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Abstract

The attributes of a successful project are well documented in literature, including the roles of health and safety in procurement. However, integrating health and safety strategies into labour-only procurement system [LoPS] has remained a challenge in practice, and has received only a little attention in research. This study proposes measurable strategies for integrating health, safety and wellbeing (HS&W) into LoPS, towards improving productivity and project outcomes. The study emphasises HS&W will improve in LoPS projects relative to contractors' self-regulation of their HS&W culture. In addition, HS&W benefits LoPS when project stakeholders collaborate seamlessly and deploy integrated tools that support HS&W. This also includes optimising shared decision protocols involving project owners and contractors regarding materials and subcontractors selection, whereby HS&W is a critical decision parameter. Through the framework proposed in this study, stakeholders and future studies should be able to improve in their understanding of the cost of HS&W and the social benefits of LoPS, especially to developing economies around the world.

1. Introduction

Empirical studies on project delivery prove that health, safety and wellbeing (HS&W) is a critical indicator of project performance and success [see the works of Pinto and Mantel (1990) and Chan *et al.* (2004) who highlight other success indicators of construction projects to include cost, schedule, quality and stakeholders' satisfaction]. In improving construction projects, there should be intergration of clear strategies into procurement and contractual arrangements which will improve preformance indicators (Davis 2014; Frei et al. 2013). Focusing on developing countries (DCs), this study proposes measurable strategies for integrating HS&W into Labour-only procurement system [LoPS], towards improving productivity and project outcomes including HS&W. This stems from the limited research into HS&W in LoPS. In doing this, it draws insights from the work of Eriksson and Westerberg (2011) and Mahamadu *et al.* (2015) on Conditions of Procurement for achieving success in project delivery to analyse HS&W in LoPS. Akinkunmi *et al.* (2018) define LoPS as an approach where construction contractors and professional service providers are contracted to provide labour and equipment, whilst project owners provide materials and project management.

2. LoPS and HS&W

Although various scholars examine procurement and health and safety (H&S) in DCs, their efforts have limitations. For example, Deacon and Smallwood (2016) note a lack of research that address the links, roles and responsibility in terms of procurement and H&S in South

Africa. In Nigeria, from 1983 to 2018, only one empirical study reports on H&S and procurement (Umeokafor 2018). Mahamadu *et al.* (2015) examine the adoption of modern procurement strategies in integrated quality, safety and environment (QSE) delivery of road infrastructure in Ghana, however they did not consider H&S in LoPS. Whilst Umeokafor *et al.* (2020) cover HS&W in LoPS, the study did not offer a detailed conceptual framework as the current study.

While Hardy (2013) reports the popularity of LoPS in New Zealand, the same is applicable in Sub-Saharan African countries such as Botswana, Kenya, South Africa, Uganda and Zimbabwe, as Ogunsanmi (2013) claims. For instance, although indicative of LoPS's status in Nigeria, it ranks the highest — 58 per cent of the projects surveyed in Lagos, Nigeria by Ogunde (2011). Similar findings are in Awodele *et al.* (2019).

3. Conditions of procurement [CoP] and the conceptual framework for integrating HS&W into LoPS

CoP for successful project delivery was developed by Eriksson and Westerberg (2011) and used by authors e.g. Mahamadu *et al.* (2015). In achieving project success in terms of QSE, procurement strategy should meet the CoP — key procurement features (Ibid) — hence the need to analyse the place of HS&W in LoPS critically using the CoP. The conditions from the CoP are:

- *Design stage [high level of integration between project owners and contractors]:* The structure of LoPS implies non-integration; involving contractors in the design phase is not practicable always. Umeokafor *et al.* (2020) are instructive on the need for early

collaboration of contractors in integrating HS&W into LoPS. This may result in the overlapping of responsibilities and communication issues between parties (e.g. consultant and contractor), thereby increasing the likelihood of conflict between parties (e.g. contractors and consultants, client and contractors) as Ogunde (2011) found. However, a high level of involvement of project owners, flexibility and control present a platform for the integration of contractors in HS&W in LoPS. Empirical evidence needs to support or refute this; hence it is proposed that:

P1: early collaboration of contractors in HS&W is more likely in LoPS because of high level of owners' involvement, flexibility and control.

