MedCrave
Step into the World of Research
Material Science & Engineering International Journal

Opinion

Open Access
CrossMark

Professional bodies in engineering need to promote seamless collaborations between industry, academia and public service

Volume 9 Issue 1 - 2025

Patrick Ochuodho Ajwang
Department of Agricultural and Biosystems Engineering, Jomo Kenyatta University of Agriculture and Technology, Kenya

Correspondence: Patrick Ochuodho Ajwang, BSc. MSc. MCIPS PhD Fellow, KeSEBAE, Senior Lecturer, Department of Agricultural and Biosystems Engineering, College of Engineering and Technology, JKUAT - Juja Campus P.O Box 62000 - 00200 Nairobi, Kenya, Tel +254724706627

Received: December 24, 2024 | **Published:** February 12, 2025

Background

The Washington Accord[1] on standards and best practices for engineering training and professionalism – which has been propagated by the International Engineering Alliance (IEA) -has recently gained prominence among professional engineering bodies in the Global South. Basically the accord seeks to establish common standards of training and professional experience that can enhance trade in consulting services and promote best engineering practices globally. Whereas the professional engineering bodies in Kenya are currently in the process of acceding to the accord,[2] there are some emergent issues that necessitate a robust discussion among the engineering fraternity within Kenya and abroad.

This article provides a critical review of the registration and licensing procedures currently in place at the Engineers Board of Kenya. Through literature reviews, discussions in professional fora and personal experiences of the author, the strengths and weaknesses of the current professional engineering practice regulations are analyzed and new approaches are suggested. The author proffers a new roadmap that would enhance fairness and reduce talent wastage in the engineering profession in Kenya. The issues discussed could also be adopted in other countries.

The Engineers Board of Kenya (EBK) plays a pivotal and indispensable role in registration, licensing, regulation, professionalization and standardization of engineering practitioners in Kenya. The current board is the successor of the Engineers Registration Board (ERB) whose existence was terminated upon the enactment of the Engineers Act Cap. 43 of 2011.[3] The EBK is a government institution which is meant to ensure order, discipline and adherence to internationally recognized quality standards and best practices by engineering professionals in Kenya.

EBK operates in tandem with the Institution of Engineers of Kenya (IEK) which is the professional society of engineers concerned with the welfare, professional development and promotion of best practices among its membership.[4] Registration by EBK is a prerequisite for membership of the IEK implying that EBK and IEK operate more or less as one entity. Indeed, under Section 5 of the Engineers Act 2011, the chairman of the Institution of Engineers of Kenya is a member of the Engineers Board of Kenya.

Powers of the engineers board of Kenya

According to Section 7 of the Engineers Act 2011, the Engineers Board of Kenya is vested with sweeping powers to develop and regulate the engineering profession, including approving and accrediting engineering programs for public and private universities – which has severally been contested by Commission for University Education of Kenya. Perhaps the most outstanding power of the board is issuing practicing licenses to individuals who have satisfied the criteria set by the board, to operate as legally recognized professional engineers within the territory of Kenya. People who are not licensed are not allowed by the Act to hold any notable professional engineering position in Kenya In the past, there have been some murmurs on how the licenses are issued by the EBK/IEK.[5]

Existing categories of engineers in Kenya

The Engineers Act (of Kenya) 2011, recognizes four levels of engineers; Graduate Engineer, Professional Engineer, Consulting Engineer and Accredited Checker. This is in tandem with the Washington Accord. Graduate Engineer is the entry level in the profession and requires a university degree from duly accredited engineering programme from a chartered university. Graduate engineers are not eligible for a practicing license and must chalk up at least three years of practice under the supervision of a registered and licensed professional engineer before they can submit their project and training report to the board and proceed to the professional interview conducted by the board.

By definition, a professional engineer (PE) is a person who is competent by virtue of education and training to apply the scientific methods and outlook to the analysis and solution of engineering problems. There is a requirement of both undergraduate university education and practical experience under an already practicing professional engineer to become a PE in many jurisdictions.[6] According to the NSPE of USA, the first engineering licensure law was passed in Wyoming in 1907 to protect public health, safety and welfare.

