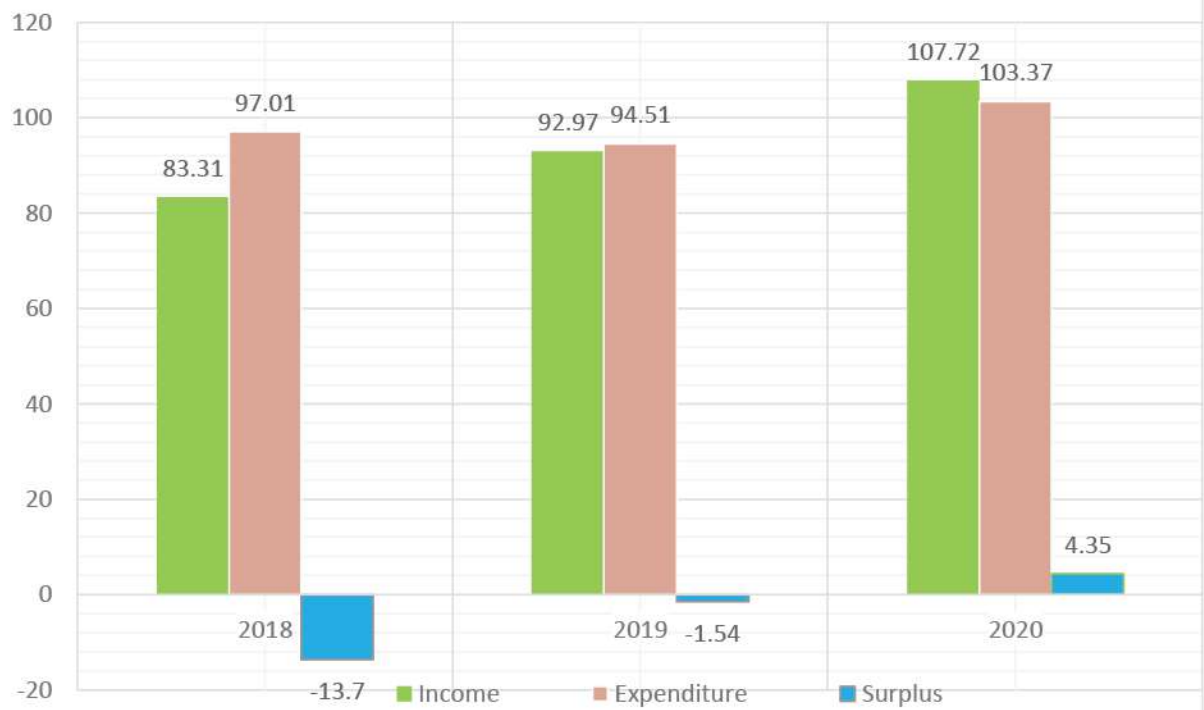
Income Statement

(In Million Kina)

Income	2018	2019	2020
Grant Received from Govt.	47.65	58.96	71.66
Student School Fee	23.08	23.27	25.76
Fee Subsidy from DHERST	7.27	5.54	5.64
Other Income	5.31	5.20	4.66
	83.31	92.97	107.72
Expenditure			
Employee Cost	53.95	59.86	63.18
Operational Cost	37.45	28.92	34.44
Depreciation	5.61	5.73	5.75
	97.01	94.51	103.37
Operating Surplus/Loss	(13.70)	(1.54)	4.35

Statement of Financial Position

	2018	2019	2020
Current Assets	18.48	40.56	57.44
Non-Current Assets	141.26	137.41	139.17
	159.74	177.97	196.61
Current Liabilities	100.80	109.86	116.61
Non-Current Liabilities	52.61	63.43	73.22
	153.41	173.29	189.83
Net Worth	6.33	4.68	6.78