P2: a high level of integration between project owners and contractors is likely to improve HS&W in LoPS.

- *Tendering [focus on soft parameters in bid evaluation]*: Contractor selection based on lowest tender price resulting in HS&W compromise, unexpected work quality, overruns, amongst many. Instead, Eriksson and Westerberg (2011) recommend that bid evaluation should focus on soft parameters such as technical and managerial competence, collaborative ability, experience of the supplier and shared values. Olatunji *et al.* (2020) offer a treatise on this, of which the main parameters are safety attributes of on-site and management workers, including safety qualification of workers and project organisations' safety leadership; contractor's management responsibilities such as safety compliance assessment; and supply chain management, including health and safety audit of suppliers. Again, this is subject to empirical

evidence from broad health and safety perspective, including LoPS. The proposition here is that:

P3: focusing on safety attributes of on-site and management workers, contractor's management responsibilities and supply chain management in bid evaluation in LoPS are likely to improve HS&W.

- *Subcontractor selection [involvement and collaboration between project owners and contractors]*: Project owners benefit when they draw on the experience and expertise of their principal contractors in selecting sub-contractor(s), where HS&W is one of the main parameters. Umeokafor *et al.* (2020) identify a potential for an improved relationship between the project team in LoPS. Hence, project owners can take an advantage of this and shift HS&W responsibilities to the contractor, even if it means paying for it. These may be challenging as they increase the current lack of clarity in the role and responsibility of parties in the procurement strategy. Whether H&S is shifted to the contractors and project owners work with contractors in selecting subcontractors or not, or the work contract means project owners can appoint the sub-contractors or nominate the candidates whom contractors may appoint, a pertinent question raised is: to what extent would the contractor have the spirit or motivation for collaboration with the project owner? Collaboration between project owners and the project team may be low if a subcontractor nominated by project owners is not contractor-approved. There is also a part of this in contractor's work margin: if HS&W is poorly costed or is poorly constructed into work's contract language, outturn HS&W

in project cannot be satisfactory. Manu *et al.* (2013) underline the critical nature of this: they identify the contributions of subcontractors in accident causations. It is proposed that:

P4: when relationships within project teams in LoPS are seamless, contractors are likely to collaborate with project owners in integrating HS&W into LoPS.

P5: when project owners and contractors collaborate in selecting subcontractors, and HS&W is a main soft parameter, HS&W outcomes will improve in LoPS.

- *Payment mechanism [incentive-based payment relative to project performance criteria]:* Author (e.g. Koehn and Datta 2003) show how incentive-based payment rewards contractors for improved performance, including on HS&W. According to Eriksson and Westerberg (2011), such incentives motivate contractors more than when their contract price was fixed. However, the flexibility in the pricing may not guarantee the motivation for HS&W, especially if the contractors are struggling to stay afloat with LoPS, as their operational margin is reduced (Awodele *et al.* 2019). Although, pricing options in LoPS exist in various forms, incentive-based payment for HS&W is often not appropriate for LoPS. This is because HS&W does not have a definitive cost structure; in that, clients pay for work performance generally without specific attention to HS&W standards nor the reward thereof. Additionally, LoPS is a surviving strategy for construction contractors because of localised poor economic situations; hence they are likely to agree to risky terms where appropriate HS&W costing may not be evident (Awodele *et al.* 2019). Consequently, it is proposed that:

P6: If achieving a higher HS&W outcome is a critical project performance indicator, project stakeholders can adopt incentive-based payment to reward contractors' good HS&W record.

P7: When work pricing options for HS&W are flexible and appropriate, contractors will be motivated to achieve higher HS&W outcomes.

P8: Adopting incentive-based payment in LoPS for HS&W is likely to improve project outcomes when stakeholders agree on appropriate HS&W objectives and standards.

