

# EXPLORING THE ROLE OF PROJECT GOVERNANCE AND STAKEHOLDER MANAGEMENT IN PUBLIC SECTOR INFRASTRUCTURE PROJECTS

Ishak Ismail<sup>1</sup>, Asadullah Khan<sup>2</sup>, Muhammad Waris<sup>3</sup>, Hasnah Haron<sup>4</sup> and Bachtiar H. Simamora<sup>5</sup>\* <sup>1,2,3,4</sup>Universiti Malaysia Pahang <sup>5</sup>Bina Nusantara University

#### Abstract

In developing countries, governance of public sector projects is becoming increasingly more complex due to the varying nature of stakeholders and their expectations from the government to address their interest. As a result, policymakers and sponsoring agencies are more focusing on stakeholder management to ensure smooth execution, high performance and achieving desired outcomes. This study has conducted a systematic appraisal of the relevant literature to explore the thematic discussions on the role of project governance and stakeholder management in public sector infrastructure projects of Pakistan. The analysis reveals that project governance and stakeholder management is not widely been discussed in the Pakistan specific studies. Therefore, this research proposes project governance and stakeholder management as key concerns of government decision-making strategies.

**Keywords**: project governance, stakeholder management, project governance, infrastructure projects, Pakistan.

#### INTRODUCTION

Organizations initiate projects with the best intentions to succeed, but many projects are unable to achieve the desired goals. Scholars and practitioners have endeavoured to improve the project performance by focusing on the capability of project team members and developing tools and techniques (Besner & Hobbs, 2012). Conventionally, the aftermaths of projects have been measured in terms of completing them within the constraints of scope, time, cost and quality. However,

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Email Addresses: <u>ishakismail@ump.edu.my</u> (Ishak Ismail) <u>asad@kiu.edu.pk</u> (Asadullah Khan) <u>waris@ump.edu.my</u> (Muhammad Waris) <u>hasnahharon@ump.edu.my</u> (Hasnah Haron) <u>bsimamora@binus.edu</u> (Bachtiar H. Simamora)\*

\*Corresponding author

gradually the assessments of projects are being extended to stakeholder management and project governance to include their ability to achieve strategic goals.

The notion of governance has also been linked to the projects in last few decades and some of the relevant aspects have been addressed i.e. guidelines have been developed to support and guide projects by 'governance of project management' (APM, 2004; PMI, 2016). On the project level, project governance was proposed, which is a new paradigm of governance (Crawford et al., 2008). Project management scholars have recommended project governance as a requirement to solve the problems at all the stages of project development (Cicmil & Braddon, 2012; Flyvbjerg, 2013; Garland, 2009; Williams & Samset, 2012).

Project professionals and teams involved in the infrastructure projects have to manage complex activities like managing stakeholders, who have certain interest and power in the project because of the involvement (Hietbrink, Hartmann, & Dewulf, 2012). Stakeholders involved in the initiation to the implementation process of public sector infrastructure project has made it even more complex. Effective stakeholder management has become vital for the attainment of the desired goals of the project. (Beringer, Jonas, & Kock, 2013; Parnell, Driscoll, & Henderson, 2011). According to Beckers and Stegemann (2013), one of the main causes of project failure in infrastructure the ineffective projects is stakeholder management. Stakeholder management and engagement adds value for all relevant stakeholders (Hietbrink et al., 2012). On the other hand, due to complexity and uncertainty in the projects, numerous problems arise inadequate stakeholder because of engagement.

the recent years, public sector In performance measurement of infrastructure projects has attracted much attention in the literature. Public sector project management is gradually becoming an imperative subject matter for both the project management environment as well as the public sector, due demands for improvement to the in accountability and organizational effectiveness in public sector organizations (Lawani & Moore, 2016). Though the developed nations like the United Kingdom and Australia have records of achievements in managing public sector developmental projects (Klakegg, Williams, & Shiferaw, 2016), but there is a dire need for better understanding of project management practices in the context of developing countries. In developing countries, Pakistan is considered as an important part of China's New Silk Road Initiative One Belt One Road (OBOR). The OBOR strategy introduced by the Chinese Government in 2013 refers to the new Silk Road Economic Belt that connects China with Europe through Central, Western and Southeast Asian countries (Ahmed, Arshad, Mahmood, & Akhtar, 2017). The geographic importance of Pakistan in general and that of Gwadar Port, in particular, is significant to China's policymakers in overcoming oil supply challenges in future and uncovering Western China to the world through economic connectivity (Shaikh, Ji, & Fan, 2016). In this context, there is a need to enhance the performance of the public sector infrastructure development project in Pakistan.