According to EBK regulations, a consulting engineer is senior professional engineer with at least 9 years' experience as a PE combined with evidence of Continuing Professional development (CPD) over the same period. They can handle projects or assignments independently for both public and private sector clients.

An accredited checker is a senior specialized engineer who can be called upon to review the works knowledge of a professional engineer. His/her role is to check, with specialized knowledge, any aspect of a professional engineer's work submitted to him for checking with particular reference to safety of the works. The accredited checkers can audit the works of a Consulting Engineer.

Critique of categories and licensing process

Induction into the practicing professional category (PE) is contingent on passing the professional interview/examination conducted by the board. There is currently no requirement for a Masters or Doctorate degree for the three professional cadres under the Act and Regulations. So a Bachelor's degree holder can, in principle, progress to Consulting Engineer and Accredited Checker without going for any recognized post-graduate university qualification.

Whereas the current registration and licensing system seems logical and fair on the surface, there are several issues that have cropped up in the engineering fraternity in Kenya in relation to this system. For instance, out of over 25,000 people with engineering degrees in Kenya, less than 5,000 are licensed and recognized by the board as professional engineers[5]. Thus over 75% of engineering graduates are either at the Graduate Engineer level or lost into other activities that they have not been trained for. This is a blatant wastage of engineering talent and economic resources that a poor economy can hardly absorb.

Within the 75% are numerous university lecturers and professors who hold Masters or Doctorate degrees who have not been licensed by the EBK. In particular, people who chose the academic path in engineering have found it difficult to be registered, especially if they have undertaken post-graduate studies from universities outside the Commonwealth countries. Many are the times when serious scholars have appeared before the board to present their doctorate project work for registration and licensing only to be told the work was too theoretical or irrelevant. And those who have initiated the registration process after completing Masters and Doctorate degrees have infamously been told that the EBK requires only the undergraduate degree certificate to register. This has buttressed the suspicion that the EBK sees very little or no value in advanced engineering education.

It is intriguing that highly trained persons who are allowed by university councils to teach engineering courses at the university can be considered as non-engineers by the professional bodies. Yet when they come to accredit the university programmes, the same individuals are presented as resource persons for the programmes and they endorse. It is also rather simplistic to imagine that a Masters or Doctorate degree in engineering can be awarded without solving an intractable and practical problem in engineering, especially in the more developed countries of America, Europe or Asia. Indeed, some of the scholars they have refused to recognize locally, have been admitted at the highest ranks (Fellow) in some professional bodies abroad.

New proposal on categorization and licensing of engineers

The dynamism of the Kenyan higher education sector is breathtaking. Unlike the 1960s when the numbers of engineering graduates were countable, today there is large pool of graduates with the basic engineering qualifications. There are also so many engineers who have completed post-graduate degrees from reputable institutions, even if outside the Commonwealth. The Engineers Board of Kenya should move with speed to make it possible for all graduates from duly accredited engineering programmes to PRACTICE engineering at different levels of responsibility without much ado. What is the purpose of accreditation and audits if they cannot make universities produce the desired competencies?

I would propose that the Engineers Board of Kenya should issue practicing licenses to graduates from all accredited engineering programmes to enable them practice what they have learnt from the 5-year academic journey. The current practice of not licensing them negates the authority of universities and subjects the graduates to unending indignity. In any case we know that universities have always retained their best students for post-graduate training that makes them scholars. Accordingly, I think it would be better if EBK introduces four levels of engineers with responsibility thresholds as follows;

