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PROBLEMS AND RELATED CAUSES OF PUBLIC PROCUREMENT PROCESS TO ACHIEVE SUSTAINABILITY IN DEVELOPING COUNTRIES

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ABSTRACT

Public Procurement Process (PP Process) in construction industry has identified as integral part to achieve sustainability in developing countries. Sustainability links with the social, environmental, and economic indicators. The PP Process contributes largely to the budget of developing nations. However, existing PP Processes of developing countries have shown lagging features to achieve sustainability due to a number of problems. Further, the depth and gravity of the problems depend on the impact of root causes throughout the activities and stages of procurement lifecycle of a project. Hence, this paper aims to identify the problems and related root causes during the various activities in the stages of PP Process to achieve sustainability in construction projects in developing countries.

In order to achieve the aim, this study started with a comprehensive literature review to identify the stages, activities, problems and related root causes in PP Process to achieve sustainability. Subsequently, interviews with 14 subject matter experts were carried out to identify and verify the stages, activities, problems and related root causes to achieve sustainability in PP Process in developing countries. The data were analysed using manual content analysis. The findings of the study identified 10 problems and 22 root causes that affect the 39 activities in 05 stages of PP process in project procurement lifecycle in construction industry. The outcome of this paper will be beneficial to relevant authorities, funding agencies and policy makers in taking necessary steps to update the existing guidelines, bidding documents, procedures and protocols to address the identified problems and root causes to achieve sustainability of developing countries.

Keywords: *Construction industry; Developing countries; Problems and root causes; Public procurement process; Sustainability.*

1. INTRODUCTION

Sustainability is defined as processes and related actions that focus on the present moment and keeping things above a certain level throughout the identified period of time to fulfil

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the needs of future generation (World Commission on Environment and Development, 1987; White, 2012). According to World Bank (2016), construction industry shall be considered as an integral part, which provides major contribution to achieve sustainability. Further, World Bank (2016) stated that Public Procurement Process (PP Process) in construction industry continuously evolves as a tool to achieve sustainability and Sustainable Development Goals (SDG). Procurement plays a predominant role not only in public sector, but also in private sector to achieve the sustainability (Love *et al*., 2010). Further, the public procurement considers as a largest sector that influence the sustainability when compared with private sector (Hawkins *et al*., 2011). World Bank (2016) defined public procurement as a process that implements a series of activities to acquire goods, works and services for government institutions in most appropriate manner. According to Jones (2007), works represent major part of the government expenditure, with compared with goods and services. Further, Albano *et al.*, (2013) categorised the construction activities of the procurement process as works.

The activities of the PP Process in construction industry implement in line with the stages of the project lifecycle (Royal Institute of British Architectures [RIBA], 2007). The primary objective of the PP Process in construction industry denotes as fulfilment of stakeholder satisfaction in line with strategic objectives of the country (Office of Government Commerce, 2008; Ministry of Finance, 2019). Eurodad (2009) found that the impact of the PP Process in construction industry is significant in developing countries than developed countries. Further, Organisation for Economic Co-operation and Development (OECD, 2009) and Silva *et al*. (2017) added that the contribution of the PP Process in construction industry in developed countries vary between 08% to 25% of the Gross Domestic Product (GDP) at global scenario, whereas around 30% in developing countries (Preuss and Walker, 2011; United Nations Environmental Management Group, 2012).

However, Ayopo *et al*. (2016) found that existing PP Process in construction industry in developing nations has failed to deliver necessary infrastructure requirements to achieve sustainable development and sustainability due to number of prevailing problems. Further, the depth and breadth of problems depend on number of root causes (Rahman and Kumaraswamy, 2004). Accordingly, stakeholders of the PP Process strive to prevent and overcome the problems by addressing the root causes to achieve the sustainability (Thai, 2016). Although a number of studies are available to identify and determine the problems and root causes of the PP Process in general, a limited number of studies have investigated the problems and root causes in construction industry in developing countries. Further, there is a lack of studies that address the problems and root causes of PP Process in construction industry in developing countries to achieve the sustainability.

