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IMPLEMENTATION OF RIBA PLAN OF WORK (2013) AT PRE- CONTRACT PHASE TO MINIMIZE CONFLICTS OF CONSTRUCTION PROJECTS IN SRI LANKA

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Abstract

The construction industry holds a wide range of closely incorporated organizations and a diverse range of professionals. Therefore conflicts are obvious in construction projects due to the involvement of multidisciplinary with multiple objectives. RIBA plan of work is well- established construction work plan for project planning and management. This research aims to implement RIBA plan of work (2013) at pre contract phase from the perspective of conflicts avoidance in Sri Lankan construction projects. A questionnaire based survey was performed among construction professionals who involved in pre contract phase of construction projects to identify the most important pre contract RIBA tasks for conflict avoidance, to identify fairly practicing pre contract RIBA tasks in Sri Lanka and finally to identify possible enablers to promote RIBA plan of work (2013) in Sri Lankan construction industry. Out of twenty pre contract RIBA tasks, eighteen tasks were identified as the most important tasks for conflict avoidance. Further, out of those important eighteen tasks, only seven tasks were identified as fairly practicing tasks in Sri Lankan construction industry. Finally fourteen possible enablers were proposed to implement not practicing tasks and through that to promote RIBA plan of work (2013) as conflict avoidance tool.

Keywords: *Construction industry, RIBA plan of work (2013), Conflict avoidance, Pre contract phase*

Introduction

Construction industry is one of the leading, risky, uncertain, complex and labour intensive sector, among all other major sectors in the world (Dainty, Green, & Bagihole, 2007). In addition, Walker (2002) describes that construction is a large and complex industry comprising many types and sizes of organizations and a diverse range of professionals and other representative bodies; clients, professional practices, contractors and specialist firms all have their own agenda and allegiances. This sector presents a complex, problematic and yet fascinating context within which to explore the creation, enactment and impact of employment practices (Dainty, Green, & Bagihole, 2007).

Businesses in construction sector face major uncertainty events in meeting their projects planned objectives in the most cost effective manner and at a desired quality (Othman, Hassan, & Pasquire, 2004). Furthermore, it has one of the most dynamic, risky and challenging characteristics though with a rather weak reputation in risk management in comparison to other industries (Wood, Dermott, & Swan, 2002). These risky and challenging characteristics are the most common conflict initiating factors in industry.

Interactive and lengthy process of designing and building was made the today's construction projects more complex in nature and therefore conflicts are almost ensured (Jaffar, Tharim, & Shuib, 2011). One of the biggest problems in construction is the extent to which the industry separates design from production to a far greater extent than other industries. This particular feature of the industry is still common despite the deficiencies of traditional procurement methods (Cooke & Williams, 2004).

According to Acharya, Lee and Im (2006), conflicts do not exist in the perfect world of construction, but the perfect world of constructions does not exist itself. It seems that conflicts are inevitable to the construction industry especially when most of construction projects are facing with so many uncertainties (Jaffar, Tharim, & Shuib, 2011). Further Yiu and Cheung (2006) add that in the construction industry conflicts sometimes seems unavoidable, due to high variances in interests among

the participants of construction projects. Fenn, Lowe, and Speck (1997) argued that due to an inherent nature of conflicts in construction projects, it is very hard to maintain the atmosphere of cooperation during the process of construction (As cited in Panahi, Moezzi, Preece, Normeza, & Zakaria, 2017). Due to unique nature of the industry and above mentioned characteristics, plenty of construction conflicts can be occurred during the project operations (Burtonshaw & Gunn, 2009).

Conflicts

Conflict has been defined by Kumaraswamy (1997) as a serious difference between two or more beliefs, ideas or interests (as cited in Frieder, 2016). According to Jaffar, Tharim, and Shuib (2011) conflict can be defined as “an active disagreement between people with opposing opinions or principles.” Furthermore Acharya, Lee, and Im (2006) identified that conflict can be defined as a struggle or competition between people with opposing needs, ideas, values, beliefs or goals. In the same way conflict can be defined as a mismatch of goals and values between two or more parties (Fisher, 2000).

Conflicts are generally viewed as a negative aspect by the people (Ohbuchi & Suzuki, 2003). Author further witnessed that conflicts raise hostility and mistrust between members and restrict with organizational functions. But there are some positive aspects also. According to Popovic and Hocenski (2009) those are shape more effective and productive ways of management, motivating new ideas and encouraging reorganization. In addition to that authors stated that conflicts can provide beneficial results also.

RIBA Plan of Work

The RIBA Plan of Work (2013) arranges the process of briefing, designing, constructing, maintaining, operating and using construction projects into a number of important stages (RIBA, 2013). According to RIBA (2013), RIBA plan of work has special features such as acting across the full range of sectors and project sizes, providing straight-forward mapping for all forms of procurement, integrating sustainable design processes and mapping Build- ing Information Modelling (BIM) processes.

Basically there were main six RIBA versions available as 1963, 1967, 1973, 1998, 2007 and 2013. Two latest versions of this plan of work at 2013 and 2007 are the most commonly practicing versions in construction industry which are somewhat different in their content and format.

