

# Annual Report 2023 Grow World-Class Technocrats for the Real World



#### Vision

To Grow World-Class Technocrats for the Real World

#### Mission

To grow world class technocrats through high quality experiential teaching, 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 per formance
- 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 prog ress 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 as certain 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 stu dents.
- 2.3. All professional courses will be benchmarked or accredited to international or industry standards by 2024.
- 2.4. All subjects will have digitally available subject files.
- 2.5. All faculty will attain PG Certificate in student-centered 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 profession als 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 collabora tive and individual activities, including working with educational de signers, attending workshops having discussions with peers, pre senting 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 technolo gy 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 com prehensive report of each asset (age of property, engineering and ar chitectural 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 therepository for the asset data, which will provide the structure within which asset history is recorded and will include maintenance, modifications, upgrades, breakdowns, spares replace ment 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 re al-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 pub lic 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 Stra tegic 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 import ant 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".





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#### Vice Chancellor's Overview

PNGUoT has achieved significant milestones in 2023, marking another successful year. The governance of the University has been further consolidated in compliance with the Higher Education General Purpose Act 2014. The Council, now reduced from 26 to 13 members, includes specific appointments to cover a wide range of professional expertise, such as engineering, accountancy, HR, law, and IT, to better serve the strategies of PNGUoT. The only ex-officio in the Council is the Vice Chancellor. We proudly announce that PNGUoT has a new Chancellor, Mr. Sam Koim, a prominent lawyer and a statesman. The new Council has continued to focus on the outcomes of the Strategic Plan 2020 – 2024, ensuring progress in strengthening the pillars of the University for future growth.

The Executive Management focused on improving teaching quality and research output relevant to the PNG industry, government, and communities. Progress has been steady regarding the accreditation of the engineering programs. Targets in securing equipment and facilities upgrades were achieved. Interactive teaching engagement between students and staff has also reached the desired outcomes. Improvements in practical training for students have progressed well, ensuring that students have been prepared well for the industry. The culture in research has advanced further with the increased intake of postgraduate students. PNGUoT has achieved a 4.5% increase in student intake, mainly through online delivery. PNGUoT continues to build its reputation as a knowledge hub of science and technology for PNG and the region.

The Administration of PNGUoT has also gained positive traction, ensuring performance in the administrative and academic functions of the University. The strategic objective to ensure administrative effectiveness and performance has led to the outsourcing of some administrative functions that are now performing better. The campus is looking cleaner as a result. The dormitories are maintained well. Some buildings have been given a facelift. Added street lighting improved safety levels on campus, as well as security in general. Visitors from town frequently visit the campus for peace, tranquility, and physical exercise.

The University continues to strengthen its financial position annually. In 2023, PNGUoT achieved a 4.5% growth rate, and the Executive Management plans to increase growth in the coming years through online and accredited programs. This demonstrates the organic growth of PNGUoT's core business through the refinement of its curriculum. This product is marketable nationally and internationally, hence the solid financial position. Effectively applying cost reduction measures has seen surplus budget diverted for business development. Re-evaluation of PNGUoT properties reflects a fair value in the financial statement with a positive net worth of K340.20 million. We are hopeful and optimistic about the future financial growth of PNGUoT, and we believe that our stakeholders can share in this optimism.

PNGUoT Council and Executive Management look forward to another year of growth and societal impact in 2024.

Professor Ora Renagi OL Vice Chancellor



#### **Members of the University Council**

- 1. Dame Jean Kekedo, CSM, OStJ, OBE (Chancellor)
- 2. Mr Sam Koim, LLB, OBE (Pro-Chancellor)
- 3. Dr Ora Renagi, OL (Vice Chancellor)
- 4. Dr Gary Sali (Deputy Vice Chancellor)
- 5. Prof. Frank Griffin (Vice Chancellor UPNG)
- 6. Prof Tom Okpul (Professerial Rep)
- 7. Prof. Gariba Danbaro (Professorial Rep)
- 8. Dr Sujoy Kumar-Jana (Senior Academic Rep)
- 9 Mr Paul Isan (Non-Academice Rep)
- 10. Mr Michael Pearson (Ministerial Nominee)
- 11. Mr John Byrne (Council Nominee)
- 12. Mrs Anna Wissink (Council Nominee)
- 13. Prof. Shamsul Akanda (Pro Vice Chancellor Academic)
- 14. Prof. Kaul Gena (Pro Vice Chancellor Administration)
- 15. Mr Elizah Kapma (SRS President)
- 16. Ms Christy Epea (SRS Vice President)

In attendence

Mrs Veronica Thomas (Registrar) Mr Diraviam Tharmaraj (Bursar) Mr Nethon Milifala (Executive Officer)

PNG University of Technology Organizational Structure

The PNGUoT Organizational Structure 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. Pro Vice Chancellor-Academic
- 6. Pro Vice Chancellor-Planning and Development
- 7. Pro Vice Chancellor-Administration
- 8. Registrar
- 9. Bursar
- 10. University Librarian

Under the Officers of the University, there are 13 Academic Departments and about 20 non-Academic de partments and sections and units that support the officers of the University in implementing the University's purpose of establishment, including the University's visions and missions. The academic and non-aca demic departments, 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.



# ACADEMIC AND STUDENT **ADMINISTRATION**

#### Introduction

The Academic and Student Administration Division administers student admissions, examinations, academic performance records, academic appeals, scholarships, the Higher Education Loan Program (HELP), and graduations. It also conducts awareness programs related to the university's brand.

#### **Quality Assurance (STAT-P)**

The Special Tertiary Students Test (STAT-P) offered by the Australian Council of Education Research (ACER) has been used by the Papua New Guinea University of Technology since 2016 and the University of Goroka since 2017. Later, in 2023, Pacific Ad ventist University joined the other two universities. It is a simple, cost-effective tool for finding the most suitable applicants for tertiary-level studies. It is an admission requirement for the three institutions. The STAT-P results are used in addition to grade 12 results to screen school leaver applications for PNGUoT. But for UOG and PAU, both for school leavers and non-school leavers. In 2023, 11, 369 candidates took the STAT-P test, conducted in 19 test centres spread over 19 provinces.

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#### Graduation statistics (postgraduates)

A total of 51 students will graduate in April 2024. The table below shows the number of graduates for different post graduate programs.

PhD	MPhil	MSc	MEng	MTech	MCS	EMBA	MBA	PGCSCT		
2M	7M, 2 F	10M, 1 F	4M	1M	1M	4M, 5F	7M, 2F	3M, 2F		
Total Graduands 51										

Note: M = Male, F = Female, PhD = Doctor of Philosophy, MPhil = Master of Philosophy, MSc = Master of Science, Meng = Master of Engineering, MTech = Master of Technology, MCS = Master of Communication Studies, EMBA = Executive Master of Business Studies, MBA = Master of Business Administration, and PGCSCT = Postgraduate Certificate in Student Centred Teaching.

#### GRADUATION STATISTICS 2023 (Graduation held in April 2024)

# DEGREE WITH MERIT MALES VS FEMALES (Total 96)





# 2024 Graduation by Department and Gender (2023 final years)

The table below shows the undergraduate graduating students of the 56th graduation held on 5th April 2024 by department and gender.

ПЕДАДТМЕНТ	MAL F	FEMAL F	TOTA
DEFARIMENT	L	L	L
Agriculture	15	15	30
Agriculture	15	15	30
Applied Physics	34	11	45
Applied Sciences	19	23	42
Architecture and Construction			
Management	59	18	77
Business Studies	87	64	151
Civil Engineering	36	9	45
Communication & Development			
Studies	20	23	43
Electrical & Communications	35	8	43
Forestry	37	12	49
Mathematics & Computer Science	20	7	27
Mechanical Engineering	43	5	48
Mining	36	8	44
Lands & Surveying	61	16	77
TOTAL	502	219	721

#### COUNCIL MEDAL & HONOURS WITH MERIT AWARDS IN ALL DEPARTMENTS

TYPE OF AWARD	NUMBER
First Class Honours	1
Council Medal and Upper Second- Class Honours with Merit	3
Council Medal and Lower Second- Class Honours with Merit	1
Upper Second- Class Honours with Merit	17
Lower Second- Class Honours with Merit	7
Lower Second -Class Honours	18
Council Medal Winners	24
Degree with Merit	93
Council Medal and Degree with Merit	26
Total	189

#### HONOURS AWARD IN ENGINEERING DEPARTMENTS

DEPARTMENT	FIRST CLAS S	SECOND UPPER CLASS	SECOND LOWER CLASS	TOTAL
Civil Engineering		4	6	10
Electrical Engineering		2	10	12
Mechanical	1	6	7	14
Engineering				
Mining Engineering		7		7
Total	1	19	23	43

#### ADMISSIONS STATISTICS 2023

#### ENROLMENT STATISTICS - 2023, SEMESTER 1 (ON-CAMPUS)

#	DEPARTMENT	STUDY PROGRAM/COURSE NAME	MALE	FEMALE	TOTAL
1	Agriculture	Bachelor of Science in Agriculture	83	84	167
2	Applied Physics	Bachelor of Science in Applied Physics with Electronics & Instrumentation	115	22	137
		Bachelor of Engineering in Biomedical Engineering	32	20	52
3		Bachelor of Science in Applied Chemistry	50	59	109
	Applied Sciences	Bachelor of Science in Food Technology	49	52	101
4	Architecture &	Bachelor of Architecture	74	19	93
	Construction Management	Bachelor of Construction Management	83	21	104
5		Bachelor of Business in Accountancy	145	187	332
	Business Studies	Bachelor of Business in Applied Economics	63	57	120
		Bachelor of Business in Information Technology	54	51	105
		Bachelor of Business in Management	52	50	102
6	Civil Engineering	Bachelor of Engineering in Civil Engineering	160	32	192
7	Communication & Development Studies	Bachelor of Arts in Communication for Development Studies	67	112	179
8	Electrical and Communication Engineering	Bachelor of Engineering in Electrical Engineering (Power & Communication)	191	36	227
9	Forestry	Bachelor of Science in Forestry	102	52	154
10	Mathematics &	Bachelor of Science in Mathematics & Computer Science	97	35	132
	Computer Sciences	Bachelor of Science in Applied Mathematics	22	4	26
11	Mechanical Engineering	Bachelor of Engineering in Mechanical	155	45	200
12	Lingineering	Bachelor of Engineering in Mining	83	16	99
	Mining Engineering	Bachelor of Engineering in Mineral Processing Engineering	64	31	95
13	Surveying & Land	Bachelor of Geographical Information Science	67	33	100
	Studies	Bachelor of Property Studies	79	57	136
		Bachelor of Surveying	103	14	117
14	Bulolo University College	Bachelor of Forestry Resource Management	18	11	29
	Conce	Diploma Forestry	28	17	45
	TOTAL	1	2036	1117	3153





ONL	Description STUDY PROGRAMS ENROLMENT STATISTICS - 2023, SEMESTER 1   Image: Statistic state STUDY PROGRAM/COURSE MALE FEMALE TOTA   Baschelor of Business in Accountancy (ONLINE) 12 25 37   Business Studies Bachelor of Business in Applied Economics (ONLINE) 13 6 19   Bachelor of Business in Information Technology (ONLINE) 13 11 24   Bachelor of Business in Management (ONLINE) 14 16 30   Communication & Development Studies Bachelor of Arts in Communication for Development Studies (ONLINE) 4 10 14   Mathematics & Computer Sciences Bachelor of Property Studies (ONLINE) 10 1 11   Studies Bachelor of Property Studies (ONLINE) 10 1 11				
#	DEPARTMENT	STUDY PROGRAM/COURSE	MALE	FEMALE	TOTAL
1		Bachelor of Business in Accountancy (ONLINE)	12	25	37
	Business Studies	Bachelor of Business in Applied Economics (ONLINE)	CS - 2023, SEMESTER 1/COURSEMALEFEMALEn Accountancy1225n Applied136n Information1311n Management1416mmunication for ONLINE)410Applied22Studies (ONLINE)1016871	19	
		Bachelor of Business in Information Technology (ONLINE)	13	11	24
		Bachelor of Business in Management (ONLINE)	14	16	30
5	Communication & Development Studies	Bachelor of Arts in Communication for Development Studies (ONLINE)	4	10	14
6	Mathematics & Computer Sciences	Bachelor of Science in Applied Mathematics (ONLINE)	2	2	4
7	Surveying & Land Studies	Bachelor of Property Studies (ONLINE)	10	1	11
	TOTAL		68	71	139

#### SCHOLARSHIPS 2023 (TESAS)

DEPARTMENTS	HECAS	AES	TOTAL
AGRICULTURE	98	3	101
APPLIED PHYSICS	114	21	135
ARCHITECTURE & CONSTRUCTION MANAGEMENT	137	21	158
APPLIED SCIENCES	117	15	132
BUSINESS STUDIES	251	66	317
CIVIL ENGINEERING	109	26	135
MATHEMATICS & COMPUTER SCIENCE	83	13	96
ELECTRICAL & COMMUNICATION ENGINEERING	178	29	207
FORESTRY	62	3	65
COMMUNICATION AND DEVELOPMENT STUDIES	87	12	99
MECHANICAL ENGINEERING	121	41	162
MINING ENGINEERING	78	31	109
SURVEYING & LAND STUDIES	221	15	236
BULOLO UNIVERSITY COLLEGE	58	-	58

#### **Non-School Leavers Entry Examination**

The Non-school leavers (NSL) entry examination is another filtration process after the compliance check and department screening process. The entrance examination was conducted in November in Port Moresby, Lae, Mt. Hagen, Kokopo, Wewak test centers. These examinations are equivalent to the Grade 12 examination.

#### Higher Education Loan Program (HELP)

The HELP initiative, spearheaded by the National Government of Papua New Guinea in 2022, was designed to streamline access to high-quality tertiary education. Its primary objective is to counteract the growing dilemma of stu dents being unable to pursue post-secondary education due to financial con straints. Under this program, eligible higher education students will be granted income-contingent loans featuring zero interest rates and loan balances ad justed annually to account for inflation. Moreover, flexible repayment options will be offered upon securing gainful employment. In 2023, 344 UG students at the Traka campus, 15 at the Bulolo campus, and 41 PG students received a total of K4,559,728.12.



The department of Agriculture offers a science-based agricul ture curriculum for undergraduate and postgraduate degree programs besides conducting basic and applied agriculture research and disseminating relevant information to the com munity. The department's functions are guided by a vision: A premier agricultural school providing high-class agricultural education to empower graduates to be innovative scientists, extensionists, entrepreneurs, and policy makers for sustain able agriculture and community development.

#### Academic Programs

The department offers two undergraduate programs. The Bachelor of Science in Agriculture [B.Sc.(Ag)] is a fulltime, on campus, four-year study program, while the Bachelor of Agri culture and Rural Development (B.Ag. & R.D.) is a flexible and distance mode administered program. The Department also offers three postgraduate degree programs, the Master of Sci ence in Agriculture [M.Sc.(Ag)], Master of Philosophy (M.Phil.), and Doctor of Philosophy (PhD). The M.Sc.(Ag) program is a combination of coursework and research, while PhD and M.Phil study programs are research only degrees. The total number of students enrolled in the B.Sc.(Ag) and B.Ag. & R.D. programs in 2023 was 200, with 157 and 43 students, respectively. In 2023, 41 and 6 of 2022 years graduated with B.Sc.(Ag.) and B.Ag. & R.D., respectively. The total postgraduate enrolment was 28 students, of which 6 were in PhD, 7 in M. Phil., and 15 in M.Sc. (Ag) programs. In 2023, 2 students graduated with M.Sc.(Ag). The curricula of our programs are reviewed regularly to be able to deliver up-to-date and relevant information to students.

#### Staffing and Infrastructure

The department has 16 qualified academic staff (12 PhDs, 3 MPhils and 1 MSc), together with a wealth of teaching experience. Staff members use a variety of Learning Management Systems (LMS) for both classroom and distance-mode teaching, and the department offers a robust curriculum. All class rooms are fitted with audio-visual aids for effective delivery of classroom teaching. Annual procurement of consumables for teaching and research and maintenance of lab equipment has ensured sufficient skills development in students through lab sessions. In preparation for program benchmarking, reno vations to labs, lecture rooms, staff offices and the farm infra structure are continuing. Vacant positions for two academics and one technical staff, were advertised and would be filled early 2024.

#### Support Service Sections

The Department houses four service sections including Uni tech Biotechnology Centre (UBC), South Pacific Institute of Sustainable Agriculture and Rural Development (SPISARD), Unitech Analytical and Services Limited (UASL), and the Uni tech Agriculture Farm (UAF). These Sections provide functions involving teaching, research, community outreach, and income generation. Commercial activities at the UAF have increased, which resulted in agreement for

the Farm to supply dressed chickens to the University students' mess, and this started in June 2023. The Farm supplies the mess with 1000 dressed broiler meat per week

#### **Research Activities**

Research in the Department is undertaken by the third-year students, postgraduate students, and academic staff and addresses issues concerning the broad subject categories including crop sciences, animal sciences, economics and management, extension and development, and farm mech anization and postharvest technology. In 2023, 46 students undertook supervised research for the subjects, AG312 and AG322. Research topics of the postgraduate students are high ly relevant to meet the requirements of the stakeholders, and several of the post graduates are jointly supervised by staff from research institutions and commodity industries e.g., Na tional Agriculture Research Institute (NARI), New Britain Palm Oil Limited (NBPOL), Ramu-Agri Industries Ltd (RAIL), and Oil Palm Research Association (OPRA). A total of 28 postgraduate students were involved in research as part-fulfilment of their re spective levels of study. The Department staff members solely or in collaboration with postgraduate students published 4 peer reviewed journal articles in 2023. Academics also jointly pre sented 4 conference papers.

Two staff members, Mr. Nick Kewa and Mr. Timothy Bafiec en rolled in 2024 to pursue doctorate studies, with research funds made available through CSIRO project, approved in 2023. Col league academics, Professor P. Manus and Dr. R. Rao are re spectively involved as principal supervisors to the candidate. This research is managed by the ERMC, PNGUoT. The Unitech Biotech Centre (UBC) continues to conduct research in collab oration with the FPDA for micropropagation of potato.











#### **Industrial Relationship**

The department considers active academic and professional relationship to exter nal institutions and industries as an important linkage that would facilitate benefits on knowledge, skills, and services. The department continues to work in partnership with several national and international organizations like; Australian Council of Deans of Agriculture (ACDA), Support for Rural Entrepreneurship, Investment and Trade in Papua New Guinea (STREIT), Outspan PNG (OLAM), ACIAR/CSIRO, GrowPNG Ltd, Innovative Agro Industries (IAI), and Trukai Rice Industries. The department's linkage to the external national organizations is also actively maintained through the engage ment of our students who go on an annual Work Integrated Learning (WIL). In 2023, students were engaged by more than ten organizations throughout PNG to complete WIL.

#### **Community Engagement**

For community engagements, SPISARD is the conduit through which the depart ment channels its outreach activities. Community-based livelihood enhancing ac tivities were conducted in provinces such as Oro, Central, Eastern Highlands, East Sepik, Jiwaka, Western Highlands and Southern Highlands. A detailed annual report from SPISARD is normally submitted to the office of the Deputy Vice Chancellor through the Head of Agriculture.

In 2023, the Department continued to implement the instruments of a five-year MOU signed in 2022 between PNGUoT and Trukai Rice Industries. Through this agreement, several established or prospecting rice farmers throughout PNG had two trainings at the University's Taraka Campus. This partnership continues to facilitate the transfer of knowledge, skills and technology to participating individuals, groups or organizations.

#### **Notable Highlights**

• There has been increased commercial activity at the Agriculture Farm. The Farm entered into a contract with the University students' mess to supply livestock meat and crop produce. The Farm started supplying the mess with 1000 dressed broilers per week in June 2023.

• In preparation for program benchmarking, the Department renovated its laborato ries, lecture rooms, postgraduate study room, staff offices and the reception area.

• Two academic staff successfully completed their PhD studies from Queensland University of Technology (QUT) and PNG University of Technology (PNGUoT).

#### Figures from top down:

Renovated laboratories, Renovated postgraduate study room, Chicken dressing pro cess and Dressed chicken ready for delivery to the students' mess.



#### 1.0 Introduction.

The Department of Applied Physics started in 1965 as a service department based at Waigani Port Moresby. From 1971 to 1972, it was transferred to Taraka Campus, Lae Morobe Province, where it is today with other Engineering and Science Departments. It used to be relatively small compared to other academic departments as it is only a service course. It is no longer small as the number of intakes for undergraduate and post graduates are equal to other departments.

The Strategic Plan for the Department of Applied Physics at PNG University of Technology is 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. To meet the high standards in producing quality graduates, the department is working towards developing human resources capacity and upgrading existing facilities to the international level through institutional accreditation. The academic activities of the Depart ment are expected to produce graduates of international standing who are competent in local and overseas markets. The staff and students are expected to feel satisfied with the academic achievements in all areas of activity within the department and the University.

The graduates will be future-focused and imparted with a systematic approach to analytical and problem-solving skills in applied Physics and Instrumentation and Biomedical Engineering. They will serve the country's needs and develop creativity with entre preneurship skills that allow them to create wealth that will contribute to poverty alleviation. The Department is working toward developing dynamic study programs with research, innovation and commercial activities components to increase the graduate's marketability within the country and overseas.

#### 2.0 Employability

The Applied Physics graduates work all over the country and overseas. They are employed in specialties related to Physics with electronics and instrumentation. Some work in the telecommunication industry, Airline industry, education, tertiary institutions, mining industry, PNG Power, and many are employed in the manufacturing industry in process control and instrumentation. Many past graduates have accumulated skills and knowledge and are now in private consultancy work, creating more job op portunities and industrial training pathways for our undergraduates. The feedback from our past graduates' performance in the industry is very encouraging, with the demand for our graduates getting absorbed by the industry, government departments, education, and other universities, with some establishing private entrepreneurship. The new Biomedical Engineering graduates will find employment in the National Health sector. The National Department of Health employed all pioneers of this program to serve their respective general hospitals across the country in healthcare sustainability.

#### 3.0 Postgraduate Courses

The Department of Applied Physics currently offers four Postgraduate programs: a research-based Doctor of Philosophy (PhD), a Master of Philosophy (MPhil), a course-based Master of Science (MSc) in Electronics and Instrumentation, and a Master of Technology (MTech) in Exploration Geophysics.

There is enormous interest among the students in the Department's Postgraduate Program. In 2023, two (2) students were progressing well with their Doctorate's degree (PhD) studies, one is a staff member, two (2) in MSc, one (1) MPhil, and three (3) MTech, Masters in Exploration Geophysics.

#### 4.0 Staffing

The Department has 17 academic positions, all filled as of June 2023, including three (3) lecturers teaching online. The specialty of each academic staff member is shown in Table 1.1 below. Apart from the academic staff, we have 6 positions of support staff, which are listed in Table 1.2 below. All our Technical Staff are Degree holders, and all except one are former graduates.

#### 5.0 Graduates 2023.

A total of 38 students (29 males and 9 females) in the un dergraduate course of Applied Physics with Electronics and Instrumentation, and 6 (5 male, 1 female) pioneers of Biomedical Engineering will graduate in April 2024.

#### 6.0 Postgraduate Student 2023

Two PG students have been confirmed to graduate in 2024, one female with an MSc in Applied Physics and one male with an MTech in Exploration Geophysics.

#### 7.0 AQAT File

All full-time academic staff have submitted their AQAT files in 2023 with excellent success rates, and we look forward to maintaining the 100% success rate.

#### 8.0 Accreditation of BSAP courses:

The Department initiated the process of benchmarking last year, 2023. However, the success rate is poor. The Committee in the department was set up, and the pro cess is ongoing with contacts with two universities in Australia to kick start the process. It is expected that by the end of this year 2024, we should confirm a partner university in Australia, and arrange for travel to assess the infrastructure setup and curriculum. The report will include what is required and the best approach to achieve benchmarking of courses by the end of November 2024.

#### 9.0 Department Restructure.

The Department has been structured into four areas of Course Structure in curriculum coordination from un dergraduate to postgraduate. The Research coordination will deal with the research activities of the department. The industry engagement and the Administration. This begins in May 2023, with senior academic staff given responsibilities within the defined structure to address problems associated with industrial training, research capacities, and publications. A well-defined curriculum from undergraduate to postgraduate level course hand book by the end of November 2023 and updated online every year. By December 2024, the school is expected to have advanced in the quality of its curriculum, industrial training opportunities, and research output. This will also enable our senior to mentor the young national academ ics staff in this restructuring process.

#### 10.0 Staff Training and Promotion.

The Department is focusing on the future. We recruited well in 2023, with all young technical officers who are de gree holders and four young academics appointed from our postgraduate program. We also recruited a young admin officer/ receptionist and promoted one technical staff with a Masters's Degree to an Academic position. The process of getting the young academics into the pro gram here at the Department and overseas has started with recommendations of our young academics for an award of various international donor-funded scholar ships for PG Studies overseas. Two members of our staff are in PhD studies, and we hope by the end of this year, 2024, both should complete their PhD. we are looking forward to their success. The staff training plan 2020-2024 was edited and submitted to the human resource office for guidance and implementation.

#### Table 1.1 Research Areas of the Academic Staff

No.	Name of the Academic Staff	Area of Research
1	Prof. Manoj Mukhopadhyay	Applied Geophysics: Geophysical Modeling, Earthquake Seismology, Crustal Geophysics
2	Prof. Jojo J Panakal	Nuclear and Radiation Physics, Environmental Physics
3.	A/Prof Felix Pereira	Astrophysics, Atmospheric physics, Radiation physics, and Electronics.
4.	A/Prof Dapsy Olatona	Energy and spectroscopy
5.	A/Prof.Velusamy Senthikumar	Energy nanomaterials, 2-D materials, Solar cells, and Oxide resistive memories
6.	Dr. Gabriel Anduwan	Energy applications, Geophysics, Nanotechnology, Environmental Physics, Physics Education, Condense Matter and other applications of Physics using Microcontrollers and Electronics.
7.	Dr. Ali Mohamad	Applied Geophysics in Oil, Gas, and minerals
8.	Dr. David Kolkoma	Medical Physics, Radiation Physics
9.	Mr. Suame Ampana	Applied Geophysics and Non-Destructive Test (NDT)
10	Mr Michael Gaoma	Physics Education, General Physics
11.	Mr. Sylvester Tyrones	Microcontrollers and Microprocessor applications
12.	Mr. Kenson Tonny	Microcontroller-based projects, Smart Hybrid Renewable Energy Systems, Data Acquisitions, and smart monitoring mechanisms for Renewable Energy Systems and Aircraft Tracking Systems.
13	Mr Mathew Waimbo	Energy Applications, Nanotechnology, General Physics
14	Mr Gideon Aiyowa	Geology, Applied Geophysics
15	Dr Dhaay Kafagy (part-time online)	Biomedical Engineering
16	Dr Saravana Kumar Jaganathan (part-time online)	Biomedical Engineering
17	Dr Kamran Hassani (part time online)	Biomedical Engineering

#### Table 1.2 Support Staff

No.	Name of the Support Staff	Position
1	Mr Kenny Michael	Chief Technical Officer
2	Mr William Piel	Senior Technical Officer
3.	Mr Simeon Ifu	Technical Officer
4.	Mr Geoffrey Wiavi	Technical Officer
5.	Mr Israel Dujambi	Technical Officer
6.	Ms Sulunga Benjamin	Executive Secretary
7.	Ms Shalom Tera	Secretary
8.	Mr Nickson Piwi	Janitor











Rasberry detector in operation

Monitoring station



#### 11.0 National Radiological Laboratory.

The construction of the national radiological laboratory com menced in July 2023 and will take 8 months to complete. This should help alleviate the space limitation to address the in crease in the number of students, postgraduate and research study rooms, and laboratory classes. We are looking forward to receiving our new wing by the end of May 2024. The photos show the laboratory building taking shape.

#### 12.0 Installation of Solar Panels on the Rooftop

This project has taken longer than expected and exceeded the expected time frame, which is the end of 2023 and now into 2024. The first stage of the project is completed, and now, the second stage is the procurement and purchasing of solar panels. The department will be connected to a solar-powered energy grid that will help alleviate the never-ending power outage in Lae City and Unitech. This project is funded by the VC office and is expected to expand to other academic de partments upon the success of this first installation on the Applied Physics building rooftop. The photo below shows a frame on the rooftop ready for solar panels to be mounted.

# 13.0 Installation of Earthquake Monitoring System at the Department.

In collaboration with Geoscience Australia and the Depart ment of Applied Physics, the National Geohazard office in Port Moresby and Rabaul Volcano observatory office have successfully installed a seismic monitoring station within the premises to monitor earthquakes around the country. De pending on the magnitude of the earthquakes, it can register earthquakes in neighboring nations as well. It is working very well and is monitored online. The images below show the bun ker and the monitoring station.

#### 14. Upgrade of Department Classrooms

The classrooms in the Department have been given facelifts with projectors installed in two of the four (4) classrooms.

#### Major Achievements of 2023 Academic Year.

Six Biomedical Engineering students will graduate this year, 2023. The National Department of Health has employed all.

Nine (9) females, the highest number of females, will grad uate this year with a bachelor's Degree in Applied Physics with Electronics and Instrumentation.

The establishment of a Seismic monitoring station in the Department

The construction of the National Analytical Laboratory is taking shape.

The installation of solar panels on the rooftop is progressing well.

### **DEPARTMENT OF APPLIED SCIENCES**



The Applied Sciences Department is unique because it offers two different and separate degree programs in one Department Building. The Department is committed to training students of the highest quality at undergraduate and graduate levels. Our vision is "To become a quality department that produces intellectual manpower for Papua New Guinea's development and suste nance". Our mission is "To focus on high-class teaching and quality research, continuously strive to produce future leaders rich in intelligence and innovations in the field of Applied Chemistry and Food Technology and simultaneously concentrate on strength ening and enlightening the community"

The department activities this year (2023) were focused on:

- 1. Identifying & establishing contact with a relevant institution for the benchmarking/accreditation of the Applied Chemistry program.
- 2. Recruitment of academic staff
- 3. Improvement on current facilities
- 4. Accreditation of the National Food Testing & Monitoring Laboratory

#### 1. Teaching & Curriculum

#### 1.1 Undergraduate Programs

The undergraduate degree programs offered are the Bachelor of Science in Applied Chemistry and the Bachelor of Science in Food Technology, which are two completely different degree programs. Our courses are revised periodically to keep them cur rent. Key stakeholders and an Industrial Advisory Committee contribute to curriculum review and development. The Department continues to mobilize its resources to impart high-quality education to its graduates; hence, a strategy is in place to continue adopting and using the best teaching practices to maintain quality.

#### Bachelor of Science in Food Technology.

The Bachelor of Science in Food Technology is the only food science and food technology-related degree program in the South Pacific region apart from Australia and New Zealand. In 2018, it was benchmarked with the Food Science and Technology pro gram offered by the University of New South Wales (UNSW). The Food Technology Section has been working on addressing the recommendations given during the benchmarking of the program in 2018 by UNSW, especially on facilities and planning for a revisit in 2025.

#### **Bachelor of Science in Applied Chemistry**

The Applied Chemistry Degree program aims to train and equip Applied Chemists with the knowledge and skills to solve chemis try-related industrial problems and translate science into innovations and business opportunities with locally available, untapped resources. The Department has identified and established communication with the Royal Australian Chemical Institute (RACI) regarding requirements for the Applied Chemistry Program accreditation. The University has been supportive and committed to necessary funding assistance for the process to start in 2024.

#### 1.2 Postgraduate programs

The department offers Master's and Doctor's Degrees in Applied Chemistry and Food Technology. This year, we have three can didates (all national academic staff) pursuing Ph.D. studies, two in the country and one in Australia, and nine (9) MPhil students. Three (3) Master of Philosophy students completed their studies this year and will graduate in 2024. From the 3 academic staff on PhD studies, 1 has completed and awaiting thesis examination results.

#### 2. Staffing and infrastructure

#### 2.1 Staffing

Academic – in 2023, we had 4 full-time lecturers in the Food Technology and 5 full-time lecturers in the Applied Chemistry sec tion. We had a number of part-time teaching staff and tutors and research students who also assisted as teaching assistants and tutors. We have a total of 7 technical staff under the leadership of the Laboratory Manager along with the Department executive secretary and 2 janitorial staff members.

Recruitment drive has been successful this year in that we have interviewed and are expecting seven (7) expatriate academic staff members to join the department in 2024. Five in Food Technology and two in Applied Chemistry. National Academic Staff training completed this year-1 PhD, 1MSc degree and 1 MPhil.

#### 2.2 Facilities

The Department has two chemistry laboratories, a microbiology lab, a chemical instrumentation lab, a food analysis laboratory, a food processing pilot plant, lecture rooms, and offices for academic and technical staff. This year, with the assistance of our part ners, the National Fisheries Authority, we were able to obtain a number of glassware, labware, reagents, and small instruments needed for our undergraduate laboratory and practical needs.

Scoping for maintenance and extension of the current lab and rooms have been ongoing. In consultation with the projects and maintenance departments of the university, a funding assistance submission for a pre-fab container office building was prepared and submitted to the university.

#### 3. Partnership, collaborations, community and industry engagements

The Department is well connected to government departments and the food, agriculture, chemical, and mining industries through research, short courses, and consultancies. This partnership has helped in many ways both the Department and the University as a whole and has reflected well in the employment status of our graduates and in securing industrial training attach ments for our third-year students.

#### 3.1 Short Certificate Course: Food Safety Course: Science & Application Training: Farm to the Fork

This popular short course is offered to the food and allied industries. It has successfully linked players in these industries, regulatory bodies such as NAQIA, NFA, the Health Department, and ICCC, and academic institutions such as universities and sec ondary schools.

#### **3.2** National Food Testing & Monitoring Centre (NFTMC)-National Fisheries Authority (NFA) & PNGUoT Applied Sciences Partnership

Through the MOU, NFA has in addition to refurbishment of the Applied Sciences Department Building funded the NFTMC with the following instruments: Inductively Coupled Plasma Mass Spectrometry (ICP-MS), Triple Quadrupole GC-MS (GC-TQMS) and High-Performance Liquid Chromatography (HPLC).

NFTMC is currently embarking on accreditation to the ISO 17025 standard and subscribes to Proficiency Testing (PT) program in both Food/Water Microbiology and Food Chemistry as part of its external quality assurance program, the overall performance to date has been outstanding.

The PNG National Institute of Standards & Industrial Technology visited the NFTMC for initial accreditation assessment in December this year and the staff are working at resolving the identified non conformities and achieving full accreditation in 2024.

#### 3.4 Consultation services

The Department continues to offer consultation services es pecially in the laboratory analyses in the areas of microbiology, food analyses and chemical analysis. The department has a good number of industry partners who have been consistently using our services over the years.

Once the NFTMC is fully accredited and appropriately staffed, we would be expecting a lot of analyses work on chemical analyses, food analyses and microbiological analyses.



#### 3.5 Collaborating partners in research

#### 3.5.1 "Bioprospecting and Product Development" project

The National Government has approved and will be funding this project for the next 5 - 10 years through the Department of Research Sciences & Technology from 2024 onwards. The project involves searching and identifying beneficial biomolecules via related bioassays techniques from natural biological sources and turning promising ones into products for use as phar maceuticals, pesticides, cosmetics, nutraceuticals The project will be hosted by the Department of Applied Sciences, PNG University of Technology.

#### 3.5.2 "Chemical and Biological Investigation of the Leaves of Xanthostemon Species of PNG".

The ongoing research collaboration between the University of New Caledonia, James Cook University, Australia and one of our staff.

#### 3.6 Community impact projects

In line with the PNGUoT's mission of improving lives of rural communities through the transfer of technology for sustainable development and community empowerment, one of our staff has been involved in the following projects; These projects are addressing the real live problems affecting the everyday Papua New Guineans and helping to raise the standard of living of our people and this is what we encourage our students to do.

One of our staff has been working in close consultation with the Fresh Produce Development Agency (FPDA), Church Organisa tions, interested provincial and local governments as well as farmer groups on designing and building solar dryers.

#### 3. 7.1 Projects Under FPDA - Bulb Onion Curing System

This research started as a model student project and has developed further into trial field work in Gembogl, Chimbu Province, through FPDA since 2019. A working model has now been adopted for bulb onions in Chimbu (Gembogl District), Western Highlands (Ogelbeng), and Morobe (Markham District).

In 2022, the solar drying project attracted a grant investment of K1mllion from British American Tobacco Ltd, Madang, by FPDA to extend bulb onion curing in the country. In 2023, several solar drying projects were built in the Eastern Highlands using the grant, which will be extended to selected locations throughout PNG.

Design, Construction, and Commissioning of solar combination dryers – Partnership with Fresh Produce Development Agency (FPDA) and Kabwum District, Morobe Province



#### 3.7.2 Projects Under Kabwum District Administration, Morobe Province – Coffee Solar Drying System.

Applied research and field trial work on coffee drying were successfully conducted in Tipsit Village in partnership with Kabwum District Administration, Morobe Province, in De cember 2022.