## Rationale of the Study

Execution of public sector infrastructural projects has gained much attention in developing economies. Countries are adopting new strategies and frameworks for execution of the public-sector projects. In Pakistan, unfortunately, research on stakeholder management in public sector infrastructure projects is a much-neglected sphere.

The paper aims to explore the role of project governance and stakeholder management in public sector infrastructure development projects in Pakistan. It is also envisioned to propose recommendations and policy guidelines for enhanced performance of public sector infrastructure projects.

## MATERIALS AND METHODS

The methodology employed in this study is qualitative based on the data analysis of academic journals and official documents. A review of the previous studies pertaining to public sector organizations of Pakistan was carried out through an extensive search. The interpretative approach was used for the review process, which offers an inclusive summary of the topic area (Grant & 2009). were Booth, Data thematically evaluated to classify and report the hidden and apparent patterns in the content (Vaismoradi, Turunen, & Bondas, 2013).

Articles for the review were searched from the scholarly database i.e. Science Direct, Emerald and Taylor Francis Online database. Initially research articles related to Project Management were gathered and consequently, those relating to public sector infrastructure projects of Pakistan were filtered using the key phrases "Stakeholder

Management", "Public sector infrastructure projects", "Project Planning" and Project Governance" within the article title, abstract or keywords. Google Scholar was used to classifying the research articles which exist within the scope of this study. The researcher has also evaluated the official planning guidelines PC-I, PC-II, PC-III, PC-IV and PC-V (whereas PC stands for Planning Commission of Pakistan). These guidelines are the prerequisites under the regulations for approval of public sector projects.

This review process offers an inclusive summary of all topic area and comprised of

thematic analysis. The initial search was conducted through academic databases to retrieve the articles. Keywords were used to search the literature. In the second stage, filtering process was undertaken to remove the irrelevant studies to ensure that all retrieved papers could be investigated using an identical analytical construct in terms of research aims. After the filtering process, the articles were retained for the final review and analysis. Figure 1 illustrates the analytical framework that was used to examine the main concerns of this study.



Figure 1. Methodological framework

## LITERATURE REVIEW

Project governance is an emerging theme that has been associated with stakeholders in the public-sector projects. The concept of governance raises the issues related to economic and social responsibilities and collective actions for power dependence among related institutions and getting the things done not depending upon the governmental machinery (Meso, Musa, Straub, & Mbarika, 2009). Garvin (2009) has stressed the motivation of stakeholders for project goals towards achieving good governance. The academic-research perspective has also befitted that governance is an important concern of sponsors for mega investment and, subsequently, it affects the project outcomes (Sharma, 2012). The common objective of governance systems is the elimination of project failure and possible repetition of these systems in future public projects (Guo, Chang-Richards, Wilkinson, & Li, 2014).

The conventional approach to evaluating project management has assessed outcomes in terms of project scope, budget, and schedule (PMI, 2013). However, increasingly, evaluations

are being expanded to include the concept of governance. The term project project governance has been used in the context of project management (Bekker & Steyn, 2007). In projects, governance takes place in groups of projects and at portfolios of projects, where the stress is on collective governance, which is viewed as governance of projects (Müller & Lecoeuvre, 2014). McGrath and Whitty (2015) have described project governance as "the system by which a project is governed, directed and controlled. Project governance is involved in management and governance functions for individual projects and their deliverables (Too & Weaver, 2014). The major aim of an operative project governance mechanism is to bring into line the project goals with the organization's and objectives strategy (Biesenthal & Wilden, 2014).

Project governance combines the formal and informal institutional processes and mechanisms for the collaborative relationship among different project stakeholders (Levitt, Henisz, Scott, & Settel, 2010). Project teams in the infrastructure projects have to manage complex activities like managing stakeholders, who have certain interest and power in the project because of the involvement (Hietbrink et al., 2012). Various stakeholders involved in the initiation to the implementation process of public sector infrastructure project has made it even more fragmented. For the project success, effective stakeholder management has become essential (Parnell et al., 2011).