Thus, the identification of problems and root causes in PP Process to achieve sustainability along each stage of the project lifecycle in the construction industry is vital to propose the solutions and remedial measures to attain sustainable development. Therefore, this paper aims to identify the problems and related root causes of the PP Process in construction industry in the developing countries to achieve sustainability.

2. LITERATURE REVIEW

The PP Process facilitates to fulfil the stakeholder satisfaction in line with strategic objectives of the country (Ministry of Finance, 2019). However, Chimwani *et al*. (2014)

emphasised that prevailing problems of the PP Process in construction industry in developing nations negatively affect the sustainable development of the country. Further, Ayopo *et al*. (2016) explored root causes influencing to the problems of the PP Process.

Walker and Brammer (2009) highlighted that the existing problems of the PP Process can be addressed by integrating innovative improvements of construction industry to achieve the sustainability. Furthermore, World Bank (2016) has pointed out that contemporary versions of the PP Process facilitate to upgrade the living standards of the community as per the current global needs. Thus, the PP Process can be upgraded by addressing prevailing problems and providing solutions to the root causes.

The following sections review the stages and activities of PP Process, prevailing problems and related root causes of the PP Process in construction industry to achieve sustainability.

2.1 STAGES AND ACTIVITIES OF PP PROCESS IN CONSTRUCTION INDUSTRY

Crowder (2015) stated that the public procurement in construction industry comprised with the number of activities and stages. RIBA (2007) developed framework for construction industry with five (05) stages of Preparation, Design, Pre-construction, Construction, and Use. However, World Bank (2018) has emphasised that the number of stages and activities of the PP Process in construction industry differ and depend on the nature and complexity of the project lifecycle. Further, activities of the PP Process have been identified as continuous processes with number of stages that initiate from preparation stage to post completion stage (Dzuke and Naude, 2017).

Office of Government Commerce (2007) divided PP Process into seventeen (17) stages, starting from the needs assessment up to the disposal throughout the project lifecycle. Further, RIBA (2013) divided this into eight (08) stages from the stage of 'strategic definition' up to the stage of 'in use'. World Bank (2018) has specified seven (07) key stages of the PP Process from the strategic development stage to the end of management of contract. Turin (1973) identified four (04) stages of the project such as Conceptual, Planning, Execution, and Termination with number of activities. However, Hillebrandt (1984) divided project procurement lifecycle into three (03) stages of discovery, development and delivery. National Procurement Agency (2006) divided procurement process in construction industry under two (02) stages of pre contract and post contract. According to Chimwani *et al*. (2014), it was revealed that different number of stages and activities are referred by different authors. However, majority of the construction project's procurement lifecycle divided into five (05) key stages; i.e. (a) Preparation, (b) Design, (c) Pre-construction, (d) Construction, and (e) Use (RIBA, 2007).

International Federation of Consulting Engineers (FIDIC, 2017) and World Bank (2016, 2018) have provided guidelines and directions for the activities in PP Process in construction industry in global context. Further, National Procurement Agency (2006); Ministry of Finance (2017); Construction Industry Development Authority (CIDA, 2018) have provided guidelines and directions to govern construction projects and their activities for the Sri Lanka as a developing country. Accordingly, the activities of the PP Process throughout project lifecycle identified by various authors and institutions were summarised into 50 activities (10 activities under each stage) of the project procurement lifecycle. This list was presented to the experts during the empirical investigation and

evaluated the suitability and relevancy to developing countries context. (Refer findings section for further information).

2.2 PROBLEMS IN PP PROCESS IN CONSTRUCTION INDUSTRY

Raymond (2008) noted that poor procurement practices and prevalent problems of the PP Process as major reasons hindering the economic growth of a country. Further, Ayopo *et al*. (2016) emphasised that no matter whether it is in developing or developed country, widespread of problems can be seen in the PP Process in construction industry. Ayopo *et al*. (2016) identified the challenges face in effective implementation of activities in the PP Process as the prevailing problems in construction industry. Dubois and Gadde (2002) and Decarolis and Palumbo (2015) explored the problems of the PP Process that are prevailing in construction industry as late delivery, risk and cost overrun and low efficiency. Further, Raymond (2008) added that fraud, corruption and risk overrun as the problems in PP Process. Furthermore, Walker and Brammer (2009) pointed out that not meeting the required quality and standard, outdated technology, and ignoring the Value for Money (VFM) as some other related issues. Schiele and McCue (2006) and Ameyaw *et al*., (2012) added that ignoring the analysis of externalities as another problem. Moreover, Jones (2007), World Bank and Asian Development Bank (2012), Ameyaw *et al*. (2012), and Naude (2017) revealed that deliverables not fit for purpose and fraud and corruption as some other leading problems in the PP Process.