Since the inception of the project, a total of eight (8) onetonne capacity coffee driers have been built and commis sioned for use in Selepet LLG (6 dryers) and Deyanos LLG (2 dryers).

Quality control management system at the farmer's level has been built into post-harvest, drying, sorting, storage, and transport system – from the farm (Kabwum) to the factory (Lae). As of 2023, the project has empowered more than 1,000 local farmers, moving around 20 tons of high-quality parchment coffee.

This year, the company AgMark, Ltd has reported that the coffee coming out from the solar dryers is of the highest quality, and this high quality was maintained on a consis tent basis on all the shipments made in 2023.



#### The Program Benchmarking and Accreditation Process:

#### Architecture:

Benchmarking for the Architecture Program is made to all AASA Architecture Schools in Australasia and Accreditation with AACA. The School is in communication with AACA in Sydney and will be seeking a for mal invitation for an AACA representative to visit the school at the Heads of School and Deans of Faculty AGM Meeting at the University of Queensland's Atrium in Brisbane in October 2024.

#### **Construction Management:**

The benchmarking for the Construction Management Program is with the AIB and ongoing communica tion and discussions have been progressive to date.

Both new programs and curriculums were designed (2016 – 2019) and implemented in 2020 with the above tasks (benchmarking and accreditation) in mind. Nonetheless, specific focus and emphasis on the hot, humid tropics and the socio-cultural variables of the Melanesian societies.

#### Accreditation Plan 2024 - 2026

As mentioned in the previous report, the second Benchmarking was documented and put in place in 2009 for both the Architecture and the Building Programs.

1) The Architecture Program was and is currently with the Architecture Schools of Australasia Group, which is un der the umbrella of the Association of Architecture Schools of Australasia (AASA). This grouping has 23 Australian Architectural Schools, 3 New Zealand Schools, the Architecture School in Hong Kong, the Architecture School in Singapore, and affiliate schools in Malaysia.

2)Earlier in the 1990s, the PNG Architecture Program was benchmarked with the Commonwealth Association of Architects in London, as with other Commonwealth Nations. This was relented because of the costs involved and distance.

3)The accreditation of the Course in Architecture will be the same for all Schools that are members of AASA. The Ac creditation Body is the Architecture Accreditation Council of Australia (AACA). The accreditation in the Architecture Program is only for the +2-year Master's Program. This will be pursued in the 2024 -2026 period when the master's pro gram is in session.

4)From 1989 to 2009, The Building Program was benchmarked with the Building Schools accredited by the Austra lian Institute of Building (AIB). This was also relented due to staffing levels and cost constraints encountered at that time.

5) The new Construction Management Program will still maintain Benchmarking with the AIB and Accreditation.

6) The timeline is scheduled in line with the Master in Construction Management, which starts in 2024. The accredita tion is for both undergraduate and postgraduate programs in construction management courses.

Both the Architecture and Construction Management Programs will undergo the Accreditation Process Requirements from 2025 – 2026. This will be done in collaboration with the Industry Board of Architects of Papua New Guinea (BOAP NG), the Papua New Guinea Institute of Architects (PNGIA), and the Papua New Guinea Institute of Builders (PNGIOB)

#### The following documents will be made available upon request.

#### The Accreditation of the Architecture Program

#### a) The Accreditation Process

- Accreditation Process

- Architecture Program Accreditation

#### b) The Accreditation of the Construction Management Program

- AIB - Accreditation Academic Standards

#### The Costs

The costs could differ for the above programs because of the types of assessment required, nonetheless it is anticipat ed to take place about the same period between 2024-2026 academic years. The Costs involved is outlined in the Accreditation Procedures but, it is reviewed every year. In this regard the review of 2025-2026 will be the costs for the PNG Architecture School.

A sample of Costs and Fee possibilities can be made avaiable upon request





#### Introduction

The Department of Business Studies (DBS) is the largest of the thirteen academic departments at the university, with more than 700 undergraduate and postgraduate enrol ments 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 in dustrial and governmental sectors for decades.

#### **Vision Statement**

Our vision is to develop the Department of Business Stud ies into the most innovative, entrepreneurial, and stu dent-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 Accounting, Applied Econom ics, Entrepreneurship, Information Technology, and Man agement.

#### Programs

Department of Business Studies offers four main under graduate programs in Accounting, Applied Economics, Business Management, and Information Technology, giv ing students an option to apply directly to each stream. The streams allow our students to build bridges between knowledge, skill, and practice. It also offers postgradu ate programs, including a PhD in Information Technology, Applied Economics, Finance and Banking, and a Master of Philosophy in Information Technology, Economics, Fi nance, and Banking. It also offers a Master's in Business Administration (MBA) and an Executive Masters in Busi ness Administration (EMBA) program.

## Establishment of National Entrepreneurship and SME Innovation and Incubation Centre

The Department has recently established a National Entre preneurship and SME Innovation and Incubation Centre. The focus of the Centre is to capture the GovPNG vision and goals for 2030 to increase the SMEs in Papua New Guinea. It looks at four main objectives: SME incubation, Innovation and training, Mentoring and Business Model de velopment, and short course training. The Centre is in its initial stages of development and was expected to roll out its programs by early 2021. This has not eventuated due to the current incumbent not performing to expectation. In view of this, DBS is expected to fill the position of the Cen tre Director with a full-time staff in the foreseeable future. The Department also has a research centre for big-data an alytics 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 head ed by Professor Zhaohao Sun (PhD), who has published extensively, improving the Department of Business Studies research profile.

#### Programs Under Development

The Department of Business Studies is developing other compre hensive postgraduate programs, including an Honours in Applied Economics and Postgraduate diplomas, Masters and PhD programs in Accounting and Management. The programs aim to drive various aspects of national strategic visions and development efforts of the University and the Government of Papua New Guinea, as well as re gional 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 rec ognized team of academics whose teaching is innovation and entre preneurship-driven and supported by their active involvement in rel evant industries and professional associations. All our academic staff have qualifications from reputable Universities in Australia, the USA, the UK, China, and other universities worldwide. Following the univer sity's accreditation requirements, most of our staff have a minimum of a master's qualification or above. Our Department aims to see young national academic staff graduating with PhD's in their respective spe cialties to lead in providing academic leadership. So far, we have one national staff member who graduated with a 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, con sultancy, and community service, supported by innovative and inter active blended technologies. Academic staff have an established re search record and are committed 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 the private and public sectors. This outreach partnership is 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 technol ogy and equipment. Currently, the Department is transforming and improving its infrastructure 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 in the future.

#### Satellite Campus Accounting Diploma Program

This is another recent milestone achievement in establishing a satellite campus in Simbu Province. The centre was established in 2018 with her first intake of the diploma program in Accounting. This was the first time the Department expanded out of Lae. Its inaugural graduation of her pioneer students was conducted at the end of the year. The De partment highly appreciates and thanks the committed staff for the successful development of course modules, on-site lectures, and pro gram completion. Starting in 2023, the SUSU campus is now offering a Diploma in Management.

#### Entrepreneurship Training and Partnership with Global Handong University, South Korea

The Department has embarked on building international partner ships since it was first established. It has recently partnered with Global Handong University to train more than forty Papua New Guinean SME owners on entrepreneurship mindset and design thinking. The participants highly appreciated the training, and the Department acknowledged and thanked Global Handong Universi ty for this great initiative. The Department invites stakeholders to join us in building our nation through human resource development and creating more entrepreneurial mindsets.

#### **Satellite Campus Graduation**

In the 3rd Unitech Satellite Campus graduation held in Kundiawa in 2023, DBS graduated six students.

#### Main Campus Graduation

In 2023 PNGUpT DBS main Campus graduated 148 students (Ac counting 75, Applied Economics 43, Information Technology 13 and Business Management 17) in the four (4) programs offered.

#### Postgraduate Student Graduation

In the 54th graduation, DBS graduated five  $% \left( {{\rm S}} \right)$  students in MBA and nine with EMBA.

#### Signing of MOU with CPA PNG

This MOU was signed in late 2022 to offer a joint CPA/MBA pro gram. The program is scheduled to kick off in Port Moresby in 2024. The premises required to offer this program are currently half com pleted. CPA PNG Exam coaching in DBS began in 2023.

Front row: Richard Kuna, (President – CPA PNG), Vice Chancellor, Unitech, Professor Ora Renagi, Back row: John Ambelye (Unitech EMBA/MBA Director), Yuwak Tau, Executive Director, CPA PNG, Matthew Kuusa, HoD, DBS, Unitech and Fred Kowas, (Vice President – CPA PNG)



A Memorandum of Understanding (MOU) was signed between the PNG University of Technology and the Papua New Guinea Cer tified Practising Accountants (CPAPNG) to offer a Joint Unitech/ CPAPNG MBA program. The signing occurred during the Joint Annual CPA PNG/CPA Australia Conference on November 23rd, 2022, at the Hilton Hotel Conference Centre. This paves the way for the ongoing Benchmarking and Accreditation process of the Unitech DBS Accounting Program.

Admission to the UNITECH MBA-CPA Program will be granted only to those who can fully benefit from an intensive program. Appli cants are expected to have reasonable work experience in a posi tion involving considerable authority and decision-making. Applicants should:

II. have a good first degree in accounting, commerce or finance or a related field from a recognized University or equivalent qual ification;

III. must have completed all modules, through examination, of CPAPNG or any other leading professional accounting body which is recognized by CPAPNG;

III. must be a financial member of CPAPNG at the time of making the application;

IV. have a minimum of five years of managerial-level work experience or five years of general work experience acquired after the first degree; and

V. be fluent in English and be computer literate.

The Joint Unitech/CPAPNG MBA program will respond strongly to employer demands by providing students with skills that de liver value. Rather than simply providing CPAs with a technical focus, the joint CPA Program will equip students with an under standing of the dynamic issues facing organizations in a global marketplace.

Except for one subject, PNGUoT's DBS Accounting Degree Pro gram is in line with the professional subjects offered by CPA PNG. DBS is working closely with the UGCC to include the course in the program.

#### Bench Marking and Accreditation of DBS Academic Programs

Benchmarking and accreditation were initiated in 2022 upon the direction of the VC. The DBS Accreditation Committee Chair man, Dr. Alamil, will work with the incoming HoD and other ac ademics to move the process forward. The professional DBS Accounting program is one subject short of meeting the subject requirements of CPA PNG. DBS is closely working with the UGCC to meet how this additional subject can be incorporated to the current 4 x 4 subject structure. CPA PNG is a full pledged mem ber of the International Federation of Accountants (IFAC) and, is a recognized professional accounting body worldwide.

The DBS accounting program still needs to be benchmarked with an overseas university, e.g., an Australian university. The other three programs, namely Applied Economics, Information Tech nology, and Business Management, are yet to begin the bench marking process.

#### **Short Courses**

DBS has revived the popular short courses offered via the DBS Entrepreneurship Centre. So far, three batches of courses have been delivered starting in 2022. An in-house training course was run for Trukai Rice Industries Ltd in their Head Office Training Centre in Lae. Below is a photo of trainee participants attending training in "Accounting for Non Accountants".



#### **Recruitment of Senior Academic Staff**

A number of senior expatriate academics, including three (3) professors, were recently interviewed, and recommendations were made to the staffing committee. One of the professors is on the ground now, and two (2) are expected to join soon.

#### **Calc Lab Project**

This project is in a limbo now. Nobody knows why maintenance neglected this project. We have 50 computers waiting in ITCS because the lab's infrastructure to house them is not up to the standard. The Calc Lab currently needs 50 chairs. Requests for maintenance and renovation with relevant authorities has fallen on deaf years.



This year was my first year as Head of the Department. Under the dedicated leadership of the deputy head of the department, Mr. Michael Winuan, all the important administrative and support services functioned to the university's expectations. The senior staff in the department, including Professor Eric Gilder, Mr. George Wrondimi, Ms. Imelda Ambelye, and others, ably supported the department.

#### 1. Teaching and Learning Activities of the Department

The teaching and learning activities of the Department ran smoothly throughout the year, and the Google Classroom Learn ing Management System positively impacted educators and stu dents who embraced a hybrid model of instruction.

• Under this model, online teaching became a normal mode of preparation and delivery of lessons, with Google Classroom being the main platform used by the teaching staff for undergraduate and post-graduate programs, supplementing small-group face-to-face classes and seminars arranged by individual staff as appropriate.

• Teaching capacity in the Department's Postgraduate program has been somewhat affected due to senior staff shortages. Due to capacity constraints pertaining to supervision (only two PhD-hold ing staff), the Department had opted to reduce its number of in takes, mainly for the PhD and M.Phil. programs (the MCS program enrolment has been maintained, with teaching services provided by DVC Garry Sali and Mr Paul Starza (teaching specialist subjects under the supervision of Professor Gilder). Because of this short age of qualified staff, the department took on a vigorous drive to employ three senior staff in 2021 and 2023 to fill that gap, a goal complicated by the departure of Associate Professor Steven Win duo soon after his employment in late 2022. One Professor candidate has been interviewed for Sociology, and eight others have been shortlisted for interview for Se nior Lecturer and Associate Professor openings in both EAP and Sociology posts. These new appointments will enable the department to increase its intakes for the Master's and PhD study programs in 2025 and onwards.

• The Department continued its external teaching activities at the SUSU campus by completing and delivering course modules for the second-year students in the Diploma pro gram. The first graduation occurred in December 2020 when ten (10) pioneer students received their Diploma in Communication and Development Studies. The graduation for the second cohort (2021) was deferred due to COVID-19 restrictions. Nevertheless, they eventually graduated with the main campus students at Taraka campus in June 2022. That was the first time for students from the SUSU campus to graduate at the main campus. The third cohort graduated in 2023.

• The CDS Department continued (with three other PNGUoT academic departments) to pilot the Online Education Pro gramme (OLEP), which began in 2022, for both school leavers and non-school leavers nationwide. Staff teaching a subject of the respective semesters of years one to three produced their respective course modules. The OLEP is now in its second year of service.

• Having successfully completed and submitted its final Sub ject Specifications (SS) to the UGCC (for the fourth-year subjects under the restructured four subjects per semester) arrangements in 2022, the department has sought to better fine-tune its implementation in 2023.

# 2. Graduate Feedback from Industry Partners and Stakeholders

Our industrial partners continue significantly enhancing our pro gram quality, employability, and industry relevance. This collabo ration benefits both students and the academic institution. For mer CDS graduates have been coming on board to participate in the Department's Industrial (Professional) Training field attach ment programs. They have been representing their employers by involving themselves in designing fieldwork plans that are tailored to our students' training needs.

#### 3.Short Course on Workplace Safety & Risk Management

After it was suspended due to COVID-19 in 2020, many more pro fessionals have shown interest in the Department's short course on Workplace Safety and Risk Management. The first training commenced in early December 2021, with 29 participants gradu ating after two weeks with their Levels One to Three Certificates. Due to high demand, the short course continues regularly from 2023 onwards.

# 4. Undergraduate and Postgraduate Research Relevant to Producing Employable Graduates

In 2023, 54 undergraduate final year (4th year) and 14 postgradu ate (Masters and PhD) students continued their research studies under the supervision of the academic staff.

Many final-year undergraduate students found employment during their Industrial Training experiences and thus joined the workforce right after graduation.

# 5. Highlights of Outreach and Research Activities by Academic Staff

Highlights of staff outreach and research activities for 2023 in cluded:

#### A. Ongoing Community Partnership Projects

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

1) The Department continues cooperating with an industry part ner (the National Gaming Control Board) in Port Moresby to re view the Industrial Training engagement of our final-year students under the MOU signed between PNGUoT and NGCB in 2019.

2) The CDS Department continues cooperating with the Depart ment of Agriculture to sustain a development project in Hamara Village at Kokoda in Oro Province to support the village's Com munity Centre. The Centre has become a venue for staff and fi nal-year Industrial Training (IT) students to live with the people, conduct research, and assist the community in various activities. Our first batch of seven final-year students completed their IT and returned in semester 1, 2022. They pioneered this first arranged community outreach program between a rural village and the CDS Department. In 2023, similar arrangements were planned with other communities, with initial discussions already conclud ed with the Ward Councillor of Laukano Village near Salamaua and Yanga in Morobe Province. An additional requirement for these Community Engagements is to have MOUs for the parties' engagements and undertakings.

3) The CDS Department continues its cooperation in 2023 with the Wesleyan Bible College (WBC) in Mt Hagen, focusing on devel oping the (English-Language) Academic Writing Skills of theolog ical instructors at WBC and partner theological schools, including Christian Union Bible College (CUBC), Christian Leaders Training College (CLTC) and others Professor Eric Gilder, Dr Aisoli-Orake, and Ruth Moka have been involved in this program from the beginning, which started in 2020 as a conversation between missionary Cheri and Don Floyd asking for specialist expertise in developing the program. The Department is engaged and committed to continuing this project as part of its community outreach and development mission.

4) On August 28, 2023, during the PNG CANCONEX, an MOU was signed between MRDC and PNGUoT/CDS. Through this MOU, MRDC will provide scholarships for two top academi cally performing BACD/4 students and industrial training at tachments. MRDC will also provide quarterly guest lectures by practitioners.

5) Additionally, establishing an Academic Writing Centre/Ca reer Advising Centre with TLMU in 2023 encompasses the continuation and expansion of our unique contribution as a Department to the wider University community. We provided a series of lunchtime lectures for undergraduate students. We plan to develop lectures serving undergraduate and post graduate students in the future.

#### B. Research Activities: Peer-Reviewed Publications

Academic staff were committed to professional publications. In 2023, staff had published four articles in peer-reviewed journals, two book chapters, and presented ten conference/ seminar papers.

# 6. International Benchmarking of Undergraduate Academic Programme

In 2021, the Department submitted itself to an internation al benchmarking exercise of its revised undergraduate ac ademic program, undertaken by Professor Dr. Habil. Silvia Florea of the Lucian Blaga University of Romania. A fully ex perienced auditor of university academic programs, Profes sor Florea, submitted her report on this exercise, "Proposed Measures to Increase the Added Value of the Bachelor of Arts in Communication and Development (BACD) Degree Program at PNGUoT," to the Department and the University Management on February 8, 2022. Following a year (2023) of discussion on funding Professor Florea's contract, the VC counter-signed our University's Agreement on March 12, 2024.

The implementation of the CDS Department's Benchmark ing Program will focus on four themes, and it will take place over two years (2024-2025). The four themes relate to up dating: (1) Curriculum, (2) Faculty, (3) Infrastructure, and (4) student support. A theme will be reviewed per semester.

#### 7. Conclusion

Overall, 2023 has been a dynamic and transformative year for the department as we align our administrative and aca demic activities with the university's strategic plan. We em brace the challenges and opportunities ahead of us. One



#### Introduction

The Department of Civil Engineering's (DCE) Annual Report 2023 is the Department's modest contribution to the realization of the Uni versity's 7 Strategic Domains: Inculcating best practices in Institu tional leadership and governance, growing world-class technocrats for the real world, cutting-edge research and innovation, Optimum organizational effectiveness and performance, Physical and virtu al infrastructure, Financial self-sufficiency, and Grow and expand community and industry interface.

It summarizes the measured Department Mission: "to provide an opportunity to grow world-class civil engineers or technocrats through high-quality experiential Teaching and learning, Research and development, External Collaboration and partnerships, Con sulting Engineering, Commercial Testing, and Active Community Services with an ardent application of scientific and technological knowledge and innovation in civil engineering."

#### **Civil Engineering Other Highlights in 2023**

DCE's participation in updating the 2023 Risk Matrix and 2023 Equipment Listing provides an opportunity to assess the status of equipment associated with the curricula and the risk associated with delivering the success of the accreditation.

Among the major activities that the Department has gone with are:

Establishment of the Incubation Hub through the support of the Society of Women Engineers (SWE) PNGUoT Affiliate

Real-world readiness of the six (6) laboratories: Structural Lab, Concrete Lab, Geotech Lab, Transport Lab, Hydraulics Lab, and Environmental and Public Health Lab to provide hands-on activities by acquiring new lab equipment.

Hosting of the Global Virtual Conference in Civil Engineering (GVCCE) 2023

Re-establishing the Global Journal of Civil Engineering (https://portal.issn.org/resource/ISSN/2523-9597)

Continued collaboration with the International Labour Organiza tion (ILO) as a provider of capacity-building for Government Engineers and contractors in the transport sector for the EU-ST REIT PNG Program.

Recipient of the Fulbright Scholarship Award, 2-week program Collaboration with the UEMC, BIM CYPE campus license

Our annual accomplishments are discussed under our points of difference, as discussed below.

#### Real World Experiential Learning (Teaching Activities, Curricula, Capability) - Physical and Virtual Infrastructure

With the newly refreshed program in Bachelor of Civil Engineer ing (Honours) in 2019 and under a provisional accredited status in the Washington Accord from Engineers Australia, we are on continuous improvement of our curricula by reviewing the sub jects offered. There are three (3) majors offered by the Depart ment such as:

- 1. Structural Analysis & Design
- a. CE323 Structural Dynamics and Earthquake Engineering
- b. CE413 Design of Timber Structures
- c. CE423 Bridge Engineering
- 2. Fluids, Hydraulics & Hydrology
- a. CE324 Coastal Engineering
- b. CE414 Water Resources Engineering
- c. CE424 Rainwater Harvesting
- 3. Environmental & Public Health
- a. CE325 Energy and Environment
  - b. CE415 Solid and Hazardous Waste Engineering
  - c. CE425 Mine Waste Management

The Department Assessment Review Panel (ARP) looks into the final examination script and maps it against the subject learning outcome. In this review, we were able to check what the lecturer is assessing and its alignment with the Subject Learning Out comes (SLO), and if they are not aligned, the ARP team discuss es with the lecturer and requests what he taught to the student be put forward and, the examination should be based on that as well as how it can be aligned to the SLOs.

The arrival of laboratory equipment in the Structures, Geotech nical, Concrete, Hydraulics, Transportation, and Environmental and Public Health Laboratory will bring a good hands-on, re al-world experiential learning experience to our students, who will meet the country's challenges when they graduate. Among the new equipment that arrived are:

- A. Structures: Mild Steel Hydraulic Hand Pump and Torsion Testing Machine
- B. Hydraulics: Pelton wheel turbine and centrifugal pump
- C. Geotech: Consolidation test apparatus, Unconfined com pression test apparatus, Blaine air permeability apparatus, and vane shear apparatus
- D. Concrete: Flakiness test apparatus, aggregate crushing val ue, aggregate impact value tester, Elongation test gauge, Dorry abrasion testing machine, concrete flow table, and viscosity meter
- E. Environmental & Public Health: Water distillation Unit, Respi rable dust sampler, portable vacuum pump, auto sampler, furnace, fine particulate sampler, Sound level meter
- F. Transportation: Ductility machine, bitumen compactor, Ben kelman testing apparatus, softening point apparatus, flash & fire point test apparatus, kinematic viscometer, constant temperature bath 100 deg C
- G. Computer & Software: Building Information Management (BIM), SAP, GeoHECRAS, 15 computers

The Master of Engineering (Civil Engineering) with a major in Structural Engineering has been updated. Subjects were re viewed, and additional subjects such as Finite Element Method, Mechanics of Structural Composites, and Advanced Structur al Analysis were added to the list and advertised for intakes in 2024.

The teaching staff 2023 at the DCE are 67% nationals (4 in fulltime lecturing and including 4 part-timers) and 33% Expatri ates. In the previous year, 2022, there were 53% (with 4 online)

#### World Class Technocrats

The accreditation paved the way for an Engineering Manage ment System (EMS). It provides an opportunity to engage the Industry in participating in the review of our curriculum through the Departmental Industrial Advisory Committee (DIAC). The concerns of the students and staff are attended to by the Stu dent-Staff Liaison Committee (SSLC). The Teaching & Learn ing Curriculum Committee (TLCC) also has two sub-commit tees per semester, such as the ARP and AQAT. The Research, Development & Engagement Committee (RDEC) tackles Pro fessional Work Experience (PWE), the innovation culture, and the Department's research culture. All said committees are members of the Departmental Executive Committee (DEC), which takes leadership in the Department of Civil Engineering decisions as a collective body.

Our industrial partners have continually confirmed that our graduates have the skills to communicate or express their ideas to solve problems whenever issues arise through discus sions in the DIAC. They can cope and participate successfully in teamwork activities. They also work ethically. They are in novative in their approach to doing things the PNG way. Our graduates have lifelong learning attitudes, as seen from some returning to the Papua New Guinea University of Technology or other overseas universities to pursue further studies. These are gestures of the core values of the Department of Civil Engi neering: "To live a culture of world-class Civil Engineers or tech nocrats who are honest and accountable for 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**

The creation of an in-house industrial training (IIT) team began in November 2019 and has continued until this year, 2023. From October to December 2023 and January to February 2024, they assisted with the industrial training requirements of 3 stu dents. They were engaged in the labs as technical assistants during the semester break and continued during the vacation.

The first-year subject Engineering Design (EN124) in semester 2 continued to showcase the utilization of waste to minimize the disposal of waste to landfills through another 53 projects in 2023 (waste2wealth.mystrikingly.com), The Department of Civil Engineering (DCE) Learning Center has actively provid ed support for student study time during the day. The student classrooms are open for student studies during the night. Sev eral talks were conducted on Professional Development from alumni. The informative sessions or talks mainly provide op portunities for students to interact with industry experts.

The visits from highly trained and experienced personnel, who are mostly our alumni, provide students with a chance to meet industry leaders, professionals, entrepreneurs, policymakers, and corporations or companies to share their wisdom, learning, and civil engineering work experiences.

The visit of industry representatives who speak with the civil en gineering students is a channel to greater opportunities that will allow them to see how engineering concepts are applied in the real world and how they can be used to solve problems. It will transform them into skilled individuals through industry-stan dard exposure.

Below is the list:

1. Road Scoping and Bill of Quantities (BOQ) Documentation was conducted by Mr. Kennedy Fisause, a DoWH (Wewak) staff who was in year 1 (2023) of the refreshed Bachelor of Civil Engineering (Honours)



2. Mr Samson Apai, Morobe Provincial Works Manager (PWM), conducted the Bridging the Gap topic on August 22, 2023

3. Industrial Life as a Project Director - The Speaker is Mr. Tom Nou, the Project Director (PMU JICA Projects- NAC) con ducted on 20 October 2023

The third—and final-year civil engineering students visited and toured the Nadzab Tomodachi International Airport before its opening. The Department also tested Geotech and the airport pavements.

# Ardent Application of Science, Technology & Innovation (Research & Publication)- Cutting-Edge Research & Innovation

Having given a building sponsored and built, Markham Culvert participated in the first cohort of In-House industrial training (IIT) of the Department of Civil Engineering in November of 2019 paving way to continue its purpose by assisting with the industrial training requirement for three students in the Department namely: Rodney Peter (Final Year), Pendence Kome (Second Year), and Elizabeth Silih (Third Year). The building was known as the Ron Lane Student Centre and became the Incubation Hub in partner ship with the Society of Women Engineers (SWE), who posed as Incubation Officers.

The Global Virtual Conference in Civil Engineering (GVCCE) 2023 was conducted on 19-20 December 2023. There were 13 papers from the final year projects and 6 papers from overseas presented. The GVCCE program is available at https://bit.ly/3No8T4P and in Easychair is available at https://easychair.org/smart-program/GVCCE2023/

Seven research of Postgraduate students were funded by the Postgraduate School, Research & Innovation Committee (PSR & IC) funded the Projects:

- 1. Analysis and Modelling Engineering Methodology Applied to the Design and Reliability Assessment of Structures in Coastal Engineering by Roboam Pebuar (Supervised by Dr Mirzi Betasolo)
- 2. Vulnerability Assessment of Engineering Groundwater to Pollution- Taraka by Stephanie Konts (Supervised by Dr Mirzi Betasolo)
- 3. Understanding the Behaviour and Engineering Courses of Mudflow through Numerical Simulation using GIS Application and Implementing control through detailed ground Survey using GNSS instrument and Applicable Geotechnical Modeling by Wesley Jacob Wambi (Supervised by Dr Mirzi Betasolo)
- 4. Assessing the phytoremediation potential of Vetiver grass on hidden valley mine waste by Edward Miall (Supervised by Dr Revanuru Subramanyam)
- 5. Assessment of heavy metal pollution in sediments, surface water, and fish species around Yonki reservoir area, Papua New Guinea, by Iki Agoname (Supervised by Dr Revanuru Subramanyam)
- 6. Phytoremediation potential of Native Terrestrial plants at hidden valley mine site in Morobe Province of Papua New Guinea by Bomai Kobil (Supervised by Dr Revanuru Subramanyam)
- 7. Solid Waste Management of Wewak Town in East Sepik Province, Papua New Guinea, by James Damwatt (Supervised by Dr Revanuru Subramanyam)



#### Active Community Interface & Collaboration (Extension & Consultancies) - Financial Self-sufficiency

Community development is an active part of the Department of Civil Engineering. This year, the Menyamya District was visited to look into their needs on the power grid, the road network, and the bridges that will improve the lives of the people in the rural areas of Papua New Guinea. A Memorandum of Understanding (MoU) was signed between the Department of Civil Engineering of Papua New Guinea University of Technology and the Menyamya District for collaboration in their infrastruc ture development.

The collaboration with UEMC (Univ. Europea Miguel De Cervantes) allowed us to receive a three-year grant through a Memo randum of Agreement for a Building Information Management (BIM) Campus License software from CYPE.

The EU-STREIT PNG program in Wewak, in collaboration with the International Labour Organization (ILO), the Department of Civil Engineering consultancy team delivers capacity-building modules as follows: Preparation of an Annual Road Mainte nance Plan (ARMPP Approach of Maintenance and Implementation Modality, Project Procurement Management, Feasibility Study and Detailed Project Report, Design of Rigid and Flexible Pavements, Modern Survey Techniques Using GPS and Total Station, Roadside Bioengineering and Slope Stability in Rural Areas, Material Testing Procedure and Laboratory Practice, Oc cupational Health at Site, Environmental and Social Safeguard in Construction, Arc View GIS Training, Primavera and Micro soft Project Scheduling and Resource Planning, and Rural Transport Information management System (RuTIMS) and Construction Site Monitoring (CSM).

As an awardee of the Fulbright Scholarship Award, a 2-week program visit from a Fulbright Specialist happened. Professor Tuchscherer from Northern Arizona University (NAU) visited the DCE for two weeks, from 2nd October to 17th of October 2023, as a visiting specialist. Professor Robin Tuchscherer is a professional engineer specializing in Structural Engineering. Throughout his stay at the University, Professor Tuchscherer did presentations with students on Career Preparation, facili tated an accreditation workshop for the Civil Engineering academic staff on "Program Design, Assessing Competency and Continuous Improvement," and showed them how to review attainment of subject learning outcomes, and the capstone project for final year students, including the review of the proposed Bachelor of Engineering in Structural Engineering pro gram. He presented at the Research Seminar Series of the Postgraduate, Research and Innovation Committee (PSR&IC) on the 5 Keys to Technical Innovation in academic context to the academic staff and students and engaged in networking and collaboration opportunities.



Earned K58,918.10 in our consultancy in collaboration with the following institutions: Parohu Engineers, Provincial Civil Centre, KEC International Limited, China Harbour Engineering, Boinamo Enterprises Lts, China Wu Yi Co Ltd, Telue Institute, MCP, Gahuku Trading Lttd, Associated Mills Ltd, Shane Kopunye, Eliakim Trading, Melvin Ghwee, Eston Balson, Metallurgical Corp of China, Western Sons Limited, Butler & Associates, China Railway International Group Co., and LBG Construction

Our collaboration with GeoScience Australia in the Survey of the Building Vulnerability on Earthquake creates a Professional Work Experience for Civil Engineering Students from year 2 to year 4. GeoScience Australia also sponsors the attendance of the Australian Earthquake Engineering Society (AEES) and the PSR & IC, on which two papers were on posters, and one is included in the special edition under the PNG presentations in Brisbane.

Our collaboration with the Australasian Chapter of the International Geosynthetic Society (ACIGS) brought us to the atten dance of 2023 Educate the Educator in Gold Coast, Australia, through the sponsorship of Solmax.



#### Introduction

The Electrical and Communication Engineering (ECE) Department is expected to deliver tangible outcomes beneficial to all stakeholders through the Department's professional knowledge and research capabilities aligned with several key National Strat egies, Developmental Plans, and Policies. Some of the key strategies and policies include the Vision 2050, PNG Strategic Plan (2010-2030), Medium Term Development Plan IV (2023-2027), National Energy Policy (2017-2027), National Higher and Tech nical Education Development Plan (2021-2030), and the PNGUoT Strategic Plan (2020-2024). Thus, the ECE Department's Operational Plan (2023-2027) is aligned with the strategies above and policies to produce better-prepared graduates and be more competitive globally.

The Department's present strengths are Communication Engineering, ICT, and Electrical Power Engineering. Furthermore, the ECE Department is revitalizing its strengths in renewable energy and computer engineering. The Department will recruit qualified staff and provide facilities that meet international benchmarking standards. These will be necessitated by establishing laborato ries and research centers and further through postgraduate training.

#### Vision

To be at the cutting edge in teaching and research, generating and applying electrical engineering knowledge, and graduating globally competent professional electrical engineers with high ethics and human values.

#### Values

In pursuit of our vision, the Electrical and Communications Engineering Department will be guided by the following core values:

• Providing equal opportunity for education to students in Electrical and Communication Engineering through academic merit and character

• Developing and maintaining partnerships with industries, professional groups, and other educational and research institutions at both national and international levels

- Encouraging a climate of transparency, fairness, and cooperation among the staff members and the students.
- Practicing sustainable use of resources
- Fostering an ethical workplace environment.

The ECE Department's mission and values are consistent with the core business of the PNG University of Technology, which is based on quality teaching, learning, and research. The Department has set its operational plans into motion. By the end of 2024, it will have delivered the first outcome in attaining full Accreditation and will be graduating world-class technocrats. Further, the Department believes that setting its foundation right by supporting teaching and learning at the undergraduate level will deliver its first outcome of being fully accredited in benchmarking to International Standards.

#### **Undergraduate Program**

The Department continues to align its operational plans for 2023-2027 to pursue long-term goals of sustained excellence in research, teaching, and active community outreach. One of the priority areas is attracting top-notch school leavers into the pro gram. In 2023, the Department managed to recruit 6 students with High Distinctions (straight A's) in Advanced Mathematics, Physics, English, and Chemistry. Gender inclusion has been a road map to success in enrolling more female students into the undergraduate program. The student enrolment statistics since the commencement of the accreditation program from 2019 to 2024 are provided in Table 1

Table 1 Undergradua	ate students en	nrolment statistics
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Students' enrollment statistics through the Accreditation Program																	
2019				2020			2021			2022			2023			2024	
Т	F	М	Т	F	М	Т	F	М	Т	F	М	Т	F	M	Т	F	Μ
50	4	46	56	10	46	61	7	54	61	6	55	63	15	48	67	14	52

T-Total/year F- female M- male

Further, the ECE Department is introducing a new major in Computer Engineering. The Department expects 20 stu dents in the first intake of students in 2025. The new degree in computer engineering has the potential to double the number of undergraduate students in the ECE Department over the next 5 years.

#### Postgraduate Program

The Electrical and Communication Engineering (ECE) Department has a thriving postgraduate program comprising a Master of Philosophy by research, a Master of Science in Communications Engineering by coursework, and a re search-based PhD program. The Department is proud to have two postgraduate students who have received GAP scholarships. Five candidates are enrolled in the Ph.D. programs, and six students are undertaking Master's degrees.

The research programs in the Department are continually developing to keep pace with technological advancements. In embracing digital transformation, the Communication Engineering stream has embarked on research on network ing through mobile and wireless systems, data communications, and Internet-of-Things applications in Smart Cities. The Department is also excited to introduce a new stream in Computer Engineering encompassing micro-control ler-base embedded systems design, big data analytics, robotics, and machine learning. Furthermore, as the world embarks on measures to mitigate the abyssal climate disasters, our research programs on energy are aligned towards innovative, sustainable future energy. Introducing AI in energy systems will revolutionize renewable energy, making it reliable, efficient, clean, and environmentally friendly. The research on sustainable energy is oriented towards micro grids in off-grid systems for remote and fragmented communities in addressing the lack of electricity in PNG, where 80% of the 9 million population have no access to electricity. Further, research on Power Systems includes the reliabil ity of PNG power grids.

#### Staffing

One of the key priority areas is the implementation and sustainability of staffing. The Electrical Engineering Depart ment plans to have about 70% of the full academic carder to be filled by national staff members. The Department is focused on the next 10 years to have 90% of national Ph.D. degree holders who can work together, giving significant research leadership nationally and globally.

Our professional staff is dedicated to research, education, innovation, and service excellence. The Electrical and Communication Engineering (ECE) Department staffing comprises 8 full-time academics, 5 sessional academic staff, one online Professor, and 10 technical and administrative staff. The staff research profiles are resented in Table 2.