To ensure project success it's very important to involve the stakeholders in the projects and also understand their needs and requirements (Aaltonen, Jaakko, & Tuomas, 2008). In mega infrastructure projects, one of the main causes of project failure is the failure to manage the stakeholders (Beckers & Stegemann, 2013). According to Karlsen (2002), in construction projects, poor stakeholder management could cause many negative impacts such as "poor and work definition, insufficient scope resources assigned to the project in terms of quantity and quality, poor communication, changes in the scope of work and unforeseen changes". regulatory Hence, numerous scholars have also stressed the significant role of stakeholder management in project success (Rajablu, Marthandan, & Yusoff, 2014).

## **RESULTS AND DISCUSSIONS**

the recent public In years, sector performance measurement of infrastructure projects has attracted much attention in the literature. Application of project management tools and techniques are at initial stages of specification and application in less developed countries. Developing economies need to pay widespread infrastructural attention to potential in order to and withstand and attain the economic prosperity and aspire towards the criterions of the developed countries.

Though the developed nations like the United Kingdom and Australia have records of achievements in managing public sector developmental projects (Klakegg et al., 2016), but there is a dire need for better understanding of project management practices in the context of developing countries. According to Lawani and Moore (2016), project management is an effective developing approach for countries for successful completion of projects and to the achieve the developmental goals. In developing countries, Pakistan is considered as an important part of China's New Silk Road Initiative One Belt One Road (OBOR). The OBOR strategy introduced by the Chinese Government in 2013 refers to the new Silk Road Economic Belt that connects China with Europe through Central, Western and Southeast Asian countries (Ahmed et al., 2017). The geographic importance of Pakistan in general and that of Gwadar Port, in particular, is significant to China's policymakers in overcoming oil supply challenges in future and uncovering Western China to the world through economic connectivity (Shaikh et al., 2016). In this context, there is a need to enhance the performance of the public-sector infrastructure development project in Pakistan. The responsibility for the appraisal of public sector infrastructure projects is vested with the Planning Commission of Pakistan (PC, 2010; Tahir, 2005). Investments in the infrastructure

projects are growing at an enhanced pace in Pakistan, however, available resources of the country are not matching the demand of for effective initiation to the implementation process of such project. It is not merely because of the limited fiscal space, but there is severe lack of capacity in the public-sector organizations to develop viable infrastructure (Noor, Khalfan, & Magsood, 2012). Infrastructure and construction sector is an important sector and has significance to Pakistan's economy (Azhar, Farooqui, & Ahmed, 2008). It's the largest sectors which generate employment within the country and key driver for economic development in the country (Azhar et al., 2008). Despite the fact that the infrastructure development projects have a significant role in the economic development of the country, it has been witnessed that not much consideration has been paid to handle the problem associated in this sector. Public sector development projects in Pakistan are not performing well due to the lack of vision, poor planning and governance, scope, ambiguous roles blurred and responsibilities, the dearth of clear goals, miscommunications and procurement leakages (Ahmed & Mohamad, 2014). The average planned time for the accomplishment of public sector infrastructure projects was thirty months but usually, the projects completed in an average time of sixty-eight months which is more than 100% extra time for the completion of projects. The projects took 130% extra time for completion. The main reason for this delay is the inadequate planning process of the govt. machinery (Ahmed & Mohamad, 2014).

In order to improve the reliability, success, and efficiency of public sector development projects in Pakistan it's essential to adopt new synchronized "approaches" which have been used by the developed world (Qureshi, Warraich, & Hijazi, 2009). The current practices of the public sector project management system of Pakistan are not effective and it's vital to enhance the implementation capacity to reduce the failure of the project (Rehman, Khan, & Khan, 2011a). For a higher level of efficiency, a constant progress in project

performance is critical in developing countries like Pakistan. Higher management must delegate powers, provide resources, support in crises and decision of the project team to improve the rate of project success in Pakistan (Ahmed & Mohammad, 2014). Usually, the top level hierarchy is not directly involved in working procedures due to the gap in different management layers and the work setting is different from western countries in Pakistan (Hague & Anwar, 2012). Important messages are not disseminated appropriately by the higher management to the project managers, which is one of the important reason for project failure in the public sector (Sial, Usman, Zufigar, Satti, & Khursheed, 2013). In Pakistan, a consistent and wide-ranging effort is needed to address the importance of project management practices, which is essential for survival & growth for public sector organization and to achieve strategic objectives (Unab & Kundi, 2014). It is to be ensured that employees of public sector development projects must use the project management tools & techniques.