- *Collaborative tools [uptake of collaborative tools]:* Stakeholders need to adopt and implement tools that enable parties to work together and meet shared objectives regarding HS&W in a construction project (Eriksson and Westerberg 2011). In particular, Rahman and Kumaraswamy (2002) explain how project owners and contractors can work together to identify and deal with unquantifiable and unforeseen risks at the planning stage, including health and safety risk perspectives in LoPS. In this instance, the onus is on project owners to organise, control and manage HS&W, whilst designers focus on hazards design and management, in collaboration of with project owners and the contractors. If the owners, contractors and designers share the same objectives, collaboration is streamlined. However, given the characteristics of LoPS, little is known about this, including its practicality. In particular, the diversification of responsibilities in a collaborative relationship with the contractors, its improved relationship between the project team and the ability of the owner to

control and monitor cost and quality makes this promising. However, the reduced profit for the contractor may impact on their willingness or level of collaboration, and the potential of contractual disputes in LoPS make this challenging. Therefore, it is proposed that:

P9: When relationships within the project team in LoPS are positive and intense, collaborative tools that integrate HS&W will be adopted.

P10: When relationships within the project team in LoPS are positive and intense, collaborative tools that integrate HS&W will improve HS&W outcomes.

- *Performance evaluation [adoption of contractors' performance evaluation based on self-control]*: There is a shift in paradigm from project owners conducting and monitoring contractors' HS&W performance to the contractors doing HS&W evaluations themselves through self-regulation (Eriksson and Westerberg 2011, Mahamadu *et al.* 2015). By implication, the contractor is paid based on how the project meets their target project performance indicator (PPI) as stipulated in their work contract. The methodology for achieving this is not pre-determined, dictated, monitored or controlled by project owners (Stankevich *et al.* 2005). The high propensity of LoPS to result in contractual disputes because of ambiguity, distrust, poor communication and design issues calls this into question (Ogunde 2011). However, the benefits of a contractors' performance-based self-evaluation include saving cost, time, improving the self-confidence of the contractor and freedom, and

less involvement of project owners (Sultana *et al.* 2012). The ability of this to improve the HS&W is unknown. The following are proposed:

P11: When contractors' self-control performance evaluation is high, HS&W is integrated into LoPS.

P12: When contractors' self-control performance evaluation is high, HS&W will improve in LoPS.

Based on all the propositions, Table 1 shows the conceptual framework developed to guide the implementation of HS&W in LoPS throughout project lifecycle. For instance, it shows that in the 'Preparation and brief' and 'Tendering' stages, there can be the 'focus on soft parameters in bid evaluation' so as to integrate HS&W in LoPS.

4. Conclusion

The study proposes there is a need to examine the integration of HS&W into LoPS further. Hence, 12 testable propositions are put forward. For instance, a possible difference in interest and level of benefits in the project warrant testing whether the increased involvement of the project team will increase the level of collaboration between project owners and contractors in integrating HS&W into LoPS. It is also proposed that the more there is an emphasis on soft parameters such as HS&W in the bid evaluation in LoPS, the more likely HS&W will improve. While other academic can test the propositions in a further research, the authors of the current paper intend to all or some of them. Research of this nature will provide insight into innovative HS&W approaches in emerging procurement strategy.

References

- Akinkunmi, G. A. O., Aghimien, D. O., and Awodele, O. A. (2018): Appraising the Use of Labour-Only Procurement System for Building Construction in Nigeria, *Organisation, Technology and Management in Construction*, 10(1):1719–1726.
- Awodele, O., Aghimien, D., Akinkunmi, O. and Aigbavboa, C. (2019): Labour-only procurement: A veritable surviving strategy for contractors in a challenging economy, *Journal of Engineering, Design and Technology*, 17(2):347–361.
- Chan, A. P., Scott, D., and Chan, A. P. (2004). Factors affecting the success of a construction project. *Journal of construction engineering and management* **130**, 153-155
- Davis, K. (2014). Different stakeholder groups and their perceptions of project success. *International Journal of Project Management* **32**, 189-201
- Deacon, C. and Smallwood, J. J. (2016): *The Effect of the Integration of Design, Procurement, and Construction Relative to Health and Safety (H&S)*. In: Dastbaz, M. and Gorse, C. (Eds.), International Sustainable Ecology Engineering Design for Society (SEEDS) Conference, 14–15 September 2016, Leeds Beckett University, Leeds, UK, LSI Publishing, pp. 422–453
- Eriksson, P. and Westerberg, M. (2011): Effects of cooperative procurement procedures on construction project performance: A conceptual framework. *International Journal of Project Management*, 29(2):197–208.
- Frei, M., Mbachu, J., and Phipps, R. (2013). Critical success factors, opportunities and threats of the cost management profession: the case of Australasian quantity surveying

firms. *International Journal of Project Organisation and Management* 5, 4-24

Hardy, G. (2013): The Pitfalls of Labour-Only Building Contracts, ADLS. Retrieved on 10 July 2018 from www.adls.org.nz/for-the-profession/news-and-opinion/2013/4/12/the-pitfalls-of-labour-only-building-contracts.