#### **ECE Accreditation Progress**

The ECE Department has undergone a vigorous course restructuring to meet the Engineers Australia (EA) Stage 1 Competency Standards. The accreditation process is part of the PNG University of Technology's Strategic Plans to have its engineering programs accredited by a signatory to the Washington Accord. The PNGUoT strongly and materi ally supports this objective in partnership with the industrial through the Industrial Advisory Board (IAB). EA has granted the ECE Department Provisional Accreditation status. The full accreditation assessment will take place in September 2024.

Other accreditation requirements include furnishing all laboratory equipment. The Department has the latest state-ofthe-art laboratory equipment in both the Power and Communications streams. PNG University of Technology wishes to have its engineering programs accredited by a signatory of the Washington Accord.

The ECE Department continues to incentivize students with awards for the best students at all levels of the program of study. Thus, recognizing students for their effort and hard work encourages them to achieve high honors class degrees in the Bachelor of Engineering (Electrical) under the provisional accredited program.

#### Table 2 Staff Research Profiles

Professor Paul Hoole	Artificial Intelligence in engineering systems, Sensors including antennas, Lightning engineering, electromagnetic signals in safety and security systems, 5G/6G wireless technology for smart cities.
Professor Kanthavel Radhakrishnan	Artificial Intelligence, Deep Learning, Big Data, Wireless Sensor Network, High Performance Communication Network, and Cloud Computing
Dr Ashish Luhach	Soft Computing, Networks, Sustainable Computing, and Cyber Physical systems.
Dr Joseph Fisher	Interactions of Lightning with Aircraft and Structures, Power System Analysis, High Voltage Engineering, Power Electronics and Machines, Renewable Energy, Transmission/Distribution Line Design, Energy Audit and Energy Efficiency Technologies
Dr. Ravindra Luhach	Digital Filters and VoIP, IOT, Electronics Engineering and Microwave and Radar
Mr. Sammy Aiau	Control Systems Engineering, Industrial Process Control, Electrical Power Systems, Renewable Energy (hydro, solar & wind), Smart Grids Energy Management, Virtual (Smart) Instrumentation Systems
Mr. Herman Kunsei	Adaptive Array Antenna Systems for 5G and 6G Networks, Electromagnetic Health Hazards, Propagation Measurements for Wireless Systems, Computer Network Security, Reliability in Networks, and Data Security
Mr. Gibson Kupale	Technical & non-technical losses in Power Systems, Power System Protections, Renewable energy systems, and Distributed Renewable Energy Generation. System Reliability & Security, and Field Excitation & Governor Control
Mr. David Chen	Big Data Processing, Compiler Design, Internet of Things Wireless Networking and Signal Processing, Hardware Design, Data and Network Security, Business Process Modelling, Knowledge Management, and e-learning.
Mr. James Dugumari	Data Communications and Networks, Computer Architecture & Interfacing, and Computer Communication, Database, eCommerce and Inventory tracking applications
Mr. Joshua Yuanko	Optimization and Auto Scheduling Algorithms, Power Flow Control and Automatic Topology Reconfiguration, Power Systems Static and Dynamic Reliability, Grid Connected PV Plant Design and Modelling, Instrumentation and Microcontroller electronics.

#### **Research and Publications**

Strategically, the department continues to pursue long-term goals of sustained excellence in research through postgraduate studies. The Departmental academics published 5 research articles in peer-reviewed journals.

#### **Community Outreach Program**

ECE staff members have been involved in various community outreach programs in remote communities on energy and communication accessibility. Some community outreach work includes feasible studies of renewable energy systems such as photovoltaic systems design and micro-hydroelectric power design. Furthermore, the Department has an ongoing pro gram in school internet connectivity to empower teachers and students to access online learning materials. The community outreach program is an ongoing initiative to empower rural and fragmented communities to access electricity and internet services for online learning. The four primary schools visited are (i) Mendo Primary School in Kagua-Erave District, Southern Highlands Province, (ii) Kiseveroka Primary School, Yakaria-Kiseveroka Local Level Government (LLG), Lufa District, Eastern Highlands Province, (iii) Guambot Primary School, Boana LLG, Nawaeb District, Morobe Province, (iv) and Wantoat Primary School, Wantoat LLG, Markham District, Morobe Province. The outreach has been part of the operational plan to support and facilitate engineering and science exposition at the primary school level. Further, the outreach program will introduce staff and students in primary school to the digital learning environment by using classroom online technologies for blended learning, gamification by introducing gaming elements into classroom learning, mobile reading applications, e-textbooks for teachers, and other software tools in creating an effective digital learning environment.

#### Milestones

ECE Department graduated three postgraduate students, of which two females graduated with MPhil degrees. Further, the ECE Department has submitted three postgraduate theses in 2023 for assessment by Examiners. One is a Ph.D. thesis, and the other two are M. Eng in Communication Engineering by coursework. The conferral of the Ph.D. degree will be a significant achievement as the third Ph.D. degree will be awarded by the ECE Department.



# DEPARTMENT OF FORESTRY

#### Introduction

The Department of Forestry has trained professional for esters for PNG and the region at the Bachelor's Degree level since 1972, with the first graduates in 1976. Our graduates are now being employed as scientists, administrators, and man agers in the public and private sectors, Non-Government Or ganizations (NGOs), and Community Based Organizations (CBOs) both nationally and internationally within the Asia Pacific Region. Some have become business entrepreneurs and community leaders serving in various roles throughout the Pacific.

#### Vision

The vision for the Department of Forestry (DoF) is to strive for improved training, teaching, and research standards through international accreditation in the near future. Our Department aims to tailor the curriculum to meet regional and global job market requirements.

#### Mission

The Department of Forestry's mission is to produce profes sional men and women with scientific, technical, manage ment, and production skills and the knowledge needed to sustainably manage Papua New Guinea's forest resources. Its teaching and training philosophy is to have a well-man aged forest as an asset for the local, national, and regional economies of present and future generations. This is a valid philosophy that is relevant to today's needs.

#### **Curriculum Development**

The DoF is currently implementing the revised curriculum, which has been condensed from six to seven subjects per semester in the past. 2023 is the fifth year of implementing the four-subject-per-semester curriculum within the teach ing allocation of six (6) hours per week. The purpose of the review was to meet the changing needs of higher teaching and learning and to benchmark with overseas universities in the region regarding international accreditation.

#### **Undergraduate Courses and Revised Curriculum**

The DoF comprises of the Taraka and Bulolo University Col lege (BUC) campuses offering Bachelor's degree programs. Taraka campus offers the Bachelor of Science in Forestry (BScF), and the Bulolo campus offers the Bachelor of For est Resource Management (BFRM). The BScF currently has its second-year students at BUC, while the BFRM entirely has all its registered students. The courses are four-year de gree programs covering forest management, environmental protection, and multi-purpose forest resource surveys, in cluding wood technology and forest-people interactions. All coursework is complimented with field work components to surrounding forest areas, forest industries, and communities within Morobe Province. Both degree programs require stu dents to complete 60 days of FR425 Professional Work Ex perience (PWE) on their own initiatives during the holidays to qualify for graduation.




For educational purposes, IFTA also participated in the Open Day program and Morobe Show and assisted the SDA pathfinders during their excur sion to the department.



#### **Postgraduate Studies**

The postgraduate programs consist of a Master of Philosophy (MPhil) and Philosophical Doctorate (PhD) in Forestry for two years for the MPhil and three years for a PhD. PhD studies are entirely dependent on the availability of supervisors. The DoF currently has three PhD students (Hayden Wagia, Philip Ouyomb Topaiman, Russel Tarutia) and five MPhil students (Ben Ruli, Cassey Uvau, June Mandawali, Ivy Kiele, Priscilla Menin). Two of our four MPhil students have successfully submitted their completed Theses to the Postgraduate School at the end of 2023 for examination. All in all, potential students are interested in undertaking postgraduate studies. Still, the un availability of professorial supervisors in certain fields of expertise has been a significant barrier to having students enrolled at the DoF. At this stage, our average number of students graduating at the postgraduate level is four since 2014.

#### Progress of Benchmarking/Accreditation of the Undergraduate Degree Program

In 2023, the DoF started a dialogue with international partners to bench mark our undergraduate Bachelor of Science in Forestry Degree Program against international standards.

Discussions are now underway between DoF and universities in Australia, New Zealand, Japan, and Germany regarding their assistance in bench marking our undergraduate degree programs to meet international stan dards. Professor Yusuf Sudo Hadi has been appointed at the Department level to coordinate the Benchmarking and Accreditation of our undergradu ate Degree Programmes to meet international standards.

#### Research, Consultancy, and Stakeholder Engagements

The DoF recognizes the difficulties in organizing field trips and consultations and ensuring student involvement. In response, the DoF is formulating a comprehensive policy framework to tackle these concerns, providing valu able guidance for faculty and students in their research pursuits. Through prioritizing mentorship and ethical research principles, the DoF is dedicated to fostering a productive atmosphere for producing exceptional research re sults.

The DoF's engagement in research, consultancy, and community develop ment projects concentrated on ongoing collaborations with stakeholders. Our Insect Farming and Trading Agency (IFTA) created and maintained net works with communities around the country to promote community part nership programs through its insect farming, buying, and selling activities. The domestic assorted various sizes of butterfly frames and clear perspex display cases of butterflies are the most requested items domestically. The display booth at the Morobe Show in 2023.

The DoF has been encouraging students under the new revised curricu lum to engage with various agencies in the environment and forestry sector during the festive holidays as part of their industrial experience. Favorable responses came from our main stakeholders, including PNGFA, PNG Forest Product Ltd, and others around the country, to facilitate the 60-day profes sional work experience (PWE) for our students.

#### The Department of Forestry (DoF) Staff and Training

The DoF has 14 full-time faculty members teaching on both campuses, while three faculty members are currently undertaking PhD studies abroad. Two staff members (Mr Peter Edwin and Mr Diaiti Zure) rejoined the Taraka campus in 2023 but have retaken study extensions to complete their doctoral dissertations. The DoF appreciates their return from their study leave. Meanwhile, two of DoF's non-academic staff members at a technical level (Ms. Christine Pokana and Mr. Israel Penu), has been successfully accepted in 2023 to undertake their MPhil studies and has officially registered in semester one of 2024. Achievements

Some of the most important milestone achievements in 2023 are:

- The graduation of the first lot of students under the new curriculum of four subjects per semester,
- The signing of the Memorandum of Understanding (MoU) with the Papua New Guinea Forest Authority (PNGFA), a major stake holder in forestry education and industry,
- The implementation of the new Degree program called the Bachelor of Forest Resource Management (BFRM) at the Bulolo Uni versity College (BUC),
- Fifty-one students graduated from the two forestry programs in April 2023 (Bachelor of Science in Forestry 24 students and Diploma in Forestry 27 students).



The signing of the MoU between the PNGFA Managing Director's representative and PNGUoT Vice Chancellor, Professor Ora Renagi, was witnessed by staff and student representatives.

#### **Congratulatory and Complimentary Messages**

The Department of Forestry wishes to congratulate our staff, Mr. Israel Penu, Ms. Christine Pokana, and Ms. Priscilla Menin, for being accepted by the Postgraduate School in 2023 for successfully meeting the Master of Philosophy by research require ments and are now enrolled to undertake their MPhil research studies.

The Department also congratulates the following staff members who were recruited in 2023 to fill vacant positions and make appointments within the Department.

- 1. Professor Yusuf Sudo Hadi recruited and appointed Professor of Wood Science and Technology at the Department of For estry. Professor Hadi is formerly of the Bogor Agricultural University in Indonesia.
- 2. Mr. Joachim Wafewa recruited as Senior Technical Officer Silviculture
- 3. Mr. Charles Babob recruited as Artisan/Technical Officer Department of Forestry.
- 4. Mr. Silver Masbong recruited as temporary Handy man Nursery/Plantation.

## DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE



CH IN PICTURES

The department offers two four-year Bachelor of Science pro grams in Applied Mathematics (BSAM) and Computer Science (BSCS). We also provide teaching services in Computer Science and Mathematics to other academic departments. The Applied Mathematics program started in 2022 with its first intake of 25 students. The department's mission is to produce quality grad uates in Computer Science and Applied Mathematics who meet standards compatible with those of other universities in the region.

#### **Teaching Activities**

The department revised its Computer Science subjects to adhere to the engineering program accreditation process requirements. The new curriculum has four subjects per semester, each with six hours of contact time per week. A total of 32 subjects enables the students to cover all areas of Computer Science including ICT, Networking, Databases, Programming, Operating Systems, Soft ware Engineering, and Data Science. This gives our students the advantage of being introduced to all areas of computer science before entering an industry where they will begin to specialize.

The new Applied Mathematics program is tailored to produce graduates in the higher education sector with a solid grounding in Mathematics and the ability to solve industry-based problems. The program aims to equip students through advanced comput ing aids, appropriate theories, and mathematical skills to solve problems in Statistics, Reliability, Science, Technology, and Engi neering. The Mathematics service subjects have also undergone many changes. Most Departments that we service prefer com pressed versions of the number of Mathematics subjects and/or topics in their syllabuses. This often means two subjects in a year are combined into one and taught in one semester. This has de creased the number of subjects that the Department teaches per Department, but the contents are more compact and rigorous. The staff profile includes five PhDs, ten Masters, and six Bache lor's degree holders. In addition, the Department engages three to five part-time teaching staff each semester to make our programs operational. Staff are generally very committed and competent.

#### **Graduates Feedback from Industry**

The Department recently received positive feedback from var ious industries about our recent graduates working with them. Some organizations that contacted us include Santos, PNG FM, Nasfund, commercial banking firms, telecommunication and mobile companies, and others. The demand for Computer Scientists is increasing with the rise in new technological de velopments around the globe, and PNG is no exception. We prepare our graduates with the fundamental skillsets to easily specialize in specific technical areas in the industries depend ing on industry applications.

Mathematics subjects provided to other disciplines ensure that the graduate has sufficient mathematics knowledge for logical reasoning, identification of appropriate mathematical tools for problem-solving, and competent computation ability.

#### **Final Year Projects**

There are 27 student projects in total. The projects cover a wide range of topics including:

- Hybrid Cryptography for Cloud Computing
- Secure File Transfer System with Emphasis on Encryption
   and Data Security
- Grid Computing
- Exploring Decentralized Data Collection Approaches to En hance Census Data Accuracy
- An Analysis of Cloud Security Problems
- Avionics Data Analysis and Diagnostics
- A Comparative Assessment between Traditional WAN and SDWAN
- Online Shop in PNG
- Online Voting System
- Instant Local Area Network Messenger
- The Clinic Assistant
- A Comparative Analysis of Text File Compression Techniques
- Insurance Management System

- Computer Networking Using Wireless Network
- Credit Card Fraud Detection System
- Blockchain: Enabling Decentralization in Distributed Systems
- The Rise of Software Defined-Wide Area Network (SD-WAN) Technology in PNG
- Online Scholarship Application for WHP Provincial Government
- Student Association Database Records App
- RYU (SDN) Firewall Controller
- Car Rental Web Application
- Analyzing Python Proficiency: Can PNGUoT Computer Science Students Make Contributions to PyPi Libraries?
- Vehicle License Plate Recognition System Visualization of Transitive Security in Tree Map Charts
- Neural Networks in Facial Recognition Software
- Libraries Crossing Software Ecosystems
- System Software Creation in PNG

#### **Research and Highlights of Publications**

Our research areas in Mathematics depend on the staff compo sition. Our main research areas are Topological groups and rings, Mathematical modeling and differential equations, Statistics, and discrete mathematics. In Computer Science, current interests in clude Database systems and the design of Computer apps that can store, process, and retrieve data.

Professor M. Ursul, an all-season writer, contributes one paper each year for publication in distinguished journals. He is currently supervising a PhD candidate Mr J. Lanta from his home country Modova.

Mr B. Mirou is the only computer science staff member under taking PhD studies. His research is on the Application of ICT in Agriculture, which he is about to complete.

#### **Community and Industry Engagement**

The Department is actively involved in community engagements, such as writing and marking ICT and Mathematics exams for the Department of Open and Distant Learning (DODL), PNGUOT's non-school leaver, and the PNG National Department of Educa tion (PNG NDoE) Grade 12 national examinations.

Other areas of our community engagements include supporting PNG Unitech's Satellite Campus in Simbu Province.

Mr Puy is currently developing the Morobe Traffic registry data base management system. The system will help the traffic office with the collection of traffic fees and planning. Department tech nical officer Mr Silas was engaged in the office cabling.

Dr Mohsen successfully conducted two weeks of training on Mat Lab for Bank of PNG staff in November.

#### Achievements

Department Learning Management System, tSMAS, has been integrated with the main student records database to process student marks in semester 1, 2023.

Mr L. Nerit has incorporated additional functionalities and fea tures to accommodate user requirements from departments such as other Academic departments, TLMU, Accounts, and Student Admin & Records.

Mr Nerit (tsMAS Developer) was asked to help with the stu dent records for semester one. He accomplished the task in 3 weeks by automating the uploading process of student records from respective departments directly into the student's main re cords database. This upload function is now automated through t-SMAS. Ms Doris Benig secured a scholarship to do PhD stud ies in New Zealand in 2024 under the New Zealand government scholarship.

Mrs Sine Banit, who works in the department administration office, completed her studies at Divine Word University and will graduate in March 2024.

#### **Weekly Seminars**

The department staff conducted weekly seminars covering var ious computer science and mathematics topics. Here are the seminar titles:

- Online BSAM Advisory Presentation
- tSMAS Learning Management System
- AQAT and New Paper
- Bifurcation Analysis of a SIR Epidemic Model Through Dif ferential Equation Approach
- Tensor Analysis
- Linux OS

#### Graduated Students in 2023

In 2023, 17 students graduated from the undergraduate Comput er Science program within the Department of Mathematics and Computer Science. It's worth noting that there were no graduates in Mathematics during this period, as our Mathematics program commenced in 2022, and the students will complete their final year in 2025. Additionally, there were no postgraduate students graduating from the Mathematics and Computer Science Depart ment in 2023.

#### **Benchmarking/Accreditation of MCS Programs**

Concerning our computer science program's benchmarking/ac creditation process, we have communicated with Dr. Alexandre Mendes from the Discipline of Computing and Information Tech nology at the School of Information and Physical Sciences within the College of Engineering, Science and Environment at The Uni versity of Newcastle, Australia. We have contacted them to as sess our department's computer science program. Initially, they responded positively to our request, prompting us to continue our correspondence. If we do not receive a reply from them, we will explore alternative options.





#### Background

The Department of Mechanical Engineering at Papua New Guinea University of Technology was established in 1973 and is one of the oldest departments in the university. It supports engineering education at the bachelor, master, and PhD levels for students from all island countries in the South Pacific except Australia and New Zealand.

The Department adopted the PNGUoT strategic plan 2020-2024 to support its sustainable growth. Based on this strategic vision, operational and succession plans have also been prepared. The Department is also engaged with national communities from PNG to deliver projects for mutual benefit. Students enrolled in the Bachelor of Mechanical Engineering are also encour aged to align the objectives of their final-year projects with the country's socio-environmental problems.

The Department of Mechanical Engineering benefits from provisional international accreditation of its Bachelor of Engineering in Mechanical Engineering and aims towards full international accreditation status. In compliance with the accreditation guide lines, the Department developed and implemented new curricula and introduced new subjects reflecting contemporary devel opments in the field starting with the academic year 2019.

The department continuously developed national and international partnerships and collaborations with industry. It developed linkages with international institutions and partners like Lawrence Tech University in the United States. Concordia University in Canada, Brisbane University of Technology and University of New South Wales in Australia, American Society of Mechanical Engineers and Institute of Mechanical Engineers from the United Kingdom. The department has signed a Memorandum of Un derstanding to partner with the University of Malaysia Perlis. Three academics from the department initiated a joint research pro gram on biodiesel with the University Malaysia Perlis, which led to the development of the research paper Current Advancement in Global Bio-Hydrogen Production: Challenge and Future.

#### Vision

The Department of Mechanical Engineering aims to achieve national and international recognition by attracting, rewarding, and retaining outstanding academics, students, and support staff. It also aims to increase its contribution to scientific research at the international level.

#### Mission

In view of the growth and development in many industrial fields in the Pacific islands and keeping abreast of the continuous sci entific and technological development in the field of mechanical engineering, the Department of Mechanical Engineering sees its mission to:

• Educate competent, ethical, and moral graduates of high quality and in sufficient numbers to serve the needs of Papua New Guinea and its neighboring island countries of the South Pacific in Mechanical Engineering.



CAD and FEM Laboratory in the Mechanical Engineering Department





Computer Controlled Tensile, Compressive, and Hardness Testing Machine



Computer-Controlled Subsonic Wind Tunnel



MicroCNC Experimental Setup

#### **Curriculum Development**

In compliance with the international accreditation requirements, the Depart ment of Mechanical Engineering identified the requirements for redesigning the course structure – an internationally assisted, approved process based on industrial requirements inputs. The revised curriculum offers four subjects per semester and concentrates on the following fields of study:

•Feature-based 3D Computer-Aided Design, Numerical Methods, and Engineer ing Modeling with a focus on Static, Dynamic, Thermal, and Computational Fluid Dynamic simulations based on the Finite Element Method. The fields of study mentioned above are supported by world-class computer and experimental en gineering equipment.

• Engineering Materials with a strong focus on experimental engineering and composite materials.

• Thermo-fluidics engineering, focusing on Fluid Mechanics and Computational Fluid Dynamics, Thermodynamics, Thermo-Power Systems, and Heat Transfer. Advanced Computational Fluid Dynamics and experimental engineering capa bilities support the field of study.

• Flexible Manufacturing and Related Design Approaches. World-class experimental capabilities support the field.

• Control Engineering, Mechatronics, and Robotics. The fields are supported by world-class experimental engineering equipment.

The academic staff of the Department of Mechanical Engineering includes six PhDs in Mechanical Engineering, one PhD in Industrial Engineering, and one Principal Technical Instructor. A balanced team of faculty members comprising young, middle-level, and experienced academics with national and internation al credentials and scientific research experience is one of the major strengths of the department. In addition, the department is encouraging and constantly promoting its Bachelor in Mechanical Engineering students to pursue post-grad uate education to develop a viable pool of national workforce in the department.

#### **Graduate Feedback**

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

One of the many challenges graduates face is correctly applying the knowl edge gained during their enrollment in the bachelor program and translating it into practical industrial applications. The new initiative of industry visits, inviting guest speakers, introducing capstone graduation projects in the final year, and applying the problem-based learning philosophy can meet the above challenge.

The Department of Mechanical Engineering received very good feedback from our industrial partners regarding the performance of our graduates, specifically those employed in the Mining and Petroleum industries.



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#### Graduation Projects and Relevant Preparation of Employable Graduates

Students enrolled in the Mechanical Engineering Course are offered hands-on training through projects and group work to better prepare them to adapt to the challenges of future workplaces. Our students are allocated final-year projects in both semesters; the project allocations are based on their choice and designed to enhance their analytical, decision-making, and R&D abilities as required by potential national and international employers. It is important to mention some important achievements:

- The Mechanical Engineering Department established a student chapter with the American Industrial Engineering and Operations Management IEOM Society and Inaugurated the IEOM students chapter on 19th May 2023.
- Sandy Stephen and Stephanie Laki published the research paper Lack of Downstream Processing in the Agriculture Sector in Papua New Guinea at the IEOM International Conference in Sydney, Australia.
- Guambo Mondo, a Master of Engineering in Mechanical Engineering, received the Most Distinguished Research Paper Award for his research paper Evaluation of Weldability and Optimization of TIG Welding Process Parameters for Max imized Yield Strength at the International Conference on Recent Advancements in Product Design and Manufacturing Systems, held at NIT Rourkela, India, on December 7th and 8th, 2023.

#### **Research and Publications**

The academic staff of the Department of Mechanical Engineering are actively engaged in scientific research in their areas of specialization. In a 2023 summary, the scientific research materialized in a total number of:

- 27 Papers in International Journals
- 14 International Conference Participations
- O7 Internationally Published Book Chapters
- 04 Books Published

#### Community and Industry Engagement-Consultancies

Two of our academic staff members serve on the Technical Vocational Education & Training Committee, which reviews tertiary institution curricula in compliance with the national PNGNQF standards. One of our academic staff was elected Chair of the Mechanical Working Group with NISIT, based in Port Moresby, and is also on the Academic Board of the Na tional Polytechnic Institute of Papua New Guinea, based in Lae.

#### **External Collaboration Activities**

Three academic staff initiated a joint research program on biodiesel with the University Malaysia Perlis, which led to the research article "Current Advancement in Global Bio-Hydrogen Production: Challenge and Future Plan". The Transforming Energy Access – UK Aid funds Learning Partnership (TEA-LP) and aims to support universities in of fering multidisciplinary master's level curricula with a view to bridging energy access skills gaps and achieving SDG7. The Transforming Energy Access Learning Partnership (TEA-LP) team invites Dr. Shoeb Ahmed Syed to attend the TEA-LP Course Uptake Workshop from 5-9 June 2023 at Strathmore University, Nairobi, Kenya. The workshop has the following aims:

To develop a shared understanding of an outcome-driven curriculum.

Develop an in-depth understanding of the new TEA-LP courses and their implementation.

To prepare for the TEA-LP project deliverables, specifically D#4: the Localized Course Curriculum. This is not an onerous task – but a guideline.

#### Staff Post-Graduate Studies Development

Mr. Brian N'Drelan is in the process of finalizing his PhD dissertation in Mechanical Engineering titled Failure of Compo nents and Systems in Alluvial Mining Engineering within our department. In addition, Mr. Paul Kuri is in the process of graduating with his Master of Engineering thesis within the Department of Mechanical Engineering at PNG University of Technology.

#### **Graduation Data**

The department proudly announces that 78 students received a Bachelor's in Mechanical Engineering Degree and 1 student received a Master's in Mechanical Engineering Degree in 2023.

## **DEPARTMENT OF MINING ENGINEERING**

In the face of unexpected staff changes, the Department of Mining Engineering demonstrated its resilience. We mourned the loss of the late Dr Gabriel Arpa, former HOD of Mining and Dean of the Faculty of Engineering, and saw Gideon Yowa, a mining Engineer, depart without notice for a mine superintendent job in Mongolia. This left the mining section with only one academic staff member, Dr Ken Kaepae Ail, who was unfortunately incapacitated due to a major heart surgery. Despite these challenges, the department remained steadfast in its commitment to quality education.

Responding swiftly to the staffing gaps, the Department of Mining Engineering strategically recruited Mr. David Seteri, a Petroleum Engineer, and engaged Professor Ernest Baafi from Wollongong University, Australia, and Dr Clara Abuntori of the University of Mines & Technology, Ghana, for online part-time roles. This proactive approach, coupled with the support from the mining industry through guest lectureships and students' training, allowed us to end the academic year on a high note, demonstrating our commitment to maintaining high standards. The Department of Mining Engineering takes pride in ensuring quality by recruiting quality staff and maintaining a healthy and friendlier working environment. Its mission is to produce quality graduates for our mining and energy sectors.

The Department of Mining has made great strides in the key areas of its strategic pillars. In this report, a few high lights on the following are provided;

- Teaching and Curriculum Development
- Industry Advisory Group (IAG)
- Industry-Based Real Live Final Year Project
- Short Courses & Community Services
- International research collaborations
- Staff News



#### **Teaching and Curriculum Development**

The Department of Mining Engineering offers two (2) honors degree programs: Bachelor of Mining Engineering (Hons) and Bachelor of Mineral Process Engineering (Hons). Our geology section only provides services to mining and min eral processing engineering. These two programs, together with the rest of the 3 Departments of Engineering at the university, have provisional accreditation following the Washington Accord. Engineers Australia will assess our degree programs for full accreditation in September 2024.

Starting in 2018, our Teaching & Learning Committee (TLCC) of the Department of Mining Engineering, comprising of senior academic staff members, has 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. This whole process has been meticulous and tedious, which included several consultative meetings with overseas universities for benchmarking and input from wider stakeholders – alumnae, mineral & energy resources industries, government, and the general public. This also included a major facelift and upgrade of our teaching facilities, including our four major laboratories in the de partment – mining, mineral processing, pyro & hydrometallurgy, and geology.

The year 2023 saw its first batch of mining & mineral students graduating under the revised curriculum, bachelor's degree with honors at NQF level 8, an upgrade from the previous NQF level 7.

#### Industry Advisory Group (IAG)

For the first time in many years, the Department of Mining established the Industry Advisory Group (IAG), formerly known as MIAC (Mining Industry Advisory Committee). MIAC was established to have a strong connection with the mining industries after the establishment of the Department of Mining Engineering. As time passed, MIAC lost its value, and the Department of Mining had no regular connection with the industries until 2023, when it was revived, and MIAC was renamed IAG. Mr David Wissink is the chairman of IAG and has the following industry members;

- Chamber of Resources & Energy
- Ok Tedi Copper Mine
- K92 Mine
- Lihir Gold Mine
- Wafi Golpu
- Pan Aust Frieda Copper
- Simberi
- Ramu Nickel Cobalt
- Department of Mining
- Hidden Valey

The meeting is held once a month, and this has been very consistent throughout the year. One of the outcomes of this IAG is that all our final years completed their 450 hours of Professional Work Experience (PWE) requirements, which are mandatory for students to be eligible to graduate.

This committee also addresses curriculum review, guest lectureships, and staff engagement in the mining industries.

#### Industry-Based Real Live Final Year Project

The Department continues to gain momentum in engaging with the industry. This year, 2023, the department has re ceived up to 12 live industry-based final-year projects.

K92 Mine has given 10 of their problems to our final year students to work on as their final year research project. Some of these topics include;

- 1. Tailing Dam Design
- 2. Underground Mine Ventilation efficiency
- 3. Grindability
- 4. Optimum collector type and dosage
- 5. Process mineralogy of fluorine in the K92 ore
- 6. P80 grind size of K92 Au ore
- 7. High gold losses in tailings
- 8. Reprocessing of mill tailings to optimize gold recovery
- 9. Environmentally benign approaches of gold leaching

Some of our students working on these K92 mine projects were employed immediately upon completion, a testament to the quality of our students' projects in our Department of Mining. Our students have also participated in the develop ment of alluvial gold with the Oro Miners.

#### **Short Courses and Community Services**

Offering short courses, providing professional advice, and engaging with industry and external partners through consultan cy is gaining recognition again this year, 2023. The Department of Mining continues to conduct several 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 saw the need to upskill their workforce.

This year, the Department of Mining successfully ran a short course on Occupational Health and Safety Engineering. Upon completion, the course participants were awarded Certificate levels I, II, and III.

On the community services front, the Department continues to reach out to locals with alluvial gold deposits. In 2022 and 2023, alluvial gold dredging was carried out in Upper Bena in the Eastern Highlands Province of Papua New Guinea.

#### International Research Collaboration

For the first time in the Department of Mining's history, 2023 saw the establishment of an international research collabo ration with Harvard University, one of the top universities in the world. The Head of the Department, Dr. Jim Lem, is spear heading this collaborative research. He visited Harvard University in November 2023 to participate in the analysis and has published three papers so far. The research will continue into 2024.

#### **Staff News**

Mr David Seteri, a petroleum engineer with a master's degree in petroleum from Exeter University, UK, joined the mining section. He is the first qualified petroleum engineer to have joined the Department of Mining. We are striving to recruit more qualified engineers to fill the vacancies and fully deliver our syllabus, particularly in the mining section. The mineral section is alright.



## DEPARTMENT OF SURVEYING AND LAND STUDIES



The Department of Surveying and Land Studies (DSLS) encom passes three distinct yet interconnected disciplines: Surveying, Geographic Information Sciences, and Property Studies. In addi tion, the Melanesian Land Studies falls within its auspices.

#### 1. SURVEYING SECTION (a) Mission Statement

• Produce world-class competitive graduates with in-depth knowl edge and adequate motor skills in all aspects of surveying tech niques relevant to the profession and allied field of Geomatics. Hence, the section recognizes the significance of embracing emerg ing surveying and mapping technologies, which include GNSS, Au tomated Surveying and Mapping Systems, and Photogrammetry/ Remote Sensing/Drones.

#### (b) Teaching & Curricular Activities

• The Section has experienced a shortage of teaching faculty for a while now. In Semester 2 of the 2023 academic year, the Section secured the services of Dr, Richard Stanaway temporarily to teach our subjects in Geodesy in the 3rd and 4th year of the Surveying program. Indeed, the Surveying Section is now fortunate to secure the services of Dr. Stanaway as Associate Professor in Geodesy on a full-time contract with the expectation of academic and research leadership in Geodesy. However, the Section and the Department saw the resignation of our Senior Lecturer, Mr. Job Suat, towards the end of the year.

• Mr. Noel Peya and Ms. Ashema Malaga completed their Masters in Surveying. Mr. Noel Peya was on a short-term teaching engage ment in the Surveying Section in 2023.

• The DSLS is well equipped with two GNSS/GPS continuously op erating reference stations (CORS) and six dual-frequency Topcon Hiper-SR GNSS receivers for campaign-style measurements over the geodetic network in 2022 and 2023. The LAE1 CORS has been a core station for the International Terrestrial Reference Frame (ITRF) since 2000. In 2022, a second CORS, LAE2, was established at DSLS and is still in the testing phase before joining the IGS network. The OSG has four Topcon Hiper SR receivers and six recently ac quired Topcon Hiper VR receivers.

#### (c) Graduate Feedback

• Very positive. Our former graduates hold most of the Senior Sur veying positions in PNG's public and private sectors. Likewise, all practicing surveyors are former graduates, and almost all the Chief Mining Surveyor positions are occupied by our former graduates.

#### (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 plagiarism policy.

• In 2023, three staff members in the Surveying Section were con tinuing their postgraduate studies in Surveying at PNGUoT. Mr. Clif ford Jr. Mespuk completed the second year of his Ph.D. studies, and Mr. Heva Honeaki and Ms. Resila Karipal were in the second year of their MPhil. studies in Surveying.

• The Section Staff and Undergraduates have collaborated with Geoscience Australia to collect Seismic data using GNSS survey technologies to observe survey stations within Morobe and neigh bouring Provinces.

• Two faculty members, Mr. Navua Kapi, and Mr. Noel Peya, present ed papers at the 55th Annual Association of Surveyors PNG Con gress. Port Moresby, from the 16th of August to the 18th of August, 2023.

#### (e) Consultancies and Outreach

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

• The leadership and contribution of the Department of Land Stud ies (DSLS) at the PNG University of Technology (PNGUoT) in Lae has always been integral to the success of all GPS campaigns in the study area. The Vice-Chancellor, Prof. Ora Renagi, Head of DSLS, Dr. Andrew Pai, and all academic staff, technical staff, students, and recent graduates involved in the project have fully supported and dedicated to the current survey. Government geodetic staff from the Office of the Surveyor-General (OSG) at the Department of Lands and Physical Planning (DLPP) have also provided support to date with the provision of historical GPS data, survey mark infor mation, and guidance. They will soon commence their own coun terpart contribution to the field GNSS observations.

• As part of the project's capacity-building component, Dr. Richard Stanaway, a geodetic consultant from Quick Close Pty Ltd, provid ed two 7–10-day GNSS/geodynamics workshops for DSLS staff, students, and OSG geodetic staff in November and December 2022 in Lae and Port Moresby.



#### 2. GEOGRAPHIC INFORMATION SCIENCE (GISCI) SECTION

#### (a) Mission Statement

• GIS focuses on collecting, storing, retrieving, analyzing, and model ing 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 sur veying, geodesy, photogrammetry, and remote sensing, which con centrate 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) Consultancies undertaken by the GISci section

The section's research activities revolve around the optimum utiliza tion, management, and valuation of pivot land and allied resources, Climate studies, Disaster Risk Reduction and Disaster Risk Manage ment, and renewable energy.

#### 1. Ongoing collaboration research Project: PIURN

Project Title: Towards National Drinking Water Standards in Vanuatu: Applied Research and Capacity Building

#### 2. Ongoing Collaboration research Project: ACIAR Program

Project Title: Better soil information for improving PNG's agricultural production and land use planning – Building on PNGRIS and linking to the Pacific Regional Soil Partnership

#### 3. A feasibility study on Renewable energy project - Hydropower

## 4. Facilitate Renewable Training for the national officer at SERI, PNGUoT

(c) Implementation of a phased new curriculum structure of four subjects per semester with 6 contact hours was com pleted for all the Years in 2022. Now, the section is looking to benchmark the program with international universities. The necessary actions were taken, like (1) The Benchmarking and Accreditation Committee was formed, (2) GIS section identi fied eleven courses similar or related to the program offered by the different universities around the world, and. Finally, two programs, Spatial Science Technology (Geographic Informa tion Systems) by the University of South Queensland, Austra lia, and Bachelor of Geospatial Science (Honours) by RMIT University, Australia, were finalized as they are more similar to the course offered in the GIS section. These universities are located in very close proximity.

(d) There were 99 full-time BGIS students (BGIS1-30, BGIS2-21, BGIS3-27, BGIS4-21), 48 distance-mode BGEM students (BGEM1 -15, BGEM2-12, BGEM3-10, BGEM4-11) and 4 MSc RS/GIS (distance mode) students.

