IEM Engineering Impact Survey

The Effects of Global Conflict and Fuel Price Escalation on the Malaysian Engineering Profession

Prepared by
The Institution of Engineers, Malaysia (IEM)

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Strategic Context and Survey Objectives

This survey report is prepared following the April 28, 2026, Majlis Tindakan Ekonomi Negara (MTEN) briefing regarding the "Krisis Bekalan Global." The current global situation, including ongoing geopolitical conflicts and disruptions in energy-producing regions, has resulted in rising fuel prices and unstable supply chains worldwide. For The Institution of Engineers, Malaysia (IEM), this survey serves as an important effort to understand how these developments are affecting the engineering profession and industry in Malaysia.

The survey was conducted nationwide from 29 April 2026 to 3 May 2026. The main objective of the survey is to evaluate the direct and indirect impacts of fuel price escalation and supply chain instability on project delivery, contract administration, and cost management. Through this survey, IEM aims to better understand the challenges faced by engineers and industry players, while identifying practical recommendations that can support the sustainability and resilience of the engineering sector. The findings are also intended to support constructive engagement with policymakers and relevant stakeholders on matters affecting the profession and national development.

1.0 Profile of Professional Authority: Respondent Demographics

The validity of this survey is supported by the strong level of experience and diversity among the 272 respondents. A significant 52.57% of respondents possess more than 20 years of industry experience, while 30.88% have between 10 to 20 years of experience. This means that the survey reflects insights from highly experienced professionals who have managed projects through different economic conditions and industry challenges.

The professional landscape of the respondents is summarized below:

Category	Distribution & Metrics	Significance
Engineering Disciplines	Civil (52.94%), Mechanical (19.49%), Electrical (19.49%), Chemical (4.41%)	Strong representation from infrastructure and systems engineering sectors.
Current Professional Roles	Consultant (43.38%), Contractor (23.53%), Developer/Client (10.66%), Gov/Regulator (8.82%)	Provides perspectives from different stages of project delivery and implementation.
Years of Experience	>20 Years (52.57%), 10–20 Years (30.88%), 5–10 Years (11.76%), <5 Years (4.78%)	High participation from experienced professionals strengthens the reliability of the survey findings.

Company Size	Large (26.57%), Medium (22.14%), Small (11.81%), Unspecified/Other (39.48%)	Reflects participation from both major firms and SMEs across the industry.

The industry's exposure is concentrated in Infrastructure (54.78%) and Building (51.47%) projects. These sectors are particularly sensitive to fluctuations in material costs, fuel prices, and supply chain disruptions.

2.0 Analysis of Escalating Input Costs and Fuel Pressures

The findings from the MTEN briefing and survey responses indicate that rising fuel and material costs are creating substantial pressure across the engineering and construction industry. Respondents reported that the average increase in key material prices reached approximately 12.59%, while diesel prices experienced a sharp increase of approximately 85%.

Respondent data identifies the cost components suffering the most significant impact:

- Construction Materials (steel, concrete, bitumen): 81.15%
- Logistics / Transportation: 84.23%
- Labour Costs: 31.15%
- Machinery / Plant Costs: 51.45%

The survey also highlighted the significant effect of fuel price escalation on project operations and supply chain management:

- Increased logistics costs: 90.51%
- Increased material delivery costs: 86.17%
- Reduction in contractor margins: 69.57%
- Project slowdowns: 62.85%

These findings indicate that rising fuel prices are contributing directly to higher project costs, operational pressures, and financial uncertainty across the industry.

3.0 Project Disruption and Supply Chain Volatility

Project disruption and supply chain instability continue to affect project delivery throughout the engineering sector. Budget overruns, project delays, and financial stress among contractors have become increasingly common across the industry.

The survey identified the following key disruptions:

- Budget Overruns (88.89%)
- Project Delays (74.90%)
- Contractor Financial Distress (79.01%)
- Quality Compromise Concerns (37.45%)

These challenges are further affected by supply chain instability and market volatility, including:

- Price Volatility (87.97%)
- Delayed Deliveries (76.35%)

Respondents also expressed concern that prolonged financial pressure may eventually affect project quality and operational standards if companies are forced to aggressively reduce costs to remain sustainable.