Koehn, E., Datta, N., (2003): Quality, environmental, and health and safety management systems for construction engineering. *Journal of Construction Engineering and Management*, 129(5):562–569.

Mahamadu, A.-M., Mahdjoubi, L., Booth, C., and Fewings, P. (2015): Integrated Delivery of Quality, Safety and Environment Through Road Sector Procurement: The Case of Public Sector Agencies in Ghana, *Journal of Construction in Developing Countries*, 20(1):1–24.

Manu, P, Ankrah, N., Proverbs, D. and Suresh, S. (2013): Mitigating the health and safety influence of subcontracting in construction: The approach of main contractors. *International Journal of Project Management*, 31(7):1017–1026.

Ogunsanmi, O. E. (2013): Correlates of Procurement Performance of Traditional and Labour-Only Methods in Nigeria', *Ethiopian Journal of Environmental Studies and Management*, 6(2): 182–190.

Ogunde, A. O. (2011), Conflict Resolution in Labour-Only Contracts in Nigeria. In: Ruddock, L. and Chynoweth, P. (Eds.), Proceedings of Royal Institute of Chartered Surveyors (RICS), Construction, and Property Conference, Salford, The Royal Institution of Chartered Surveyors, RICS, pp. 1661–1777.

- Olatunji, O. A., Windapo, A. and Umeokafor, N. I. (2020): *Ad-hoc and post-hoc analysis of contractors' safety risks in Nigeria*. In: Manu, P. A., Emuze, F., and Saurin, T. (Eds) *Construction Health and Safety in Developing Countries*, London, Taylor and Francis.
- Pinto, J. K., and Mantel, S. J., Jr. (1990). The causes of project failure. *Engineering Management, IEEE Transactions on* **37**, 269-276
- Rahman, M., Kumaraswamy, M., (2002): Joint risk management through transactionally efficient relational contracting. *Construction Management and Economics* 20(1):45–54
- Stankevich, N., Qureshi, N., and Queiroz, C. (2005): Performance-based Contracting for Preservation and Improvement of Road Assets, The World Bank, Washington DC, Transport Note No. TN-27, 1-11.
- Sultana, M., Rahman, A., Chowdhury, S. (2012): Performance Based Maintenance of Road Infrastructure by Contracting—A Challenge for Developing Countries. *Journal of Service Science and Management*, 5(2): 118-123
- Umeokafor, N. I. (2018): Construction Health and Safety Research in Nigeria: Towards a Sustainable Future. In: Saurin, T. A., Costa, D. B., Behm, M., and Emuze, F. (Eds.), *Proceedings of Joint CIBW99 and TG59 Conference*, 1–3 August 2018, Salvador, pp. 213–221.
- Umeokafor, N. I., Windapo, A. and Olatunji, O. A. (2020): *Integrating Health and Safety into Labour-Only Procurement System: Opportunities, Barriers and Strategies*. In Manu, P. A., Emuze, F., and Saurin, T. (Eds) *Construction Health and Safety in Developing Countries*, London, Taylor and Francis.

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Waterson, P. (2019): The ironies of occupational safety and health (OSH). *Policy and Practice in Health and Safety*, 17(1):1–2.

Table 1. HS&W integration practices in LoPS throughout the project stages. Source: Authors elaboration

HS&W Integration practice in LoPS	Project stages				
	Preparation & brief	Planning & Design	Tendering	Construction	Close-Out
Integration between project owners and contractors	Yes	Yes	Yes	Yes	Yes
Focus on soft parameters in bid evaluation	Yes		Yes		
Involvement and collaboration between project owners and contractors			Yes	Yes	
Incentive-based payment relative to project performance criteria	Consider	Possible	Yes	Yes	Yes
Uptake of collaborative tools	Consider	Yes	Yes	Yes	
Adoption of contractors' performance evaluation based on self-control		Develop	Yes	Yes	Yes