However, risk of the problems of the PP Process in construction industry defers due to the inherent complexity in construction project (Rahman and Kumaraswamy, 2004; Thai, 2011). Moreover, Naude (2017) mentioned that gravity of the problem defers from one country to another country. However, Ayopo *et al*., (2016) emphasised that the problems of the PP Process in construction industry in developing nations are in similar nature. Accordingly, comprehensive literature revealed 10 problems affect the PP Process in construction industry as shown in Table 1.

Table 1: Problems in PP process in construction industry

No	Description of the problem	Authors referred
P.1	Deliverables not fit for purpose	3, 4, 8, 9, 13, 14
P.2	Late delivery	1, 12, 15, 16
P.3	Cost overrun	1, 12, 15, 16
P.4	Risk overrun	1, 12, 15, 16
P.5	Low efficiency	1, 9, 11, 12
P.6	Not up to the required quality and standards	6, 9, 10, 11
P.7	Outdated technology	6, 9, 10, 11
P.8	Not identified the costs for the damages of social and environment	2, 4, 8
P.9	Not considered the value for money (VFM) in the process	6, 7, 9
P.10	Fraud and corruption	3, 5, 8, 9, 14,

1. Dubois and Gadde (2002), 2. Schiele and McCue (2006), 3. Jones (2007), 4. OECD (2007), 5. Raymond (2008), 6. Walker and Brammer (2009), 7. Dawson *et al*. (2011), 8. Ameyaw *et al*. (2012), 9. World Bank and Asian Development Bank (2012), 10. Amemba *et al*. (2013), 11. Adhikari (2015), 12. Decarolis and Palumbo (2015), 13. Ayopo *et al*. (2016), 14. Naude (2017), 15. Gyawali *et al*. (2018), 16. Bhuvaneswaran (2019)

Literature explored 10 problems affecting the PP Process in construction industry. The next section critically reviews the root causes behind those problems in PP Process in construction industry.

2.3 ROOT CAUSES BEHIND THE PROBLEMS OF THE PP PROCESS IN CONSTRUCTION INDUSTRY

Chimwani *et al*. (2014) explored factors and root causes influencing to generate and create problems in PP Process in construction industry. Further, Ayopo *et al*. (2016) identified root causes as issues that affect the problems in the PP Process. Thai (2011, 2016) found root causes affect the problems in the PP Process and summarised the key root causes as lack of interrelation and communication between the parties and authorities and lack of available information to take procurement decision. Schiele and McCue (2006) and OECD (2007) revealed number of root causes that affect the problems of the PP Process as lack of integrity and transparency, communication issues, negative attitude, and inadequate knowledge and transferring of knowledge. Subsequently, Ameyaw *et al*. (2012), and Albano *et al*. (2013) elaborated the root causes that identified by Schiele and McCue in 2006 and OECD in 2007. Raymond (2008) emphasised that lack of planning, information and capacity as root causes affect the problems of PP Process. Lacy *et al*. (2009) revealed that unavailability of procurement strategy and legislative framework, outdated documentation, and lack of audit as root causes affect to the problems of PP Process. World Bank and Asian Development Bank (2012) highlighted similar root causes and additionally pointed out the negative affect of the behaviour of the policy and decision makers. Furthermore, Albano *et al*. (2013) explored that lack of innovative approaches increase the gravity of the problems in the PP Process. Moreover, Ayopo *et al*. (2016) identified variations and change orders for the stages and activities of procurement lifecycle increase the gravity of the problem of the PP Process. Accordingly, comprehensive literature revealed 22 number of root causes of the PP Process in construction industry and summarised in Table 2.