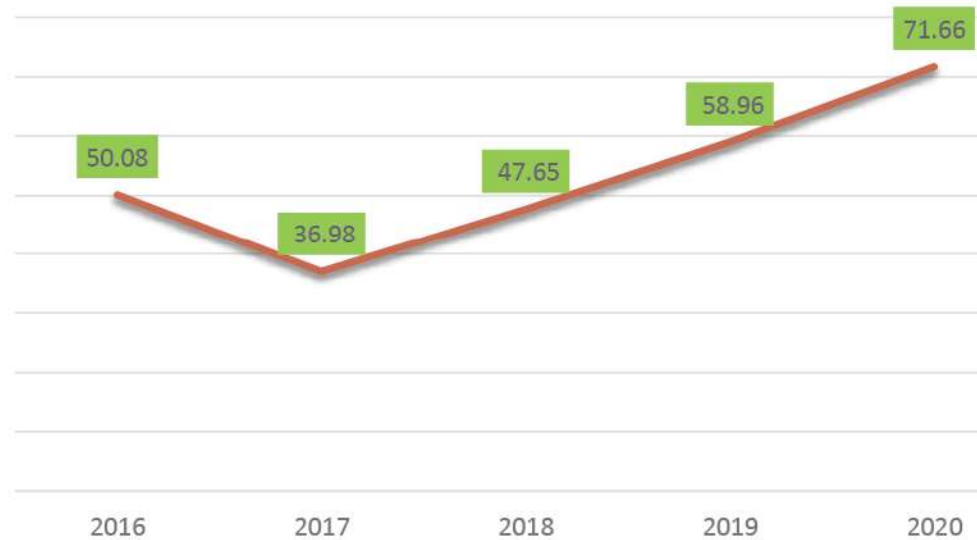


Government Budget Appropriation:

(in Million K)

	2016	2017	2018	2019	2020
Recurrent Grant	50.08	36.98	47.65	58.96	71.66
Capital Grant	12.00	6.50	5.00	10.50	8.50
	62.08	43.48	52.65	69.46	80.16

Recurrent Grant



Capital Grant



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OFFICE OF THE AUDITOR-GENERAL

Our Reference: 30-11-4

The Honourable Nick Kuman, MP

Minister for Higher Education, Research, Science & Technology

Office of the Minister

PO Parliament Haus

WAIGANI, NCD

INDEPENDENT AUDIT REPORT ON **PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY** FOR THE YEAR ENDED 31 DECEMBER 2017

OPINION

In accordance with *Section 8(4) of the Audit Act, 1989 (as amended)*, I have audited the financial statements of **Papua New Guinea University of Technology** which comprise the Statement of Financial Position as at **31 December 2017**, Statement of Comprehensive Income, Statement of Changes In Equity, Statement of Cash Flows; and summary of significant accounting policies and other explanatory information.

In my opinion;

- (a) the financial statements of Papua New Guinea University of Technology for the year ended 31 December, 2017:
 - (i) give a true and fair view of the financial position and the results of its financial performance and cash flows for the year ended on that date; and
 - (ii) the financial statements have been presented in accordance with the *Public Finance Management (Amendment) Act, 2016, International Financial Reporting Standards* and other generally accepted accounting practice in Papua New Guinea;
- (b) Proper accounting records have been kept by the University, as far as appears from my examination of those records; and
- (c) I have obtained all the information and explanation required.

BASIS FOR OPINION

I conducted my audit in accordance with the *Audit Act* and *International Standards on Auditing*. My responsibilities under those standards are further described in the Auditor-General's responsibilities for the audit of the financial statements section of my report.

I am independent of the Papua New Guinea University of Technology in accordance with the ethical requirements that are relevant to my audit of the financial statements in Papua New Guinea, and I have fulfilled my other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Responsibilities of Management and those charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with the *International Financial Reporting Standards* and the *Public Finance (Management) (Amendment) Act 2016*, generally accepted accounting practices used in Papua New Guinea and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the University's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the entity or to cease operations, or has no realistic alternative but to do so. Those charged with governance are responsible for overseeing the entity's financial reporting process.

Auditor-General's Responsibilities for the Audit of the Financial Statements

My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with *International Standard on Auditing* will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with *International Standard on Auditing*, I exercise professional judgment and maintain professional scepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the entity's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my audit report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the entity to cease to continue as a going concern.
- Evaluate the overall presentation and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance/management regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.



GORDON KEGA MBA, CPA
Acting Auditor-General

11 March, 2020



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