#### **Research Activities and Publications**

The section is actively involved in research and publications. Academic staff also attend local and international confer ences from time to time. The section published articles in peer-reviewed journals and six conference/seminar presen tations.

#### **3. PROPERTY STUDIES SECTION**

#### (a) Mission Statement

• To take a proactive and strategic approach to fully integrat ing all aspects of real property, enabling the graduates to take on the challenges in this country, other South Pacific nations, and global property markets.

• To prepare students for various vocations with interests centered on real property.



#### (b) Teaching & Curricular Activities

The Section undertakes the following as part of its teaching activi ties at the undergraduate and postgraduate levels:

- Valuation—Land and property valuations are used to assess mar ket value (MV), statutory valuation, compensation assess ments, 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 physical and financial man agement aspects.
- Land Administration—Engages in carrying out Social Mapping, Land Investigations, and ILG processes and formalizing them using the Land Administration Processes.
- Distance Mode of Learning -The Section through Distance Learn ing (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.
- E-learning through Online Teaching—The Section through the DODL introduced online teaching in 2022. 2023 was its second year in the program, with 12 students enrolled. It runs concurrent ly with the conventional program on campus. Because of the high demand, the number of students enrolling is expected to in crease in successive years.
- Moreover, Property Studies was one of the first sections to ven ture into the online program apart from the conventional mode (on-campus) delivery proposed by the Academic Board in 2021. Modules were developed by the section teaching staff and delivered effectively to date. The Section is anticipating its first online graduation in 2026.
- Our post-graduate program in Property Studies has been rejuve nated after being docile for a while. The master's degree in property studies (MPhil) through research is ongoing and avail able to prospective students.
- Currently, there are 136 registered full-time students and 12 regis tered students through online learning, for a total of 148 students in the section.
- This semester, the section successfully completed the newly in troduced curriculum restructure for four subject areas. 2023 marked the completion of the four-year cycle of its implementa tion.
- Benchmarking and accreditation, which have been the focus of the University, are ongoing, and the Section is progressively taking action this year.

## (c) Links with Industry, Graduate Employment and Feedback

- About a quarter of our graduates find immediate employment af ter graduating at the end of each year.
- Due to the effects (internal and external) of our current economic climate, there are serious challenges with preparing students for industrial work experience in 2023. This is expected to continue in the coming years.
- The Section enjoys strong collaboration with the industry through the support of our Course Advisory Committee, which meets bi-annually.

#### (d) Way Forward

The section's focus on the priority areas would be on;

- Benchmarking and accreditation.
- Purchase of teaching & learning materials.
- Coordination & completion and Review of Online Degree Course.
- Support section's staff for PhD Studies.

#### 4. MELANESIAN LAND STUDIES CENTRE

#### (a) Vision

To be an internationally recognized Centre of Excellence that deals with a wide range of issues relating to modern land de velopment and resources management that are of academic and socio-economic significance to Papua New Guinea and the South Pacific Region.

#### (b) Mission

To serve as a central source of extensive knowledge, exper tise, and technological skills in land and resource manage ment in PNG and the Pacific region.



Students Addressing Local Community on Land Issues.





#### (c) Objectives

- •Facilitate the cooperation and coordination of disciplines in volved in the study of land management, land administration, land development, land adjudication, land use planning, ur banization and housing studies, land and geographic informa tion systems, Remote Sensing, Photogrammetry, and Geod esy, leading to land surveying and mapping and infrastructure development.
- Provide consultancy, continuing professional development, and advisory services on land and resource development/manage ment-related matters in PNG and the South Pacific Region in accordance with the industry's dynamic requirements.
- •Support research and development of technology appropriate to land and allied disciplines.
- •Encourage collaboration, sharing, and exchange of information with institutes and universities with similar interests nationally and internationally.
- •Publish papers, reports, and journals related to land-related is sues regularly.
- •Encourage collecting, storing, and disseminating information related to various allied disciplines, undertaking, support, and col laborative research in land and land-related disciplines.

#### (d) Staffing

As of 2023, the Department of Surveying and Land Studies MLSC appointed a faculty member, Mr. Suman Holis, as it's act ing Director. MLSC has not had a substantive staff position since its inception in 1983. The academic staff member is expected to perform his primary academic responsibilities, and the Centre's activities are taken as supplementary duties.

Hence, MLSC's activities to date have been either a directive or request from the University or in response to a request or appar ent need from the industry. The Centre did not have planned ac tivities in past years, apart from the series of CPD short courses that it coordinates and offers on behalf of the Department of Sur veying & Lands Studies (DSLS) to land professionals and other interested persons in the public domain.

The Centre has to engage DSLS academic, technical, and sec retarial staff to attend to the short courses' administrative and logistical chores and other consultancies. Those involved are compensated with their portions of fees and consultancies paid to them from the income generated. The current policy of 65% fee takings, after expenses, for the staff and 35% fee takings, af ter expenses, to be shared between PNGUoT, DSLS, and MLSC applies to all income generated.

#### (e) Budget

MLSC receives a non-recurrent budget allocation of K5,000.00 annually. However, the allocation has not been forthcoming since 2010. This is a concern and needs to be considered in fu ture budget allocations.

MLSC is proud that its records are in order and vetted by Bur sary (Senior Accountant—Trust Account) regarding its financial situation.

#### (f) Consultancies

The Centre acts as a conduit for staff to be involved in consul tancies such as Short Courses, Valuation Services, Surveying Services, GIS and Remote Sensing services, and Hire of Survey Equipment.

The various short courses that have been run include the following:

- Development Appraisal and Feasibility/Viability Studies for Economic Sustainability in PNG;
- Land Administration Process, Documentation and Land Dis putes;
- Land Compensation Assessment;
- MapInfo Level 1 and GIS;
- MapInfo Level 2;
- GIS, Spatial Analysis and Thematic Mapping using ArcGIS 9.1;
- Introduction to Surveying using GPS;
- Satellite Image Processing using ERDAS Imagine 8.5;
- Automated Surveying System; and
- High Precision Surveying and Processing data using GNSS note.

All other consultancy charges are guided by industry-set fees and what the market is showing. Fees can also be negotiated as circumstances dictate. From gross earnings, expenses (if any) are deducted. The 65/35 policy applies to the Net Earnings, where the facilitator is able to earn 65% of the net earnings, 15% goes to the MLSC, 10% goes to the DSLS and 10% goes to the University.

#### (g) New Courses

The Centre also acts as a conduit for new distant-mode cours es, including BSc in Geomatics and MSc in Urban and Regional Planning, in terms of logistical support, resources for staff and students, and administrative requirements.

#### (i) Constraints

MLSC's staffing capacity is limited. It currently has a sole staff member (the Acting Director) who performs all administrative functions of the Centre.

Since 2010, MLSC has not received funding support from PNGUoT Management and has relied on its own funds for all its operational activities despite giving the University 10% of all consultancy income generated.

#### (j) Going Forward

MLSC considers the need to review its existing strategic and operational plan paramount in order to align itself with the Uni tech Strategic Plan 2020 to 2024. Its review process will begin at the end of the 2020 Semester 2 academic program. Impor tantly, MLSC should have the mandate to employ personnel to work under the centre so that it can realistically realise its vision and key objectives and meaningfully contribute to the Unitech Strategic Plan.



### DEPARTMENT OF OPEN AND DISTANCE LEARNING

#### Introduction

The Department of Open and Distance Learning (DODL) recognizes that education is a fundamental human right and a force for sustainable development and peace. It empowers people with knowledge, skills, and values to live in dignity, build their lives, and contribute to their societies. In this spirit, DODL has increased access to education through online and distance-based education.

#### **Online Learning for Increased Access**

At the forefront of kicking off this major shift in learning is the DODL, whose target is to increase access to quality education for all deserving nationals. The rising demand for education and the country's social, technological, and economic dynamics jointly exert pressure on higher education in demand for appropriate solutions. Guided by this shift, PNGUOT, through DODL, externalized some of its academic programs (e.g., Bachelor of Business in Accountan cy, Bachelor of Business in Applied Economics, Bachelor of Business in Information Technology, Bachelor of Business in Management, Bachelor of Arts in Communication for Development, Bachelor of Science in Applied Mathematics, Bachelor of Construction Management and Bachelor of Property Studies) with the intention of addressing the soaring demand for university education.

This approach to delivering education service builds on the major changes that were announced after the endorse ment of the Strategic Plan (2020-2024) by the University Council, which in part required the University to externalize its academic programs to the broader public. It was hoped that through externalization, education services would get extended to everyone in the country, irrespective of the location, to equip people with the knowledge and skills neces

sary to live fulfilled and rewarding lives.





#### New Study Centres for Matriculation Program

As a response call to reach out to various categories of disadvantaged learners, DODL extended its presence in 2023 by opening five more study centres for the Matriculation Program. They include; Southern Highlands Teach ers College-affiliate, Sepik Matriculation Centre-franchise, Dregerhaffen TVET Secondary-affiliate, Bougainville Technical College-affiliate, Institute of Continuing and Flexible Education Goroka-franchise, Vanimo Secondary School-affiliate, Laiagam Appropriate Technology Centre (LATC)-franchise, Min Community Education Develop ment Services-franchise, Popondetta Study Centre -Franchise, South East Matriculation Centre-franchise, and Ga zel Franchise Study Centre-franchise.

#### Implementation Plan for DODL 2020-2024

Like 2021-2022, 2023 demanded a new style of doing things in the Department. An Implementation Plan appealing to the Strategic Plan of Unitech 2020-2024 was implemented with measurable and attainable key performance indicators to track progress. This Plan aligns itself with the national and global trends in academia while toning down the University's Philosophy, Vision, and Mission statements. It further provides a clear path with traceable indica tors for the Department to follow in its quest for excellence and relevance. To respond to the need for change, the Plan takes stock of the strengths, weaknesses, opportunities, and threats affecting the Department directly and/or indirectly. This plan also contains a risk assessment and minimization plan, which is very important in alerting the implementers of possible risks and determining how to minimize them (converting threats into opportunities) for better results.

#### Conclusion

In pursuit of excellence, DODL has implemented waste-free operational processes, routinely reviews the KPI's and a robust reporting approach that keeps the whole system in check for better results.

# O-HE-FORESTRY COLLEE

2.1 Staff listing

#### **1. INTRODUCTION**

Bulolo University College (BUC) report highlights major activities and tasks accomplished in 2023. The report covers staffing, academic programs, research and publication, budget, and infrastructural facilities.

#### Comments Category Number 11 (9 x permanent and 2 x temporary) Academic Technical Officers 5 (3x permanent and 2 x temporary) Admin Support Staff 13 (10 x permanent and 3 x temporary) Handyman and Janitor 40 Grounds, Security, and Mess BUC Employees 6 BUC Paid Employees Total 69

#### 2.2 Departures

In 2023, Ms. Dorothy Lenza resigned for health reasons.

#### 2.3 Recruitment

Two technical officers, Mr. Ian Lomutopa and Mr. Nakikus Gwaso, were recruited at the end of 2023. The school also recruited Ms. Eunice Pondros on a casual basis to fill in the position vacated by Ms. Dorothy Lenza (see 2.11 Departures)

#### 2.4 Staff Development and Welfare

i. Mr. Tombo Warra is in the third year of his doctoral (PhD) studies at the University of James Cook University in Australia. He is expected to finish in 2025.

ii. Ms. Priscilla Meninx, a part-time Technical Instructor, commenced her MPhil 1 in 2023 under the supervision of Dr. Jimmy Moses. The research title is Assessing the Socio-Economic Impact of Forestry Pine Plantations on Local Communities: A Case Study of the Mankiw Clan in Papua New Guinea.

iii. Mr. Nelson Bite, Admin Officer, attended a three-month course from September to November 2023 on a Diploma in Public Policy at the National Research Institute (NRI) in Port Moresby. Mrs. Bite's training was funded by the Localization and National Staff Development Committee (LNSDC) of the PNG Unites.

#### **3. ACADEMIC PROGRAM**

3.1 The Delivery of New Degree Program and Cessation of Forestry Diploma

A new degree program, the Bachelor of Forest Resource Management (BFRM), was approved by the Academic Board on September 23rd, 2022, and began offering courses in the 2023 school year. In the institution's history, in 2023, students were not enrolled to undertake the Forestry Diploma as the BFRM superseded it.

#### 3.2 The National Accreditation and International Benchmarking

The application (Form 6) for National accreditation was submitted in early 2023, and we are awaiting to hear from DHERST. If the application is successful, then BFRM students will be on TESAS.

We are making good contacts for international benchmarking through the Australian Institute of Forestry (AIF) and Forestry Professors at the University of Melbourne and Australian National University. We will maintain our dialogues with them for benchmarking and international accreditation of BFRM.

5

#### 4. STUDENTS 4.1 Number of Students

The 2023 academic year closed with a total of 110 (90 male and 29 female) students.

Level	Number		Total	Comments
	Male	Female		
BFRM 1	19	10	29	History for these pioneer students
BSc 2	25	11	36	From the main campus
Dip For 2	14	11	25	Final Diploma 2 students
Dip For 3	13	7	20	
Total	90	29	110	

#### **5. RESEARCH AND PUBLICATIONS**

#### 5.1 Postgraduate Supervision

Mr. Eko Maiguo was the Principal Supervisor of Ms. Ivy Kiele, who was undertaking an MPhil on the Impacts of the root system of se lected PNG tree species on soil erosion and maintenance of essen tial plant growth nutrients. The study commenced in semester 2, 2023.

#### 5.2 Undergraduate

Eight academic staff members from Bulolo University College were engaged in supervising final-year research projects.

#### 5.3 Conference

Mr. Eko Maiguo attended the Australia New Zealand Forestry Institute (ANZFI) Conference at Gold Coast, Australia, on 15th -19th Oc tober 2023. He presented a paper entitled: Tree planting initiatives for supporting forest system and household needs in the Upper Mape area, Finschhafen District, Papua New Guinea.

#### 6. INFRASTRUCTURAL FACILITIES

Major infrastructural facilities that need to be presented in this re port are: computing and internet facilities, fence lines, and street lights.

#### **6.1 Computing Facilities**

The ICTS Department of PNGUoT distributed 20 new desktop computers to support the students' learning at BUC.





The ICTS Department of PNGUoT distributed 20 new desktop computers to support the students' learning at BUC.



#### 6.2 Fence Perimeter

Due to continuous law and order and security issues, the school prioritized fixing the fence line through the students' project. About K38,000.00 was spent to fund the fencing of the school area.



#### 6.3 Security Lights

Due to continuous law and order and security issues, the school prioritized fixing its lighting system. About K42,000.00 was spent to fund this.

#### 7. CONCLUSION

The major achievements of Bulolo University College in 2023 were:

- (i) Offering of BFRM degree,
- (ii) the ICTS Department's contribution of 20 desktops to the students' lab and the installation of Wi-Fi at the student's residential area, and
- (iii)) improvements in fencing and lighting systems as parts of the security control



## **POSTGRADUATE SCHOOL**

The PNG University of Technology (PNGUoT), the only techno logical university in Papua New Guinea and the South Pacific Is land Countries, excluding Australia and New Zealand, is dedicat ed to producing highly trained human resources for Papua New Guinea and the South Pacific Island Countries. The Postgradu ate School coordinates the University's research, publications, and postgraduate training activities per its Strategic Plan, 2020-2024. The university is committed to becoming the science and technology hub of the country, with the capacity to carry out high-quality research and postgraduate training aimed at empowering the youth, reducing the gender gap, and achieving PNG Vision 2050's goal of creating a smart, wise, fair, healthy, and happy society.

Currently, the university offers 20 PhD programs, 34 Mas ters programs, 3 PG Diploma programs, and 2 PG Certificate prgrams, including 3 Master's programs in distance mode. These offerings include the new Master's program in Archi tecture and Construction Management which was developed and introduced in 2023 by the Department of Architecture and Construction Management of the University. In addition, a new master's program titled "Climate Change and Renewable Ener gy Access is being developed by the University's Department of Applied Physics with a start-up grant from the UK government under the Transforming Energy Access - Learning Partnership (TEA-LP) project. Hopefully, the Academic Board will soon ap prove this program to start in 2024. The university hopes to introduce more programs in the distance and/or hybrid mode to increase student access. The university's postgraduate pro grams have produced 653 graduates, including 26 PhDs, since its establishment. A summary of the 2023 Postgraduate School report is itemized below.

- 1. The year 2023 of the Postgraduate School started with an ori entation and welcoming program for the postgraduate stdents on 20th July under the theme "Research & innovation for sus tainable national development". The orientation was attended by Heads of the Departments, professors, academic staff, and Senior Executive Management (SEM) members.
- 2. Staff publications in 2023 included 75 papers in peer-reviewed journals, 57 presentations at conferences, seminars, and work shops, 20 books and book chapters, and 10 reports and other publications.
- 3. 51 postgraduate students completed their studies in 2023 and will graduate in 2024. This number includes 2 Ph. D.s, 8 MSc, 9 MPhil, 1 MTech, 4 MSWRM, 1 MCS, 3 MEng, 9 EMBA, 9 MBA, and 5 PGCST.
- 4. A total of 52 new PG students enrolled in various PG programs of the University (36 enrolled in Semester 1 and 16 enrolled in Semester 2), including 7 PhDs
- 5. Eight newly enrolled PG students were awarded the Universi ty's Graduate Assistance Program (GAP). GAP is a scholarship scheme given to students who are judged to be the best by the university.
- 6. The University allocated one million kina to support postgrad uate research, attend conferences and seminars, and purchase research-related equipment. K697,796.10 was disbursed to staff and students to buy equipment, conduct research, and at tend conferences, seminars, and workshops.

- 7. In 2023, the Postgraduate School organized the usual Annual Postgraduate Research Seminar on the 3rd and 4th of October. A total of 54 presentations were made by PG students in the two days of the seminar. The presentations were successful, and they show cased the research capabilities, communication, and presentation skills of our PG students. For the first time, the sem inar went online via Zoom and reached participants worldwide. This outcome reflected one of PNGUoT's core values of dissem inating research findings to the broader community.
- 8. 16 presentations were made at the weekly research seminar se ries in 2023. The presenters were from both PNG and overseas institutions.
- 9. The new Master's program in Architecture and Construction Management, developed by the Department of Architecture and Construction Management of the University, was started in 2023. In addition, another new master's program titled "Climate Change and Renewable Energy Access" was being developed by the University's Department of Applied Physics with a start-up grant from the UK government under the Transforming Energy Access – Learning Partnership (TEA-LP) project. Hopefully, the Academic Board will soon approve this program to start in 2024.
- 10. The government provided one million Kina in PIP funding to sup port PhD training at the University. These funds will be utilized in 2024 to support students enrolled in various PhD programs at the University
- 11. The Papua New Guinea Chamber of Mines and Petroleum and the University's Department of Mining jointly organized a na tional conference titled "PNG Community Affairs and National Content Conference and Expo (CANCONEX, 2023)". The con ference's theme was "Promoting national participation for sus tainable communities". The conference was attended by the Prime Minister, sectoral ministers, and notables in the oil and gas industries. The conference discussed updates on the petr oleum industry and reflected on regulatory functions in the con text of national content. The university staff and students had the opportunity to present papers at the conference and interact with potential employers.
- 12. PNGUoT remains a proud member of the Associations of the Commonwealth Universities (ACU). The 2 foreign students admitted in 2022 to a master's program under the Queen Eliza beth Commonwealth Scholarships (QECS) of ACU have made good progress and hope to complete their studies in 2024.
- 13. The newly refurbished International Postgraduate Students Hos tel was officially opened by Vice Chancellor Professor O. Renagi at a short ceremony on 31 May 2023. The ceremony was attended by the university's Senior Executive Manage ment Team.
- 14. As part of its internationalization program, PNGUoT continues to partner with the University of Valladolid, Spain, and the University of Porto, Portugal, under the EU-funded Project ERAS MUS-Plus. PNGUoT also has bilateral agreements with several universities in Australia, India, Japan, China, Fiji, Romania, and the Czech Republic for staff/student mobility. Some administrative changes also occurred in 2023. Professor Gariba Danbaro was appointed Dean of the PG School.





Vice Chancellor Prof Ora Renagi and the Registrar, Mrs Veronica Thomas, and PVC (Admin) Prof Kaul Gena jointly cut the sod to open the International PG students lodge.



## **TEACHING & LEARNING METHODS UNIT**



#### I. Introduction

Following the pathway in our Strategic Plan, 2nd Edition (June 2020 – June 2024), the Teaching & Learning Methods Unit (TLMU) has been transforming its functions. We continue to support developing and implementing policies and procedures for the paperwork associated with lecture plans, timetables, teaching allocations, student evaluations of teaching, and academic quality assurance processes. We provide academic support to staff and students and maintain training supporting the transition from manual to automated electronic learning management systems, such as Google Classroom. In addition to streamlining these processes, TLMU has expanded in-house training by outsourcing our soft skills training programs, focusing on this area to create a sustainable training program for all university employees.

#### II. Staffing

The current staffing for TLMU is: Acting Director - Professor Dr. Habil. Eric Gilder (PhD), Training Officer/Lecturer - Ms. Dora Jimela Kialo, ICT Officer - Mr. Lemuel Dom and Miss Lorraine Senginawa, Secretary/Administration Officer.

#### III. Undergraduate Program Academic Support

In cooperation with the CDS Department, TLMU provides academic support to undergraduates of PNGUoT through the Academic Resource Centre (ARC) for weekly lunch hour face-to-face lectures on "soft skills" topics. We also supervise internal industrial training (IIT) for undergraduate students as well as for Technical and Vocational Education & Training (TVET) students of Morobe Province in partnership with the Career Development Office at PNGUoT. We also function as the Student Online Evaluation of Teaching (SOET) and Academic Quality Assurance Team (AQAT) Secretariat for the thirteen academic departments at the University.

#### IV. Postgraduate Student Academic Support

TLMU provides academic support to postgraduate students in preparing theses (via instruction on the use of TURNI TIN), through face-to-face training and Q & A academic advice weblogs.

#### V. Staff Support

TLMU provides curricula pedagogy and software/hardware ICT training to academic staff (via the annual Postgraduate Certificate in Student-Centered Teaching (PGCSCT) offer, in cooperation with the CDS Department). We also provide administrative staff training in both conventional and online modes through the Career Development Office of PNGUoT. Promoting professional development strategies and working conditions to empower everyone to excel, the TLMU holds an annual orientation program for all new academic staff and periodic impactful workshops to enable teaching and non-teaching staff to progress nicely through the academic calendar while remaining motivated, optimistic, and confi dent. Under the leadership of Lecturer and Training Officer Dora Kialo, five academic staff completed outstanding work for a Postgraduate Certificate in Student-Centered Teaching (PGCSCT) and thus will graduate with certificates in April 2024. Related to this service, in cooperation with the CDS Department Head of Department, Dr Rachel Aisoli-Orake, the PGCSCT program was revamped 2023 into a more comprehensive one-year program offering.

#### VI. Externalization

TLMU has been part and parcel of PNGUoT's externalization process. We provide academic support online to both Bu lolo and SUSU campuses. Furthermore, we have also assisted the University and International Telecommunications Union (ITU) with online training to extend our soft skills courses and expertise. TLMU partners with ITU to run Training programs in the East and West Sepik Provinces to assist farmers and principals of schools utilizing our resources with their physical infrastructure resource centers, supporting rural entrepreneurship investment, and trade with support from the United Nations FAO, and ILO assisted by Herman Kunsei as the Country Manager of ITU.

Avram, S. & Gilder, E. (2023). New times, new knowledge, and finding the 'NorthStar' of success in a changing world of learning, 19th LUMEN RSACVP2023 Iasi, Romania, 21-23 September. (Online participation)

In September 2023, Lemuel Dom (along with Dr. Londari Yamarak, Dr. Hannah Sarvasy, Mr. Ismael Dono, and Ms. Leonie Bap tiste) launched the 2022 "PNG Voices: Listening to Australia's Closest Neighbor" report in Yawan Village, Kabwum District of Morobe Province.

#### VII. Research Publications and Presentations

Continuing from 2022, in 2023, TLMU staff participated in several research publications and presentations, notably:

Kialo, D. J.; Siaguru, F.; Ambelye, I.; Blacker, J.; Yalambing, L.; Betasolo, M.; Aisoli-Orake, R.; Denano, S.; Gasson, S., & Bue, V. (2023). Creating successful higher degree researcher pathways in a developing country – Papua New Guinea. In S. Gasson, J. Blacker, I. Stoodley, A. Winter, & C. Bruce (Eds.), Confident supervisors: Creating independent researchers. James Cook Univer sity (pp. 69-86). https://jcu.pressbooks.pub/confidentsupervisors

In September 2023, Lemuel Dom (along with Dr. Londari Yamarak, Dr. Hannah Sarvasy, Mr. Ismael Dono, and Ms. Leonie Bap tiste) launched the 2022 "PNG Voices: Listening to Australia's Closest Neighbor" report in Yawan Village, Kabwum District of Morobe Province.



#### IX. Asset Management

TLMU has three new air conditioner installations and two new printers. The most recent one has capacities for copying, scan ning, and printing. We have ten training Dell laptops, five Desktop workstations, and four UPS units. TLMU also has a bottled water dispenser, a microwave oven, and an urn for hot water for meetings in our conference room, with a projector and sound system.

#### X. Departmental Budget

The Teaching & Learning Methods Unit's in-house budget is approximately PGK80,000.00 for training provision and opera tional costs, including internal industrial training support expenses and university-related business travel.

#### XI. "Moving the Needle Forward" Initiatives

TLMU continues to provide logistical support for the University Debate Team online and on-site. This includes ICT support and avenues for intervarsity virtual debates in 2023 and a debate judge support service every year since its inception.

Building on from 2022, the Department continues to leverage its strengths to consolidate the foundation built in the wake of COVID-19. The key focus was ensuring high-quality teaching and learning continuity by providing instructional support to the faculty as they dealt with the challenges of employing online Learning Management systems, unfamiliar conferencing tech nologies, and new protocols of summative and formative assessments. Besides the general ongoing pedagogical support, TLMU customized personalized training to the individual academic staff at their behest. The Department amplified its intent of accelerating digital transformation in higher education with in-house and community outreach activities. For example, in March 2023, IT Officer Lemuel Dom worked with Digicel Sales Executive Daniel Bailey and the Digicel Foundation to install offline Digital Libraries at the Wawin National High School under the Digicel Foundation's Staff Grant Program.

While supporting PNGUoT's strategic aspiration of differentiating itself by creating an integrated, customized, and con tinuous experience throughout the learner lifecycle, TLMU continued Soft Skills and Academic/Non-Academic Courses Training in both conventional and online modes in 2023 and held several workshops for students to support them to cope with the demands of university life, with topics such as Academic Survival in PNGUoT, Digital Citizenship for young adults, and Job Search strategies were covered, among others. For 2024, we look forward to further developing offers in specific areas, such as webinar presenters in partnership with the Department of Electrical and Communications Engineering, Mr. Herman Kunsei, overseeing global training delivery as part of PNGUoT's global training partnership with ITU, as well as the Academic Writing and Career Advising for students and staff, with the CDS Department.

In light of the Papua New Guinea University of Technology's vision to be an Entrepreneurial University, IT Support Officer Mr Dom attended a three-week certificate course at the Entrepreneurship Development Institute of India on "Technopre neurship-Creating Technology Enabled Start-up Ecosystems" in August 2023. The Indian Government sponsored the training under the Sagar Amrut Scholarships. He arranged for faculty from the Entrepreneurship Development Institute of India to agree to mentor the PNGUoT staff on "Entrepreneurship and Innovation" via online sessions on various aspects of the topic.



In cooperation with the CDS Department, Lecturer/Training Officer Ms Kialo conducted Community engagement activities with the CDS Internal Industrial Training students in 2023 at Yanga Village -Aihi LLG and Bumbie-Bumayong Village, includ ing community development scoping supervision for them.

#### XIV. Concluding Remarks

The TLMU inspires excellence, innovation, and inquiry in teaching and learning within and beyond PNGUoT. In this spirit, we collaborate with individuals, academic departments, and academic support units to foster capacity in our learning com munity by promoting an institutional culture that values effective teaching and meaningful learning. The TLMU supports the PNGUoT family to promote real-world experiential learning through the ardent application of science, technology, and Innovation. We proudly support the university to produce world-class technocrats for the real world.

We are confident that we can make self-improvement a way of life together in 2024!



## INFORMATION AND COMMUNICATION TECHNOLOGY SERVICES (ICTS)

#### 1. Role(s) and function(s) of ICTS department in PNGUoT

The ICTS Department of PNGUoT is fully in charge of the Internet, Server, Network (LAN, WiFi), 4G Mobile Network in frastructures, Student Computer Labs (Haus Europa, CALC), Staff/Student Google Workspace (PNGUoT Email), Active Directory Services, PNGUoT Website, PG ccTLD (DNS), Management and Electrical Service Unit (ESU) including Cam pus Cable TV Service (CCATV), CCTV monitoring. ICTS is also responsible for ICT services provided at PNGUoT remote/ satellite campuses such as Bulolo and Simbu Unitech Satellite University (SUSU) and Online Education ICT infrastructure (Moodle). In addition, ICTS is developing and managing many digital applications, such as Plagiarism Check (Turnitin), Student Database Management System (tSMAS, UNISIS, SRS), Conference Management System (Easychair), HR Man agement System (iChris), Finance Management System (Attache), Helpdesk Management System (Manage Engine), Telephone Directory, Classroom Allocation System and University Website Management.

#### 2. Achievements for 2023

Several achievements were made in 2023. After the COVID-19 pandemic ended, this was the first overseas trip to attend APTLD83 and APNIC55 (APRICOT2023) in February and the second trip to attend APNIC56 and APTLD84 in Septem ber. This is an important step in showing a presence in the Internet Regional Community and seeking assistance and collaboration from overseas partners.

#### **Event and Conferences**

- 2.1 Attend APTLD83 and APNIC55 (APRICOT2023) (February, March)
- 2.2 Organize Girls in ICT Day (April)
- 2.3 Attend PITA27 Conference (May)
- 2.4 AWS Academy Immersion Day (June)
- 2.5 Technical Assistance CANCONEX event (August)
- 2.6 Participate in Trukai Fun Run 2024 for .PG marketing (August)
- 2.7 Attend APNIC56 and APTLD84 (September)
- 2.8 Visit Kyoto Computer Gakuin School (KCG) in Japan (April, September)
- 2.9 Visit the Nara Institute of Science and Technology (NAIST) campus (September)
- 2.10 Digital Government Delivery Workshop (November)
- 2.11 Participate and .PG Marketing at Morobe Show (Novem ber)

#### Infrastructure

- 2.12 Construct Vodafone Tower (January)
- 2.13 LAN Upgrade (Academic Department completed, Sup port Department ongoing)
- 2.14 Replace New Server (ASUS)
- 2.15 Commissioning Micro Data Centre (Mining Department)
- 2.16 Cisco Distribution Switch Replacement

#### Application

2.17 Stop tSMAS Development and New Student Database System Integration (UNISIS)

- 2.18 Testing Oracle Cloud
- 2.19 Launching Moodle Cloud
- 2.20 Go live Helpdesk Ticketing System (Manage Engine)
- 2.21 Launching Academic Time Table System
- 2.22 Launching BSP Pay (Payment Gateway) (December)

#### Operation

2.23 Received 295 Desktop PCs from KCG and distributed to the Academic and Support Department (November, December)

2.24 Providing Telikom Student 20GB Data plan (June to Novem ber) and Set-up Telikom Kiosk

- 2.25 Purchased new Hiace Bus for DNS marketing (March)
- 2.26 Purchased and Distributed 979 Laptop to new intake students (end of March)
- 2.27 Accommodate Apprentice Students (TAFE, PNGUoT)
- 2.28 Signing MOU JFA (February)
- 2.29 JFA Technical Assistance (Server, Router)
- 2.30 New Membership DNS-OARC

#### Others

- 2.32 Haus Europa Beautification Program (Cleanup Toilet, Carpark Garden)
- 2.33 DHERST Minister Haus Europa Visits (April)
- 2.34 Organize NAIST Internship program (MCS, June-July)
- 2.35 Japanese Ambassador's visit (August)

2.36 Nadzab International Tomodachi Airport Terminal Opening (Oc tober)

2.31 Participate AWS Academy Program



#### 3. Problems and Challenges Encountered and Recom mendations for Improvement

Continued Power Problem

Damaged equipment due to continuous power failure/fluctu ation

Lack of Human Resources, particularly specialist staff

Cease the development of tSMAS towards development of UNISIS Student Database

Review .PG DNS Policy with International Partners (auDA)

Recommendations for improvement

Install Solar Panels and Power (Li-on battery) Storage System Redundancy Internet from Satellite (O3b=mPower, Starlink) Recruit ICT Business Manager and Training DNS Technical and Marketing Officer

Need to have a proactive ICT PAC (Policy Advisory Commit tee) meeting on a quarterly basis.

Continues to participate in Regional and Global Internet Con ferences (APTLD, APNIC, ICANN, IGF, etc)

#### 4. Way forward

Next year (2024), our first priority is to improve our Back bone Fibre Network, especially for the Academic Departments (Schools), based on the Network Audit (by external profession als) and recommendations. Once that is completed, we can move on to expanding fiber into staff housing areas, provided funding is available. We will develop a three-year ICTS Develop ment plan and implement our connectivity.

At the same time, we will review the PG Domain Policy and sub mit it to the April Council Meeting for endorsement with new Pricing.

#### 5. Budget (Revenue and Expenses)

This year, the university allocated over K1.5mil for the ICTS op erational budget, the same as last year. We also spent a lot of money on Internet connection(s): K1.4 mil. ICTS Capital Items spent nearly K0.5 mil. Also, we purchased a 979 Student Laptop (K2.5 mil).

Currently, the ICTS department has not managed to generate internal revenue, but especially for DNS operations, we need to generate more revenue, targeting K0.5 million in 2024.

#### 6. Human Resources

Under the ICTS Staff establishment, we have 30 permanent positions. In December 2022, we occupied 24 Permanent Po sitions and 2 Temporary positions, so the total number of ICTS Staff is 29.6 Permanent position (s) are vacant, and 2 positions were taken over by other departments (Project office and VC's office).

We recruited two experienced Database Programmers this year to increase our capacity.

#### 7. Impact Project ICTS in 2024

In 2024, we will implement many ICT-related impact project(s). Our department's main aim is "Digital Unitech," and the following are the target impact projects.

10G Fiber Backbone Network for Academic Departments (Schools)

Expansion of fiber network to Staff Housing Areas

LAN Upgrade for Service departments

Develop 3yrs ICTS Network Implementation Plan based on Network Audit 2023

Continue to develop and upgrade Student Database System (UNISIS)

Seeking new Satellite Service (Starlink) for Academic Re search Purposes

Final Draft .PG Domain Policy and awareness session (PNG DNS Forum: May 2024)

Prepare for the new Open Campus (Port Moresby)

Set-up an ICT SME Incubator Hub

Lab PC replacement (CALC Lab)



## UNITECH BIOTECHNOLOGY CENTRE

#### **Executive Summary**

This report covers research and development work in modern biotechnology at the UNITECH Biotechnology Centre (UBC). The Centre aims to use biotechnology tools to enhance agricultural production, alleviate poverty, and improve livelihoods in Papua New Guinea (PNG). The laboratory facilities are also used for undergraduate and postgraduate teaching and research. The re search and development objectives, current and potential research, and developmental opportunities are outlined. Collabora tions are highlighted between Academic Departments and Research Centres of the PNG University of Technology (PNGUoT) and other government Departments and Institutions on research and national issues. A significant milestone achievement for 2023 was the ACIAR-funded grant of AUD500,000 for research on taro cytogenetics and breeding for drought tolerance – exploiting the eddoe taro (Fig.1) gene pool.



#### Preamble

The UNITECH Biotechnology Centre (UBC) was established by the Council of the Papua New Guinea (PNG) University of Tech nology (PNGUoT) in 1997 in recognition of the immense role that modern biotechnology could play in contributing to national development. The UBC is managed by the Director, who reports to the Deputy Vice-Chancellor and the Head of the School of Agriculture. The focus of the UBC is on modern biotechnology. It is a powerful enabling technology with applications that have the potential to revolutionize many industry sectors, including agriculture, forestry, fishing, pharmaceuticals and health, chemicals, textiles, food processing, environmental industries, energy, and mining.

#### Vision

An appropriate vision for the UBC that encompasses the nation's current developmental issues in the face of the changing cli mate is "to be leaders in the use of agricultural biotechnology to improve livelihoods".

#### Mission

The UBC strives to accomplish high-quality research, training, and development outcomes with an entrepreneurial characteristic that emphasizes the application of agricultural biotechnology in addressing issues associated with food and livestock production, forestry, and the environment in PNG.