Table 2: Root causes in PP Process in construction industry

No	Description of the Root cause	Authors referred
1.	Lack of documentation	2, 4, 8, 9
2.	Lack of interrelation and communication among team members	2, 4, 8, 9
3.	Lack of interrelation and communication between relevant institutions	2, 4, 8, 9
4.	Negative attitude of the officers & stakeholders	2, 3, 6
5.	Inadequate knowledge of the officers & stakeholders	3, 4, 6, 6, 9
6.	Lack of knowledge transferring to the officers & stakeholders	3, 4, 6, 6, 9
7.	Unavailability of single institution for strategic and regulatory matters	2, 4
8.	Unavailability of legislative framework for PP Process	2, 4
9.	Negligence, mistakes & errors in PP Process	4, 8
10.	Insufficient capacity of implementing institution	2, 4
11.	Lack of integrity in PP Process	2, 4
12.	Lack of transparency in PP Process	2, 4
13.	Inadequate review, monitoring, & follow-up actions	4, 5

No	Description of the Root cause	Authors referred
14.	Lack of identification of feasibility aspects & lack of consideration on feasibility outcomes	1, 7, 8
15.	Lack of attention on unforeseeable physical conditions	4
16.	Lack of linkage with long term national plan	2
17.	Uncertainty on project funds	2, 8,
18.	Absence of updated procedures of protocols	2, 3, 8, 9
19.	Unnecessary time consumption due to lack of attention to critical path	3, 4
20.	Consideration of only traditional elements of Time, Cost, & Quality	4, 9
21.	Inadequate real-time technical & performance audit	2, 5
22.	Insufficient transfer of lessons learned from previous stage and projects	2, 5

1. Nakamura (2004), 2. OECD (2007, 2009), 3. Rajaram *et al*. (2010), 4. Thai (2011), 5. World Bank and Asian Development Bank (2012), 6. Moe and Päivärinta (2013), 7. Lu *et al*. (2015), 8. Ayopo *et al*. (2016), 9. Naude (2017)

The literature explored activities, stages, problems, root causes that affect the PP Process in construction industry. Accordingly, in next section discusses research approach, method, and data collection techniques that used to achieve the aim of this paper.

3. METHODOLOGY

The study used qualitative research approach to identify the activities, stages, problems, root causes affect the PP Process in construction industry in order sustainability in PP Process. A comprehensive literature review was carried out using journals, books, conference articles, report and official websites to identify the activities, stages, problems, root causes affect the PP Process in construction projects. Subsequently, in-depth interviews with 14 subject matter experts were carried to investigate the suitability and relevancy of literature review findings to developing countries context. The profile of 14 experts were given in Table 3.

Table 3: Profile of experts

Entity	Profile	Designation of Expertise	Experience
World Bank (WB) Funded Project 1	R1	Project Director	36 years
	R2	Deputy Project Director	32 years
	R3	Procurement Specialist	15 years
World Bank (WB) Funded Project 2	R4	Project Director	37 years
	R5	Deputy Project Director	24 years
	R6	Procurement Specialist	16 years
Asian Development Bank Funded (ADB) Project	R7	Project Director	40 years
	R8	Deputy Project Director	31 years
	R9	Procurement Specialist	18 years
Industry Experts	R10	Procurement Specialist (WB)	40 years
	R11	Procurement Consultant (WB)	37 years
	R12	Procurement Consultant (ADB)	42 years
	R13	Representative of Contractor	15 years
	R14	Representative of Consultant	15 years

The data collected through interviews were then transcribed and analysed using manual content analysis. The research findings are presented below.

4. RESEARCH FINDINGS AND DISCUSSION

The research findings are presented below under different sections related to activities, stages, root causes and problems of PP Process in construction industry in developing countries.

4.1 THE STAGES AND ACTIVITIES OF THE PP PROCESS IN SRI LANKAN CONSTRUCTION INDUSTRY

The stages of PP Process in construction industry are divided into the five categories as (a) Preparation, (b) Design, (c) Pre-construction, (d) Construction, and (e) Use in line with the RIBA Plan of Work (2007). Further, the literature review revealed 50 activities of the PP Process throughout project procurement lifecycle by representing 10 activities in each stage. During the expert interviews, 50 activities identified through the review was refined to 39 activities to suit to the developing countries with the experience in Sri Lankan context as presented in Table 4.

