ABSTRACT

Public procurement involves the acquisition of goods, services, and works by various state agencies. For a developing country like India, it is estimated to account for 20 to 30 percent of the GDP, of which works procurement constitute a large component. Procurement has evolved from being a procedural function to acquiring a strategic and professional role with extended obligations of steering economic growth and a multitude of socio-economic goals. The fundamental tenets governing public procurement require that every procuring authority be responsible and accountable for bringing efficiency, economy, transparency, and fair competition in procurement. However, with the huge financial stakes involved, corruption in works procurement is the biggest inhibitor to efficient project outcomes, involving poor project selection, cost deviations, inferior quality, time overruns, and wasteful expenditure of public money.

Integrity management in procurement leads to savings and unlocks valuable public resources for financing ambitious development projects. This is critical for a fast-developing country like India, yet there is a conspicuous paucity of research in this domain in the Indian context. This study aims to develop a systematic and holistic approach to address integrity management in construction projects with rich implications for theory and practice.

The study addresses the primary requirement for integrity risk management in public construction projects through a risk mapping methodology for risk identification, assessment, and prioritization based on the perceptions of practitioners and experts. A stage-wise analysis of integrity risks, through extensive literature survey and interactive workshops, resulted in an inventory of 55 risks located in different stages of a construction project. Delphi survey followed by failure mode and effects analysis facilitated the prioritization of risks using risk impact as a

function of its probability, severity, and detectability. The study reveals thirty top risks highly concentrated in the 'contract management' stage, followed by the 'bid design' and 'payments' stages. Top risks include poor site supervision, substitution of materials by defective or sub-standard materials, mandatory tests not done, hindrances not properly recorded, tailor-made contracts to suit a particular vendor, and non-transparent engagement of sub-contractors.

Integrity in procurement implies utilizing funds, resources, and authority transparently in alignment with the tenets of good governance. It is a characteristic not just of individuals but also of organizations, being the quality of acting in accordance with the accepted rules, values, and standards. This study explores the organizational framework of policies and practices that provide the necessary ecosystem for integrity management in a public organization. The study presents and develops the novel construct of integrity climate of procurement as a multi-dimensional interplay of organizational features promoting integrity. A multi-pronged approach synergized the extant literature with the experience of field functionaries to identify the attributes that contribute to integrity management. A Delphi survey with top anti-corruption experts in India yielded 22 critical measures that define the integrity climate of procurement. This inventory of integrity climate measures was subjected to a survey involving 193 respondents across 15 large public organizations in India to determine the criticality and implementation level of each measure. Transparency, organizational leadership, and processes designed to facilitate fair competition emerge as the top influencers in shaping the integrity climate. The implementation scores were significantly lower than the corresponding criticality scores for all integrity climate measures in the organizations surveyed, indicating the need to strengthen the organizational integrity climate at the ground level. The underlying structure of integrity climate dissected using exploratory factor analysis yielded four factors. Step-wise multiple regression showed all four factors as critical determinants of the integrity climate: key process management, control and oversight, commitment to integrity, and engagement with

stakeholders, with key process management as the most significant driver. Using the relative importance method, a basic, functional template was developed to gauge the integrity climate of procurement in a public organization.

The study explores the effectiveness of the constituent measures of the organizational integrity climate by studying the impact of the integrity climate on the project integrity risks. A questionnaire survey among practitioners was done to evaluate the integrity climate measures and the project integrity risks. The survey data with respect to the project integrity risks was subjected to exploratory factor analysis to extract their underlying factors. The five project integrity risk factors identified included violation of professional standards/ethics, lack of fairness, violation of procedural norms, lapses/irregularities by contractors, and lack of transparency. A hypothesized model was developed regarding the relationship between integrity climate and the project integrity risks, and a hypothesis (H1) was framed that the integrity climate mitigates the project integrity risks. The hypothesized model was subjected to partial least squares structural equation modelling (PLS-SEM) using the survey data. The PLS-SEM model revealed a significant path between the organization's integrity climate and project integrity risk constructs, with a negative coefficient of 0.430 which cogently supported the developed hypothesis. Amongst the four integrity climate factors, key process management emerged as the most influential in checking integrity risks in construction projects. On the other side of the model, among the five factors of the project integrity risk construct, results show the violation of professional standards/ethics with the highest path coefficient, leading to corruption in construction projects.

In a maiden effort to identify the typical manifestations of integrity violations in Indian public organizations, the study used a Delphi survey with 11 experts to identify eight common integrity violations in public organizations. Their prevalence was evaluated through a questionnaire survey among practitioners of 15 organizations. The results show that contrary to perception,

lapses such as favoritism or abuse of organizational resources are more widespread than bribery or fraud. The study used PLS-SEM technique to test the hypothesis (H2) that the integrity climate mitigates integrity violations by organizational members. The model obtained shows a strong negative path coefficient of 0.506 from the independent construct, namely, the organizational integrity climate, to the dependent integrity violation construct, clearly proving the hypothesis that the integrity climate mitigates integrity breaches by individual members.

The study contributes to the body of knowledge by introducing an integrity risk management framework through multiple-level analysis, which imparts the necessary contextuality and theoretical sensitivity. The stage-wise inventory of integrity risks with potential impact is useful for designing, monitoring, and reviewing the procurement process. The study develops the integrity climate construct as an overarching framework incorporating key organizational measures that promote integrity and, hence, improved project outcomes.

Keywords: Public procurement, construction, corruption, integrity risk, contract management, project management, integrity climate, integrity violation, integrity management, Delphi, failure mode and effects analysis, exploratory factor analysis, PLS-SEM, India.