

CASE STUDY Contributor : Jack Yaro

Sustainable Built Environment and Customary Landownership

Challenges in TVET–University Pathways in PNG

This case study explores how Papua New Guinea University of Technology links TVET and higher education. It shows how practical training can build skills for sustainable infrastructure. It also highlights the importance of industry-aligned curricula and digital learning. A key focus is land governance, including customary land registration and surveying. The case shows how customary landownership can complicate infrastructure development. It points to the need for stronger pathways, partnerships and practical skills.



1. Overview and Purpose

Papua New Guinea University of Technology (PNGUoT) is developing competency-based skills training for a sustainable built environment. Its academic programs are aligned with industry needs and focus on practical, job-oriented training.

The Papua New Guinea (PNG) National Qualification Framework enables graduates to move from Technical and Vocational Education and Training (TVET) colleges to Higher Education Institutions such as PNGUoT to reduce the duplication of course contents. PNGUoT has a TVET pathway policy that allows diploma holders from technical colleges to pursue degree programs. As such, there are many technical and TVET colleges with job-ready training. However, the two main technical college affiliates with PNGUoT - National Polytech and Port Moresby Technical College - offer accredited courses similar to the PNGUoT curriculum, especially in the Engineering Programs, Built Environment, Sciences and Faculty of Humanities. Additionally, PNGUoT integrates TVET alignments into practical skills via its degree programmes through hands-on industrial training, laboratory experiments and fieldwork placements. This is aligned with the PNGUoT Five Year Strategic Plan which focuses on promoting digital learning, providing clear pathways for technical high school and TVET graduates, and connecting curriculum with industry demands like data analysis and AI technologies.

Moreover, students are properly trained on how the process of land mobilization and customary land registration can be done for public infrastructure development such as colleges and TVET schools. The university's academic programs integrate communication, negotiation and technical skills through curriculum-industry partnerships in the School of Lands and Surveying. Students are fully trained to engage in legal frameworks that govern land and resource development projects in PNG. This integrates TVET-style practical skills training including digital photogrammetry, surveying, GIS mapping, and property valuation for public and private properties to assess both the positive and negative impact of development practices in the country.

2. Urban Context and Structural Challenge

Colleges and TVET schools face several interrelated challenges in terms of infrastructure development, teaching resources, increased numbers of students, and the availability of equipment and materials in practical labs. Land availability for public infrastructure, especially colleges and TVET schools, is also a major challenge in PNG because most land is under customary ownership which is important for protecting land rights and social identity. The landowners demand school premises for land payment and compensation. There is high risk of similar disputes in most of the school lands in colleges and TVET schools in Papua New Guinea. Building educational infrastructure on customary land for urban development is therefore a difficult process; it involves identifying rightful landowners, resolving disputes, and including them in administrative decision-making. This can take time and may not produce positive results.

In addition, there is a knowledge gap in delivery as many TVET lecturers lack industry-based pedagogy and fully trained instructors to deliver competency-based training. Most of the technical colleges and TVET programs require review in alignment with PNGUoT accredited courses in engineering, humanities, sciences and built environment to meet the growing demands of industries - a partnership approach critical to producing employable graduates with technical trades skills. Curricula must also balance industry standard requirements with more TVET inclusive education by recognizing the value of local knowledge alongside integration with the latest technological advancements in AI.

3. Project Approach and Delivery Model

The Government of PNG (GoPNG) education policy stresses that TVET colleges bridge the gap between universities. The country's National Qualification Framework permits graduates to transit from TVET colleges to universities like PNGUoT to upskill their qualification, providing a pathway for TVET policy that integrates technical colleges into pursue degree programs. PNGUoT's Admission Policy (Standing Order) therefore includes a category of such students in its selection processes.

Recently, the PNGUoT Five Year Strategic Plan emphasis on strengthening pathways for technical high school and TVET graduates to advance their learning in the universities also allows second-chance learning for individuals who wish to pursue formal education by bridging the skills gap between TVET and Higher Education in PNG.

Moreover, PNGUoT integrates TVET alignments into practical skills in its degree programs through hands-on industrial training, laboratory experiments and fieldwork placements. For example, Civil and Mechanical Engineering courses have metal fabrication, machine maintenance, mechanical fitting, installation and industrial electronic systems; Applied Sciences apply practical laboratory techniques and experiments; Agriculture includes field trials and laboratory experiments; Business Studies programmes have digital literacy networking and software development; and Built Environment has construction management, architectural design works, and industry-based trainings.

Finally, the university focuses on producing employable graduates through industry relevant training that solves real world problems. The university's academic programs integrate communication, negotiation and technical skills through curriculum-industry partnerships in the School of Lands and Surveying. The School of Communication and Development Studies (SCDS) integrates effective communication, social and environmental impact assessment and monitoring for development practices through the Bachelor of Arts in Communication for Development program. The curriculum focuses on using strategic communication to make meaningful contributions that help manage land disputes and negotiations for sustainable development projects such as building infrastructures in TVET colleges. Specific courses further link development practices, and environmental sustainability in line with the Sustainable Development Goals (SDGs). For example, environment and social impact monitoring equip students with the process and stages of impact mitigation for any resource development projects on the community and environment; social mapping also focuses on identifying customary landowners and land investigation processes on land compensation payments and other benefits.

4. Insights and Lessons

As part of an overall strategy to increase the skills capacity of the PNG workforce, the GoPNG has prioritized the need to increase the quantity and quality of skills training in technical and vocational education through its Vision 2050 and related planning documents. After decades of neglect, skills training is now a top priority on the GoPNG policy and planning agenda. It is in this context that PNGUoT has developed a strategic development plan to accommodate the pathway for TVET graduates to pursue their degree in all academic programs.

Additionally, vocational training necessitates a further and fundamental rethinking. Alongside public provision the GoPNG could collaborate with foreign TVET providers and seriously consider contracting out technical trade training to the private sector. PNGUoT has number of undergraduate programs offered online and are facilitated by the Department of Distance Learning (DODL). This opportunity is available to TVET graduates and working

professionals who cannot attend on-campus classes and is facilitated through flexible learning via a Learning Management Systems (LMS).

5. Key Lessons

Key transferable lessons include:

- Pursue formal education by bridging the skills gap between TVET and Higher Education in PNG.
- All Technical and TVET colleges curriculum needs to be accredited to meet industry specific standards and create pathway for integrating with university curriculum.
- Approximately 97 percent of land is under customary ownership, which makes the land acquisition process harder in expanding infrastructure buildings in TVET schools and colleges.

This Case Study was prepared by Jack Yaro, Papua New Guinea University of Technology (PNGUoT), by way of contribution to the work of the CSCC Sustainable Urbanisation Expert Group, March 2026



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