All the experts agreed with the 05 stages identified from the literature. However, the experts suggested to refine and revise the activities in each stage to suit the developing country and Sri Lanka context. Accordingly, 10 activities explored in literature for each stage of the PP Process refined and verified to 09 activities at the Preparation Stage, 05 activities at the Design Stage, 08 activities at the Pre-Construction Stage, 08 activities at the Construction Stage, and 09 activities at the Use Stage. Hence, the 50 activities at the 05 stages refined and reduced to 39 activities to suit to the requirements of Sri Lankan construction industry and to ensure the applicability to the developing countries. Further, experts agreed with the majority of the activities and some activities were re-worded and changed to suit to the Sri Lankan context. However, some activities were fully revised by the experts.

Table 4: Stages and activities of the PP Process in construction industry in developing countries

Stages and Activities Identified from Literature	Expert Comment	Stages and Activities Verified after Expert Interviews
Activities in Public Procurement Process (Preparation Stage)		
1. Identification of needs of the stakeholders	Agreed	1. Identification of needs of the stakeholders
2. Establishment of team and identification of scope	Reworded	2. Establishment of project team and define & develop scope of the project
3. Develop procurement brief including aim and objectives	Agreed	3. Development of procurement brief including aim and objectives
4. Preparation of feasibility study, EIA*, SIA* & RAP*	Reworded	4. Feasibility study and initial clearances
5. Identification of associate risks	Agreed	5. Identification of associate risks
6. Development of output-based design brief	Reworded	6. Development of output-based concept design
7. Assessment of options, alternative arrangement	Agreed	7. Assessment of options & alternative arrangements
8. Outline the specification & preliminary cost plan	Agreed	8. Outline the specification & preliminary cost plan

Stages and Activities Identified from Literature	Expert Comment	Stages and Activities Verified after Expert Interviews
9. Identification of procurement method	Refined	9. Identification of procurement strategy
10. Documentation	Deleted	*As documentation is mandatory requirement at the end of each activity*
Activities in Public Procurement Process (Design Stage)		
1. Review concept design, draft contractual document & definition of assignment	Reworded	1. Review scope of the project & concept design and decision on use internal experts
2. Review the availability of funds, procurement route & balance activities	Reworded	2. Review the availability of resources and cost plan
3. Appointment of procurement committee	Reworded	3. Appointment of PC* for determination of consultancy firm
4. Identification of procurement time schedule	Agreed	4. Identification of procurement time schedule
5. Preparation, review, approve, & issue EOI*, RFP* document 6. Evaluation of EOI* & identification of shortlist 7. Issue RFP* documents 8. Preproposal meeting, clarification, & addenda 9. Closing, evaluation, determination of consultancy firm 10. Appeal procedure & award of consultancy contract	Merged 5 to 10	5. Selection of consultant for design, procurement & contract management
Activities in Public Procurement Process (Pre-Construction Stage)		
1. Review the contractual document & detailed definition of assignment	Agreed Refined	1. Ensure availability of resources & initial clearances
2. Identification of balance activities & confirmation of availability of funds	Agreed Reworded	2. Determination of activities to select the civil works contractor
3. Appointment of PC* & TEC*	Agreed Reworded	3. Appointment of PC* & TEC* for determination of civil works contractor
4. Identification of procurement time schedule	Agreed	4. Identification of procurement time schedule
5. Preparation, approve, & issue pre-qualification/ bid document	Agreed	5. Preparation, approve, & issue pre-qualification/ bid document
6. Evaluation and approve pre-qualified bidder	Agreed	6. Evaluation and approve pre-qualified bidder
7. Issue bid documents 8. Pre bid meeting, clarification, & addenda	Merged 7 & 8	7. Issue bid documents, pre bid meeting, clarification, & responds
9. Closing, evaluation, determination, & appeal procedure 10. Award the civil works contract	Merged 9 & 10	8. Closing, evaluation, determination and sign the contract agreement
Activities in Public Procurement Process (Construction Stage)		
1. Appointment of project management team	Agreed	1. Appointment of contract management team
2. Review the contract document, bonds & insurance	Agreed	2. Review the contract document, bonds & insurance
3. Identification of balance activities & confirmation of availability of resources	Reworded	3. Determination of activities to implement the civil works contract
4. Update the programme and resources 5. Progress monitor, review & approve site works, variations & claims	Merged 4 & 5	4. Progress monitor, review & approve site works, variations & claims
6. Issue addendum and variation orders	Agreed	5. Issue addendum and variation orders

