**Status of Infrastructure and call for an engineer certification**

The current state of public infrastructure in India, marked by recent incidents of bridge and airport ceiling collapses, reveals a dire need for a national regulatory body to certify civil and structural engineers (For example, the collapse of Old Kali Bridge in Uttara Kannada district in August 2024). The lack of standardised training and certification leads to underqualified engineers handling critical projects, posing significant safety risks.

We need to understand the reasons and points of failure to address these critical infrastructure failures, to prevent any more incidents. A proposed Bill aims to establish rigorous national standards and a regulatory body to ensure only competent engineers oversee infrastructure projects, thereby enhancing public safety and trust.

The solution to the problems in quality introduces a Bill to establish national standards for individuals involved in building infrastructure across our country. The Karnataka Professional Civil Engineers Act, 2024, serves as a state-level example of such regulation. This Act requires civil engineers to register with the Karnataka Council of Professional Civil Engineers and mandates that only registered engineers can approve building plans. This act is a great first step that ensures accountability and aims to prevent individuals without appropriate qualifications from practising as civil engineers but requires.

# **The Issue at Hand:** Absence **of comprehensive** national guidelines that determines the qualifications of experts across the civil engineering fields has led to inconsistencies and risks in large-scale infrastructure and development projects. Post graduation, there are no established standards for quantifying and validating the skills, experience and credentials for engineers.

# **Proposed Solution:** We propose the establishment of a nationwide regulation system for engineers. It would involve a body that comprises experienced engineers with a standardised process of interviews or examinations to certify independent professional engineers across various disciplines. Such a system will ensure that only highly qualified and thoroughly vetted engineers are entrusted with critical infrastructure projects.

# **Legal Route to Address the Issue:** The introduction and enactment of a Civil Engineer's Bill, modelled after the Architect's Act, 1972 (Act No. 20 of 1972), will provide the legal framework necessary to formalise qualifications, certifications, and professional standards for engineers. This Bill will mandate the creation of a regulatory body to oversee the registration and certification process, ensuring consistent application of standards nationwide.

# **Benefits to the Public:** Implementing this Bill will enhance public safety by ensuring that only the most qualified engineers oversee our infrastructure projects. This will prevent incidents of substandardengineering and promote trust in our public works. It will establish a transparent and accountable system, replacing the existing local-level authorization and empanelment of engineers and reassuring the public of the competence and reliability of the professionals responsible for their safety.

# **Why hasn't there been action so far?** The Karnataka Professional Civil Engineers Act, 2024[[1]](#footnote-0), serves as a state-level example of regulation, but transitioning to an exam-based system would ensure more rigorous standards. This approach could serve as a model for nationwide adoption, enhancing the safety and reliability of infrastructure projects across India. Gujarat is the only state that has an exam based professional engineer registration in place with the [The Gujarat Professional Civil Engineers Act, 2006](https://www.indiacode.nic.in/bitstream/123456789/4585/1/professionalcivilengineer.pdf)[[2]](#footnote-1) . In contrast, many other states rely on simpler experience and degree-based certifications, which can be easily manipulated by well-funded real estate developers and contractors. There is resistance to change, as transitioning to an exam-based system could shift the power and final authority on building approvals away from developers, thereby disrupting established interests. However, adopting an exam-based certification approach could serve as a model for nationwide implementation, significantly enhancing the safety and reliability of infrastructure projects across India.

# **Civil Engineering Disciplines:**

**Geotechnical Engineering (Soil Engineering):** Ensures the stability and integrity of structures by analysing soil and rock mechanics.

**Structural Engineering:** Focuses on the design and analysis of buildings, bridges, and other structures to ensure they can withstand various forces.

**Surveying:** Involves the measurement and mapping of land to ensure accurate construction and legal property boundaries.

**Transportation Engineering (Highways and Trains):** Deals with the planning, design, and operation of transportation systems to ensure safe and efficient movement of people and goods.

**Environmental Engineering (Water Supply and Waste Management):** Manages the design and implementation of systems for clean water supply and waste disposal.