#### **Organizational Structure**

The UBC is a Centre housed at the Agriculture Department of the PNGUoT. Administratively, it is governed by a Technical Adviso ry Committee (UBCTAC) and managed by the Director, who reports directly to the Head of the School of Agriculture and Deputy the Vice-Chancellor.

#### **UBC Technical Advisory Committee (UBCTAC)**

A revised UBCTAC, taking a new form as an independent entity of PNGUoT, is proposed for 2024 and beyond to include relevant university officials, Centre and Departmental representatives, and representatives from relevant government departments and institutions (Table 1).

No.	Representative	Department/ Centre/ Institution		
1	Patrick Michael (PhD)	Chairman-UBC-Committee		
2	Macquin Maino (PhD)	Head – School of Agriculture - Ex officio		
3	Garry Sali (PhD)	Deputy Vice-Chancellor – Ex officio		
4	Tom Okpul (PhD)	UBC – A/ Director		
5	Gariba Danbaro (PhD)	Agriculture Department, PNGUoT		
6	Ronnie Dotaona (PhD)	Agriculture Department, PNGUoT		
7	TBA	ERMC, PNGUoT		
8	TBA	National Agricultural Research Institute		
9	Mr. Elias Taia	Department of Agriculture and Livestock		
10	TBA	Conservation & Environment Protection Agency		

Table 1. Current membership to the UNITECH Biotechnology Centre's Technical Advisory Committee

aPNGUoT = PNG University of Technology; ERMC = Environmental Research and Management Centre; and UBC = UNI TECH Biotechnology Centre.

Personnel

The current staff directly engaged at the UBC include the A/ Director, a Senior Technical Officer, and other Departmental staff and postgraduate students (Table 2).

Table 2. List of staff and current postgraduate research students who were directly engaged in research and teaching at the Unitech Biotechnology Centre in 2023.

Name Position		Qualification	Research Interest		
Tom Okpul A/ Director		PhD (UQ)	Plant genetics & breeding		
Shamsul Akanda	Plant Pathologist	PhD (OSU)	Plant pathology		
Gariba Danbaro	Animal Breeder	PhD (Kobe)	Animal genetics & breeding		
Patrick. Michael	Crop Physiologist	PhD (UA)	Plant physiology/ environs'		
Macquin Maino	Macquin Maino Crop Protection		Plant virology/ nematology		
Ronnie Dotaona Entomologist		PhD (CSU)	Insect pathology		
Gwendolyn Ban	Plant Pathologist	PhD (PNGUoT)	Plant pathology		
Totave Kamen	Senior Technical Officer	Diploma	Laboratory management		
Raylin Puring Research Officer		BSc. Agric.	Allocated duties		
Dollah Inapo	Research Officer - FPDA	MSc.	Potato micropropagation		
Spencer Poloma	Spencer Poloma PhD Student		Mycorrhizal symbiosis in rice		
Cybill Poiya MSc. Student		BSc.Ag	Plant breeding		
Roberta Sio MSc. Student		BSc.Ag	Entomology		
Job Opu MSc. Student		BTA	Plant Pathology		

#### **Strategic Objectives**

The strategic objectives that the UBC aims to achieve are:

Provide an environment that encourages creativity and investment in biotechnology.

Use biotechnology to achieve food and health security.

Protect PNG's environmental resources by developing appropriate biotechnology applications and products.

Strengthen the relationship between the biotechnology program and society.

#### **Specific Objectives**

To facilitate high-quality human development in the field of biotechnology at undergraduate, postgraduate, short courses and on-the-job training levels.

To facilitate high-quality research and provide a conducive environment for institutional collaborations in the fields of mi crobial, agricultural, forestry, industrial and environmental biotechnology.

To provide quality scientific advisory support to the PNGUoT and the government of PNG on issues pertaining to biotech nology and bio-safety.

To promote and create awareness on biotechnology issues by hosting visits for any interested individuals or groups and carrying out educational programs, especially during school visits.

#### **Facilities at UBC**

Containment-1 laboratory with capacity to undertake plant tissue culture, basic nucleic acid (DNA/RNA) assays involved in genotyping, disease diagnosis, gene transformation (gene technology) and gene expression analysis.

#### Facility Renovation at UBC

Scoping of renovation work has been completed, particularly for ceiling replacement and painting of all walls and the exterior wall has been scoped and is pending the engagement of the contractors.

#### **New Equipment**

The Centre acquired a new Incubator through the support of the ACIAR Sweet potato Weevil project headed by Dr. Ronnie Dotaona.



#### **Research Areas**

Disease diagnostics (plant) Pathogen-tested plant production Genotyping and Gene discovery Biodiversity assessment (plant and animal) Germplasm conservation Genetic manipulation (plant)

#### **Financial Report**

The operations of the Centre were funded by the Vice Chancellor, Prof. Ora Renagi, with a total sum of K100,000 to drive R&D in agricultural biotech nology. Additional funding came in the form of research grants outlined be low.

#### **Current Research and Development Activities**

Faced with immediate challenges surrounding accreditation of the labo ratory, staffing, and essential equipment, the Centre is taking a proactive approach to address these issues whilst performing its mandated role. The current and proposed research & development (R&D) opportunities for the UBC (and potential commercial opportunities) cover a broad range of ar eas, including plant disease diagnostics and biodiversity assessment using DNA-based techniques, pathogen-tested plant production, clonal forestry, and gene discovery.

Student research studies are supported by various institutions and do nor agencies, including the University's Graduate Assistance Program and collaborating stakeholders (Table 3). A number of these studies have commercial potentials ranging from bio-pesticides to genetically modified plants (Table 4).).

#### a) Industry-oriented research and development

i) ACIAR Small Research Activity (ACIAR CROP-2023-194): "Enhancing drought tolerance and food security in Papua New Guinea: the potential of new taro germplasm" Investigators: Campbell, B., Okpul, T., Smith, M. and Godwin, I. Partners: University of Queensland and PNG University of Tech nology. Grant: AUD 500,000. Period: 15th November 2023 to 31st January 2025.

Okpul, T. (2023-2024). Unitech Research Funds awarded K22,127.40 to ac quire the "NanoDrop Spectrophotometer" for DNA research at UBC.

"R&D of Eaglewood in Papua New Guinea: Development of an inoculum and identification of suitable tree lines for clonal plantations. Potato plantlet production – Potato Seed Scheme – Fresh Produce Development Agency. This project will be reviewed for continuation in 2024.

#### Table 3. Collaborations on current research.

Collaborating institution	Research area	
i) University of Queensland, Australia	Taro drought tolerance Research	
ii) Fresh Produce Development Agency	Potato seed scheme	
iii) National Agricultural Research Institute	Sweet potato and Taro research	
iv) Forestry Department, PNGUT	Student projects	
v) PNG Cocoa Board	Barcoding of cocoa elite lines	
vi) Kokonas Indastri Koporesin	Clonal production of coconut	
vii)Binatang Research Centre	Student projects	
viii) Hirosaki University, Japan	Wild rice research	
ix) International Rice Research Institute,	Wild rice research	
Philippines		
x) Trukai Industries Ltd	Rice research	

Genetic Barcoding of the 18 cocoa hybrids released by PNG Cocoa Board. A Preliminary study is underway and awaiting funding support from PNGCB.

Clonal propagation of coconut. This was one of the proposed areas iden tified by the Kokonas Indastri Koporesin (KIK) MOU signed in 2021. Pre liminary studies are underway and awaiting funding support from KIK.

#### b) Student Research Projects

i) Poiya, C. & Okpul, T. (2023). The Postgraduate Studies, Research & Innovations Committee of the PNG University of Tech nology granted K10,774.50 for the student research project entitled, "Assessing the extent of genetic diversity among the wild relatives of rice maintained at the Unitech Biotechnology Centre using universal rice SSR markers."

#### c) Other Research Studies

Other promising research studies initiated by UBC include:

i) PNG Wild rice germplasm collection. Fifteen accessions of Oryza and Leersia spp. are currently maintained in ceramic pots. T. Okpul conducted a recent collection in Madang Province to recollect O. ridleyi, which was lost from the collection due to drought during the COVID-19 pandemic (Fig. 2).



Fig. 2. A thriving natural population of Oryza ridleyi along the tributary of Ramu River, Bosmun, Bogia, Madang Province.

Table 4. Current biotechnological researches conducted at the UNITECH Biotechnology Centre and potential commercial

Research topic		Funding source <sup>a</sup>	Researcher	Commercial opportunity <sup>b</sup>
U Crop s	seed systems			
a)	Micro-propagation of plantlets and micro-tubers for seed potato production	UBC/ FPDA	Dollah Inapo, T. Kamen and T. Okpul	High
b)	Development of a seed system for open-pollinated corn in PNG	UBC	T. Okpul & Raylin Rapuri	High
ii) Biodi	versity assessment			
a)	Assessing the extent of genetic diversity among Leersia hexandra populations in PNG	UBC	Cybill Poiya, M. Kabiwaga, R. Manus, Chris Bugajim & T. Okpul	
iii) Gene	tic manipulation			
a)	Standardising protocols for rice plant regeneration and transformation	UBC	Cybill Poiya and T. Okpul	Long-term
iv) Gene	and gene product discovery			
a) b)	Identification of DNA barcodes for elite cocoa lines from Papua New Guinea. DArTseq analysis by Diversity Arrays	UBC	Donald Sogoware, Peter Epaina and T. Okpul	High
v) Eagle	wood studies			
a)	Micro-propagation of the eaglewood species, Aqualaria crasna.	UBC	T. Okpul	High
b)	Identification of plant pathogens associated with agarwood formation in Gyrinops ledermanii.	UBC	T. Okpul	High
c)	Production of fungal inoculum for agarwood formation in Gyrinops ledermanii.	UBC	T. Okpul	High
vi) Envir	ronmental research			
a)	Investigating heavy metals in water, soil, sediment and plants along the Markham River system and its tributaries.	UBC/ Applied Sci. Dept.	Sogoing Denano, D. Timi and T. Okpul	High
b)	Assessing the potential of endemic wild rice species in bioaccumulation of heavy metal, and their use in mitigating environmental pollution from landfills.	UBC/ Applied Sci. Dept.	Sogoing Denano, D. Timi and T. Okpul	
C)	Investigating cysteine protease as defence mechanisms of tropical trees against insect herbivores	BRC/GAP	Samson Hege, David Timi, BRC Researchers, T. Okpul	High
vii) Taro	cytogenetics and breeding for drought tolerance			
a)	Comparison of ploidy levels amongst dasheen and eddoe type taros	ACIAR	Lisahpo Wawah, B. Campbell, Millicent smith,	High
b)	Hybridization of dasheen and eddoe type taros	PNGUT-GAP	T. Okpul & I. Godwin	
a)	DArTseq analysis by Diversity Arrays			
vii) Plan	t variety development			
a)	Pedigree selection of local rice			High
b)	Mass selection of Quality Protein Maize			high

\*Funding sources: PNGUoT-GAP = Papua New Guinea University of Technology – Graduate Assistance Program, AD = Agriculture Department, UBC = UNITECH Biotechnology Centre, BRC = Binatang Research Centre; NARI = National Agricultural Research Institute, EU = European Union, ACIAR = Australian Centre for International Agriculture Research, \*Commercial opportunity available to UBC.

#### Participation at the National/ International Level

i) Alternate Focal Point for Genetically Modified Organisms (GMO) Issues for PNG through the Department of Agriculture and Live stock to the Food and Agriculture Organisation – T. Okpul ii) IUCN SSC Crop Wild Relatives Specialist Group (Member, 2021-2025) – T. Okpul.

iii) Niugini Piotoobhology Natwork (Mambar 2020) –

iii) Niugini Biotechnology Network (Member, 2020-) - T. Okpul

#### Major Milestone for 2023

Approval of the Australian Centre for International Agricultural Research Small Research Activity for 2023-2025, valued at AUD500,000.

SOUTH PACIFIC INSTITUTE FOR SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT (SPISARD)



#### **Background of SPISARD**

The South Pacific Institute for Sustainable Agriculture and Rural De velopment (SPISARD) was founded in 2003 at the Papua New Guin ea University of Technology. It promotes sustainable agriculture and rural development through tailored extension methods, training, and technology transfer. The institute conducts research on food and cash crops, and livestock to improve farming practices, productivity, and in come while minimizing environmental impact.

Over time, SPISARD expanded its focus to include household food security, livelihood strategies, gender issues, resources management, health, education, water supply, sanitation, and more. The institute uses a model village approach for research training and extension, involving the target population, communities, students, and academic staff. This approach ensures real-time feedback and a participatory process, with activities conducted in model villages across various agro-ecological zones.

#### Vision

The Institute envisions itself as a dynamic leader in extension and sus tainable agriculture development, providing lifelong learning and pos itively impacting rural communities in Papua New Guinea, Melanesia, and the South Pacific Island Countries.

#### Mission

The Institute's mission is to advance 'Smart Villages' and enhance skills for rural development, foster collaborative action and learning through demonstration projects and centres, and encourage direct farmer par ticipation to improve farming systems, increase productivity, income, and food security while sustainably managing the environment.

#### Function

The institutes' function includes applied research, training, develop ment of farm implements and post-harvest technology, extension ser vices, market and agri-business information, technology transfer, poli cy evaluation, advisory services, promoting agriculture biodiversity, rice cultivation, aquaculture, agroforestry and traditional farming systems.

#### Introduction

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SPISARD uses the Smart Village Model to implement its programs. There are five areas that the institute is focused on, and they are;

- Research and development
- ii. Teaching and training
- iii. Technology Transfer
  - Capacity building
  - Monitoring and evaluation

SPISARD has active projects in two villages: a cocoa development proj ect in Masandanai village, East Sepik Province, and an inland fish farm ing project in Hamara, Oro Province. A bulb onion farming project is be ing planned for Itsir village in Markham Valley. The institute will continue

to work with these villages to transform them into Smart Villages.

#### Funding

The Institute receives an annual budget of K100,000.00 from the university to support its outreach activities. In 2023, additional funding of K100,000.00 was provided by the University for the SPISARD team to conduct activities during the vacation period, with this report detailing the outreach activities implemented in 2023.

#### **2023 Outreach Activities**

Outreach activities carried out in SPISARD Smart Villages are discussed in the following order;

- i. Hamara Village, Sohe District, Oro Province
- ii. Masandanai Village, Angoram District, East Sepik Province
- iii. Tabaga Village, Tambul-Nebilyer District, Western Highlands Province
- iv. Itsir Village, Markham District, Morobe Oro Province
- v. Kuli Gap, Mt. Hagen District, Western Highlands Province

#### A. Hamara Village, Sohe District, Oro Province

#### i. Opening of Integrated Community Transformation Centre

The SPISARD was invited to the Opening of the Resource Center dubbed the Integrated Community Transformation Center, which the villagers built purposely to diffuse and transfer technology from learned and experienced trainers from PNGUoT to the villagers.

#### ii. Training on Stockfeed Making and Building a Simple Solar Dryer

Hamara is a subsistence community with fertile soil and abundant natural resources. Food crops make up 95 percent of the villag er's diet. Hamara villagers have abundant traditional staple food from the garden: native plantains, taro, sweet potato, and lowland leafy vegetables; however, they lack a consistent supply of protein. The villagers rear chickens, pigs, and, most recently, ducks for consumption on special occasions and for selling. Aside from hunting activities, the villagers do not have a steady daily protein intake in their diets.

When SPISARD was invited to the Integrated Community Training Centre opening, the team planned a training on stockfeed mak ing and building a solar drier. The purpose of the training was to teach the villagers how to make stock feeds using locally available resources, which they can use to feed village chickens and domesticated pigs. The solar drier is essential for drying the pelleted feed so that it can be stored. One hundred and sixty-seven villagers participated in the training, which ran for five days and included



#### iii. Inland Fish Farming Breeder Pond Development

Following the training in January, the SPISARD team travelled back to Hamara to develop the breeder pond for breeding Tilapia. The purpose of developing the breeder ponds is to ensure a continuous supply of fish fingerlings for distribution within the village as well as nearby villages. The SPISARD considers the construction of this community breeder pond an effective way to engage villagers in fish farming and improve their diets and livelihood. Furthermore, not only will the villagers have a continuous supply of protein, but fish can be processed into fish meal, which is an ingredient for stock feed. That way, the villagers don't have to look far for resources for making stockfeed.



#### B. Masandanai Village, Angoram District. East Sepik Province

The SPISARD/ATCDI Team, composed of Mr. James Fanua, Mr. Robert Kipong, and Dr. Veronica Bue, took a week's trip in February 2023 to Masandanai Village in the Karawari Local Level Government (LLG) in the Angoram District, East Sepik Province (ESP). Masandanai village is one of the project sites of SPISARD, where work on cocoa production has already begun in 2022. The purposes of the trip were threefold, and they are:

- i. Conduct training on cocoa production and management practices
- ii. Conduct water feasibility studies
- iii. Follow-up on the status of the cocoa bud wood garden developed by SPISARD

#### i. Training on Cocoa Production and Management Practices

Mr. James Fanua (SPISARD) and Mr. Brian Misai (Cocoa Board) facilitated the training on cocoa production and manage ment practices. The two officers conducted participatory theory lessons in the morning followed by practical in the after noons.



#### ii. Water Feasibility Study

The availability of clean drinking water is a problem in Masandanai village. Although creeks surround the village, the sourc es are from sago swamps, producing a brownish color to the creeks and a foul odor because of the decomposed debris at the bottom of the creek. A 9000Liter Tuffer tank, donated by the Karawari LLG, is the only clean source of drinking water for the community, which has an approximate population of 300 people. When the tank is depleted, clean drinking water is scarce during the dry season.

Hence, clean drinking water is a need in the village. Mr. Robert Kipong is the water Engineer with ATCDI who accompanied the SPISARD Team to Masandanai village to conduct a water feasibility study.



#### C. Tabaga Village, Tambul-Nebilyer District, Western Highlands Province

#### i. Water Feasibility Study

SPISARD engaged ATCDI to conduct a water feasibility study in the Tabaga village community in Nebilyer. This community struggles to source clean water for drinking and sustaining their livelihood. A technical report of the feasibility study will be presented to the local MP for possible water project funding.

#### ii. Baseline Survey

A baseline household survey was conducted on the same trip, and a comprehensive report is being finalized. The data from the baseline survey will serve as a reference point for planning extension activities in Tabaga village and as a benchmark for evaluating these extension activities.

#### D. Itsir Village, Markham District, Morobe Province i. Awareness of Bulb Onion Production

A team comprising staff from the School of Agriculture and Fresh Produce Development Agency made the trip to Itsir Village in Umi/Atzera, Markham District. The purpose of the trip was to meet with the village people and discuss the prospect of trialing out bulb onion in the village. If the trial is successful, model farms will be replicated in other LLGs in the Markham District, and farmers will be able to earn an income from farming bulb onion in addition to other cash crops.

#### E. Kuli Gap, Mt. Hagen District, Western Highlands Province

#### i. Evaluation of Soap Making and Stockfeed Training

In 2021, training was delivered to the people of Kuli Gap on soap making and stockfeed making. SPISARD could not evaluate in 2022 due to the National General Elections. Therefore, the evaluations took place in 2023. Monitoring and evaluation are essential for improving SPISARD activities.

#### Conclusion

Over the past year, SPISARD has continued to promote sustainable agriculture and rural community development in its Smart Villages scattered throughout Papua New Guinea. The Institute is committed to working with villagers in rural communities to improve their farming practices and their livelihood.



## ENVIRONMENTAL RESEARCH AND MANAGEMENT CENTRE

#### Background

The Environmental Research and Management Centre (ERMC), established in 1993, is mandated to conduct and manage research conducted by staff and students related to the environment. The ERMC has spacious laboratories equipped with key modern equip ment for quantitative analysis of aquatic and terrestrial, food, phar maceutical, and clinical samples for various purposes. In addition, ERMC has the Rainforest Habitat (RFH) for conserving, protecting, and managing PNG's endangered and rare biodiversity. Thematic research and management areas of the ERMC and RFH include but are not limited to biodiversity conservation, herbal medicine and natural product development, municipal and industrial wastes, nat ural resources (soil, plant, water, and microorganisms), built environ ments (civic infrastructure) and degraded environments (aquatic, terrestrial and air). The vision and mission of the center underpins these areas of research and management roles.

#### **Vision & Mission**

Our vision is to become a leading regional multidisciplinary research and development hub for the development of technocrats and scientists. We aim to promote and facilitate multidisciplinary prob lem-based research significant to environmental and climatic sci ences, technology, and innovation.

#### Strategic goals

a) To conduct technology-driven innovative research that would lead to broader community publicity and benefits,

b) To mentor and train students to be equipped with advanced knowledge and skills in environmental and climatic sciences and al lied fields,

c) To provide scientific and technological advisory services to the government and the community, and,

d) To promote innovative and entrepreneurial research that would lead to product development.

#### **Board and Meetings**

The ERMC board (RFH has its board) is comprised of the following:
 Chairman – PVC Academic.

- Dr. P. Michael, Executive Officer, Acting Director of ERMC.
- Prof. M. Maino Member, Agriculture.
- Prof. T. Okpul Member, Biotechnology Centre.
- Dr. L. Yalambing Member, Applied Sciences.
- Dr. G. Anduwan, Member, Applied Physics.
- Dr. Jim Lem, Member, Mining Engineering.

The board met twice in 2023; the third meeting was not held due to a lack of quorum. Several key issues were deliberated, among them staffing (appointment of a full-time director, biologist, chemist, and grant writer), forming a research group by nominees from selected Schools (Agriculture, Forestry, Applied Sciences, Applied Physics, Mining, Civil, Surveying and Lands Studies and Architecture and Construction Management). Upgrading laboratory facilities and ac quiring equipment were discussed at the board level, among other things (e.g., upgrading the website and furnishing the offices).





#### Staffing and development

The centre has one technical officer, an admin officer, and a female jan itor. To effectively carry out the mandated responsibilities, the plan for the appointment of the following was made and recruiting:

- (i) Director full-time appointment at professorial level,
- (ii) Scientific Officer Environmental Chemist (recruiting),
- (iii) Scientific Officer Terrestrial and Marine Biologist (recruiting),
- (iv) Scientific Officer Biodiversity Conservation (recruiting),
- (v) Janitor A male janitor.

The appointment of the full-time director at the professorial level with full teaching has been discussed and will be advertised in 2024. This is important for proper administration, consistency, and sustainability of implementations. The recruitment of a chemist, a biologist, and the RFH Manager are underway. A male janitor has been arranged with HR and is attached to ERMC and the PG School. The board-approved or ganizational structure was discussed with HR as part of the Universi ty-wide restructure and will be submitted to DPM for establishment. A laboratory manager and a grant writer position are part of the structure. The only technical officer of ERMC, Mr. Dominic Kia, was supported in doing a Master of Philosophy and is in the first year in 2024.

#### **Research and Grants**

More than fifteen collaborative projects were initiated and undertaken and were reported in the 2023 Annual Research Report. A short course, Certificate II in Project Planning and Management, was designed and written, and is taught online by the staff of ERMC, the School of Agricul ture, and the School of Civil Engineering. The course is part of the Global Green Growth Institute (GGGI) initiatives and is the sponsor. The current internal collaborators are the School of Agriculture, the School of Civil Engineering, and the School of Surveying and Lands Studies. The to tal research grants for all the projects, including the ongoing PNGRIS-2 Markham soil project, are over K700,000. Equipment grants totalling more than K500,000.00 were submitted too as part of partnership projects that are ongoing, proposed, and initiated.

#### Infrastructure

The Yufu Biang Building accommodates the PG School and ERMC. It has deteriorated over the last 29 years and needs serious maintenance. The Estates and Services Department was consulted on the scoping and costing of the whole building. As per University policy, a plan is in place to get the maintenance work done by an external service provider through the Minor Works Committee. Minor refurbishment of the offic es included upgrading the amenities (staff kitchen, conference room, and staff offices). The ERMC is strategically positioned to train, conduct research, and contribute meaningfully to the community. Recruitment of key staff and acquisition of laboratory equipment continue to be the main challenges, which need to be addressed.
## **SUSTAINABLE ENERGY** RESEARCH INSTITUTE (SERI)



The PNGUoT Sustainable Energy Research Institute (SERI) strives to provide, within its means, moral and financial support to all Renewable Energy Practitioners in PNGUoT who are members of the Institute. The main goal is to provide a collegiate environ ment for all Renewable Experts at our University to interact and carry out collaborative research and consultancy under one um brella at the SERI lab and SERI office (currently located within the Applied Physics Department).

The Institute was founded in 2018 by Prof Ora Renagi, Dr Gabri el Arpa (late), and Dr Dapsy Olatona with a mandate to initiate, participate in, collaborate with, and enhance PNGUoT staff and student-inclusive research activities in the area of sustainable (re newable and non-renewable) energy research, energy technology development, and deployment for the benefit of the University, our collaborators, the Government and People of PNG, and the entire mankind.

SERI activities in 2023 can be divided into three broad categories: Research, Consultancy, and Training.

### **Research:-**

SERI's research and sustainability are derived from the research and impute of its members from various science and engineering departments. In 2023, collaborative research activities among members took place in the SERI lab and other departments where the members are engaged either as technical or academic staff. The list below does not include all research activities supported by SERI but just a few handpicked front-liners initiated and coordinat ed by the SERI Secretariat.

- 1. Footstep Power Generation; by Mr Joshua Awiay
- 2. The energy implications and Comparison of Copper and Opti cal Fibre as the medium for Telecommunication.
- 3. Agricultural Photo Voltaic Research(Ongoing research by SERI Secretariat in collaboration with other Universities overseas) This research encourages Solar Energy options that will not compromise rural PNG farmland reserved for food production. Conference participations include Kuala Lumpur and the paper publication titled "Adaptation of Agricultural Photo Voltaic Technology for PNG Rural Household Energy Supply and Farm Land Preservation"
- 4. Mini Hydro Electricity for Kegosuku village in Chimbu Province by Yanda Mathias Thomas Clifford, Gaima Joshua
- 5. Multi Hybrid Power system combining Hydro, Solar, Wind and Biodiesel (Ongoing research headed by Dr Shoeb Syed: HOD; Mech Engineering Department). The research is in its second phase, with additional assistance from the PSR&IC.
- 6. Longevity of Solar Power Installations in three PNG provinces (Ongoing research headed by Dr Olatona and SERI members from three departments)
- 7. Climate Change and Renewable Energy The aim of this ongoing research is to highlight Renewable Energy Advocacy as an effective pathway to climate change mitigation in the Pacific.



## **Consultancy and Training**

Renewable Energy Training and Consultancy is the community engage ment arm of SERI.

It is the institute's main income-generating activity. If the current pace is maintained, SERI can become a self-sufficient organization.

SERI members and officers spend considerable time sourcing from the internet Request-for-Proposals (RFPs) issued by international donors and banks. Members are then sponsored to bid and compete for the funds. Successful bids result in Renewable Energy (RE) Infrastructure contracting, RE deployment, and the Professional Training of Renewable Energy Practitioners such as Electricians, Renewable Energy Installers, and Company Design Engineers.

SERI is, however, a not-for-profit organization; therefore, SERI rates are negotiable and "means-tested." Regardless, insightful economic man agement and reaching out to overseas fund administrators have proven to be substantial income-generating activities for SERI energy experts and the SERI Secretariat.





# PNGUoT AGRICULTURE FARM

### **Executive Summary**

The Agriculture Farm is a Field Laboratory, and was recently tasked with generating income and, as such, has increased its commercial activities. The commercial component of the Farm started with Broiler Chicken Production from growing to processing. Renovations, improvements, and developments, especially of the farm structures, were made to achieve that.

## Vision

Promote Academic Teaching and Research Excellence and Maximization of Farm Income.

#### Mission

Recapitalize and develop the Farm to realize Excellent Academic Teaching and Research and increase Farm's Profitability.

#### Introduction

The Agriculture Farm is another section of the School of Agriculture that functions as a Field Laboratory. It facilitates practical teaching, demon stration, research, and Trials for undergraduate and post-graduates. The farm also generates income for the Department of Agriculture with vari ous livestock and crop products. Farm development and practices have been remodeled to enhance smart farming and sustainable operations where other government institutions, community-based organizations, community agricultural cooperatives, and or individual farmers have ac cess to farming technology, farming management, and sustainable farm ing concepts.

## Strategic objectives

Promoting practical training, research, and development in Agriculture. Establish sustainable production practices to enhance the profitability of the Farm.

Integrating a model of Farming as a business.

Shifting conventional farms to smart farming concepts.

## **Financial Status**

At the beginning of the 2023 financial year, the Agriculture Farm Account had no funds, with a statement indicating a K68,000.00 loss. Unitech Student Mess has injected K98 000.00 to the Farm to start facilitating broiler chicken and stock feed procurement, with assistance from the Bursary team. Those funds were paid back towards the end of 2023. There was no initial budget allocation for farm infrastructure improve ments, development, production, or operation funds. Since there was no proper/appropriate physical infrastructure and production or opera tion equipment, The Farm continued to spend from generated income. The cost of production has been influenced significantly by the country's economic situation and currency fluctuation in recent times. Still, Farm is vigilant and farming smart to reach its break-even in 2024.

#### **Products/Services**

Farm products:

Broiler Live Chicken Freshly dressed whole birds. Table Eggs Live pig Live Sheep & goat Ducks Live cattle Cocoa dry bean Garden food: Aibika, Taro, and pak choi







## Customer

The farm has produced primarily to supply Unitech Student Mess with vegetables and meat products. In fulfilling the University's in-sourcing catering, the Farm has supplied 1000 whole birds weekly to Mess since June 2023.

Currently, the Farm is tirelessly working to meet the NKW food safety requirement, and hopefully, it will be able to supply NKW soon.

### Infrastructure development/improvement

The farm was tasked to increase productivity to generate income without proper in frastructure. The Farm Management and Farm Committees approved the improve ment of a few existing infrastructures in the Farm with HOD. 2023 development/im provement undertaken by Estate and services under HOD Mr. Eric Lagaia's leadership achieved the following milestones:

Farm Workshop was converted to the first broiler chicken shed with a stocking ca pacity of 2000 broiler birds

Converted old Duck shed that housed another 2000 broiler chicken

Farm Slaughter was renovated, improved, and processed 1000 birds every week.

65m x 11m broiler shed was completed with stocking capacity 10 000 broiler chick en



#### Statutory/Regulatory compliance

As Unitech Agriculture Farm is producing food to feed Students and other public con sumers, work is in progress to meet the statutory requirements of the following:

HACCP Certification NKW Food Safety Requirements Bio-Security Requirement Environment - CEPA

The National Institute of Standards and Industrial Technology (NISIT) Team made an introductory visit to the Farm and was very impressed with their report conclusion. Documentations towards HACCP Certification is WIP, and an invitation was sent for a GAP visit and assessment by NISIT in April 2024.

## Farm Potentials

PNGUoT Agriculture Farm is slowly working toward its potential for productivity and income generation at the university. 2023 milestones achieved were;

Total Broiler chicken stocked: 58 656 birds, Live Sales (Staff credit & Eftpos/cash) 12 800 birds and almost 45 000 dressed frozen whole birds sold to PNGUoT Student Mess

A total of 20 000 live broiler chickens were sold out (cash & staff credit) Farm established a mini-processing plant classified as Farm Slaughter House Recorded sales of 56 live pigs.

Produced 15 gilts (young breeding female pigs) for 2024 breeding. Cocoa Budwood Garden Certification from Cocoa Board PNG. Successful NISIT Visit.

Conducive environment for agricultural research and innovation trials.



Farm mini-processing Unit

receiving Certificate Level II in Food Safety Training, 2023.

#### Farm Staff establishment, Training & Development

As the Farm increases its activities, both teaching/research and commercial, it requires more handymen. As demanded, the Farm recruited 17 new casuals and 10 other casuals attached to the maintenance team, bringing the total to 41 staff. The re cruitment established knowledgeable individuals with vast experience like broiler husbandry, commercial layer, mini-process ing line and cocoa production assigned to respective Farm sections.

#### **Milestones achieved:**

In terms of staff training, Three Farm staff attended Food Safety Training conducted by the Applied Science Department, which has issued Level I, II & III Certificates.

Farm recruited a qualified Quality Assurance Officer with vast industrial experience and is now responsible for HACCP Cer tification Documentation.

Recruited staff with vast industrial experience and knowledge.

#### **Future Development**

Following are lists of potential developments:

New Hatchery – Structural drawing sent to Supplier in Australia awaiting Feed Back 1 X 60 x 11m new Commercial Layers Shed. 1 x 65 x 11m new Broiler Shed Stock feed ingredient storage shed Cattle Stockyard Cattle Feedlot Duck & Fish integrated Piggery breeder shed renovations and new weaner/grower shed Cocoa Nursery Cocoa Drier Unitech Arborator 1 X Glass House for Bench Marking 1 x Vet. Clinic Shed Biogas plant Farm Staff Housing Paddy/up-land rice field development

## Appropriate Technology for Community Development Institute (ATCDI)

## Brief

The Appropriate Technology and Community Development Institute (ATCDI) was founded in late 1978 at the Papua New Guinea University of Technology. The Institute began its journey as the Appropriate Technology Development Unit and later evolving into ATCDI in 1981. Over the years, its unwavering mission has been to pioneer novel technologies that enhance the quality of life within Papua New Guinea communities, particularly those underserved in rural areas. Through the community services, it strives to propel rural development in a culturally sensitive and sustainable manner, fostering positive changes and lasting impact in the community.

The collaborative efforts with government institutions, non-government organizations, community groups, and donor agencies enabled the department to conduct comprehensive research and develop apt tools and techniques to cater to rural development needs. Our experienced team of Engineers, Scientists, Technical and Community Development Officers are dedicated to disseminating knowledge on these transformative technologies to communities both within and beyond Papua New Guinea. Amid the challenges posed by politics, economics, and societal, technological, ecological, and legal re quirements, ATCDI has persevered for over 45 years, still committed to making a tangible difference in people's lives. It con tinues to grow and adapt its focus expands to include the urban peripheries, recognizing their equally crucial need for basic amenities. The department is aiming to create a future for contacted communities to have access to appropriate technology and resources for a better quality of life.



#### Aligning ATCDI objectives to Strategic Domain 7 of PNGUoT Strategic Plan 2020-2024 SD: 7 Community, Industry and International Relations

- o SOi: Develop sustainable networks, partnerships, communication media and activities between the University and Communities at local, national, regional and international levels.
- o SOiv: Appropriate Technology and Community Development Institute will expand and be the technology transfer center rolling out training and development programs for urban and rural communities.

# Advancing community development through appropriate technology Values defining ATCDI and the work it does.

#### Our mission;

To conduct research and develop appropriate technologies that address rural development needs in Papua New Guinea and disseminate this knowledge to communities in a culturally sensitive and sustainable manner.

#### Our vision;

To build a sustainable and culturally sensitive Papua New Guinea where rural communities have access to appropriate technolo gies and tools that enhance their quality of life.

#### **Objectives;**

- i. Develop appropriate technologies that address the needs of rural communities in Papua New Guinea
- ii. Build partnerships with government agencies, NGOs, and other stakeholders to improve the effectiveness and sustain ability of appropriate technology interventions.
- iii. Conduct research to better understand the needs of rural communities and to develop new and improved appropriate technology solutions.
- iv. Disseminate knowledge and information on appropriate technologies to local communities, organizations, and govern ments to enhance their capacity to adopt and use these technologies.

A. Administration	А.	Administration
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	Programme	Officer	Position Status
1	Director	-	Vacant
2	Water Supply & Sanitation (WS)	Mr Sona Anegi	Permanent
3	Appropriate Technology (AT)	Mr Robert Kipong	Permanent
4	Food & Down Stream Processing (FDSP)	Ms Sarah Wap	Temporary
5	Information Dissemination/Liklik Book (INFOR)	Ms Joberth Wape	Permanent
6	Renewable Energy (RE)	Mr Nosare Maika	Study Leave

	Officer	Description
1	Sona Anegi	Water Supply & Sanitation Program Engineer (IV) and also acting on the Directors Position.
2	Nosare Maika	Senior Engineer V, Renewable Energy Program, achieved a notable accomplishment by securing the prestigious Australian Award Scholarship. He began his PhD in Mechanical Engineering at James Cook University in early June 2022. His studies into hydro-electricity would be valuable in assisting ATCDI develop more efficient and sustainable rural based hydro-electricity plants.
3	Robert Kipong	Appropriate Technology Engineer (III) specializing in Appropriate Technology Programs. Very dedicated utility officer assisting all other programmes of ATCDI.
4	Sarah Wap	Ms Sarah Wap is the Scientific Officer mending the Food DownStream Processing Section. She joined the department mid of 2023 as temporary officer after vacancy left by long term and retired scientific officer Mr Tenakanai.
5	Joberth Wape	Ms. Joberth Wape is the departments Admin Officer and joined ATCDI in mid-2022. She became a permanent officer after her probationary term. She is in charge of the Information Dissemination - Liklik Buk Programme.
6	Petronila Tade	Ms. Petronila Tade is the Secretary of the Department. She also joined ATCDI in mid-2022 and became a permanent staff after her probation.
7	Ronald Dei	Mr. Ronald Dei, our dedicated Technical Officer, has been instrumental in assisting engineers across various sections with their respective projects. Plans are underway to engage additional technical staff to support the ongoing projects, which will also help in reducing Mr. Dei's workload.
8	Paul Pawa	Mr Paul Pawa is another new commendable and dedicated temporary Technical Officer in charge of the Plumbing Section who joined the department mid of 2023
9	Illan Sasarongo	Ms. Illan Sasarongo, our versatile utility staff member, plays a crucial role in supporting the administrative team. Additionally, she assists the FDSP Officer in the production of downstream processing products and is involved in baking and soap-making initiatives. The FDSP section is one of the most active within the department, with a steady stream of customers and clients seeking its products and services on a daily basis

## B. 2023 Projects aligned to ATCDIs specific objectives to achieve PNGUoT Strategic Plan

We present a selection of projects that ATCDI has successfully implemented and or is actively involved in, demonstrating the effective use of suitable technologies and their potential to foster sustainable growth centered around communities. These ini tiatives are from just single aspect of the five distinct program areas ATCDI encompasses. Each of these areas provides a distinct opportunity to address diverse community needs through the strategic application of suitable, sustainable technologies, there by contributing to the overall welfare of the communities we serve.