4.0 Financial Sustainability and Contractor Risk Assessment

The survey findings indicate that contractors, particularly SMEs, are facing increasing financial challenges due to rising operational and project costs.

- 83.90% of respondents confirmed that contractors, especially SMEs, are facing significant financial stress.
- 79.24% observed active cash flow difficulties affecting project operations.

Many respondents noted that prolonged financial pressure may affect the ability of firms to sustain ongoing projects and maintain healthy business operations. Delayed payments, shrinking project margins, and rising operational costs continue to create uncertainty across the engineering and construction sector.

There was also strong support for additional financial assistance mechanisms within the industry.

- 89.41% of respondents agreed that immediate financial support measures, such as loan guarantees and liquidity assistance, are necessary to help companies manage the current economic situation and maintain project continuity.

5.0 Priority Policy Actions and Industry Recommendations

The survey respondents identified several important measures that could help improve the resilience of the engineering industry during the current period of economic uncertainty.

Top Government Policy Priorities:

1. Stabilising Material Supply (74.14%)
2. Controlling Cost Pressures (73.28%)
3. Strengthening Domestic Supply Chains (68.53%)

Critical Industry Measures:

1. Variation of Price (VOP) (68.26%)
2. Material Price Control (67.83%)
3. Fuel Subsidy (55.65%)

Moving forward, respondents identified Government Intervention (64.19%) and Infrastructure Development (56.33%) as important factors in strengthening industry resilience and sustainability.

These findings highlight the importance of stronger collaboration between the Government, industry stakeholders, and professional institutions in supporting the engineering sector during periods of economic uncertainty.

6.0 Open-ended Responses on the Key Challenges Faced by Engineers

The survey responses indicate that engineers are currently facing a wide range of financial, operational, and professional challenges. Rising material and fuel costs, combined with project uncertainties and tight budgets, have created increasing pressure across the profession.

6.1 Financial & Economic Pressures

Respondents noted that increasing prices of key construction materials such as steel, cement, aluminium, and copper are placing additional financial pressure on projects and firms. Rising fuel prices have further contributed to higher operational and logistics costs.

Challenge Category	**Strategic Impact**
Material & Fuel Volatility	Escalation in material prices and fuel costs has made project budgeting and cost planning more challenging.
Cash Flow Contractions	Cash flow difficulties and delayed payments are affecting the financial sustainability of engineering SMEs.
Fixed-Price Risks	Fixed-price contracts without Variation of Price (VOP) flexibility are increasing financial pressure on project delivery.

6.2 Operational & Project Risks

The survey responses indicate that supply chain disruptions and project implementation challenges continue to affect engineering operations.

Challenge Category	Strategic Impact
Supply Chain Disruptions	Delayed material deliveries and increasing transportation costs are affecting project implementation schedules.
Project Stagnation	Some projects are experiencing delays or deferments due to rising costs and changing market conditions.
Operational Mismatches	Changes between design assumptions and actual site conditions are contributing to project inefficiencies and rework.

6.3 Human Capital & Professional Sustainability

The survey findings reflect growing concern regarding workforce sustainability within the engineering profession.

Challenge Category	Strategic Impact
Wage Stagnancy	Respondents expressed concern regarding salary growth not keeping pace with increasing living costs.
Employment Insecurity	Economic pressures and cost-saving measures are creating uncertainty within the industry workforce.
Psychological Stress	Increased workload pressures and uncertainty are affecting the wellbeing of engineering professionals.

Respondents also highlighted concerns regarding talent retention and the ability to attract younger generations into the engineering profession.

6.4 Critical "Negative" Sentiment Themes:

Several respondents expressed concern regarding the potential impact of prolonged financial pressure on project quality and safety standards.

- Compromised Quality and Safety:
  Financial pressure and aggressive cost-cutting measures may affect the quality of materials, workmanship, and project outcomes if not carefully managed.
- Talent Pipeline Attrition:
  Respondents expressed concern regarding declining morale among younger engineers and the long-term attractiveness of the engineering profession.