**Hydrology (Dams and Irrigation Channels):** Studies the distribution and movement of water resources to design effective water management systems.

The urgent need for this Bill cannot be overstated. Every day, millions of our citizens rely on the safety and integrity of our infrastructure. From bridges and highways to dams and buildings, the risks posed by unqualified individuals masquerading as experts are too great to ignore. It is our duty to ensure that our infrastructure is built and maintained by the most capable hands. This Bill is not just about regulations; it is about safeguarding lives, ensuring the longevity of our infrastructure, and restoring public confidence in our engineering standards.

The Architect's Act, 1972 (Act No. 20 of 1972), serves as a precedent for this initiative. This Act regulates the profession of architecture by establishing standards of qualifications, registration, and professional conduct. Similarly, the proposed Engineer’s Bill will institute rigorous standards and a regulatory body to ensure that all engineering practices meet the highest standards of safety and expertise.

We urge all Honourable Members to support this initiative for the betterment of our nation's infrastructure and the safety of our citizens.

**Suggested Questions**

# **1. Question on Road Infrastructure Failures:**

**Will the Minister of Road Transport and Highways be pleased to state:**

(a) (a) Whether the Government is aware of the recent failures of road infrastructure in Karnataka, such as the collapse of the Old Kali Bridge in Uttara Kannada district in August 2024;;

(b) The details of the causes identified for these collapses, including any design or construction flaws;

(c) Whether the Government has taken any corrective measures to address these failures and prevent future occurrences;

(d) The steps being taken to ensure that all bridge projects, including those not under the National Highways Authority, are overseen by certified and competent engineers as per the Karnataka Professional Civil Engineers Act, 2024;

(e) Whether there are plans to implement a national regulatory body for certifying civil engineers involved in road construction and maintenance.

# **2. Question on Airport Infrastructure Failures:**

**Will the Minister of Civil Aviation be pleased to state:**

(a) Whether the Government is aware of the recent failures in airport infrastructure, such as the roof collapse at New Delhi's international airport in June 2024;

(b) The findings of any investigations conducted into these incidents, including the specific technical deficiencies identified;

(c) The measures being taken to enhance the safety protocols and maintenance standards for existing airport infrastructure;

(d) Whether the Government plans to establish a national regulatory body for certifying civil engineers involved in airport projects, and if so, the details thereof;

(e) The timeline and process for implementing stricter oversight and certification standards in the civil aviation sector.

# **3. Question on Urban Infrastructure Failures, Including Tunnels:**

**Will the Minister of Housing and Urban Affairs be pleased to state:**

(a) Whether the Government is aware of recent failures in urban infrastructure in Bengaluru, such as the poor road conditions and unfinished drainage works reported across the city, and similar issues in other cities like Vijayapura and Belagavi, where roads are in poor condition and exacerbate during monsoon seasons;

(b) The specific design and construction flaws identified in these urban infrastructure projects across Karnataka, including issues like pothole-ridden roads and inadequate drainage systems;

(c) The actions taken against the responsible parties, such as contractors and supervising engineers, for these deficiencies in urban infrastructure projects in Bengaluru and other cities;

(d) The steps being taken to rectify these issues and ensure the long-term safety and usability of urban infrastructure projects in Bengaluru and other affected cities in Karnataka;

(e) Whether the Government plans to introduce a regulatory framework for certifying engineers involved in urban infrastructure projects, and the details of such a plan, considering the Karnataka Professional Civil Engineers Act, 2024, which mandates registration and certification for civil engineers;

(f) The measures being implemented to improve the training, certification, and oversight of civil engineers to prevent future urban infrastructure failures, ensuring compliance with the standards set by the Karnataka Professional Civil Engineers Act, 2024.

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1. <https://prsindia.org/files/bills_acts/acts_states/karnataka/2024/Act31of2024KA.pdf> [↑](#footnote-ref-0)
2. <https://www.indiacode.nic.in/bitstream/123456789/4585/1/professionalcivilengineer.pdf> [↑](#footnote-ref-1)