	Program	Project	Location	Funded by	Objectives Achieve	Remarks
PROCJECTS	AT	Water Supply	Angoram, ESP	SPISARD	ii & iii	Visited sited, report submitted
	AT	Water Supply	Tambul-Nebilya, WHP	SPISARD	ii & iii	Visited sited report submitted
	AT	Ram Pump	Gobadik, Morobe Pro	Unitech Trust	i & iii	Project continue - expected to complete before June 2024
ACT	AT	Bio Gas	Unitech	Unitech Trust	ii & iii	Research project continue
MF	AT	Brick Making	Unitech	Unitech Trust	ii, iii & iv	Ongoing activity
LI						
MAL	ws	Water Supply	Karavi/Raim, ENBP	Unitech Trust	ii & iii	Visited sited – to implement project
IES/ S	WS	Water Supply	Markham Morobe Pro	External Markham DDA	ii & iii	Visited sited report pending submission
TUD	WS	Water Supply	Dei, WHP	Internal ATCDI	ii & iii	Visited sited report pending submission
ASIBILITY S	WS	Water Supply	Sumbra, SHP	Unitech Trust	ii & iii	Visited sited- report pending submission
	ws	Water Supply	Munum, Morobe Pro	Unitech Trust	i & ii	Completed (Commissioned, project is running)
FE	WS	Water Supply	Salamaua,	External Salamaua LLG	i & ii	Project continues expected to complete by April 2024

## 1. APPROPRIATE TECHNOLOGY PROGRAM

## **GOBADIK RAM PUMP PROJECT PROGRESSIVE UPDATE**

#### What is the current state of the Project?

- We are currently in the testing and operating state. The ram pump being an experimental prototype is scheduled to under go two weeks long testing program starting on the 25th of March 2024.
- Testing facilities are being set up currently (in campus) to facilitate this testing exercise.
- Testing is essential as it will minimize the costs associated with travelling back and forth to assess and rectify pumping issues.

#### What have we accomplished so far?

- The tank structure has already been erected and tank has been installed. Constituting 30% of the project completion. This includes a 5m high water tank structure along with a 5,500 L warrior tank supplied by the Gobadik Elementary school.
- Trained a local youth (male) in the basic operation of the pump.
- Purchased all the required piping and construction materials which are currently on site.



Tank stand erected and tank installed the following week. A local woman fetches water being pumped from the ram pump



ATCDI team with Mr. Clinton Benabo (Applied Physics final year project student) at Gobadik – The elevated tank has been erected with a 5,500L tank installed.



Fractured impulse valve (Left) Mechanical Engineering Machinist assists with fabrication of new impulse valve. (Middle and right)



Measuring flowrate from the ram pump (Left) Vocational school trainee installs the impulse valve (Right)



Ram pump testing rig, expected to be completed by 25th March and a two week testing will commence

# Based on the work scope, I have assigned the project to have three phases:

Phase 1: Tank Stand and Supply System Phase 2: School Supply System Phase 3: Community Supply System

Currently in the Phase 1 construction phase:

- Tank stand assembled on site completed as scheduled.
  Four-(4) foundation trench 600 x 600 mm dug to 1.5 me ters completed as scheduled.
- Tank stand erected completed as scheduled.
- River stones purchased from local supplier as budgeted.
- Pipe trench from ram Pump Mountain to tank stand area via gardens, marked using string line completed as
- Arrangement for local contractor to supply gravel un
- Arrangement for local contractor to supply gravel un successful. Alternatives considered.

Current state

Phase 1: Tank Stand and Supply System Action Items (per current State)

Action Item	Date	Status
Commence deform bar bending to specifications	5/07/23	Complete
Commence formworks building	5/07/23	Complete
Commence tie-beam concrete trench digging	5/07/23	Complete
Arrange for transportation of pipes to site	6/07/23	Complete
Arrange for gravel purchase and transport to site	7/07/23	Complete
Arrange for concrete mixer transport to site	12/07/23	Complete
Install deform bars per specifications	6/07/23	Complete
Pour concrete into tank foundation trench	12/07/23	Complete
Allow 14 days curing (75% strength) time for concrete works. In addition, thread 50- and 25-mm galvanized pipe	12/07/23	Complete
Pump water into 5500L tank		Pending
Assemble pipe assemblies for water delivery pipe for tank per design		Pending
Assemble control valves per design		Pending
Paint tank with primer	5	Pending
Report on Phase 1 completion - Initiate Phase 2		Pending

### 2. WATER SUPPLY & SANITATION PROGRAM MUNUM BORE WATER SUPPLY PROJECT UPDATE

What is the current state of the Project?

- The water supply is currently operating and supplying the benefiting population of nearly 2000 plus
- Project was tested and commissioned by the Vice Chancellor Prof Ora Renagi and the Minister for Community Development, Youth and Religion and local electorate MP Hon Jason Peter

## About the project?

- The tank structure erected to 7m height with 9000L tank
- Water supply was piped out from reservoir tank to a distance approximately 3000m for the people to have access.
- About ten (10) tap stands were installed in several designated spot for the locals to access fresh water supply
- Local youth members were selected and trained to mend the water supply system. (Trained several local youths (male) in the basic

operation of the pump and water system.)



#### SALAMAUA WATER SUPPLY PROJECT UPDATE

#### What is the current state of the Project?

- The water supply is currently under construction by our technical officers and support team from the department so as locals; about 85% complete;
- Purchased all piping materials, fittings, tanks, and construction accessories all done and materials already transported to the site.
- Catchment dam completed for intake water storage.
- Construction of dam completed for insertion of submersible bore water pump. Submersible solar bore water pump of 147m head will be installed to pump water from the dam to 18000L main res ervoir at 100m uphill to allow gravity to supply water to the com munity
- Poly pipes for water supply distribution is already trenched await ing connection to the reservoirs.
- The project is expected to be completed by end of March 2024

#### About the project?

- The water supply project will benefit nearly 1000 people in the Nuknuk and Lagui of Salamaua.
- There are a total of three water thanks to be installed at this project two are primary tanks merged of 18kL and a 5kL as secondary.
- Once the project is commissioned it will greatly reduce the time and distances covered daily by the locals to source their drinking supplies.
- The project combines two methods or options for the water sup ply system. The use of water pump and the use of natural force of the gravity feed water supply system.

Courtesy captions of primary reservoir tanks of 18kL to store pumped water utilizing solar submersible pump from the dam of 5kL volume. The community will benefit using the gravity fed sys tem supplied through the reservoirs.

#### 3. FDSP PROGRAM FOOD DOWNSTREAM PROCESSING UPDATE

#### What are some current activities and products?

#### **Existing Products**

Ms Sarah Wap is our FDSP Officer and she is actively mending our operations for the program. We had varieties of common down stream products itemized which we name the list both processed and under research & development(R&D);

Noni Juice	Turmeric Lemon Soap
Turmeric Powder	Turmeric Soap
Virgin Coconut Oil	Moringa Coconut Oil
Moringa Leaf Powder	Cinnamon Powder
Noni Seed Powder	Cinnamon Coconut Oil
Turmeric Coconut Oil	Fruit Juice
Moringa Soap	Fruit Jam
Coconut Soap	Peanut Butter











	Products descriptions		Products descriptions	Products descriptions		
1	(Infused Essential Oils (All infused oils have the carrier oil as coconut oil)	2	Powder Products	3 R&D Chocolate/Cocoa Powder Making using simple approaches and techniques from		
	Turmeric Coconut Oil		Cinnamon Bark Powder	our locally homegrown Cocoa beans.		
	Moringa Coconut Oil		Noni Seed Powder	Extracting Avocado/Peanut oil using		
	Cinnamon Coconut Oil		Dried Curry Leaf Powder	simple approaches and techniques fro our local homegrown. For R&D activities much of the practic		
	Neem Coconut Oil		Moringa Leaf Powder			
				trial and error is not carried out due to a		
	Products descriptions		Products descriptions	lack of basic appropriate scientific		
4	Oil Extraction	5	Soap Making	instruments and necessary cookware.		
	Virgin Coconut Oil		Coconut soap	However, literature reviews, note-tak		
	Virgin Avocado Oil		Turmeric Soap	etc are in progress.		
	Pure Peanut Oil		Neem Soap			
			Moringa Soap			

Milestone	Milestones/Accomplishments					
Date	Milestone	Description	Status			
30/08/23	Air drier donated assistance by Mr David Masani	An air dryer was donated by the CEO of Fibulin Catering after noticing that our turmeric was sun dried.	Currently, the drier is in use and is of great assistance and reduces a lot of prolonged drying and continuous turning and close watching, great relief for powder product making that requires drying.			
	Mr David Masani assisted ATCDI to make proposal submission to Ok Tedi Mining Ltd and other stakeholders' officers	Proposal submitted to donors to assist in funding urgent needs lacking at FDSP Section	Quotations collected and a proposal collectively submitted to donors Pending response.			
18/09/23	Start-up capital Of K1000 received	K1000 was given to get some essential oil, and powder products up and running however still not enough to include a kitchen scale, colour labels, or even packaging containers, bottles, and plastics.	Oil is bottled ready but requires labelling -powder is here however requires a weighing scale and proper packaging and labelling to go with pricing Noni juice is available. Two attempts at soapmaking failed due to the inaccurate weight ratio of ingredients used.			

### About the FDSP Program

- 1. Develop and launch comprehensive training and development programs for both urban and rural communities in ap propriate technology and downstream food processing.
- 2. Conduct thorough research and development activities under the food and downstream processing program, focu sing on applications beneficial to rural communities.
- 3. Implement and supervise community-based food downstream processing Focusing on downstream and food pro cessing operations and strategize transferring the skills by training and outreach to help those in the rural communities.







## C. ADMIN PROJECTS ATCDI's new website pages

ATCDI will soon launch its new website and will maintain and update all its active projects and activities independently by its staff at the department.



D. EXTERNAL/DONOR FUNDS

Month	<b>Project Fund Description</b>	Donor	Amount K	Remarks
September	Payment for feasibility studies	Markham DDA	27, 272.73	Deposit cleared account confirmed received
November	Payment for FDSP equipment	OTDF	5,000.00	Deposit cleared account confirmed received
December	Payment for bore water drilling machine	Kumul Minerals Holding Limited	248,500.00	Deposit cleared account confirmed received

Total Fund received (K) 280, 772.73

ATCDI submitted a proposal for FDSP equipment to Ok Tedi Mining Ltd and succeeded receiving cheque donation of K5,000 per feedback.



ATCDI's submitted proposal through the office of Vice Chancellor for bore water drilling machine to KMHL for fund ing succeeded.



Kumul Minerals Holdings Limited through the board member PVC Admin Prof K Gena presented the cheque to ATCDI for purchasing of new bore water drilling machine through PNG University of Technology Administration.

## **STUDENT SUPPORT & FACILITIES CENTER**

## 1. Introduction

Student Services & Facilities (SS&F) is one of the oldest support sections of this univer sity. It was established over 50 years ago. In 2023, the Division faced many challenges but ended the year successfully with three significant highlights.

Purpose of the Existence of SS&F:

• To cater to the social welfare needs of students at all levels by providing, maintaining, and managing facilities and support services related to their welfare. In 2023, the SS&F section of the Registry Department underwent two major operational changes, which will be highlighted briefly in this report.

## 2. Subsections and Activities:

The Section's roles concentrate on two primary areas: Student Facilities and Student Support.

## 2.1 Student Facilities:

Under the Student Facilities, we manage and have custody over the following facilities:

• All the student dormitories owned by PNGUoT: Allocate rooms and manage them through a contractor and our maintenance section. At the end of each academic year, we facilitate student clearances from the campus, including transport arrangements for drop-off at the airport.

• Students' Mess: We grant students access to the Mess through room allocation and TAFs. We maintain surveillance and order in the Mess and ensure the Catering staff pre pares healthy meals.

- Sporting facilities
- Christian Center

## 2.2. ROOM ALLOCATION SUMMARY:

In the 2023 academic year, DHERST sponsored about 1814 students under TESAS, but we could cater to only about 1700+ students. About 100 plus male and female students were absorbed by the Okari campus.

A. On Campus, the university has 497 bed spaces for female students and 1213 for male students. The UARC gave 134-bed spaces for our TESAS female students (18 of the 152-bed spaces were retained by the UARC Manager and allocated to our students under the self-sponsor category).

### Summary of Bed-spaces

Total Bed- spaces	Males: 1264		Females: 690		
	Allocated	unallocated	Allocated	unallocated	
1954	1235	29	677	13	

Total bed spaces for PNGUoT dorms: 538 + 1238 = 1776

#### B. Okari Campus Allocations:

AOG Okari campus has been a good partner in assisting us in accommodating many stu dents over the past few years. Due to the difference in the amount of Board & Lodging paid by DHERST for their TESAS awardees, we only sent self-sponsored students to the Okari campus this year. Two groups of self-sponsored students are currently residing at the Okari campus:

1. those who paid their Board & Lodging fees directly to the Okari campus account and

2. those who paid their B/L fees into PNGUoT Account but needed rooms available to al locate to them.

The information pertaining to the room allocations at the Okari campus is given in the table below:

#### PNGUoT students residing at the Okari campus

. 64
05
69

#### 2.3. Challenges Encountered

- We encountered some challenges in the room allocation pro cess. The office space is too small and inappropriate for us to allocate a room, as enough space is required. The officers worked in an overcrowded area inside the SS&F office building.
- A delay in the dorm maintenance program delayed some room allocations while work was being completed.
- Our vehicle broke down, making moving our work-related items and facilities around the campus difficult.
- Our officers who worked overtime were not paid overtime al lowances because the request to the Registrar for O/T was not approved.
- The registration process was delayed because of the delay in fee updates in our Accounts section.
- The number of TESAS awardees is increasing primarily because of new inclusions, such as school leavers selected through the appeal process.

#### 2.4. Recommendations

Due to the above mentioned challenges, the following recommendations are made for the SEMT to peruse and intervene where required. Plans or measures must now be taken to provide more dormitories to cater to the ever-increasing (GoPNG direc tive of 5% increase per annum) number of students (both TESAS and self).

- The proposed female students' dormitory, funded by the PNG Incentive Fund and supposed to be built in 2023, should be contracted and constructed ASAP.
- Plans and steps must now be taken to build a new Office com plex for the operations of SS&F. The current building is run down and aging and cannot accommodate the increasing number of students.
- Dormitory maintenance programs must be carried out from mid-November to mid-January of the following year. This would allow us to prepare the dormitories before our students arrive.
- Nominated officers engaged in room allocations after hours must be compensated adequately through overtime allowanc es. Just like the allowances paid to the ORWC members, our officers must be paid overtime allowances in the future.
- Our accounting system must be improved so that school fees paid by students are updated in real time.
- The number of TESAS awardees must be steady. We must min imize the "supplementary list" business to allocate rooms with out ever-increasing numbers.
- All the new inclusions made by appeal should be registered un der self-sponsor as we did in the past.
- SS&F must be consulted before the advertisements concerning school fees are publicized.

- 3. Awareness and Engagements with Residential Students:
- Team SS&F, the PNGUoT Medical team, and the Security per sonnel did two rounds of Awareness on student behaviour and Health issues.
- Team SS&F also raised awareness of the issues at the AOG Okari campus and UARC for the first time in 2023.

#### 4. Highlights of 2023:

Amidst the challenges of the 2023 Working Year, SS&F had some achievements, and 5 Assistant Wardens are now sta tioned.

#### 4.1. SS&F Operational Center:

- Under the leadership of the DR-SS&F, SEMT was recommend ed to convert the Male Amenities Center to an office build ing for the convenience of male students. These students can access our Counselling Services and report dormitory main tenance needs. The Operational Center was opened in Feb ruary 2023.
- The Warden and his 5 Assistants are now stationed there to monitor and attend to male students' inquiries. The male counsellor is also stationed there to conduct counselling ses sions for male students.



#### 5. Outsourcing of Janitorial Services:

- The Janitorial function of SS&F through our Janitors was out sourced to a company.
- ALL our dormitory Janitors (32 of them, male and female) were separated from the University in compliance with a di rective from the Department of Personnel Management (DPM)
- The Contractor (Pro Waste Solutions) absorbed only 24 janitors.
- Cleaning work by the contractor began on the 26th of January 2024.

#### 6. Newly Created Positions within SS&F

Due to the increasing number of students enrolled every year, three (3) new positions were created to ensure the effective operation of SS&F in terms of students' Support and Facilities.

 $\cdot$  2 x Senior Assistant Registrar positions were created: 1 x SAR-Students Support services, and 1 x SAR-Students Facilities: re cruitments made in November, 2023

• 1 x other position was created: Assistant Registrar- Scholar ships & Career Counselling: Recruitment made in November, 2023.

• In addition to the three newly established positions, a new Warden was recruited because the incumbent Warden had been elevated to the Dean position at that time.

• All their KPIs have been written and made known to them.

## **PNGUoT RAINFOREST HABITAT**

This report provides an overview of recent improvements in the Rainforest Habitat (RFH). The PNGUoT Rainforest Habitat, which covers 3,000 square meters of land and is lush with tropical forested vegetation and wildlife, forms an attractive part of the PNGUoT campus.

The Rainforest Habitat at the University of Technology is a pioneering eco-tourism venture within the university campus dedicated to providing a unique educational ex perience centered on rainforest conservation, biodiversity, and cultural heritage. By offering guided tours, workshops, research opportunities, and accommodation options, the business aims to engage students, faculty, and visitors in immersive learning experiences that promote sustainabil ity, inspire environmental stewardship, and foster a deeper understanding of the interconnectedness of nature.

## 1. Goals and Objectives

#### Goal

To maintain and enhance the biodiversity of the PNGUoT rainforest habitat through sustainable conservation practices.

#### **Objectives:**

- Enhance Education: Provide students and faculty with experiential learning opportunities that promote environ mental stewardship, biodiversity conservation, and sus tainable practices.
- Promote Conservation: Raise awareness about the im portance of rainforest conservation, support local com munities, and contribute to preserving endangered spe cies and ecosystems.
- Foster Research: Facilitate research projects, field studies, and collaborations with academic institutions to generate new knowledge and solutions for environmental challeng es in the rainforest.
- Engage Stakeholders: Create a supportive and inclusive environment that engages students, faculty, indigenous communities, and visitors in dialogue, cultural exchange, and collaborative projects.
- Sustainable Growth: Achieve financial sustainability through diverse revenue streams, strategic partnerships, and responsible management practices to ensure long-term viability and impact.

No	Job Title	Staff	Area of Responsibility
1	Administration officer	1	Main office
2	Accounts clerk	1	Main office
3	Guest House Attendant	1	RFH Guest House
4	Ground men	3	Park & Grounds
5	Animal Feeder	4	Zoo
6	Carpenter	1	Maintenance
7	Handymen	1	Maintenance
9	Security	1	General
10	Education & Publication officer	1	Zoo

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#### 3. Key Highlights:

• The PNGUoT Rainforest Habitat has made significant strides in improving the care and management of its animal residents by bringing in a Zoo specialist from Port Moresby Nature Park. This specialist has provided coaching and mentoring to the staff, en hancing their knowledge and skills in handling the animals and ensuring their well-being.

• The habitat has procured new birds and animals to enrich their zoo collection, offering visitors a diverse and educational experience. This provides a better environment for the animals and en hances the overall visitor experience at the habitat.

• The Gift Shop at the habitat has been revamped to offer a broad er range of merchandise, catering to the preferences and needs of visitors. This has led to an increase in revenue generation, which can be vital for the sustainability of the habitat and its conserva tion efforts.

• The Habitat Guest House has seen full occupancy, indicating high satisfaction among guests with the quality service and tran quil atmosphere provided. This benefits the habitat financially and helps raise awareness and support for their conservation efforts. Overall, these developments have helped the PNGUoT Rain For est habitat create a more enriching and impact.

Monthly average client's zoo visits for 2023

No	Description	Category	Monthly Average client visit	Monthly Average Amount
			Zoo	(Kina)
1	Zoo Visit	Kids	138	276.00
2	Zoo Visit	Student	97	290
3	Zoo Visit	Adult	146	728.75
4	Zoo Visit	Group	85	1,083.33

#### 4. Challenges:

The existing infrastructure of the PNGUoT Rainforest Habitat, including the guest house, zoo facilities, function area, orchid and flower pot collection, parks and gardens, and butterfly cage, is deteriorating due to a lack of maintenance and investment. Buildings may be in disrepair, exhibits may be outdated or in poor condition, and essential amenities may be lacking or mal functioning.

• Financial constraints: The habitat may struggle to secure funding for necessary resources such as veterinary care, ani mal feed, habitat maintenance, and conservation initiatives. Limited financial resources can hinder the ability to provide the best possible care for the animals and may restrict the imple mentation of crucial conservation projects.

• Sustainability issues: Achieving financial sustainability while upholding ethical standards in animal care and conservation practices can be a delicate balancing act. The habitat may need to explore alternative revenue streams, such as grants, part nerships, or fundraising efforts, to support its operations while focusing on conservation and animal welfare.

• Staff training and retention: Investing in ongoing training and professional development for staff members is essential to en sure the highest animal care and visitor experience standards. However, retaining skilled and experienced staff members can be challenging, especially in a competitive job market where turnover rates may be high. Continuously nurturing a motivat ed and well-trained team is crucial for the habitat's success.

• Visitor engagement: Educating visitors about wildlife conser vation, biodiversity, and sustainable practices is vital for raising awareness and fostering a sense of stewardship. However, sus taining visitor engagement over time and encouraging behavior change can be challenging. The habitat may need to develop innovative educational programs, interactive exhibits, and en gaging experiences to inspire visitors and encourage support for conservation initiatives.

The Rainforest Habitat is facing a deteriorating stage with limit ed funding, which poses significant challenges to its infrastruc ture, operations, conservation efforts, visitor experience, and community engagement. Urgent action is needed to secure funding, address maintenance needs, and revitalize the facility to fulfill its mission of promoting rainforest conservation, biodi versity preservation, and environmental education.

#### 5. Financial Overview

**Revenue Generation:** 

•Guest House Accommodation: Enhance the guest house experience by offering unique packages, such as guided tours, wildlife encounters, and eco-friendly amenities. Implement a marketing strategy to promote the guest house to eco-tourists and nature enthusiasts.

• Function Area Bookings: Develop partnerships with event plan ning companies and local businesses to increase bookings for functions, events, and weddings. Offer special packages and dis counts for corporate events and team-building activities.

• Zoo Admission Fees: Conduct market research to determine competitive pricing strategies and implement promotional cam paigns to attract more visitors. Offer discounts for groups, stu dents, and senior citizens to increase footfall.

• Gift Shop Sales: Expand the range of merchandise available in the gift shop to include eco-friendly products, handicrafts made by lo cal artisans, and sustainable souvenirs. Implement an online store to reach a wider audience and increase sales.

#### **Expenses:**

• Staff Salaries and Benefits: Conduct regular performance reviews and provide opportunities for professional development to retain skilled employees. Consider implementing incentive programs to boost morale and motivate staff members.

• Maintenance and Repairs: Create a schedule to prioritize urgent repairs and preventive maintenance tasks. Invest in eco-friendly and sustainable maintenance practices to reduce costs and mini mize environmental impact.

• Animal Feed and Care: Work closely with animal nutritionists to ensure the animals receive a balanced diet and adequate care. Ex plore partnerships with veterinary clinics and educational institu tions to enhance animal welfare practices.

• Administrative Costs: Implement cost-saving measures such as digitizing administrative processes, consolidating software sys tems, and negotiating better deals with suppliers. Regularly review expenses to identify areas for optimization and efficiency improve ment.

#### 6. Future Initiatives:

• To address financial constraints, seek alternative sources of funding through grants, partnerships, and sponsorships. Organize fundraising events, crowdfunding campaigns, and corporate spon sorship opportunities to secure additional funding for conservation projects.

• Prioritize maintenance and repairs to ensure the safety and at tractiveness of the habitat. Develop a detailed maintenance plan with clear timelines and budget allocations. Regularly inspect fa cilities and infrastructure to address maintenance issues promptly.

• Explore options for recruiting a qualified animal veterinarian to enhance animal welfare and healthcare services. Collaborate with veterinary hospitals, universities, and wildlife conservation organi zations to recruit experienced veterinarians and offer training pro grams for existing animal care staff.

• Address the water supply issue by repairing the bore water pump or exploring alternative water sources. Install rainwater harvesting systems, implement water conservation measures, and conduct regular water audits to optimize water usage and minimize wast age.

#### 7. Conclusion:

As a beacon of conservation in the region, PNGUoT Rainforest Habitat is dedicated to upholding its values of environmental sustainability, wildlife preservation, and educational outreach. By proactively implementing revenue-generating strategies, carefully managing expenses, and embracing future-oriented initiatives, the habitat is poised to enhance its financial sus tainability while maintaining its commitment to conservation efforts.

Furthermore, PNGUoT Rainforest Habitat's unwavering dedi cation to providing a memorable experience for visitors through initiatives such as eco-friendly accommodations, engaging ed ucational programs, and sustainable practices underscores its mission to inspire a deeper appreciation for the natural world. With a focus on innovation, community engagement, and ho listic conservation practices, the habitat continues to set a high standard for wildlife sanctuaries and nature-based tourism destinations in the region.

Overall, PNGUoT Rainforest Habitat remains a vital institution in conservation and environmental stewardship. Through its strategic financial planning, commitment to sustainable oper ations, and forward-thinking approach, the habitat is well-posi tioned to thrive

as a model of responsible ecotourism and a champion for the region's biodiversity protection.

#### 8. Recommendations

• Further Develop Educational Programs: Enhance and expand educational programs targeting schools, universities, and na ture enthusiasts to promote environmental awareness, biodi versity conservation, and sustainable practices within the hab itat.

• Strengthen Brand Identity: Continue highlighting the habitat's commitment to wildlife preservation, eco-friendly practices, and educational initiatives through branding, signage, and dig ital communications to reinforce the habitat's positioning as a center for environmental education.

• Expand Partnerships: Build strategic partnerships with ed ucational institutions, conservation organizations, and key stakeholders in the tourism industry to leverage mutual re sources, reach a wider audience, and enhance the habitat's visibility and impact in the eco-tourism sector.

• Diversify Events Portfolio: Introduce various engaging events such as wildlife talks, guided nature walks, nature photography workshops, children's nature exploration activities, and special event days to cater to different interests, ages, and preferences among visitors.

• Measure Impact and Feedback: Implement mechanisms to track visitor feedback, evaluate event participation, measure program effectiveness, and assess the overall impact of mar ket strategies to continually improve and refine initiatives for better outcomes.

Implementing these recommendations and refining market strategies, PNGUoT Rainforest Habitat can enhance its visitor experience, strengthen community engagement, and contrib ute to wildlife conservation efforts while positioning itself as a leading eco-tourism destination in the region.

## **PNGUOT MEDICAL CENTRE**

#### Introduction

PNGUoT Medical Centre is situated on the Taraka campus. It is near the Bookshop, Union shop, and Student Mess and is easy to access for students, staff, their dependents, and the surrounding commu nities.

The Medical Centre comprises of 13 nursing officers, one (1) Health Extension Officer, one (1) Chief Medical Officer, four (4) ambulance drivers, two (2) secretaries, and two (2) janitors.

The Medical Centre has two other sub-clinics: Timber and Forestry Training College (TFTC) and Bulolo University College (BUC). Timber and Forestry Training College has only one (1) nursing officer, while Bulolo University College has two (2). Our clinic usually gives them medical supplies whenever they need them.

According to our monthly report for 2022, our clinic serves more than 2000 - 3000 patients each month compared to other health centers within the Lae District.

#### **MAJOR SERVICES**

The Medical Centre is open seven days a week to serve our students, staff, dependents, and outside communities.

Clinic operating hours: Weekdays- Monday to Friday: 8 am – 10 pm. Weekends and Public holidays: 9 am – 4 pm.

From February to November, when the students are on campus, we usually open from 8 am to 10 pm, which will cater for students who attend classes during the day. In the evening, they can come to the clinic and present themselves with their symptoms to get treatment. The clinic will only open from 8 am to 6 pm on weekdays from De cember to January. The nurses work two (2) shifts only during the weekdays and one (1) shift on weekends, whereas our ambulance drivers work in three (3) shifts, 24 hours for seven (7) days.

The Medical Centre provides eight (8) different services to the cli ents. The students, staff, and their dependents below 20 years old are free to use our services, whereas the student's dependents, out siders, and other staff relatives are charged for the services as below.

#### **Outpatient consultation fee:**

Nurse:	K15
HEO:	K20
Doctor:	K30

The Chief Medical Officer and the HEO also do general medical examination checkups and medical reports at a cost of K50.

#### **Day Ward Admission:**

The Clinic has 5 beds in the ward, one for emergency only and the other 4 for acute—sub-acute ill patients. They are admitted to be sta bilized with proper clinical management, and if their condition does not improve, we refer them to Angau Memorial Hospital and Private Hospital upon their request.

#### Ambulance Service:

The ambulance service is available 24/7 every day. After hours, the students, dependents, or staff who are sick are sent to the Angau Hospital or another private hospital for medical atten tion. Four drivers are working 8 hours and always on standby for 24 hours, 7 days a week. Ambulance service is free to the students, staff, and legal dependents. The staff relatives are charged K30 to transport sick patients from their homes to the clinic or Angau Hospital. The ambulance is also used to trans port the deceased from their home to Angau Morgue or from the morgue to their residence and then to the burial site. We charge the outsiders and the staff relatives for the ambulance used to transport the deceased as follows:

- Within Lae city: K100.00
- From Lae city to 14mile: K200.00
- From Lae city to Nadzab (airport): K300.00

#### **CHNS Baby Clinic:**

Every Tuesday, we vaccinate the babies who visit the clinic from 0 months to 5 years old. We provide free service for the baby clinic immunization, but we usually charge K15 for facility use to outsiders. For the staff, children are free.

#### **Antenatal Clinic:**

Three midwives do the clinic every Wednesday. The pregnant mothers are given counseling, proper check-ups, and import ant information for new pregnant mothers. Every pregnant mother is adequately checked to identify the high-risk levels. Every first Wednesday of the month is the first visit of preg nant mothers with their husbands/partners for counseling. We charge K15 to the outsider for the facility use.

#### **Family Planning Clinic:**

Every Thursday is Family Planning Day, during which women come in to take either pills or a Depo Provera injection. The ser vice is also open to staff, students, dependents, and outsiders.

#### **Minor Theatre**

The clinic has a minor theatre where minor operations are per formed, such as suturing open wounds, incision and drainage for abscesses, excision for small warts, applying pop to frac tured bones, removing sutures, cleaning dirty sores, and apply ing a change of dressing.

#### **Disease Control Office**

We have a Disease Control Officer who is in charge of TB, STD, and HIV/AIDS, and this service is free. The officer in charge takes care of the TB patients by supplying them with their treatment and also does counseling for HIV/AIDS.

#### SUMMARY OF DAILY OUTPATIENT ATTENDANCE

	SUMMARY	FREQUENCY	PERCENTAGE
1	NEW CASES	35,882	71%
2	RE-ATTENDANCE	9740	19%
3	CHNS BABY CLINIC	640	1.3%
4	FAMILY PLANNING	357	0.7%
5	ANTENATAL CLINIC	611	1.2%
2	TUBERCULOSIS- New cases	227	0.4%
0	TUBERCULOSIS- Re- attendance	1448	3%
7	Currently on TB treatment	1687	3%
8	Referrals	91	0.2%
	TOTAL CLINIC ATTENDANCE	50.683	

B. CATEGORY OF PATIENTS TREATED AT REGULAR HOURS AND AFTER HOURS

Patient	t seen at Normal Hours	23,560	23,560	
Patient	t seen After Hours			14,942
		NORMAL HRS	AFTER HRS	TOTAL
	Students	4,490	3,491	7,981
	Characters	1 0 1 7 40 K 1 1 0 7		
	Staff	6,792	3,827	10,619
	Staff Dependents	6,792 9,835	3,827 6,652	10,619 16,487

SUMMARY OF DAILY OUTPATIENT ATTENDANCE AT BULOLO UNIVERSITY COLLEGE & TIMBER FORESTRY TRAINING COLLEGE CLINICS

Category	Bulolo University College (BUC)	Timber Forestry Training College (TFTC)
Staff	679	539
Student	675	329
Dependent	1013	766
Outsiders	319	292
Total	2,686	1,926

Common medical cases treated at outpatient

С	Common cases treated at outpatient	Total number of patients
1_(a)	Malaria (blood slide) - Positive	4,861
	Malaria (blood slide) - Negative	394
(b)	Malaria (RDT) - Positive	1,925
	Malaria (RDT) - Negative	3,085
2	Typhoid - Positive	73
(	Typhoid - Negative	347
3	Chest Infections	2020
	Gastroenteritis	1427
Ĵ	Skin Infection	4,879
	Accidents/Injuries	1058
	Eye, Ear, Nose and Throat	624
]	Sexual transmitted Diseases	237
	Immunization	1469

#### **OTHER INFORMATION**

(1) Out of 5037 Malaria Rapid Test cases, 862 were students. Malaria Positive: ...150....

Negative: ...712...

Total ...862....

(2) Out of ...4688 Malaria blood slide cases, ...748.... were stu dents

Malaria Positive- ...648 Negative – 100... Total - 748......

(3) Out of ....561...... Antenatal patients....56.... were students.

(4) Deliveries by Village Birth (VB) -...60......

#### **Major Challenges**

The major challenge we faced last year, 2023, was due to Covid 19, which made it impossible to get all the medicines we ordered from pharmaceutical stores in Port Moresby on time. After COVID-19, the prices for medicines increased, and it was really expensive to buy some of the medicines at the nearest pharmacy in town to cater to the number of patients at the clinic. Even though we are running out of common drugs or any other medical supplies for the clinic, it's still very expensive to buy all supplies in bulk, so we just buy them in small amounts, but it won't even last for a month or so.

The other challenge was that the clinic did not have all the medical equipment on hand so that we could treat patients according to the medical intervention they had gone through. We continuously have problems diagnosing a very sick patient without any good investigation being done quickly. We diagnose and treat them clinically, but if we could have all the full medical equipment on hand, then it wouldn't be a problem to treat the patient medically according to their results. We send patients to town to do x-rays, ultrasound scans, and other blood tests to confirm their diagno sis, which must be done immediately at the clinic. With the delay of the results, the patient's condition might worsen, and they will need further medical help. We do referrals to hospitals for further management and proper investigations to help the patient be treated accordingly.

The other problem was with our ambulance, which was going through wear and tear and has been giving us mechanical prob lems now and then. At times, during emergencies, patients are being transported in ordinary cars, and it's hard to get the public to know that it's an emergency and that we are trying to get quick ly to the hospital for help. Sometimes, we face some challenges that make us quit when we are caught in between, but because the patient's health is our priority, we need to finish everything for the good of our patients. Currently, the clinic has an equipped ambulance from Japan under the JICA program, which we use for critically ill patients.

#### **Upgrade Plan**

PNGUoT Medical Centre is still being upgraded to Urban Hospi tal Level 3 with all the full medical equipment to be installed. The patient will easily access it. The Medical Centre has already pur chased an Ultra Sound Scan Machine and Electro cardio Gram Machine (ECG), and they are already at the clinic. Still, we need a proper room to be installed and available for the patient to access. The new urban hospital will house an admission ward, surgical ward, dental and eye clinic with a fully equipped laboratory to do all other blood tests, an x-ray department with an ultrasound scan machine, and an ECG machine. This will help manage the patient according to the symptoms he/she presents with. We also plan to cater to Life lifestyle diseases with Communicable diseases like Diabetes, High Blood Pressure, other Heart Diseases, TB, Ty phoid, etc.