Addressing infrastructural the needs especially in view of the current economic scenario of Pakistan, government agencies and construction industry stakeholders have to explore more efficient and effective ways of delivering the projects. Therefore, project governance and stakeholder management could be an essential strategy for attaining better project performance in public sector infrastructure projects of Pakistan. Table 1 has summarized findings of the literature review of the of last decade. Findings of the review show that the researchers have not comprehensively addressed the themes of project governance and stakeholder management in the studies pertaining to Pakistan. The findings further reveal that the two important themes have not been addressed by the policymakers and professionals as well, which is one of the causes of unsatisfactory performance of public sector infrastructure projects. As iterated above, the main reasons of unsatisfactory performance of governmental projects in Pakistan is due to ineffective stakeholder management, weak project governance layered organizational structure. mechanism and bureaucratic style multi-

References	Themes				
	Project management	Stakeholder management	Professional expertise	Project performance	Project governance
(Gazder & Khan, 2018)	√	√	√	√	
(Ahmad, Asmi, Ali,				✓	
Rahman, & Abbas,					
2017)					
(Irfan & Hassan, 2017)		✓		✓	
(Khattak, Mustafa, &	✓				
Shah, 2016)					
(Choudhry, Aslam,	✓	✓			
Hinze, & Arain, 2014)					
(Unab & Kundi, 2014)	✓				
(Ahmed & Mohamad,				✓	✓
2014)					
(Noor, Khalfan, &	✓				
Maqsood, 2013)					
(Sial et al., 2013)	✓		✓	✓	
(Noor et al., 2012)	✓		✓		
Test (Rehman, Khan, &	✓		✓		
Khan, 2011b)					
(Qureshi et al., 2009)	✓				
(Azhar et al., 2008)	✓				

Table 1. Summarized findings of the literature

## CONCLUSIONS

А proper project governance mechanism is essential for the public-sector infrastructure development projects in Pakistan to attain potential future benefits. The mechanism must ensure the representation of all the stakeholders and confer legitimacy on decisions related to the projects. Without proper governance mechanism, only the loudest voices get heard and the possibility of crises and project failure is also higher.

This review has opened avenues for further research in project governance practices and stakeholder management in the public sector infrastructure projects in other developing countries. A more pragmatic research is envisaged to broaden the understanding of governance and stakeholders within project-based organizations to have a deeper insight into the management practices.

# RECOMMENDATIONS

Pakistan needs to establish a comprehensive stakeholder management and project governance mechanism for the execution of development projects. The strategy must be evolved with a clear vision for the development of public sector infrastructure project. The process may take as long time period, but there are no shortcuts. However, a start must be made if the government wants to continue targeting high growth rates in the future. In this regard, Planning commission of Pakistan should take following steps.

- Establish transparent and accountable project governance and planning process.
- Identification of the public-sector infrastructure projects through engaging all the stakeholders without considering the political influence.
- Ensure public participation and stakeholder management in the projects.
- The bureaucratic complication, corruption, and nepotism have to be wiped out for administrative efficiency
- Develop a mechanism of project governance and stakeholder management during the process of planning and execution of the projects.
- Maximum utilization of internal resources and mutual consensus among all political parties on development issues.