Stages and Activities Identified from Literature	Expert Comment	Stages and Activities Verified after Expert Interviews
7. Documentation for completion of project	Agreed	6. Documentation for completion of project
8. Review state at completion & arrange final discharge	Merged 8 & 9	7. Arrangement for release guarantees & retention
9. Arrangement for release guarantees & retention		
10. Provisions for arbitrations and remaining disputes	Agreed	8. Provisions for arbitrations and remaining disputes
Public Procurement Process (Use Stage)		
1. Review the agreement for operation and maintenance	Agreed	1. Review the agreements for operation and maintenance
2. Identification of balance activities & confirmation	Reworded	2. Determination of activities and resources for operation & maintenance and update programme
3. Conduct trainings for trainers (TOT)	Merged	3. Conduct TOT and documentation for lessons learned
4. Documentation for lessons learned	3 & 4	
5. Ensure performance of the assignment and documentation are in order	Agreed Reworded	4. Ensure performance of the activities of operation & maintenance
6. Preparation programme for close-out	Reworded	5. Preparation programme for close-out by the consultant, contractor and project team
7. Clearance from all the parties for programme for closeout	Agreed	6. Clearance from all the parties for programme for closeout
8. Release guarantees & liabilities	Agreed	7. Release guarantees & liabilities
9. Demobilisation of team	Reworded	8. Demobilisation of resources and teams (Contract & Project)
10. Disposal (reuse or recycle)	Agreed	9. Disposal (reuse or recycle)

**EIA- Environmental Impact Assessment; SIA- Social Impact Assessment; RAP- Resettlement Action Plan; EOI- Expression of Interest; RFP- Request for Proposal; PC- Procurement Committee; TEC- Technical Evaluation Committee*

4.2 THE PROBLEMS IN PP PROCESS IN CONSTRUCTION INDUSTRY

The literature reveals 10 problems of the PP Process (refer Table 1) in construction industry, which negatively affect to achieve the sustainability. During the interviews, the experts agreed with the identified problems and mentioned that those 10 problems are applicable to the Sri Lankan context and other developing countries similar to Sri Lanka. Further, R10 mentioned that low efficiency is a general term, however, low efficiency of the end product or final output is a problem in PP Process in construction industry to achieve the sustainability. Based on the expert opinion, the wording of the problem number P.5 was refined as low efficiency of final output. Furthermore, R12 highlighted that efficient works and deliverables shall link with the aim and objective of the sustainable development, if not that will be wasting of resources of the PP Process. Further, R11 and R12 said that '*how can we say not to identify cost for damages of social and environment and not to consider the value for money (VFM) in the process?*'. Further to them, the social and environment aspects, and the VFM considered with less attention throughout the activities of the PP Process in construction industry. Hence, the experts added 'lack of attention on the damages to the society and environment' and 'less attention to consideration of value for money' as the problems to achieve the sustainability in developing country. Hence, the problems in PP Process in construction industry to achieve sustainability in developing countries can be summarised as below:

1. Deliverables not fit for purpose
2. Late delivery
3. Cost overruns
4. Risk overruns
5. Low efficiency of final output
6. Not up to the required quality and standards
7. Outdated technology
8. Lack of a social and environmental cost valuation
9. Less attention to VFM
10. Fraud and corruption

4.3 THE ROOT CAUSES OF PP PROCESS IN CONSTRUCTION INDUSTRY

The expert interviews refined and verified the root causes of the PP Process identified through the literature review that have impact to the problems to ensure the applicability to the developing countries and Sri Lankan context. Accordingly, all the experts agreed with the 22 root causes identified in the review and pointed out that all the root causes have impact to the problems in all the stages of the PP Process in construction industry and enhance the risk to achieve the aim and objectives of sustainable development. Hence, identified 22 number of root causes from the literature review are same to the number of root causes refined and verified through the preliminary study. However, the wordings of root causes updated as per the opinions of the experts to suit to the Sri Lankan context. Accordingly, experts of the preliminary study verified 22 number of root causes affect the problems of the PP Process to the Sri Lankan context as a developing country and listed below:

