

Developing Clear Career Pathways for the Rubber and Plastics Sector Workforce in Sri Lanka

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Abstract

The rubber and plastics industry is a vital component of Sri Lanka's manufacturing sector, contributing significantly to export earnings and employment. However, the industry faces critical challenges in workforce development, particularly due to the absence of clear career pathways for vocationally trained personnel beyond the National Vocational Qualification (NVQ) Level 6. While the Sri Lanka Qualifications Framework (SLQF) outlines potential bridging mechanisms, their practical implementation remains limited, leaving skilled workers without opportunities for higher education or professional advancement. This gap restricts innovation and weakens workforce retention. Drawing on both the best national and international practices, this paper argues for urgent reforms led by the University Grants Commission (UGC) and the Tertiary and Vocational Education Commission (TVEC). By integrating vocational and academic routes, upgrading competency standards and curricula, and fostering industry collaboration, Sri Lanka can develop a sustainable education to career-pipeline for the rubber and plastics which is commonly referred to as the polymer sector. Such reforms are aligned with Sustainable Development Goals ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all.

Introduction

The rubber and plastics (polymer) industry is a key pillar of Sri Lanka's manufacturing sector, contributing significantly to domestic production, employment generation, and export earnings (Export Development Board, 2022). This industry has long been recognized as a cornerstone of the nation's industrial base, with products ranging from tires and gloves to packaging and engineering plastics being exported to high-demand international markets. As global industries move towards advanced manufacturing, automation, and sustainability, Sri Lanka must ensure that its workforce is not only abundant but also equipped with the

skills, adaptability, and innovation required to remain competitive (Varaprasad, 2024; Federal Ministry of Education and Research [BMBF], 2019).

Despite its importance, the rubber and plastics sector in Sri Lanka remains largely labor driven, depending heavily on a workforce with practical skills and applied knowledge to operate machinery, maintain quality standards, and adapt to new technologies. The ability of the industry to remain competitive in the global market will increasingly rely on its human capital. However, a critical weakness undermines the sector's potential with the absence of a clearly defined career pathway for vocationally trained workers to progress into higher levels of education and professional development.

Although entry- and mid-level training opportunities exist within Sri Lanka's vocational training system, the progression from mid-level roles to technologists and professionals is poorly structured (Haikin, 2015). This systemic gap produces a workforce that is technically competent but unable to access advanced qualifications, research opportunities, or leadership roles, thereby weakening long-term industry competitiveness. Addressing this challenge is also central to Sustainable Development Goal 4 (SDG 4), which emphasizes inclusive and equitable quality education and lifelong learning opportunities for all (United Nations, 2015). Aligning Sri Lanka's vocational and higher education systems with these global priorities will be essential for building a future-ready workforce in the polymer industry.

Current Training Opportunities and Their Limitations

At present, the Plastics and Rubber Institute of Sri Lanka (PRISL) plays a pivotal role in offering training programs that advance up to National Vocational Qualification (NVQ) Level 6. These programs equip trainees with valuable technical skills and supervisory-level competencies, bridging the gap between shop-floor operations and mid-management responsibilities. NVQ Level 6 is officially recognized as equivalent to a Higher

National Diploma, reflecting its rigor and relevance (University Grants Commission [UGC], 2015).

However, beyond NVQ Level 6, there is no structured mechanism for vocationally qualified personnel in the polymer sector, to progress further into degree-level or postgraduate qualifications. This creates a ceiling effect where individuals with the potential to contribute more meaningfully to the industry are unable to advance beyond mid-level roles.

The Sri Lanka Qualifications Framework (SLQF) is designed to bridge vocational qualifications with academic programs (University Grants Commission [UGC], 2015). In practice, however, these pathways remain underdeveloped and unclear. Universities frequently do not recognize NVQ Level 6 as an adequate lateral entry qualification, and the absence of consistent policies for recognizing prior learning and professional experience further limits progression. Without reforms to strengthen these pathways, vocationally trained individuals remain confined to mid-level qualifications, preventing industry and the country from fully leveraging their potential for growth and innovation.

The Problem of Brain Drain

Another pressing issue facing the industry is the retention of highly qualified personnel. Graduates who enter the rubber and plastics sector frequently migrate abroad or shift to other industries offering better career prospects, salaries, and working conditions. This phenomenon of “brain drain” is well documented in Sri Lanka’s broader economy (Perera & Weerakkody, 2020). The effects on the rubber and plastics sector are particularly damaging. When graduates leave, the sector loses individuals who could have served as research leaders, innovators, or industrial managers. The result is a widening of skills gap. At one end, there is a considerable number of entry-level workers, while at the other, there is a shortage of advanced professionals capable of driving innovation and efficiency.

By contrast, vocationally trained workers are more likely to remain in the industry if they are provided with clear career pathways that allow them to upgrade their qualifications and advance professionalism. Expanding opportunities for such workers to progress into degree programs could therefore help mitigate brain drain, fostering a more loyal and stable workforce while simultaneously strengthening the sector’s capacity for growth and innovation. This makes it even more urgent for national education bodies to take corrective measures

Why UGC and TVEC Must Act

The University Grants Commission (UGC) and the Tertiary and Vocational Education Commission (TVEC) must take decisive leadership to bridge the divide between vocational and academic education in Sri Lanka. Their coordinated action is critical for building a skilled workforce capable of meeting the evolving needs of the polymer sector.