# REFERENCES

- Aaltonen, K., Jaakko, K., & Tuomas, O. (2008). Stakeholder salience in global projects. International Journal of Project Management, 26(5), 509-516.
- Ahmad, M. S., Asmi, F., Ali, M., Rahman, M. M., & Abbas, S. M. (2017). China-Pakistan economic corridor: In the context of 'String of pearl strategy. *International Journal of Business and Social Research*, 7(8), 26-42.
- Ahmed, A., Arshad, M. A., Mahmood, A., & Akhtar, S. (2017). Neglecting human resource development in OBOR, a case of the China–Pakistan economic corridor (CPEC). Journal of Chinese Economic and Foreign Trade Studies, 10(2), 130-142.
- Ahmed, R., & Mohamad, N. A. (2014). Performance of project in public sector of Pakistan: Developing a framework for future challenges. Serbian Project Management Journal, 4(1), 3-12.
- APM. (2004). Directing change: A guide to governance of project management (2nd ed.). Ibis House, Regent Park, UK: Association for Project Management
- Azhar, N., Farooqui, R. U., & Ahmed, S. M. (2008). *Cost overrun factors in construction industry of Pakistan.* Paper presented at the First International Conference on Construction In Developing Countries (ICCIDC–I), Advancing and Integrating Construction Education, Research & Practice.
- Beckers, F., & Stegemann, U. (2013). A riskmanagement approach to a successful infrastructure project. *McKinsey Work. Pap. Risk* (52), 18.
- Bekker, M. C., & Steyn, H. (2007). Defining 'project governance' for large capital projects. South African Journal of Industrial Engineering, 20(2), 81-92.
- Beringer, C., Jonas, D., & Kock, A. (2013). Behavior of internal stakeholders in project portfolio management and its impact on success. *International Journal of Project Management*, 31(6), 830-846.
- Besner, C., & Hobbs, B. (2012). An empirical identification of project management toolsets and a comparison among project

types. *Project Management Journal, 43*(5), 24-46.

Biesenthal, C., & Wilden, R. (2014). Multi-level project governance: Trends and opportunities. *International Journal of Project Management, 32*(8), 1291-1308. doi:

http://dx.doi.org/10.1016/j.ijproman.2014. 06.005

- Choudhry, R. M., Aslam, M. A., Hinze, J. W., & Arain, F. M. (2014). Cost and schedule risk analysis of bridge construction in Pakistan: Establishing risk guidelines. *Journal of Construction Engineering and Management*, 140(7).
- Cicmil, S., & Braddon, D. (2012). Fading Glory? Decision-Making around the Project—How and Why 'Glory'Projects Fail *Project Governance* (pp. 221-255): Springer.
- Crawford, L., Cooke-Davies, T., Hobbs, J. B., Labuschagne, L., Remington, K., & Chen, P. (2008). Governance and support in the sponsoring of projects and programs. *Project Management Journal, 39*(3), 543-555.
- Flyvbjerg, B. (2013). Quality control and due diligence in project management: Getting decisions right by taking the outside view. *International Journal of Project Management*, 31(5), 760-774.
- Garland, R. (2009). Project Governance: A practical guide to effective project decision making. United States: Kogan Page Publishers.
- Garvin, M. J. (2009). *Governance of PPP projects through contract provisions.* Paper presented at the Conference of Leadership and Management of Construction.
- Gazder, U., & Khan, R. A. (2018). Effect of organizational structures and types of construction on perceptions of factors contributing to project failure in Pakistan. *Mehran University Research Journal of Engineering and Technology, 37*(1).
- Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal, 26*(2), 91-108.

- Guo, F., Chang-Richards, Y., Wilkinson, S., & Li,
  T. C. (2014). Effects of project governance structures on the management of risks in major infrastructure projects: A comparative analysis. *International Journal of Project Management, 32*(5), 815-826. doi:https://doi.org/10.1016/j.ijproman.201 3.10.001
- Haque, A., & Anwar, S. (2012). Linking top management support and it infrastructure with organizational performance: Mediating role of knowledge application. *Canadian Social Science*, 8(1), 121-129.
- Hietbrink, M., Hartmann, A., & Dewulf, G. (2012). Stakeholder expectation and satisfaction in road maintenance. *Procedia-Social and Behavioral Sciences, 48*, 266-275.
- Irfan, M., & Hassan, M. (2017). The effect of project success on corporate reputation of the public sector organizations in Pakistan. *International Journal of Economics and Management, 11*(S3), 815-832.
- Karlsen, J. T. (2002). Project stakeholder management. *Engineering Management Journal, 14*(4), 19-24.
- Khattak, M. S., Mustafa, U., & Shah, S. (2016). Mapping project management competencies with different complexities for improving performance. *Journal of Managerial Sciences*, 10(2).
- Klakegg, O. J., Williams, T., & Shiferaw, A. T. (2016). Taming the 'trolls': Major public projects in the making. *International Journal of Project Management*, 34(2), 282-296.
- Lawani, A., & Moore, D. (2016). Project management practices in government organizations of developing countries: A systematic review. *The International Journal of Business & Management, 4*(9), 89-98.
- Levitt, R. E., Henisz, W., Scott, W. R., & Settel, D. (2010). Governance challenges of infrastructure delivery: The case for socioeconomic governance approaches. Paper presented at the Construction Research Congress 2010: Innovation for Reshaping Construction Practice.

