



Commonwealth Engineers' Council | Aston University

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Benchmarking Engineering Capacity and Capability across the Commonwealth



The Project



- *Benchmarking Engineering Capacity and Capability across the Commonwealth* is an 18 month project funded by the Lloyds Register Foundation
- It is delivered through a partnership between the Commonwealth Engineers' Council and Aston University
- It will build on a recent report by the Royal Academy of Engineering entitled *Global Engineering Capability Review (GECR), 2025*, which measures engineering capability across 115 countries
- This project will look at the smaller nations and small island developing states which were not included in the GECR Report
- The project seeks to bring the engineering sector in line with other built environment professional accredited organisations of the Commonwealth, who have recently benchmarked their own professions
- The project runs between November 2025-April 2027

Global Context

Climate change and **rapid urbanisation** are two of the most serious challenges facing the World, and an analysis of the most recent projections produced by UN Habitat reveals that nearly 50% of the projected 2.5 billion increase in the world's urban population to 2050 will be in Commonwealth countries, representing a **doubling urban population from 1bn to 2bn** in the next 25 years.

We also know that cities are responsible for **70% of global carbon emissions**, so the consequences of allowing cities to grow in size and prosperity in an unsustainable way are catastrophic for the planet.

33 of the 42 world's small states are Commonwealth members, including small islands and some of the most vulnerable countries to climate change. This is very much a Commonwealth challenge.

The Role of Engineers

Rapidly developing countries of the Commonwealth rely on skilled, professional engineers to design and build safe, sustainable, and resilient urban environments, equipped with appropriate skills, who adhere to building codes and standards which will ensure safety and compliance.

But in many smaller Commonwealth countries the availability of the skilled engineers required, and the building standards and enforcement mechanisms needed are not well developed, nor sufficient.

The project will use the reach, network and collaboration potential of the Commonwealth Engineers' Council to research and **gather data to map engineering capacity and capability, and identify critical gaps which would lead to risk of harm due to unsafe practices.** Using this evidence, practical solutions will be proposed to build local engineering expertise, improve education, and strengthen standards.

Engineering Capacity and Capability

Engineering capacity refers to the **quantitative resources** available for engineering — such as the number of engineers, institutions, and infrastructure.

Engineering capability reflects the **qualitative strength** of those resources, including skills, competencies, diversity, innovation potential, and ability to deliver sustainable solutions.

Engineering capacity and capability will be considered in light of the development and climate resilience needs of a particular country, in order to assess how well that country can meet national and global challenges in a safe and sustainable way.

Using our network and members across the Commonwealth, we will look at:

Engineering Capacity (quantitative and structural aspects of the engineering ecosystem)

- Workforce Size and Distribution
- Qualification Levels
- Education Infrastructure
- Professional Accreditation and Licensing
- Standards and Codes

Engineering Capability (skills, relevance and readiness)

- Skills Relevance and Specialization
Core engineering competencies (design, analysis, project management); Emerging skills such as: AI; Data science; Sustainable design; Circular economy principle; Climate resilience
- Industry Readiness and Employability
- Innovation and Research Capacity
- Policy and Strategic Alignment
- Global and Regional Collaboration

Additional Cross-Cutting Themes

- Gender and Inclusion
- Migration and Brain Drain
- Digital Infrastructure
- Resilience and Adaptability

Purpose

The purpose of this project is fourfold:

- 1) **data gathering** related to engineering capacity and capability across the smallest and most vulnerable member states of the Commonwealth, which are very often left out of similar global engineering studies;
- 2) **gap analysis** between engineering capacity and capability as compared to the development need of that country related to both climate adaptation as well as rapid urbanisation;
- 3) Primary stakeholder engagement across multisectors to establish a **future skills analysis** of the direction that skills development is needed to address the challenge of creating a safe and sustainable built environment
- 4) the **creation of a valuable partnership network** where members have self identified actions that need to be taken in order for the determined changes and growth areas to be created, and where future change mechanisms have already been started, knowledge shared, and supportive partnerships created.

Outcomes

An informed, accessible and evidence-based view of the capacity and capability of the Commonwealth engineering sector, and recommendations which support the systems level changes required to achieve sufficient diverse capacity and capability at the education, industry and policy levels to deliver a sustainable, safe and inclusive built environment which is resilient to climate change, which limits pollution and protects the natural environment.

Strengthened partnership and trusted collaborations based on mutual and shared Commonwealth values who are willing to support one another, share resources and standards, and work towards a mutual goal of global level engineering capability.

Outcomes

With the data and knowledge gained we will be in a position to:

- Make evidence-based recommendations on the needs of individual countries and global regions around the skills, tools, frameworks, partnership requirements to strengthen engineering capacity and capability to match key country challenges related to the building of climate resilient and socially sustainable infrastructure;
- Identify changes to the taught curriculum to ensure that sustainability and future skills match industry and planetary resilience needs;
- Create and grow partnerships capable of supporting countries to build capacity, share codes or standards, or create mutual recognition agreements;

Outputs

We will produce outputs in the form of:

- Data related to size and scale of engineering courses (accredited and non-accredited) and subject areas;
- Analysis of development needs of country based on direct or proxy measures;
- Data on existence of mutual recognition frameworks;
- Data on existing key codes and standards, and gaps in standards;
- Identified gap analysis of engineering capacity;
- Identified gap analysis of engineering capability;
- Identification of areas of the curriculum which are missing or could be added, or teaching methods which could be improved
- Identification of key challenge areas for each country, and possible leapfrog technologies;
- Interactive mapping to show the information and data gathered;
- Dissemination activities to share this knowledge and collaborate on pathways to future change

Impact

The impact of this work will be to create an evidence base for the engineering sector so that action can be taken based on data and evidence.

The ultimate impact of this and future work is to develop a Commonwealth engineering sector which is capable of addressing the most pressing issues of climate change, biodiversity loss, rising levels of pollution, rapidly urbanising and overcrowded cities, and other threats, in a safe, sustainable, ethical, inclusive manner.

This work takes a vital step on the much longer-term journey to creating sufficient engineering capacity and capability in some of the smallest and most vulnerable countries to climate change in the world, at the frontline of the climate and biodiversity crisis.

The impact of this work will be to create a cohesive network of Commonwealth interdisciplinary and cross sector engineering partner organisations who are capable of working closely to continue to share experience, expertise, knowledge, case studies, codes, standards, resources, training, and any other relevant information through a trusted partnership based on common values.

Contact Us:

**For further information, and to be involved in this project,
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