1. Lack of documentation
2. Lack of interrelation and communication among team members
3. Lack of interrelation and communication between relevant institutions
4. Negative attitude of the officers & stakeholders
5. Inadequate knowledge of the officers & stakeholders
6. Lack of knowledge transferring to the officers & stakeholders
7. Unavailability of single institution for strategic and regulatory matters of the PP Process
8. Unavailability of legislative framework for PP Process
9. Negligence, mistakes & errors in PP Process
10. Insufficient capacity of implementing institution
11. Lack of integrity in PP Process
12. Lack of transparency in PP Process
13. Inadequate review, monitoring, & follow-up actions
14. Lack of identification of feasibility aspects & feasibility outcomes
15. Lack of attention on unforeseeable physical conditions
16. Lack of linkage with long term national plan
17. Uncertainty on project funds
18. Absence of updated procedures of protocols
19. Unnecessary time consumption due to lack of attention to critical path
20. Consideration of only traditional management elements of Time, Cost, & Quality
21. Inadequate real-time technical & performance audit
22. Insufficient transfer of lessons learned from previous stage and projects

5. CONCLUSIONS AND WAY FORWARD

This paper aimed to identify the problems and related root causes of the PP Process in construction industry for the developing countries to achieve sustainability throughout activities and stages of the project procurement lifecycle. A comprehensive literature review revealed 10 problems and 22 root causes affected PP Process throughout construction lifecycle that includes 50 activities in 05 stages in global construction industry. Interviews with the experts in Sri Lanka refined and summarised 10 problems and 22 root causes affecting PP Process throughout the 39 activities and 05 stages of the PP Process in construction industry in the developing countries. This paper has presented the findings of a preliminary investigation of a PhD study programme. Accordingly, these findings will be used to propose the remedial measures to minimise the negative impact of the root causes to the problems, and then to minimise the negative impact of problems to the activities in each stage of the PP Process in construction industry during the next stage of the PhD research study. Hence, as a way forward, the impact and relationship between the root causes to the problem, and problem to the activities will be determined. Consequently, the study will propose remedial measures for smooth implementation of the activities of the PP Process to achieve the sustainability in construction industry. The conceptual model developed to establish the aforementioned relationship is shown in Figure 1.

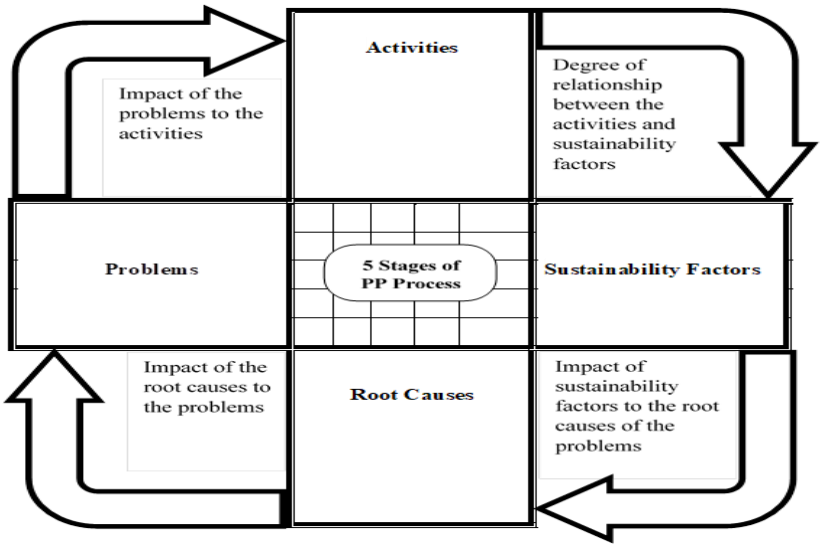

Figure 1: Conceptual model for sustainable PP process

The paper outcomes and the final outcomes of this study will be benefited to the relevant authorities of developing countries, funding agencies, development partners, and policy and decision makers in taking necessary steps to update the existing guidelines, bidding documents, procedures and protocols to achieve the sustainability.

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