Level	Initials	Admission requirements	Responsibility threshold
Professional Engineer	PE	Any graduate from an accredited/recognized engineering programme from a chartered university operating in Kenya or abroad. Experience; 0-5 years.	This category of engineers should handle relatively simple projects, even though most of them would find entry level employment in existing engineering organizations or already practicing engineers .Budget limits of the projects they can handle independently can be to be set by EBK. They can be considered for operational and supervisory roles in organizations.
Senior Professional Engineer	SPE	Graduates with 5-10 year experience who have practised either independently or in employment and accumulated established CPD points and shown evidence of continuing involvement in engineering. Candidates for this level should undergo an assessment by the EBK to establish competencies and experience. A Master's degree should be considered as an added advantage for this level	This category of engineers should handle projects and tasks of medium complexity/size, with budget thresholds set by the EBK. They can also review the work of PEs. They can be first line managers, section heads or departmental heads
Consulting Professional Engineer	CPE	Graduates with at least 10-15 years proven cumulative experience relating to planning, design, implementation, supervision and management of engineering projects, programmes, departments or institutions. A Master's degree should be mandatory requirement for this level. Candidates for this level should undergo an assessment by the EBK to establish competencies and experience.	This category of engineers can handle projects/tasks of any size/ complexity in their respective engineering domain. Their budget thresholds are unlimited. They can review the work of SPEs. They can serve in middle management or senior management for large organizations
Fellow Professional Engineer	FPE	Consulting Professional Engineers (CPEs) can be elevated to this status provided they can show at least 20 year experience on proven engineering practice and commitment to CPD. A PhD degree from a recognized/ accredited engineering university should be considered an advantage for this level. Candidates for this level should undergo an assessment by the EBK.	This is the apex level. They can handle tasks/projects of any complexity and budget. They can review the work of CPEs. They can also be thought leaders in industry or academia who can run large institutions or divisions

Citation: Ajwang PO. Professional bodies in engineering need to promote seamless collaborations between industry, academia and public service. *Material Sci & Eng.* 2025;9(1):1–3. DOI: 10.15406/mseij.2025.09.00248

Benefits of the new categorization and licensing system

This proposal to rename and reclassify engineers provides several distinct advantages. It would restore and reinforce the authority of universities as the institutions mandated to provide holistic engineering training in the country. It would also be testimony that accreditations and audits done by regulatory bodies are not mere formalities. The graduates from the engineering programmes would also have the right to append the title ENGINEER (Eng.) to their names thus giving due recognition to university academic work as the cherished traditional and tested path to professionalism.

By making a Master's degree a requirement for Consulting Professional Engineer status, it would make it easy for consultants in industry to transition to academia and vice-versa. This approach would also give due respect to seniority and promote the generation of engineering knowledge for our economy. It could also help eliminate the unreasonable wage disparities between academia and industry. Lastly it would enable seamless interaction between engineers in academia and industry/government since nobody would feel out of place.

Conclusion

The competition for top engineering talent is stiff. And no country has ever developed without high level engineering talent. If we frustrate the career aspirations of upcoming engineers, then we shall end up only with a country of hawkers and salesmen of imported merchandise. And to eliminate universities in the professional engineering services value chain is to kill innovation, modernization and critical thinking, which are essential elements of a progressive society. So it is important to amend the Engineers Act 2011 to give hope and meaning to the vast majority of our engineering graduates in Kenya 9and beyond)!

Acknowledgments

Dr. Patrick Ajwang' teaches Agricultural and Biosystems Engineering at JKUAT. He is a Fellow of the Kenya Society of Environmental, Biological and Agricultural Engineers.

Funding

None.

Conflicts of interest

The author declares that there are no conflicts of interest.

References

1. International Engineering Alliance. 25 Years Washington Accord. 2014
2. Engineers Board of Kenya. Journey to Washington accord; EBK commissions assessors. Engineers board of Kenya (EBK) newsletter. 2024;10.
3. Kenya law reform commission. Engineers act of Kenya 2011. 2025.
4. The constitution of the institution of engineers of Kenya (IEK) 2024. IEK Secretariat, Nairobi. Kenya.
5. Eng. Margaret Ogai. Personal communication - Comments from the CEO engineers board of Kenya at registration and licensing sensitization forum held at JKUAT. 2024.
6. National society of professional engineers (NSPE). *What is a PE?* 2025.

Citation: Ajwang PO. Professional bodies in engineering need to promote seamless collaborations between industry, academia and public service. *Material Sci & Eng.* 2025;9(1):1–3. DOI: 10.15406/mseij.2025.09.00248