There will be an increased number of staff to cater to the needs of the patients, who will be seen daily and treated accordingly. We are looking forward to the new Unitech Urban Hospital Level 3, which is to be set up in 2- 3 years, and hopefully, we can be given a ful ly equipped ambulance that can stand by for emergencies. Also, way forward, we will be recruiting 3-4 more nurses because we are planning to go around to do medical checks for the staff from each department because lifestyles disease with communicable diseases are on the rise, which most of the staff do not realize it until the symptoms worsen and they present at the clinic.

## PNGUoT PROJECTS DIVISION



## **1. INTRODUCTION**

The three (3) common parameters to be managed or controlled in any infrastructure or non-infrastructure development project to minimize risks and deliver a highly successful project are time (planned set of activities against time), funding (Government or Donor Agencies sourced funding), and quality (standards set by respective industry regulatory authorities). In addition, adequate manpower capacity with the right skills and experiences and the right equipment, tools, and resources are also important for man aging the above three (3) common parameters.

The current Projects Office is supplementing the functions of the Planning Division with the support of the Pro Vice-Chancellor –Ad ministration and Director Projects because the Director Planning and Development position has been vacant since 2013. This re port aims to provide a status update of all the Public Infrastructure Program (PIP) & Recurrent Projects from 01st October 2023 to 30th December 2023.

The PIP and Recurrent projects are reported in four (4) categories.

Part A: The 2019 - 2023 Ongoing PIP Projects;

Part B: Proposed new PIP Projects under the Unitech Infrastructure Program;

Part C: The 2023 New Proposed PIP Projects Submission and

Part D: 2022 – 2023 Recurrent funded Projects;

2. PART A: 2019 - 2023 ONGOING PIP PROJECTS

## 2.1 The Dining Hall Project

The overall budget for the New Dining Hall Project was 20 million kina (K20,000 000.00). However, K1.3 million was re-scoped to temporary dining hall after 2016 student unrest. The revised bud get of the new dining was K18.7 million and was already appropri ated and deposited into Unitech Trust Account.

## 2.1.1 Objective

The Dining Hall Project is to increase capacity to accommodate the increasing number of student enrolment at PNG University of Technology after the old student mess was burnt down in the 2016 student crisis.

#### 2.1.2 Contract Award

The National Executive Council (NEC) awarded the Contract to Regional Engineering & Construction Limited at the contract val ue of K17.38 million on the 22nd of April 2021. The groundbreaking ceremony was done, and the site was handed over to the Contractor on the 10th of May 2021.

The Dining Hall Project is a design-build contract whereby the lia bility is passed onto the contractor to design and construct as per the client's approved design brief and the scope of services. The contractor is fully responsible for all architectural, structural, and statutory compliances and approvals with costs.

## 2.1.3 Project Duration

The Project was scheduled for fourteen (14) months, which is 309 working days. The expected completion date lapsed on August 13, 2022. The contractor has formally submitted a request for an extension to December 18, 2022. The Council and the University Management approved the practical completion date, but due to management and financial issues, the Contractor did not com plete the work within that time frame.

The Project was abandoned for almost three months since December 2022. The client (Unitech) was faced with no options but to effect the clauses of the Contract and bring the project to practical completion. The two possible options under the contract were: Option 1: Termination of Contract and Option 2: Client (Unitech) to take Work under Contract (WuC) and direct procure ment of materials, payments of labours and subcontractors.

No payment was to be made directly to the Contractor under WuC. It was later resolved by SEMT to go with Option 2. SEMT sought approval from the Council on the 27th of March 2023 for Unitech to take Work under Contract (WuC) and direct payment to suppliers, labourers, and subcontractors. Legal clearance was also sought from the CEO of NPC and State Solicitor on the WuC, and approval was given on the 6th of April, 2023.

A memorandum of Agreement was signed with the Contractor on 19th April 2023 to effect the WuC clauses in the original con tract. The Contractor took possession of the site again under WuC and gave a revised practical completion date of 5th September 2023.

From 19 April 2023 (MOA signing date) to June 2023, the Contractor submitted two quotes for materials, labour, and subcon tractors, but it did not correctly estimate all the materials needed to complete the project. Hence, on the 5th of September 2023 (practical completion date), only 70% of the actual work was completed.

À third submission of quotes for materials, labour, and subcontractors was made on August 7, 2023, and Unitech, through the Office of VC, SEMT, and Council, agreed that the Contractor would continue to work until all Contract Sum was exhausted. Also, Unitech and the Contractor agreed to a new revised completion date of December 31, 2023.

Overall, Unitech strongly advised the Contractor to ensure the Dining Hall Project reaches practical completion before the begin ning of the 2024 Unitech academic year.

## 2.1.4 Physical Progress Status

The new Dining Hall's overall progress is about 80% physical completion to date, 30th December, 2023. In brief, the following actual works have been completed to date:

## A: DESIGN \_100% Completed B: TRADE WORKS

- 1. Preliminaries \_ 100% Completed;
- 2. Siteworks/Earthworks\_100% Completed;
- 3. Concrete Formwork\_100% Completed;
- 4. Concrete Reinforcement\_100% Completed;
- 5. Concrete Insitu\_100% Completed;
- 6. Concrete Cast on Site\_100% Completed;
- 7. Masonry Block works\_99% Completed;
- 8. Structural Steel\_99% Completed;
- 9. Metal works \_ 80% Completed;
- 10. Carpentry & Joinery\_75% Completed;
- 11. Aluminum Glazed Doors & Windows\_30% pending Completed;
- 12. Roof & Roof Plumbing\_98% pending;
- 13. Suspended & Fixed Ceilings\_95% Completed;
- 14. Floor Finishes\_50% Completed;
- 15. Painting\_40% Completed;
- 16. Hydraulics & Draining Finishes\_65% Completed;
- 17. Electrical Services\_75% Completed;
- 18. Mechanical Services\_60% Completed;
- 19. External Element\_25% Completed;
- 20. Loose Furniture\_0% pending;
- 21. Kitchen Wares, Cooking Facilities & Security Lightings\_0% pending;

Unitech took WuC to procure materials, labour, and subcontractors. Procure ment submission number 1 and submission 2 were done. A third and final submission to complete the project was submitted by the Contractor on the 7th of August, 2023, and approved by Unitech. Unitech went through its nor mal procurement processes and do procurement of materials, labourers and subcontractors to ensure the Contractor progressed with work and complet ed the Project by 31st of December 2023.

Additional funding is required to complete the project due to an oversight by the Contractor on some materials and special items and equipment for the Kitchen and Dining areas. A Rescoping of a K2 million from the Unitech Infra structure Grant is before SEMT and Council for approval.



## 2.2 The Construction of New Civil Road Works and New 6x2 Bedroom Duplex Staff Housing Project

## 2.2.1 Objectives

This project aims to address the critical housing shortage for academic and administrative staff at the PNG University of Technol ogy in Lae, Morobe Province.

The Construction of New Civil Road works, and a New 6x 2Bedroom Duplex is funded under the 2019 PIP Submission for the Con struction of Staff Houses (20x Houses) for a requested amount of K20 million. Only K6.5 million was appropriated and transferred to the Unitech Trust Account. The Financial requirements for the Construction of Staff Houses (20x Houses) are spelled out in the Expenditure projections and financial requirements in the preceding pages.

## 2.2.2 Contract Award

On January 17, 2023, the USPC Chairman finally awarded the New Road Construction and 6x 2-Bedroom Duplex Staff Housing Project to PNG Construction Ltd. for a contract value of K4, 970,733.58. The Contract Agreement, which is a lump sum contract, was formally signed on May 16, 2023.

As part of the contract requirements, the contractor is required to provide a 15% unconditional Bank Guarantee, updated insur ance, and an updated construction schedule. The Contractor provided the entire required document; however, a 10 % Bank Guar antee was provided instead of a 15 % Bank Guarantee, and after legal clarification from the Office of State Solicitor, a supplement agreement was provided for the Contractor to provide a 10% Bank Guarantee and increased retention from 10% to 12%. The contractor's advance claim was paid to the Contractor on 6th December 2023 after the supplementary agreement was signed between PNG Unitech and the Contractor.

## 2.2.3 Project Duration

The duration of the Project is nine (9) months. The Contractor mobilized to the site on the 1st of June, 2023. The project comple tion date is the 2nd of March 2024.

#### 2.2.4 Physical Progress Status

The 6x 2 Bedroom Duplex's overall progress is approximately 26% physical completion to date, 30th December 2023. In brief, the following actual works have been completed to date:

### **TRADE WORKS**

- 1 Mobilization & Site Setup \_ 53% Completed;
- Ground Works \_ 84% Completed;
- 2 3 4 Reinforcement\_94% Completed;
- Concrete -50% Completed;
- 5 Block Works\_46% Completed;
- 6 Structural Steel\_21% Completed;
- 7 Roofing\_0%;
- , 8 9 Windows & Doors 0%:
- Carpentry 0%
- 10 Tiling and Floor Finishes\_0%
- 11 Painting\_0%
- 12 Joinery\_0%
- 13 Furniture Fittings and Equipment\_0%
- 14 Plumbing Services\_5% Completed:
- 15 Drainage (Stormwater)\_1.8% Completed
- Electrical Services\_0% 16
- 17 Mechanical Services 0%
- External Works 0% 18
- 19 Fire and Safety 0%
- 20 Data and Communication\_0%



## 2.3 The Library Retrofit Project Stages 1, 2 and 3

#### 2.3.1 Objective

To create a conducive learning environment for staff and students to easily access online materials as part of the Engineering program accreditation requirements.

#### 2.3.2 Contract Awarded

On the 17th of January 2023, the Library Retrofit Project was finally awarded by the USPC Chairman to Timduka for a contract val ue of K1, 729,182.50. The Contract Agreement was formally signed on the 27th of November 2023 after the redo of the Structural Drawing and renewal of the Building Permit. The type of contract is a lump sum contract.

As part of the contract requirements, the contractor is required to provide a 10% unconditional Bank Guarantee, updated insur ance, and an updated construction schedule. The Contractor provided all documents except the Bank Guarantee, which will be

provided once the Bank provides clearance.

## 2.3.3 Project Duration

The duration of the Project is five (5) months. The Contractor mobilized to the site on the 1st of December 2023. The project completion date is the 22nd of April 2024.

#### 2.3.4 Physical Progress Status

The Library Roof Retrofit overall progress is approximately 7% physical completion to date, 30th December 2023. In brief, the following actual works are completed or in progress to date:

**TRADE WORKS** 

- Mobilization & Site Setup \_ 80% Completed; 1.
- Procurement 0%
- Fabrication Works\_0%
- 234567 Electrical Works 0%
- Roofing Works\_0%
- Roof Plumbing Works\_0%
- Façade Works\_0%
- 8 Drainage Works\_0%
- 9 Ceiling Works\_0%
- 10 Landscaping Works\_0%
- Painting\_0% 11.
- 12 Handover and Commissioning 0%





Figure 3. The proposed Matherson Library Retrofit 3D Images for Phase 1, 2 and 3.

#### 2.4 The Multi-Purpose Hall Project

#### 2.4.1 Objective

The objective of this project is to construct a new multi-purpose hall for the PNGUOT to host its annual graduation ceremonies and other important calendar activities and events.

#### 2.4.2 Status

Funding of K19, 500,000.00 was appropriated. However, K13, 000,000.00 was warranted and funded.

The funding for this important project was appropriated commencing the 2019 financial year. The feasibility studies commenced in 2020, and the concept plan of the multipurpose hall was subjected to public criticism sessions from 14 February 2020. The final concept was presented to the University Council and the SEMT in the later part of 2020 and was approved by the Coun cil. However, due to the professional fees of the consulting architect exceeding his 50% annual salary as per the public servants, the University was not able to pay the architect. Thus, the concept was shelved because of this professional fee that needs to be paid before the concept can be developed future.

The Project team has developed an alternate concept that will now be used to go for tender for Request for full proposal and design documentation. The tendering process will commence in the third quarter of this financial year.

While awaiting these formalities, the topography and geotechnical survey of the selected site was awarded to the Anis Foun dation at the cost of K30,450.00. The contract was signed on 3/05/2023. The geotech and topographic survey are done but awaiting the final report submission. The new Concept Design will be approved by SEMT and the Council. The RFP for full Design and documentation based on the new Concept Design is pending NPC vetting.

#### 2.4.3 Location

The project is located at the University of Technology in Lae, Morobe Province.

#### 2.4.4 Justification

Currently, the University does not have a hall that can be used to host major events, like graduation or other important ceremo nies/events. They are using substandard canvas shelters to conduct their graduation ceremonies, which is an eyesore to invited guests. Therefore, once this project is completed, it will be utilized for major ceremonies/events.

#### 2,4.5 Capacity

PNGUoT will oversee the implementation of the project while the actual construction of the multipurpose hall/building will be contracted out to a credible contractor through the Government approved public tendering process.

#### 2.4.6 Beneficiaries

The immediate beneficiaries are the students and the public who will use the multi-purpose hall at the campus.

#### 2.4.7 Sustainability

UOT will own and sustain the facilities through the University's maintenance program once it is complete.

Figure 4. Aerial perspective of the proposed Multipurpose Hall projects.

<image>

Figure 5. Examples of interior lecture halls and tuto rial rooms for staff and students





Figure 6. Perspective view of interior offices and base ment car parking.



Figure 7. Proposed ground perspectives of the Multi purpose Hall car park.

## 3. PART B PROPOSED NEW PIP PROJECT UNDER THE UNITECH INFRASTRUCTURE PROGRAMS

The New Proposed PIP Projects to be funded under the Unitech Infrastructure Program are as follows:

## 3.1 The Dosimetry Laboratory Project

A total of K1,000,000.00 was rescoped from the 2022 PIP funding allocation under the Unitech Infrastructure Development Program to accommodate the shortfall of K800,000.00 in the Dosimetry laboratory, which is funded by NISIT for K700,000.00. The total budget available for this project is now K1.7 million.

The first T&FEC Meeting was held on the 29th of August 2022 and the T&FEC evaluation report has been compiled and sub mitted for USPC Meeting No.02/2022 on the 2nd of September 2022. The submission was finally approved in USPC Meeting No. 05/2022 on the 12th of December 2022 and a contract award letter was issued to Gem Konstrok (PNG) Ltd on the 17th of January 2023.

APC Expenditure Form No. 9/2023 for a Committed Value of K1, 389,442.36 was issued by the Department of Finance on the 27th of March 2023. Afterwards, Legal Clearance was issued by the Office of State Solicitor on the 25th of April 2023, and Contract Agreement was signed on the 16th of May 2023.

## 3.1.1 Objective

The objective of the project is to construct a new Dosimetry Laboratory for the Applied Physics Department at PNGUOT to cater for x-rays, gamma rays and other types of radiation equipment for medical and industrial sectors.

#### 3.1.2 Contract Award

On the 17th of January 2023, the Dosimetry Laboratory Project was finally awarded by the USPC to PNG Construction Ltd for a contract value of K1, 389,442.36. The Contract Agreement was formally signed on the 16th of May 2023 and is a lump sum contract. The Contract Agreement was signed after the APC Expenditure Form was issued on the 27th of March 2023 and Legal Clearance thereafter on the 25th of April 2023.

## 3.1.3 Project Duration

The duration of the Project is eight (8) months, with the proposed completion date of 30th January 2024.

#### 3.1.4 Physical Progress Status

The Contractor took Site Possession and mobilized to the site on the 1st of June 2023. The Contractor pro vided a 10% Bank Guarantee (in cheque form), and its 10% Advance Claim was paid on the 17th of August, 2023.

The Dosimetry Laboratory's overall progress is ap proximately 43% physical completion to date, 30th December 2023.

In brief, the following actual works have been complet ed to date:

#### **TRADE WORKS**

- (a) Preliminaries\_100% Completed;
- (b) Demolition Works 100% Completed;
- (c) Ground Works \_ 100% Completed;
- (d) Reinforcement\_100% Completed;
- (e) Formworks -100% Completed;
- (f) Concrete Works 89% Completed;
- (g) Block Works\_97% Completed;
- (h) Structural Steel\_73% Completed;
- (i) Metal Work & Partition 37% Pending
- (j) Roof & Roof Framing 12% Pending
- (k) Carpentry 4% Pending
- (I) Tiling & Floor Finishes 0% Pending
- (m) Painting 2% Pending
- (n) Electrical Services 13% Pending
- (o) Windows, Doors & Hardware 4% Pending
- (p) Glazing 0% Pending
- (q) Mechanical Works 0% Pending
- (r) Fire & Safety 0% Pending
- (s) Data & Communication 0% Pending
- (t) External Works 30 % Pending



The aerial photo of the Dosimeter laboratory as of December 2023.



The aerial view after Roof framing was installed in December 2023.

## 4. PART C: 2023 NEW PROPOSED PIP PROJECTS SUBMISSION FOR 2024 FINANCIAL YEAR

The three (3) New Proposed PIP Projects for the PNG University of Technology, Taraka Campus, Lae at a total Budget of K117, 914,720.00 are submitted this year for the 2024 financial year. These three projects are crit ical to addressing the accreditation requirements and addressing the government agenda of increasing enrol ment of students in tertiary institutions.

	PROJECT PROPOSAL DESCRIPTION	PROJECT VALUE/BUDGET	PROJECT DURATION			PROJECT
NO			WEEKS	MONTHS	YEARS	LOCATION
1	200 BED MALE STUDENT DORMITORY	K 25,386,680.00	73	18.3	1.5	UNITECH TARAKA CAMPUS
2	OFFICE & CLASSROOM BUILDING COMPLEX	K 26,814,480.00	76	19.0	1.6	UNITECH TARAKA CAMPUS
3	THE NEW AGRICULTURE DEPARTMENT BUILDING	K 65,713,560.00	102	25.5	2.1	UNITECH TARAKA CAMPUS
		K 117,914,720.00				

## 5. PART D: 2022 – 2023 RECURRENT FUNDED PROJECTS

The strategic plan of the PNGUoT 2010-2024 requires certain infrastructures to be constructed urgently to address specific objectives in the plan. The funds for these urgent infrastructures are funded from the PNGUoT recurrent budget, which includes the following projects.

## 5.1 50 Bed Male Dormitory

The funding for this project is budgeted from Unitech's internal savings. Design and Documentation is 100% completed. The Building Board approval is pending, while Tender Number NPC/UOT/SPC 2023/2 was assigned by the Unitech Special Procure ment Committee (USPC) on 13th of July 2023.

Request for Proposal to be completed by Projects Office and submitted to NPC and/or Office of State Solicitor for vetting. This project is undertaken to help address the pressing need to accommodate self-sponsored male students on campus.

#### 5.2 The New Ambulance & Fire Truck Carport/Shed & Office & Transit Accommodation

The University has lost many buildings and staff due to fire and medical emergencies. The new Ambulance and Fire truck shed is constructed from the university's recurrent budget to mitigate these risks.

#### 5.2.1 Objective

When completed, the shed for Unitech Fire truck and ambulance will accommodate on-call firemen and ambulance drivers who will attend to emergency situations on campus. The building will also have extra office space and transit beds for fire officers/ drivers.

#### 5.2.2 Contract Award

The contract was awarded to United Engineering Consultants & Contractors Pacific Limited (UECCP) on the 12th of October 2023. The contract value is K596, 861.88, including Provisional Sum and GST. The Contract Agreement was formally signed on the 14th of November, 2023.

#### 5.2.3 Project Duration:

The duration of the Project is five (5) months. The Contractor mobilized to the site on the 5th of December, 2023. The project completion date is the 5th of May 2024.

#### 5.2.4 Physical Progress Status:

The Ambulance & Fire Truck Carport / Shed project's overall progress is approximately 8% physical completion to date, 30th December 2023.

In brief, the following actual works are completed or in progress to date:

### **TRADE WORKS**

- (1) Mobilization & Site Setup \_ 90% Completed;
- (2) Demolition and Ground Works 30%
- (3) Formwork\_0%
- (4) Reinforcement\_0%
- (5) Concrete Works\_0%
- (6) Structural Steel\_0%
- (7) Roof & Roof Plumbing\_0%
- (8) Metal Works\_0%
- (9) Carpentry Works\_0%
- (10) Joinery Works\_0%
- (11) Painting Works\_0%
- (12) Plumbing Works\_0%
- (13) Electrical Works 0%
- (14) Mechanical Works\_0%
- (15) Fire Fitouts 0%
- (16) External Works\_0%



# 5.3 The New Mechanical Engineering Female Toilet & Archives 5.3.1 Objective

This is a very important project to address requirements in the Engineering program accreditation. At the moment, the Mechan ical Engineering Department has a male toilet only and no female toilet.

## 5.3.2 Contract Award

Projects Awarded to Paradise Building Systems Ltd on 21st December 2021 at the cost of K327, 045.55 in February 2022. The contract Agreement was signed on the 1st of February 2022, and the Contractor mobilized to the site after 2 weeks.

## 5.3.3 Project Duration & Variation

The initial project duration is 4 months.

Work stopped in March 2022 due to no Structural Drawings and resumed on June 9th, 2022, after the issuance of Structural Drawings. However, there were ambiguities with the structural drawings, and the work stopped again. The structural engineer provided a revised Structural Drawing on July 7th, 2022, and work resumed.

Eventually, the Contractor stopped work again on July 29, 2022, and submitted a Variation for Delay, Cost of removing perma nently installed works, and Design Changes on August 2, 2022. The Projects Office and the Contractor met to review the Varia tion submission. Both parties agreed that the Contractor should reduce the Delay cost and submit Variation No. 1 with the cost of removing permanently installed works. For Design Changes, the Contractor submitted Variation No. 2.

The Contractor submitted its Variation Claim No. 01 (V01) on 21st October 2022 for 'Delay Cost' and 'Cost of Removing Per manently installed works. Total cost of K126,350.95. The Projects Office thoroughly evaluated the VO1 and submitted it to the Office of VC on the 8th of November, 2022. Approval was granted in March 2023, and VO1 was paid on the 31st of March 2023. The contractor resumed work on the 20th of April, 2023. Project Meeting held between the Projects Office and Contractor on 6th February 2023 prior to VO1 approval and Contractor resuming work.

The Contractor submitted its Variation Claim No. 02 (VO2) on the 7th of November 2022 for Design Changes. Total cost of K165, 071.09. VO2 was submitted to the Office of VC on the 11th of March 2023 after the new Projects Director joined the Projects Office. VO2 was approved on the 25th of May 2023 by Unitech and accepted by the Contractor.

The revised Contract Sum is K602, 400.91 including GST.

The revised Completion Date is the 30th of August 2023 however the Contractor did not deliver the project within that revised completion date and submitted a Request for Extension of Time (EOT) to 31st of January 2024.

## 5.3.4 Physical Progress Status

The current progress of work is 80% completed to date December 2023. In brief, the following actual works have been completed to date:

## **TRADE WORKS**

- 1. Preliminaries \_ 100% Completed;
- 2. Demolition Works 100% Completed;
- 3. Ground Works\_100% Completed;
- 4. Reinforcement\_100% Completed;
- 5. Formworks 100% Completed;
- 6. Concrete Works 100% Completed;
- 7. Block Works\_100% Completed;
- 8. Structural Steel\_80% Completed;
- 9. Metal Work & Partition 95% Completed;
- 10. Roof & Roof Framing 100% Completed;
- 11. Windows, Doors & Hardware 0% Pending
- 12. Carpentry 100% Completed;
- 13. Tiling & Floor Finishes 52% Completed
- 14. Painting 35% Completed
- 15. Electrical Services 60% Completed;
- 16. Hydraulics Services 92% Completed
- 17. Glazing 0% Pending
- 18 Mechanical Works 0% Pending
- 19. Fire & Safety 0% Pending
- 20. External Works 60 % Completed

#### **5.4 3/2 Bedroom HS – Staff Kit Homes** The Design and documentation are 100% completed and pending Building Board approval. A request for Quotation was sub

Figure 11. (a) Structural steel works, as seen from the Applied Science building and



(b) Side view from the top of the Electrical Engineering building.

mitted to Rondes PNG, Atlas Steel, and PNG Forest Projects. Only Rondes PNG and Atlas Steel submitted quotations for Supply only, Supply and install, and Supply and install with White and Brown Goods for 1 x 3-bedroom Staff Kit Home. Projects Technical Team (PTT) to make a submission for 3x 3Bedroom Staff Kit Homes to T&FEC for evaluation and recom mend the best-qualified Supplier/Contractor.

## 5.6 Staff Club Renovation

Funding allocated in 2022. Concept Design 100% completed to date and pending submission to the Senior Executive Manage ment Team for approval. The Old existing building was condemned, and approval was given by SEMT to demolish and rebuild a new Staff Club

# Draft Annual Financial Report (Un-audited)

Financial year ending 31 December 2023

## THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

#### The University Council's Report

The University Council takes pleasure in presenting its annual report on the affairs of the University of Technology ("the University"), including Financial Statements for the year ended 31 December 2023.

#### Principal purpose and activity

During the financial year, the principal activities of the University was to provide tertiary education to students through its 13 academic departments and two amalgamated colleges and in accordance with the Policies and Procedures set out by the Office of Higher Education Department. The details are as set out in note 1 to the financial statements.

#### Results

The total comprehensive loss for the year K 19,894,032 (2022: K 9,835,526).

The University registered 3,215 (2022: 3,078) students and 747 (2022: 715) were graduated.

	Students		
Department	2023	2022	2021
Agriculture	164	169	164
Applied Physics	192	169	168
Applied Science	204	192	180
Architecture	212	205	214
Business Studies	653	624	648
Civil Engineering	191	194	189
Communication Studies	184	171	161
Electrical Engineering	224	232	220
Forestry	115	109	110
Lands & Surveying	345	302	319
Maths & Computer Science	156	137	121
Mechanical Engineering	202	219	226
Mining Engineering	211	200	197
	3,053	2,923	2,917
Affiliated Schools			
Bulolo University College	110	119	120
Timber and Forestry Training College	52	36	35
, , ,	162	155	155
	3,215	3,078	3,072
Financial Results	2023	2022	2021
Grants from Government	76,716,050	79,796,682	75, 168, 549
Student Fees & other income	32,992,654	30,864,837	32,654,071
DHERST Subsidy	8,134,648	6,133,832	3,747,840
	117,843,351	116,795,351	111,570,459
Personnel expenses	(73,507,126)	(66,274,741)	(66,882,947)
Operating expenses	(47,012,498)	(43,888,149)	(34,091,833)
Depreciation & tax penalty expenses	(17,217,760)	(16,467,988)	(15,095,414)
	(137,737,384)	(126,630,877)	(116,070,195)
Deficit before other comprehensive income	(19,894,032)	(9,835,526)	(4,499,736)

## Donations

The University made donations of K nil (2022: K nil).

#### Interests register

There were no transactions recorded in the interests register for the year.

#### **Council Members**

The members of the Council to the University during the year were;

Name	Current status	Date of appointment
Mr. Sam Koim	Chancellor	02/08/2023
Mr Paul Komboi	Member	02/08/2023
Mr.John Byrne	Member	02/08/2023
Mr David Masani	Member	02/08/2023
Ms Florence Willie	Member	02/08/2023
Ms Finkewe Zurecnuoc	Member	02/08/2023
Prof. Ora Renagi	Member	02/08/2023
Prof. Tom Okpul	Member	02/08/2023

#### Senior Executive Management

The Senior Executive Management at the date of signing the report of the University, and during the year were:

Professor. Ora Renagi	Vice Chancellor
Dr.Garry Sali	Deputy Vice Chancellor
Professor. Kaul Gena	Pro Vice Chancellor (Administration)
Professor. Shamsul Akanda	Pro Vice Chancellor (Academic)
Mrs. Veronica Thomas	Registrar
Mr Diraviam Tharmaraj	Bursar
Mrs. Annette Waide	Executive Director (HR)

There is no material interest in any contract or arrangement with the University during the year. Senior Executive Management remuneration is as set out in note 20.

## **Contingent liability**

No contingent or other liability has become enforceable or is likely to become enforceable within the period of twelve months after the end of the financial year which, except as disclosed in Note 22, which in the opinion of the members, will or may substantially affect the ability of the University to meet its obligations as and when they fall due.

#### Registered office

Portion 453, Area 223.1 Taraka Campus, Private Mail Bag, Lae Morobe Province, Papua New Guinea

## THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

Income Statement

For the year ended 31 December 2023

	Notes	31-Dec	31 December
		2023	2022
INCOME		ĸ	ĸ
INCOME			
Government Grants	4	76,716,050	79,796,682
Student School Fees	5	26,442,337	26,488,833
DHERST Subsidy	5	8,134,648	6,133,832
Other Income	6	4,169,489	2,849,801
Gross Profit from Commercial Activities	7	2,380,828	1,526,203
Total Income		<b>1</b> 17, <b>8</b> 43,351	116,795,351
EXPENDITURE			
Employment costs	8	73,507,126	66,274,741
Tax penalty expense		3,902,063	3,901,189
Operating Expenses	9	41,333,903	39,615,399
Other Operating Expenses	10	5,678,595	4,272,750
Depreciation Expense	11	13,315,697	12,566,799
Total Expenditure		137,737,384	126,630,877
Profit before other comprehensive income		(19,894,032)	(9,835,526)
Other comprehensive income			
Gain arising from asset revaluation		92,335,876	-
Total comprehensive (deficit)/surplus for the y	vear	72,441,843	(9,835,526)

## THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

Statement of Financial Position As at 31 December 2023

		31 December	31 December
	Notes	2023 K	2022 K
ASSETS			
Current Assets			
Cash and Cash Equivalents	12	47,846,799	50,686,291
Interest bearing deposit	12a	13,883,053	13,851,434
Trade and other receivables	13	6,605,813	6,127,760
Inventory		805,990	945,513
Total Current Assets		69,141,655	71,610,999
Non-Current Assets			
Property, Plant and Equipment	14	538,682,264	445,970,871
Total Non-Current assets		538,682,264	445,970,871
TOTAL ASSETS		607,823,919	517,581,871
LIABILITIES			
Current Liabilities			
Trade Creditors	15a	18,391,773	15,371,401
Other Payables	15b	18,477,855	14,875,106
Group Tax Payable	16	2,400,000	2,400,000
Employee Provision	17	9,374,131	8,105,329
Total Current Liabilities		48,643,758	40,751,836
Non-Current Liabilities			
Deferred Income		77,982,969	70,692,235
Employee Provision	18	12,724,343	11,696,883
Group Tax Payable	16	127,920,814	126,330,725
Total Non-Current Liabilities		218,628,125	208,719,842
TOTAL LIABILITIES		267,271,884	249,471,678
NETASSETS		340,552,035	268,110,192
EQUITY			
Accumulated Deficit		(146,803,748)	(126,909,715)
Asset Revaluation Reserve		487,355,783	395,019,907
TOTAL EQUITY		340,552,035	268,110,192

## THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY Statement of Cash Flow

As at 31 December 2023

	31 December	31 December
	2023	2022
	ĸ	ĸ
Openning Balance as of 01.01.2023	64,537,726	54,206,346
Cash inflow		
Grant	71,748,234	72,288,860
DHERST	8,134,648	6,133,832
Debtors (realised from students)	25,964,284	28,017,869
PIP Grant	10,000,000	5,000,000
NIST Project	700,000	-
Incentive Fund Grant		5,501,642
Other Income	6,550,317	4,376,004
Total Inflow	123,097,483	121,318,207
Cash outflow		
Salary and related cost	71,210,863	65,649,325
Payment to Suppliers & Service Providers	37,211,284	31,938,734
Purchase of Assets	14,120,496	13,398,767
Fund Return to Incentive Fund	3,362,712	2
Total Outflow	125,905,356	110,986,827
a		
Closing Balance as of 31.12.2023	61,/29,853	64,537,726

## Notes to and forming part of the financial statements for the year ended 31 December 2023

## 4. Government Grants

- overnment oranto	2022	2022
	2023 K	2022
Course mont Create Decurrent	N 74 240 224	70 000 060
Bip Cronto	71,340,234	571 674
FIF Glanis	4 067 816	6 036 148
Other Covernment grant	4,907,010	0,930,140
Other Government grant	76 716 050	70 706 682
	10,110,030	73,730,002
5. Student Income		
Tuition Fees	13,494,663	13,625,721
Online - Fee	536,917	199 IN 1990
DODL Fee	4,049,248	3,874,711
Boarding and Lodging fee	2,095,518	2,972,732
Compulsory fee	4,777,945	4,644,389
Laptop Fee	1,488,046	1,371,281
	26,442,337	26,488,833
DHERST Subsidies	8 134 648	6 133 832
DHERST Subsidies	0,754,040	0, 155, 652
	8,134,648	6,133,832
<u>6. Other Income</u>		
Rental income	867,141	690,752
Service fee	184,930	-
Other grants receipted	108,193	9,297
Training fees	286,212	162,317
Consultancy fee	216,815	23,811
Administrative fee	97,669	150
Interest income	176,862	95,340
Clinic Fees	597,872	505,778
Other miscellaneous income	1,633,797	1,362,505
	4,169,489	2,849,801
7. Gross Profit From Commercial Activities		
Income from sales and service rendered	8,607,628	6,449,405
Less: Cost of sales	6,226,800	4,923,201
Gross profit	2,380,828	1,526,203
	Contract Contract	•••••••••••••••••••••••••••••••••••••••