- Contractual Challenges:
  Some respondents highlighted frustrations regarding rigid contractual structures and limited flexibility in managing changing market conditions.

These findings indicate the importance of adopting more adaptive and collaborative approaches within the industry moving forward.

7.0 Open-ended Responses on the Strategic Imperatives for IEM

The survey findings indicate that respondents expect IEM to play a stronger and more proactive role in supporting engineers and representing industry concerns during this challenging period. Respondents view IEM as an important bridge between industry practitioners, policymakers, and the wider engineering community.

- Advocacy & Lobbying
  - VOP Implementation:
    Support the implementation of Variation of Price (VOP) mechanisms for projects affected by cost escalation.
  - Fee Reform:
    Advocate for fair and sustainable professional fee structures.
  - Welfare Protection:
    Engage with policymakers regarding workforce sustainability and professional wellbeing.
- Professional Development & Reskilling
  - Future Industries:
    Expand training in areas such as Green Technology, Digital Engineering, and Automation.
  - Practical Resilience:
    Provide practical guidance on cost management, operational efficiency, and adapting to market changes.
- Institutional Guidance
  - Cost Management Frameworks:
    Develop practical industry guidelines related to cost escalation management and project sustainability.
  - Industry Collaboration:
    Encourage knowledge sharing and collaboration among industry stakeholders.

The survey findings reflect strong expectations for IEM to continue supporting the engineering profession through advocacy, professional development, and industry engagement.

8.0 Open-ended Responses on the Framework for National Policy Reform

The survey respondents proposed several policy measures that could help strengthen the resilience and sustainability of the engineering sector.

Policy Recommendation Matrix

- Fiscal Interventions
    - Targeted Subsidies:
      Provide fuel-related support measures and targeted assistance for engineering and construction activities.
    - SME Financial Safety Nets:
      Support SMEs through financing initiatives, loan guarantees, and liquidity assistance.
    - Tax Relief:
      Consider incentives related to engineering equipment, technical imports, and sustainable technologies.
- Regulatory & Contractual Reform
    - Mandatory VOP & EOT:
      Improve contractual flexibility to better manage cost escalation and project delays.
    - Inter-Agency Streamlining:
      Enhance coordination among agencies to reduce inefficiencies and unnecessary delays.
    - Payment Enforcement:
      Improve payment processing and certification timelines to support industry cash flow.
- Strategic Industrial Policy
    - Localization of Materials:
      Strengthen domestic manufacturing and reduce dependency on imported materials.

- Energy Diversification:
  Encourage renewable and alternative energy adoption to improve long-term resilience.

The survey also reflects the importance of improving governance, transparency, and efficiency within project implementation processes to strengthen industry confidence.

9.0 IEM's Position: Towards an IMPACTFUL and Resilient Engineering Future

The survey findings demonstrate that Malaysia's engineering industry is currently facing significant economic and operational challenges arising from global supply instability and rising fuel prices. These challenges are affecting project delivery, financial sustainability, and workforce wellbeing across the sector.

Strategic Action Checklist

- Standardize VOP:
  Encourage wider implementation of price adjustment mechanisms in engineering contracts.
- Reform Fee Structures:
  Review and improve professional fee structures to reflect current economic realities.
- Eliminate Agency Silos:
  Improve coordination between agencies to reduce project delays and inefficiencies.
- Incentivize Localization:
  Support domestic supply chains and sustainable industry practices.
- Expand Financial Aid:
  Strengthen financial assistance measures for SMEs and industry players affected by rising costs.
- Strengthen Industry Sustainability:
  Continue supporting professional development, workforce wellbeing, and long-term industry resilience.

Moving forward, IEM remains committed to supporting the engineering profession through advocacy, professional development, industry engagement, and constructive collaboration with relevant stakeholders.

The engineering profession continues to play an important role in national infrastructure development, economic growth, and public wellbeing, and ensuring its long-term sustainability remains an important national priority.