- McGrath, S. K., & Whitty, S. J. (2015). Redefining governance: From confusion to certainty and clarity. *International Journal of Managing Projects in Business, 8*(4), 755-787.
- Meso, P., Musa, P., Straub, D., & Mbarika, V. (2009). Information infrastructure, governance, and socio-economic development in developing countries. *European Journal of Information Systems, 18*(1), 52-65.
- Müller, R., & Lecoeuvre, L. (2014). Operationalizing governance categories of projects. *International Journal of Project Management*, 32(8), 1346-1357.
- Noor, M. A., Khalfan, M. M., & Maqsood, T. (2012). Methods used to procure infrastructure projects in Pakistan: An overview. *International Journal of Procurement Management, 5*(6), 733-752.
- Noor, M. A., Khalfan, M. M., & Maqsood, T. (2013). The role of procurement practices in effective implementation of infrastructure projects in Pakistan. *International Journal of Managing Projects in Business, 6*(4), 802-826.
- Parnell, G. S., Driscoll, P. J., & Henderson, D. L. (2011). *Decision making in systems engineering and management* (Vol. 81): John Wiley & Sons.
- PC. (2010). Manual for Development Projects. Retrieved from <u>http://pc.gov.pk/uploads/downloads/perfo</u> <u>rm/Manual-for-development-projects.pdf</u>.
- PMI. (2013). A guide to the project management body of knowledge: PMBOK guide (5th ed.). Newton Square, Pennsylvania, US: Project Management Institute.
- PMI. (2016). *Governance of portfolios, programs, and projects: A practice guide.* Retrieved from Newtown Square, PA, USA.
- Qureshi, T. M., Warraich, A. S., & Hijazi, S. T. (2009). Significance of project management performance assessment (PMPA) model. *International Journal of Project Management, 27*(4), 378-388.
- Rajablu, M., Marthandan, G., & Yusoff, W. F. W. (2014). Managing for stakeholders: The

role of stakeholder-based management in project success. *Asian Social Science*, *11*(3), 111-125.

- Rehman, A. U., Khan, A. M., & Khan, R. A. (2011a). Measuring training effectiveness:
  A case study of public sector project management in Pakistan. *Journal of Diversity Management (JDM), 6*(1). doi:10.19030/jdm.v6i1.4170
- Shaikh, F., Ji, Q., & Fan, Y. (2016). Prospects of Pakistan–China energy and economic corridor. *Renewable and Sustainable Energy Reviews, 59*, 253-263.
- Sharma, C. (2012). Determinants of PPP in infrastructure in developing economies. *Transforming Government: People, Process and Policy, 6*(2), 149-166.
- Sial, A., Usman, M. K., Zufiqar, S., Satti, A. M., & Khursheed, I. (2013). Why do public sector organisations fail in implementation of strategic plan in Pakistan. *Public Policy and Administration Research, 3*(1), 222-573.
- Tahir, P. (2005). Institutional machinery for managing the Pakistan economy. *The Lahore Journal of Economics*, 107-143.
- Too, E. G., & Weaver, P. (2014). The management of project management: A conceptual framework for project governance. *International Journal of Project Management*, 32(8), 1382-1394.
- Unab, W., & Kundi, M. F. A. (2014). Review of project management (PM) practices in public infrastructure development organizations of Pakistan. *Journal of Strategy and Performance Management*, 2(4), 144-158.
- Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences*, *15*(3), 398-405.
- Williams, T., & Samset, K. (2012). *Project governance: Getting investments right*: Springer.

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