K         K         K           Salary and allowance         46,685,533         44,349,194           Wages and allowance         8,546,711         7,550,471           Gratuity costs         6,573,617         5,683,746           Leave fares         3,409,318         2,989,160           Superannuation contribution         3,570,153         3,076,150           Annual leave         1,268,802         407,261           Long service leave         1,027,461         218,154           Training Expenses         777,598         708,275           Other staff related costs         1,442,393         1,492,379           Student messing expenses         9,495,323         9,125,062           Water charges         3,800,865         3,789,208           Electricity charges         2,806,1697         3,603,479           Internet expenses         229,026         245,551           Consumables         4,141,174         3,540,815           On-line Course Expenses         209,026         245,551           Student liptop         2,465,568         2,303,020           Transport Maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Properties         4,902,787         5,766,254	8. Employment costs	2023	2022
Salary and allowance         46,665,533         44,349,194           Wages and allowance         8,546,711         7,350,471           Gratuity costs         6,576,617         5,683,746           Leave fares         3,409,318         2,989,160           Superannuation contribution         3,570,153         3,076,100           Annual leave         1,027,461         218,154           Long service leave         1,027,461         218,154           Training Expenses         777,598         708,275           Other staff related costs         1,642,933         9,125,062           Water charges         3,820,865         3,789,208           Student messing expenses         9,495,323         9,125,062           Water charges         3,661,697         3,003,479           Internet expenses         2,006,195         1,133,303           Consumables         4,141,714         3,40,415           Consumables         4,141,714         3,404,015           On-line Course Expenses         2,006         245,551           Externalization and SUSU Expenses         1,769,937         1,872,318           Student laptop         2,465,568         2,303,206           Transport Maintenance - Equipment         1,769,937 <t< th=""><th></th><th>ĸ</th><th>ĸ</th></t<>		ĸ	ĸ
Wages and allowance         8,546,711         7,350,471           Gratulty costs         6,578,617         5,683,746           Leave fares         3,409,378         2,989,160           Superannuation contribution         3,577,153         3,076,100           Annual leave         1,268,802         407,261           Long service leave         1,027,461         218,154           Training Expenses         777,598         708,275           Other staff related costs         1,642,933         1,492,379           Vater charges         3,820,865         3,789,208           Electricity charges         3,820,865         3,789,208           Electricity charges         3,820,865         3,789,208           Consumables         4,141,714         3,540,415           On-line Course Expenses         2,096         245,551           Externalization and SUSU Expenses         145,526         99,063           Repairs and maintenance - Properties         4,902,767         5,766,254           Repairs and maintenance - Equipment         1,769,371         1,712,318           Student laptop         2,465,568         2,303,206         17avelling expenses         3,26,77           Vehicle hiring expenses         3,486,329         1,46,299	Salary and allowance	46,685,533	44,349,194
Gratulty costs         6,578,617         5,683,746           Leave fares         3,409,378         2,989,160           Superannuation contribution         3,570,153         3,076,100           Annual leave         1,268,802         407,261           Long service leave         1,027,461         218,154           Training Expenses         777,598         708,275           Other staff related costs         1,642,933         1,492,379           Other staff related costs         1,642,933         1,492,379           Student messing expenses         9,495,323         9,125,062           Water charges         3,661,697         3,603,479           Internet expenses         2,106,155         1,133,303           Consumables         4,141,714         3,540,815           On-line Course Expenses         2,09,266         2,45,551           Externalization and SUSU Expenses         1,45,256         9,063           Repairs and maintenance - Fouperties         4,902,787         5,766,254           Repairs and maintenance - Fouperties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,666         2,030,206         146,429      <	Wages and allowance	8,546,711	7,350,471
Leave fares         3,409,318         2,989,160           Superannuation contribution         3,570,153         3,076,150           Annual leave         1,268,802         407,261           Long service leave         1,027,461         221,154           Training Expenses         777,598         708,275           Other staff related costs         1,642,933         1,492,379 <b>73,507,126</b> 66,274,741 <b>9. Operational expenses</b> 9,495,323         9,125,062           Water charges         3,820,855         3,789,208           Electricity charges         3,661,697         3,603,479           Intermet expenses         2,09,266         245,551           Externalization and SUSU Expenses         145,526         99,063           Repairs and maintenance - Properties         4,902,767         5,766,254           Repairs and maintenance - Properties         4,902,767         5,766,254           Repairs and maintenance - Properties         2,902,66         2,25,095           Transport Maintenance         633,264         72,942           Fuel expenses         3,420,326         7           Transport Maintenance         633,264         729,422           Postage & Teleptone         157,514	Gratuity costs	6,578,617	5,683,746
Superannuation contribution         3,570,153         3,076,100           Annual leave         1,268,802         407,261           Long service leave         1,027,461         218,154           Training Expenses         777,598         708,275           Other staff related costs         1,642,933         1,492,379           Taining Expenses         9,495,323         9,125,062           Water charges         3,860,697         3,603,479           Internet expenses         2,106,195         1,133,303           Consumables         4,141,714         3,540,815           Consumables         4,141,714         3,640,697           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,556         2,303,206           Transport Maintenance         633,284         729,942           Fuel expenses         1,463,349         416,429           Postage & Telephone         157,514         239,026           CUG Phone         214,529         189,250           VC Discreteinary fund         317,874	Leave fares	3,409,318	2,989,160
Annual leave         1,268,802         407,261           Long service leave         1,027,461         218,154           Training Expenses         777,598         708,2275           Other staff related costs         1,42,393         1,42,393           Student messing expenses         9,495,323         9,125,062           Water charges         3,820,865         3,789,208           Electricity charges         3,661,697         3,603,479           Internet expenses         2,106,195         1,133,303           Consumables         4,141,714         3,540,815           On-line Course Expenses         2,09,266         245,551           Externalization and SUSU Expenses         1,265,568         2,002,707           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,661         2,054,005           Transport Maintenance         633,284         729,942           Fuel expenses         1,465,955         1,318,092           Stationary expenses         1,465,955         1,318,092           Stationary expenses         749,321         8002,944           Velicle hiring expenses	Superannuation contribution	3,570,153	3,076,100
Long service leave         1,027,461         218,154           Training Expenses         777,598         706,275           Other staff related costs         1,442,933         1,442,333           S. Operational expenses         9,495,323         9,125,062           Water charges         3,820,865         3,789,208           Electricity charges         2,106,195         1,133,303           Consumables         4,141,714         3,540,875           Online Course Expenses         2,006,195         1,622,937           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,997         1,872,318           Student laptop         2,465,568         2,003,206           Transport Maintenance         633,284         725,095           Transport Maintenance         633,284         725,095           Transport Maintenance         633,284         728,095           Vehicle hiring expenses         1,465,955         1,318,092           Stationary expenses         1,465,955         1,318,092           Stationary expenses         1,246,5955         1,318,092           Other expenses         102,944         222,525           VC Discretionary fund	Annual leave	1,268,802	407,261
Training Expenses         777,598         708,275           Other staff related costs         1,642,933         1,492,379 <b>73,507,126</b> 66,274,741 <b>9, Operational expenses</b> 9,495,323         9,125,062           Student messing expenses         9,495,323         9,125,062           Water charges         3,661,697         3,603,479           Internet expenses         2,106,195         1,133,303           Consumables         4,141,714         3,540,815           On-line Course Expenses         209,266         245,551           Externalization and SUSU Expenses         145,526         99,063           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance         2,465,568         2,003,005           Vehicle hiring expenses         2,486,601         2,054,005           Vehicle hiring expenses         1,463,955         1,318,092           Stationary expenses         1,463,955         1,318,092           Stationary expenses         1448,349         416,429           Postage & Telephone         157,514         239,026           CUG Phone         214,529         189,250           VC Discretionary fund         317,874	Long service leave	1,027,461	218,154
Other staff related costs         1,642,933         1,492,379           73,507,126         66,274,741           9. Operational expenses         9,495,323         9,125,062           Water charges         3,820,865         3,789,208           Electricity charges         3,661,697         3,603,479           Internet expenses         2,106,195         1,133,303           Consumables         4,141,714         3,540,815           On-line Course Expenses         2,09,266         245,551           Externalization and SUSU Expenses         1,45,526         99,063           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Properties         4,902,787         5,766,254           Student laptop         2,465,568         2,303,206           Transport Maintenance         633,284         729,992           Fuel expenses         1,465,955         1,318,092           Stationary expenses         448,349         416,429           Postage & Telephone         177,5714         239,026           CUG Phone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         1,274,404         1,411,743 <td>Training Expenses</td> <td>777,598</td> <td>708,275</td>	Training Expenses	777,598	708,275
73,507,126         66,274,741           9. Operational expenses         9,495,323         9,125,062           Water charges         3,820,865         3,789,208           Electricity charges         3,661,697         3,603,479           Internet expenses         2,106,195         1,133,303           Consumables         4,141,714         3,540,875           On-line Course Expenses         209,266         245,551           Externalization and SUSU Expenses         145,526         99,063           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,568         2,303,206           Trasport Maintenance         633,284         729,942           Fuel expenses         1,465,955         1,318,092           Stationary expenses         4,48,349         416,429           Postage & Telephone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         102,944         222,525           Accreditation Expenses         122,404         1,411,743           Uniforms         362,717         325,778	Other staff related costs	1,642,933	1,492,379
9. Operational expenses         9.495,323         9.125,062           Water charges         3,820,865         3,789,208           Electricity charges         3,661,697         3,603,479           Internet expenses         2,106,195         1,133,303           Consumables         4,141,714         3,540,815           On-line Course Expenses         209,266         245,551           Externalization and SUSU Expenses         1,45,526         99,063           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,568         2,303,006           Travelling expenses         2,465,568         2,303,206           Travelling expenses         2,466,601         2,054,005           Vehicle hiring expenses         2,465,568         2,09,226           Stationary expenses         1,463,955         1,318,092           Stationary expenses         1,463,249         416,429           Postage & Telephone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         102,944         222,525           Accreditation Expenses		73,507,126	66,274,741
9. Operational expenses           Student messing expenses         9,495,323         9,125,062           Water charges         3,820,865         3,789,208           Electricity charges         3,661,697         3,603,479           Internet expenses         2,106,195         1,133,303           Consumables         4,141,714         3,540,815           On-line Course Expenses         209,266         245,551           Externalization and SUSU Expenses         145,526         99,063           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,661         2,054,005           Vehicle hiring expenses         32,707         225,095           Transport Maintenance         633,284         729,942           Fuel expenses         1,465,955         1,318,092           Stationary expenses         448,349         448,429           Postage & Telephone         127,574         239,026           CUG Phone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         102,944         225,255			
Student messing expenses       9,493,323       9,723,062         Water charges       3,820,865       3,789,208         Electricity charges       3,661,697       3,603,479         Internet expenses       2,106,195       1,133,303         Consumables       4,141,714       3,540,815         On-line Course Expenses       209,266       245,551         Externalization and SUSU Expenses       145,526       99,063         Repairs and maintenance - Properties       4,902,787       5,766,254         Repairs and maintenance - Equipment       1,769,937       1,872,318         Student laptop       2,465,568       2,303,206         Travelling expenses       3,324       729,942         Fuel expenses       1,465,955       1,318,092         Stationary expenses       1,465,955       1,318,092         Stationary expenses       1,465,955       1,318,092         CUG Phone       214,529       189,250         VC Discretionary fund       317,874       207,710         Research expenses       102,944       222,525         Accreditation Expenses       102,944       222,525         Accreditation Expenses       102,944       222,525         Accreditation Expenses       102,944 <td><u>9.</u> Operational expenses</td> <td></td> <td></td>	<u>9.</u> Operational expenses		
Water charges         3,820,865         3,799,208           Electricity charges         3,661,697         3,603,479           Internet expenses         2,106,195         1,133,303           Consumables         4,141,714         3,540,285           On-line Course Expenses         209,266         245,551           Externalization and SUSU Expenses         145,526         99,063           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,568         2,030,206           Travelling expenses         2,488,601         2,054,005           Vehicle hiring expenses         332,707         225,095           Transport Maintenance         633,284         729,942           Fuel expenses         1,465,955         1,318,092           Stationary expenses         448,349         416,429           Postage & Telephone         157,514         239,026           CUG Phone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         102,944         222,525           Accreditation Expenses         124,440	Student messing expenses	9,495,323	9,125,062
Electricity charges         3,603,479           Internet expenses         2,106,195         1,133,003           Consumables         4,141,714         3,540,815           On-line Course Expenses         209,266         245,551           Externalization and SUSU Expenses         145,526         99,063           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,568         2,003,206           Travelling expenses         2,486,601         2,054,005           Vehicle hiring expenses         332,707         225,095           Transport Maintenance         633,284         729,942           Fuel expenses         1,465,955         1,318,092           Stationary expenses         448,349         416,429           Postage & Telephone         157,514         229,026           VCD Discretionary fund         317,874         275,710           Research expenses         749,321         802,308           Events/Conferences         102,944         222,525           Accreditation Expenses         102,944         222,525           Accreditation Expenses         206,250         199,375	Water charges	3,820,865	3,789,208
Internet expenses         2,100,195         1,133,303           Consumables         4,141,714         3,540,815           On-line Course Expenses         209,266         245,551           Externalization and SUSU Expenses         145,526         99,063           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,568         2,303,206           Travelling expenses         2,486,601         2,054,005           Vehicle hiring expenses         24,866,601         2,054,005           Vehicle hiring expenses         3,247         25,095           Transport Maintenance         633,284         729,942           Fuel expenses         1,465,555         1,318,092           Stationary expenses         448,349         416,429           Postage & Telephone         157,514         239,026           CUG Phone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         431,546         253,013           Other expenses         1,274,404         1,411,743           Uniforms         362,717         325,77	Electricity charges	3,007,097	3,603,479
Consumables         4,141,714         3,340,813           On-line Course Expenses         209,266         245,551           Externalization and SUSU Expenses         145,526         99,063           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,568         2,303,206           Travelling expenses         3,22,707         225,095           Vehicle hiring expenses         332,707         225,095           Transport Maintenance         633,284         729,942           Fuel expenses         1,465,955         1,318,092           Stationary expenses         4,48,349         416,429           Postage & Telephone         157,514         239,026           CUG Phone         214,529         189,250           VC Discretionary fund         317,874         227,570           Resersch expenses         749,321         802,308           Events/Conferences         102,944         222,525           Accreditation Expenses         1,274,404         1,411,743           Uniforms         362,717         325,778           Audit Fees         206,250         199,375     <	Internet expenses	2,106,195	1,133,303
On-line Course Expenses         209,206         243,351           Externalization and SUSU Expenses         145,526         99,063           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,568         2,303,206           Travelling expenses         2,486,601         2,054,005           Vehicle hiring expenses         332,707         225,095           Transport Maintenance         633,284         729,942           Fuel expenses         1,465,955         1,318,092           Stationary expenses         448,349         416,429           Postage & Telephone         157,514         239,026           CUG Phone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         102,944         222,525           Accreditation Expenses         124,11,743           Uniforms         362,717         325,778           Audit Fees         206,250         199,375           Bad & Doubtful Debts         449,143         43,256           Consultants Fees         59,534         78,165 <t< td=""><td>Consumables</td><td>4,141,714</td><td>3,340,813</td></t<>	Consumables	4,141,714	3,340,813
Externalization and SUSU Expenses         143,326         99,033           Repairs and maintenance - Properties         4,902,787         5,766,254           Repairs and maintenance - Equipment         1,769,937         1,872,318           Student laptop         2,465,568         2,303,206           Travelling expenses         2,2465,656         2,005,205           Transport Maintenance         633,284         729,942           Fuel expenses         1,465,955         1,318,092           Stationary expenses         448,349         416,429           Postage & Telephone         157,514         239,026           CUG Phone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         749,321         802,303           Events/Conferences         102,944         222,525           Accreditation Expenses         1,274,404         1,411,743           Other Administrative Expenses         1,274,404         1,411,743           Unforms         362,717         325,778           Audit Fees         206,250         199,375           Bad & Doubtful Debts         449,143         43,256           Consultants Fees         59,534         78,165 <td>On-line Course Expenses</td> <td>209,266</td> <td>245,551</td>	On-line Course Expenses	209,266	245,551
Repairs and maintenance - Properties       4,902,787       5,769,294         Repairs and maintenance - Equipment       1,769,937       1,872,318         Student laptop       2,465,568       2,303,206         Travelling expenses       2,486,601       2,054,005         Vehicle hiring expenses       332,707       225,095         Transport Maintenance       633,284       729,942         Fuel expenses       1,465,955       1,318,092         Stationary expenses       4,483,49       416,429         Postage & Telephone       157,514       239,026         CUG Phone       214,529       189,250         VC Discretionary fund       317,874       275,710         Research expenses       749,321       802,308         Events/Conferences       102,944       222,525         Accreditation Expenses       1,274,404       1,411,743         Other Administrative Expenses       1,274,404       1,411,743         Other expenses       206,250       199,375         Bad & Doubtful Debts       449,143       43,256         Consultants Fees       266,334       2,501         Insurance       723,043       591,980         Bank Charges       555,112       504,812	Externalization and SUSU Expenses	140,020	99,063
Repairs and maintenance - Equipment       1,769,937       1,872,378         Student laptop       2,465,568       2,303,206         Travelling expenses       332,707       225,095         Transport Maintenance       633,284       729,942         Fuel expenses       1,465,955       1,318,092         Stationary expenses       448,349       416,429         Postage & Telephone       157,514       239,026         CUG Phone       214,529       189,250         VC Discretionary fund       317,874       275,710         Research expenses       749,321       802,308         Events/Conferences       102,944       222,525         Accreditation Expenses       1,274,404       1,411,743         Uniforms       362,717       325,778         Audit Fees       206,250       199,375         Bad & Doubtful Debts       449,143       43,256         Consultants Fees       59,534       78,165         Legal Fees       507,997       172,520         Other Security Expenses       555,112       504,812         Repaises       59,534       78,165         Legal Fees       507,997       172,520         Other Security Expenses       555,112	Repairs and maintenance - Properties	4,902,787	5,766,254
Student laptop         2,463,568         2,403,206           Travelling expenses         2,465,568         2,005           Vehicle hiring expenses         332,707         225,095           Transport Maintenance         633,284         729,942           Fuel expenses         1,465,955         1,318,092           Stationary expenses         448,349         416,429           Postage & Telephone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         749,321         802,308           Events/Conferences         102,944         222,525           Accreditation Expenses         1,274,404         1,411,743           Uniforms         362,717         325,778           Audit Fees         206,250         199,375           Bad & Doubtful Debts         449,143         43,256           Consultants Fees         59,534         78,165           Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         777,724         31,130           Assets Write off         429,281 </td <td>Repairs and maintenance - Equipment</td> <td>1,769,937</td> <td>1,872,318</td>	Repairs and maintenance - Equipment	1,769,937	1,872,318
Travelling expenses       2,466,601       2,034,003         Vehicle hiring expenses       332,707       225,095         Transport Maintenance       633,284       729,942         Fuel expenses       1,465,955       1,318,092         Stationary expenses       448,349       416,429         Postage & Telephone       157,514       239,026         CUG Phone       214,529       189,250         VC Discretionary fund       317,874       275,710         Research expenses       749,321       802,308         Events/Conferences       102,944       222,525         Accreditation Expenses       131,546       253,013         Other Administrative Expenses       1,274,404       1,411,743 <b>10. Other expenses</b> 206,250       199,375         Bad & Doubtful Debts       449,143       43,256         Consultants Fees       469,384       2,750         Insurance       723,043       591,980         Bank Charges       59,534       78,165         Legal Fees       507,997       172,520         Other Security Expenses       555,112       504,812         Registration & Renewal       40,237       40,421         Rental       77,724	Student laptop	2,465,568	2,303,206
Vehicle hiring expenses         332,707         223,093           Transport Maintenance         633,284         729,942           Fuel expenses         1,465,955         1,318,092           Stationary expenses         448,349         416,429           Postage & Telephone         157,514         239,026           CUG Phone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         749,321         8002,308           Events/Conferences         102,944         222,525           Accreditation Expenses         131,546         253,013           Other Administrative Expenses         1,274,404         1,411,743 <b>10. Other expenses</b> 206,250         199,375           Bad & Doubtful Debts         449,143         43,256           Consultants Fees         469,384         2,750           Insurance         723,043         591,980           Bank Charges         59,534         78,165           Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Registration & Renewal <td>Travelling expenses</td> <td>2,486,601</td> <td>2,054,005</td>	Travelling expenses	2,486,601	2,054,005
Transport Maintenance       633,284       729,942         Fuel expenses       1,465,955       1,318,092         Stationary expenses       448,349       416,429         Postage & Telephone       157,514       239,026         CUG Phone       214,529       189,250         VC Discretionary fund       317,874       275,710         Research expenses       749,321       802,308         Events/Conferences       102,944       222,525         Accreditation Expenses       431,546       253,013         Other Administrative Expenses       1,274,404       1,411,743 <b>10.</b> Other expenses       1,274,404       1,411,743 <b>10.</b> Other expenses       206,250       199,375         Bad & Doubtful Debts       449,143       43,256         Consultants Fees       469,384       2,750         Insurance       723,043       591,980         Bank Charges       59,534       78,165         Legal Fees       507,997       172,520         Other Security Expenses       555,112       504,812         Rental       77,724       31,130         Assets Write off       429,281       12,179         Clinic Expenses       960,506       <	Vehicle hiring expenses	332,707	225,095
Fuel expenses       1,463,953       1,318,092         Stationary expenses       448,349       416,429         Postage & Telephone       157,514       239,026         CUG Phone       214,529       189,250         VC Discretionary fund       317,874       275,710         Research expenses       749,321       802,308         Events/Conferences       102,944       222,525         Accreditation Expenses       431,546       253,013         Other Administrative Expenses       1,274,404       1,411,743         Uniforms       362,717       325,778         Audit Fees       206,250       199,375         Bad & Doubtful Debts       449,143       43,256         Consultants Fees       469,384       2,750         Insurance       723,043       591,980         Bank Charges       59,534       78,165         Legal Fees       507,997       172,520         Other Security Expenses       555,112       504,812         Rental       77,724       31,130         Assets Write off       429,281       12,179         Clinic Expenses       960,506       1,616,476         Miscellaneous       837,669       653,908 <td>Transport Maintenance</td> <td>633,284</td> <td>729,942</td>	Transport Maintenance	633,284	729,942
Stationary expenses       448,349       416,429         Postage & Telephone       157,514       239,026         CUG Phone       214,529       189,250         VC Discretionary fund       317,874       275,710         Research expenses       749,321       802,308         Events/Conferences       102,944       222,525         Accreditation Expenses       41,333,903       39,615,399         10. Other expenses       1,274,404       1,411,743         Uniforms       362,717       325,778         Audit Fees       206,250       199,375         Bad & Doubtful Debts       449,143       43,256         Consultants Fees       469,384       2,750         Insurance       723,043       591,980         Bank Charges       59,534       78,165         Legal Fees       507,997       172,520         Other Security Expenses       555,112       504,812         Registration & Renewal       40,237       40,421         Rental       77,724       31,130         Assets Write off       429,281       12,179         Clinic Expenses       960,506       1,616,476         Miscellaneous       633,069       653,908	Fuel expenses	1,465,955	1,318,092
Postage & Telephone         157,514         229,026           CUG Phone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         749,321         802,308           Events/Conferences         102,944         222,525           Accreditation Expenses         431,546         253,013           Other Administrative Expenses         1,274,404         1,411,743 <b>41,333,903 39,615,399 41,333,903 39,615,399 10.</b> Other expenses         1,274,404         1,411,743         43,256           Uniforms         362,717         325,778         Audit Fees         206,250         199,375           Bad & Doubtful Debts         449,143         43,256         Consultants Fees         469,384         2,750           Insurance         723,043         591,980         Bank Charges         59,534         78,165           Legal Fees         507,997         172,520         Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421         Rental         77,724         31,130           Assets Write off         429,281         12,179         Ginic Expenses </td <td>Stationary expenses</td> <td>448,349</td> <td>416,429</td>	Stationary expenses	448,349	416,429
CUG Phone         214,529         189,250           VC Discretionary fund         317,874         275,710           Research expenses         749,321         802,308           Events/Conferences         102,944         222,525           Accreditation Expenses         431,546         253,013           Other Administrative Expenses         1,274,404         1,411,743           Uniforms         362,717         325,778           Audit Fees         206,250         199,375           Bad & Doubtful Debts         449,143         43,256           Consultants Fees         469,384         2,750           Insurance         723,043         591,980           Bank Charges         59,534         78,165           Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         77,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         87,669         653,908	Postage & Telephone	157,514	239,026
VC Discretionary fund       317,874       275,710         Research expenses       749,321       802,308         Events/Conferences       102,944       222,525         Accreditation Expenses       431,546       253,013         Other Administrative Expenses       1,274,404       1,411,743         41,333,903       39,615,399         10. Other expenses       41,333,903       39,615,399         10. Other expenses       206,250       199,375         Bad & Doubtful Debts       449,143       43,256         Consultants Fees       469,384       2,750         Insurance       723,043       591,980         Bank Charges       59,534       78,165         Legal Fees       507,997       172,520         Other Security Expenses       555,112       504,812         Registration & Renewal       40,237       40,421         Rental       77,724       31,130         Assets Write off       429,281       12,179         Clinic Expenses       960,506       1,616,476         Miscellaneous       837,669       653,908	CUG Phone	214,529	189,250
Research expenses       749,321       802,308         Events/Conferences       102,944       222,525         Accreditation Expenses       431,546       253,013         Other Administrative Expenses       1,274,404       1,411,743         41,333,903       39,615,399         10. Other expenses       1,274,404       1,411,743         41,333,903       39,615,399         10. Other expenses       206,250       199,375         Bad & Doubtful Debts       449,143       43,256         Consultants Fees       469,384       2,750         Insurance       723,043       591,980         Bank Charges       59,534       78,165         Legal Fees       507,997       172,520         Other Security Expenses       555,112       504,812         Registration & Renewal       40,237       40,421         Rental       77,724       31,130         Assets Write off       429,281       12,179         Clinic Expenses       960,506       1,616,476         Miscellaneous       837,669       653,908	VC Discretionary fund	317,874	275,710
Events/Conferences         102,944         222,525           Accreditation Expenses         431,546         253,013           Other Administrative Expenses         1,274,404         1,411,743           41,333,903         39,615,399         41,333,903         39,615,399           10. Other expenses         41,333,903         39,615,399         41,333,903         39,615,399           10. Other expenses         362,717         325,778         325,778         325,778           Audit Fees         206,250         199,375         38d & Doubtful Debts         449,143         43,256           Consultants Fees         469,384         2,750         1nsurance         723,043         591,980           Bank Charges         59,534         78,165         129,375         12,520           Other Security Expenses         555,112         504,812         12,520           Other Security Expenses         555,112         504,812         12,179           Registration & Renewal         40,237         40,421         130           Assets Write off         429,281         12,179         12,179           Clinic Expenses         960,506         1,616,476         33,908         53,908	Research expenses	749,321	802,308
Accreditation Expenses       431,346       253,013         Other Administrative Expenses       1,274,404       1,411,743 <b>41,333,903 39,615,399 10.</b> Other expenses       41,333,903       39,615,399 <b>10.</b> Other expenses       362,717       325,778         Audit Fees       206,250       199,375         Bad & Doubtful Debts       449,143       43,256         Consultants Fees       469,384       2,750         Insurance       723,043       591,980         Bank Charges       59,534       78,165         Legal Fees       507,997       172,520         Other Security Expenses       555,112       504,812         Registration & Renewal       40,237       40,421         Rental       77,724       31,130         Assets Write off       429,281       12,179         Clinic Expenses       960,506       1,616,476         Miscellaneous       837,669       653,908	Events/Conferences	102,944	222,525
Other Administrative Expenses         1,2/4,404         1,411,743           41,333,903         39,615,399           10. Other expenses         362,717         325,778           Audit Fees         206,250         199,375           Bad & Doubtful Debts         449,143         43,256           Consultants Fees         469,384         2,750           Insurance         723,043         591,980           Bank Charges         59,534         78,165           Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         77,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Accreditation Expenses	431,546	253,013
10. Other expenses         339,613,399           Uniforms         362,717         325,778           Audit Fees         206,250         199,375           Bad & Doubtful Debts         449,143         43,256           Consultants Fees         469,384         2,750           Insurance         723,043         591,980           Bank Charges         59,534         78,165           Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         77,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Other Administrative Expenses	1,274,404	1,411,743
10. Other expensesUniforms362,717325,778Audit Fees206,250199,375Bad & Doubtful Debts449,14343,256Consultants Fees469,3842,750Insurance723,043591,980Bank Charges59,53478,165Legal Fees507,997172,520Other Security Expenses555,112504,812Registration & Renewal40,23740,421Rental777,72431,130Assets Write off429,28112,179Clinic Expenses960,5061,616,476Miscellaneous837,669653,908		41,333,903	39,015,399
IV.         Other expenses           Uniforms         362,717         325,778           Audit Fees         206,250         199,375           Bad & Doubtful Debts         449,143         43,256           Consultants Fees         469,384         2,750           Insurance         723,043         591,980           Bank Charges         59,534         78,165           Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         777,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	10 Other expenses		
Audit Fees         2062,117         323,116           Audit Fees         206,250         199,375           Bad & Doubtful Debts         449,143         43,256           Consultants Fees         469,384         2,750           Insurance         723,043         591,980           Bank Charges         59,534         78,165           Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         77,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Iniforms	362 717	325 778
Addit Fees       100,200       100,313         Bad & Doubtful Debts       449,143       43,256         Consultants Fees       469,384       2,750         Insurance       723,043       591,980         Bank Charges       59,534       78,165         Legal Fees       507,997       172,520         Other Security Expenses       555,112       504,812         Registration & Renewal       40,237       40,421         Rental       77,724       31,130         Assets Write off       429,281       12,179         Clinic Expenses       960,506       1,616,476         Miscellaneous       837,669       653,908	Audit Fees	206 250	100 375
Data & Doubling Debis         113, 113         133, 200           Consultants Fees         469,384         2,750           Insurance         723,043         591,980           Bank Charges         59,534         78,165           Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         777,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Rad & Doubtful Debts	449 143	43 256
Insurance         723,043         591,980           Bank Charges         59,534         78,165           Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         777,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Consultants Eees	469,384	2 750
Induction         120,000         000,000           Bank Charges         59,534         78,165           Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         77,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Insurance	723 043	591 980
Legal Fees         507,997         172,520           Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         77,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Bank Charges	59 534	78 165
Other Security Expenses         555,112         504,812           Registration & Renewal         40,237         40,421           Rental         77,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Legal Fees	507 997	172 520
Registration & Renewal         40,237         40,421           Rental         77,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Other Security Expenses	555 112	504 812
Rental         77,724         31,130           Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Registration & Renewal	40 237	40 421
Assets Write off         429,281         12,179           Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Rental	77 724	31 130
Clinic Expenses         960,506         1,616,476           Miscellaneous         837,669         653,908	Assets Write off	429 281	12 179
Miscellaneous 837,669 653,908	Clinic Expenses	960 506	1,616,476
	Miscellaneous	827.660	653 0.09
5.6/8.595 4.7/7.750	141155511 6115 563	5.678.595	4,272,750
# THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

Notes to and forming part of the financial statements for the year ended 31 December 2023

## 12. Cash and Cash Equivalents

5	2023	2022
	к	к
Main Bank A/c - BSP 1000386580	998,113	946,882
Mess Bank A/c - BSP 7017972501	- 24,435	1,009,537
School Fee Account: 1000386581	533,536	1,268,314
Stat-P Bank Account	1,468,302	1,198,105
MCDC Cardholder 7008191970	172	172
MCDC Cardholder 7011649576	1,426	6,442
PIP Project BSP 1002661773	35,796,364	32,643,884
BSP Bank Account DOD 1-603660	4,193,982	1,697,698
Housing A/c - BSP 7010630858	470	470
SERI Account	369,081	247,183
Union Board	(6,881)	45,863
BSP_TFTC	120,007	96,689
ANZ_TFTC (ACIAR Projects)	15,690	31,864
BSP 1000386086 _ Play School	9,203	11,837
KINA_ Trust Bank Account	364,811	6,142,959
BSP_ATCDI	74,806	70,034
BSP_UDC	-	12,397
Undeposited Fund	-	2,070
Petty Cash	15,531	13,726
BSP _ Compulsory Fee	3,339,094	1,170,092
Incentive Fund	577,528	4,069,567
EFTPOS Cash Out	-	508
	47,846,799	50,686,291

## 12a. Investments in Interest Bearing Deposits

Interest Bearing Deposits are placed with financial institutions with interest ranging from 0.08% to 1.64%. It's a short-term deposit held with the Bank of South Pacific (BSP) with a term of maturity of less than 3 months and, as such has been included as part of cash and cash equivalents.

2023	2022
к	к
13,883,053	13,851,434

	1	
13. Receivables		
Student fees receivable	8,311,465	7,577,038
Advances to UDC	1,000,000	1,000,000
Receivables - Debtor	191,178	3 <del></del> 5
Staff Debtors	4,182	7,679
Advances to Supplier	1,000	2 <b>1</b>
Staff Salary Advance	11,807	23,228
Air Niugini UATP account	9,005	9,205
Other Sundry Debtors	37,724	36,689
Receivable from NATSL	1,114,553	1,114,553
NAL Debtors	35,048	35,048
Staff Debtors-Tuition	(377)	(43,568)
Union Board-C Clearance A/C	37,645	14,149
ATCDI Clearing	÷	52,015
University Enterprises Ltd	223,979	223,979
	10,977,209	10,050,014
Less: Provisions for doubtful debts	(4,371,396)	(3,922,253)
	6,605,813	6,127,760
	2022	2022
	2023	2022
15 Oraditars and other never los	n	n
To. Creditors and other payables	40 004 770	
a. Trade Creditors	18,397,773	15,3/1,401
a. Trade Creditors	18,391,773	15,3/1,401
b. Other Creditors	18,397,773	15,371,401
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment	12,870,355	9.095.415
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C	18,391,773 12,870,355 1,615,796	9,095,415 1,438,462
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution	18,391,773 12,870,355 1,615,796 30,541	9,095,415 1,438,462 24,393
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable	12,870,355 1,615,796 30,541 1,135,633	9,095,415 1,438,462 24,393 1,120,462
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing	12,870,355 1,615,796 30,541 1,135,633 (109,051)	9,095,415 1,438,462 24,393 1,120,462 57,412
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable Aptitude Test Clearing A/c	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable Aptitude Test Clearing A/c School Fee Packaging Clearing A/c	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679 407,556	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102 325,850
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable Aptitude Test Clearing A/c School Fee Packaging Clearing A/c OHE Trust A/C	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679 407,556 97,563	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102 325,850 239,491
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable Aptitude Test Clearing A/c School Fee Packaging Clearing A/c OHE Trust A/C Unitech ILO-STREIT Consultancy	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679 407,556 97,563	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102 325,850 239,491 622,969
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable Aptitude Test Clearing A/C School Fee Packaging Clearing A/C OHE Trust A/C Unitech ILO-STREIT Consultancy Other accrual	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679 407,556 97,563 - 1,070,030	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102 325,850 239,491 622,969 816,060
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable Aptitude Test Clearing A/c School Fee Packaging Clearing A/c OHE Trust A/C Unitech ILO-STREIT Consultancy Other accrual	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679 407,556 97,563 - 1,070,030 <b>18,477,855</b>	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102 325,850 239,491 622,969 816,060 <b>14,875,106</b>
a. Trade Creditors b. Other Creditors Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable Aptitude Test Clearing A/c School Fee Packaging Clearing A/c OHE Trust A/C Unitech ILO-STREIT Consultancy Other accrual	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679 407,556 97,563 - 1,070,030 <b>18,477,855</b>	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102 325,850 239,491 622,969 816,060 <b>14,875,106</b>
<ul> <li>a. Trade Creditors</li> <li>b. Other Creditors</li> <li>Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable Aptitude Test Clearing A/C School Fee Packaging Clearing A/C OHE Trust A/C Unitech ILO-STREIT Consultancy Other accrual</li> <li>16. Tax Liabilities</li> </ul>	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679 407,556 97,563 - 1,070,030 <b>18,477,855</b>	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102 325,850 239,491 622,969 816,060 <b>14,875,106</b>
<ul> <li>a. Trade Creditors</li> <li>b. Other Creditors</li> <li>Students Credit Balance and Advance Payment H.E.L.P Clearing A/C</li> <li>Superannuation contribution</li> <li>Gratuity payable</li> <li>Payroll clearing</li> <li>Audit Accrued Fee</li> <li>Contractor Payable</li> <li>Aptitude Test Clearing A/c</li> <li>School Fee Packaging Clearing A/c</li> <li>OHE Trust A/C</li> <li>Unitech ILO-STREIT Consultancy</li> <li>Other accrual</li> <li>16. Tax Liabilities</li> <li>Group Tax</li> </ul>	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679 407,556 97,563 - 1,070,030 18,477,855	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102 325,850 239,491 622,969 816,060 <b>14,875,106</b>
<ul> <li>a. Trade Creditors</li> <li>b. Other Creditors</li> <li>Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable Aptitude Test Clearing A/C School Fee Packaging Clearing A/C OHE Trust A/C Unitech ILO-STREIT Consultancy Other accrual</li> <li>16. Tax Liabilities Group Tax GST</li> </ul>	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679 407,556 97,563 - 1,070,030 18,477,855 131,335,588 (1,038,226)	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102 325,850 239,491 622,969 816,060 <b>14,875,106</b> 129,776,096 (1,046,979)
<ul> <li>a. Trade Creditors</li> <li>b. Other Creditors</li> <li>Students Credit Balance and Advance Payment H.E.L.P Clearing A/C Superannuation contribution Gratuity payable Payroll clearing Audit Accrued Fee Contractor Payable Aptitude Test Clearing A/C School Fee Packaging Clearing A/C OHE Trust A/C Unitech ILO-STREIT Consultancy Other accrual</li> <li>16. Tax Liabilities Group Tax GST Business Withholding Tax</li> </ul>	12,870,355 1,615,796 30,541 1,135,633 (109,051) 393,890 37,864 927,679 407,556 97,563 - 1,070,030 18,477,855 131,335,588 (1,038,226) 23,451	9,095,415 1,438,462 24,393 1,120,462 57,412 380,625 37,864 716,102 325,850 239,491 622,969 816,060 <b>14,875,106</b> 129,776,096 (1,046,979) 1,608

# 17. Annual leave

Opening balance	8,105,329	7,698,067
Addition during the year	1,268,802	407,261
	9,374,131	8,105,329
18. Long service leave		<u>.</u>
Opening balance	11,696,883	11,478,728
Addition during the year	1,027,461	218,154
	12,724,343	11,696,883

Net Book Valı		Charge for the	Transfer Disposal	Revaluation Re	<u>Depreciation</u> At 1 January 2	•	At 31/12/2023	Disposal	Transfer	Revaluation Re	Additions	At 1 January 2	Cost	2023
Je 2023	ŝ 1	year		eserve	023	1	r T			serve		023		
168,920,267	3,132,590	æ		,	3, 132, 590		172,052,857		ï	28,352,857	r	143,700,000	×	Land
324,894,440	34,649,039	9,608,346		(18,495,293)	43,535,986		359,543,479		Ĩ	45,487,725		314,055,754	×	Buildings
4,131,483	6,012,607	1,027,712	- (1,064,988)	1	6,049,883		10,144,090	(1,400,690)	·	5 <b>1</b> 3	1,094,386	10,450,393	x	Motor Vehicles
1,858,985	1,917,635	168,747	(64, 184) (78, 611)	I	1,891,682		3, 776, 620	(82,035)	(74,203)	1	341,916	3,590,942	x	Furniture & Fittings
4,773,456	8,087,330	936, 978	(729, 174) (59,446)		7,938,973		12,860,786	(70,833)	(733, 730)		2,058,216	11,607,133	x	Computer Equipment
13,041,345	22,042,710	2,655,609	(1, 081, 694) (5, 977)		20,474,772		35,084,055	(8, 683)	(965,352)		2,439,376	33,618,714	x	Plant & Office Equipment
19,980,594		л	,	3	T		19,980,594	a:	(177,831)		8,186,602	11,971,824	x	WIP
538,682,264	74,760,217	13,315,697	(1,875,053) (1,209,021)	(18,495,293)	83,023,887		613,442,481	(1,562,240)	(1,951,116)	73,840,582	14,120,495	528,994,759	X	TOTAL

THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY Notes to and forming part of the financial statements for the year ended 31 December 2023

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The 2023 PNGUoT Annual Report is compile and Edited by the Printing Department @ Designer Eric Kuna. For Inquries we can be contacted at: unitech-printery@pnguot.ac.pg



Vision

To Grow World-Class Technocrats for the Real World

### Mission

To grow world class technocrats through high quality experiential teaching, 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