As the regulator of higher education, the UGC should establish flexible entry routes for vocationally qualified individuals into degree programs. NVQ Level 6 holders should be granted structured pathways into university degrees, with recognition of prior learning to avoid unnecessary duplication of study. Such measures would promote equality of esteem between academic and vocational routes, motivate learners, and enrich universities with students bringing practical, hands-on expertise (University Grants Commission [UGC], 2015).

Meanwhile, TVEC, as the custodian of vocational education, must not only expand and upgrade National Competency Standards (NCS) in polymer technology and related fields, but also ensure that these standards align with higher-level academic programs. A new curricula and syllabi at the University of Vocational Technology (UNIVOTEC) should be developed to offer Level 7 degrees (bachelor’s level) that upgrades vocational training in polymer fields. Collaboration between TVEC, UNIVOTEC, and industry is essential to design programs that reflect current industrial needs, including sustainability practices, advanced polymer processing, digital manufacturing, and innovation management (Gunawardena, 2017; Green & Steedman, 2003).

Without coordinated action from both bodies, Sri Lanka risks maintaining a fragmented education system where vocational and academic streams operate in parallel without meaningful integration. This issue not only limits opportunities for learners but also weakens the capacity of the polymer sector to remain competitive in global markets. Expanding pathways into degree programs will create a more loyal and skilled workforce, reduce brain drain, and support lifelong learning and upskilling initiatives (Perera & Weerakkody, 2020).

The Role of Industry

The industry itself cannot remain passive in this transformation. Employers, professional bodies, and experts in the polymer sector must play an active role

in shaping vocational education. Their engagement with TVEC as assessors, advisors, and curriculum developers is vital to ensure that training programs remain relevant to industry realities and emerging technological trends.

Moreover, industry stakeholders must exert pressure on TVEC and UGC to act coordinately. By demonstrating the economic importance of the sector and the costs of inaction. The industry can help ensure that the development of clear career pathways becomes a national priority.

International experience demonstrates that effective vocational education and training systems require close collaboration between governments, employers, and training providers, with strong alignment to labor market needs and opportunities for progression into higher education (Eichhorst et al., 2012). Embedding such collaboration within Sri Lanka's polymer sector would not only strengthen workforce development but also enhance global competitiveness.

Way Forward

To build a sustainable and empowered workforce for the polymer industry, the following steps are essential.

- Expand NVQ pathways beyond Level 6 by developing degree-level programs (NVQ 7) in Polymer Technology, which can be offered and administered by PRISL and the University of Vocational Technology (UNIVOTEC).
- Clarify and implement SLQF bridging mechanisms, enabling vocational qualifications to progress smoothly into degree programs with recognition of prior learning.
- Encourage UGC involvement by opening flexible entry opportunities for vocationally qualified individuals into universities, creating equality of esteem between vocational and academic routes and promoting lifelong learning.
- Strengthen TVEC's role in upgrading comprehensive National Competency Standards (NCS) in Polymer Technology that reflect evolving industry needs, including sustainability and advanced technologies.
- Encourage industry experts to be involved as assessors and advisors in vocational assessments, curriculum design, and quality assurance to maintain relevance and credibility.
- Promote collaborative projects between universities, PRISL, and industry to foster applied research in

polymer technology, providing vocational graduates with opportunities to contribute to innovation.

- Raise public awareness of vocational pathways, highlighting success stories of NVQ graduates who progress to higher roles, thereby increasing the attractiveness of vocational education.
- Learn from international best practices such as Germany's dual training system (Federal Ministry of Education and Research [BMBF], 2019), Singapore's seamless vocational-to-degree transitions (OECD, 2020), and Malaysia's TVET–university integration (Rajah & Ting, 2018), providing evidence that Sri Lanka can build an effective and inclusive framework tailored to its industrial needs.

Conclusion

The vocational training system provides a solid foundation at the entry and mid-levels of rubber and plastics sector workforce, the absence of clear pathways into higher education and professional advancement remains a critical weakness. Unless this gap is addressed, the industry will have continue to struggle with brain drain, skills shortages, and limited innovation capacity.

The University Grants Commission and the Tertiary and Vocational Education Commission hold the keys to solving this challenge. By fostering flexible entry routes, upgrading competency standards, forming curriculum for degree levels, and collaborating closely with PRISL, UNIVOTEC, and industry stakeholders, can build a coherent education-to-career pipeline (UGC, 2015; TVEC, 2018). Such a system would not only empower individuals but also ensure the long-term sustainability of one of Sri Lanka's most important manufacturing sectors.

Global experience shows that this is both possible and practical. Germany's dual vocational training model Singapore's seamless vocational-to-degree pathways and Malaysia's alignment of TVET with higher education demonstrate that clear career structures can retain talent, foster innovation, and strengthen industry competitiveness. Sri Lanka must adapt these lessons to its own context, using them as a roadmap for reform.

The time for action is now. If Sri Lanka is to remain competitive in the global rubber and plastics market, UGC and TVEC must prioritize the creation of clear, practical, and inclusive career pathways. This is not merely an educational reform; it is an economic necessity for the future of the nation. Ultimately, investing in clear career pathways is not only an educational reform but

also a commitment to sustainable industrial growth and alignment with global development goals.

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