The latest version of RIBA plan of work; RIBA plan of work 2013 has undergone a radical overhaul. This version has been developed as a flexible tool that allows the creation of a bespoke practice or project plan of work comprising the relevant procurement, programme and planning activities. One of the main feature of the RIBA Plan of Work (2013) is that suitable for many forms of procurement (RIBA, 2013). The RIBA Plan of Work (2013) consists of eight stages defined by the numbers 0–7, and eight task bars which replaces the ‘description of key tasks’ in the RIBA Outline Plan of Work 2007 (Sinclare, 2013). The latest version of RIBA plan (2013) has special features when comparing with the outline plan of work 2007; comprising eight stages and eight task bars, retaining simplicity while adding flexibility, mapping to government’s digital plan of work, including new topics and defining terms and project strategies (RIBA, 2013). According to RIBA (2013) the stages are represented by numbers to avoid confusion with the stages in the RIBA Outline Plan of Work 2007, which were represented by letters. The eight stages of the RIBA Plan of Work (2013) are as strategic definition, preparation and brief, concept design, developed design, technical design, construction, handover and close out and in use.

Use of RIBA Plan of Work (2013) for Conflict Avoidance

Royal Institution of Chartered Surveyors (RICS) has been published a guidance document in 2013 for conflict avoidance which includes following conflict avoidance methods. These methods were not specified for pre contract phase and at both pre contract and post contract phases these strategies can be used for avoidance of conflicts. However as mentioned above, it is important to avoid conflicts at the pre contract phase. Therefore there is a requirement to analyzing conflict factors at pre contract phase and suggesting proper pre contract conflict avoidance strategies. Following table represents that summary of above mentioned conflict avoidance methods and use of RIBA plan of work (2013) under those methods.

Table 1: Use of RIBA plan of work (2013) in conflict avoidance methods

Conflict Avoidance Method	Relevant Pre Contract RIBA Tasks
Good Management	<ul style="list-style-type: none"> • Initial considerations for assembling the project team • Establish project programme • Prepare project roles table and their scope, contractual tree and continue assembling the project team • Review project programme • Review and update project execution plan • The project programme will be finalized with the specific stage dates and detailed programme durations
Clear Contract Documentation	<ul style="list-style-type: none"> • Prepare project roles table and their scope, contractual tree and continue assembling the project team • Finalize with the building contract and all procurement activities
Good Project Management	<ul style="list-style-type: none"> • Initial considerations for assembling the project team • Establish project programme • Review project programme • Review and update project execution plan • The project programme will be finalized with the specific stage dates and detailed programme durations
Partnering and Alliancing	<ul style="list-style-type: none"> • Develop project objectives and quality objectives and finally prepare the initial project brief
Good Client Management	<ul style="list-style-type: none"> • Identify client's business case, strategic brief and other core project requirements • Review feedback from previous projects • Develop project objectives and quality objectives and finally prepare the initial project brief • Prepare risk assessments and agree schedule of services, design responsibility matrix • Agree alterations to brief and issue final project brief
Good Design Team Management	<ul style="list-style-type: none"> • Prepare concept design for structural elements and building services systems • Prepare developed design, including coordinated and updated structural design proposals, building services systems and project strategies • Prepare technical design in accordance with design responsibility matrix and project strategies by including all architectural, structural and building services information • Include specialist subcontractor design and specifications to the particular design
Good Payment Practice	<ul style="list-style-type: none"> • Prepare a preliminary cost estimation by considering developed design

Record Keeping

- Establish project programme
 - Prepare project roles table and their scope, contractual tree and continue assembling the project team
 - Prepare risk assessments and agree schedule of services, design responsibility matrix
 - Review and update project execution plan
 - Prepare a preliminary cost estimation by considering developed design
 - Finalize with the building contract and all procurement activities
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Research Methodology

Based on the objectives of this research, it was necessary to collect data and identify characteristics of the populations which relates to study area. Therefore this research needed to obtain opinions from number of industry practitioners. By considering characteristics of research approaches, survey approach was considered as more suitable for this study. Survey approach involves the systematic collection of data by interview, questionnaire or other observation method. In this research, data collection was done by questionnaire surveys. Then primary data was analyzed through statistical analysis (one sample t-test) as well as content analysis.

Data Collection Techniques

Questionnaire Survey

The questionnaire survey was conducted to identify importance of RIBA plan of work (2013) to avoid conflicts in Sri Lankan construction industry and degree of implementation of RIBA plan of work (2013) in Sri Lanka and finally to identify possible enablers to promote RIBA plan of work (2013) in Sri Lankan context. Questionnaire survey was prepared using the knowledge which was gained from literature review.

Sampling

In this research implementation and suitability of RIBA plan of work (2013) was assessed through this questionnaire survey. So the selected sample should comprise of consultants (Quantity Surveyors, Engineers and Architects). Consultant list was prepared by referring telephone directory and their web pages. This study was done for implementation of RIBA plan of work (2013) at pre contract phase only. So contractor organizations were not used for the study. Although due to having a lack of knowledge on RIBA plan of work (2013), client organizations also were excluded from this study. All together 70 questionnaires were distributed among consultants who were working at 15 consultant organizations, as 40 questionnaires for Quantity Surveyors, 20 questionnaires for Architects and remaining 10 questionnaires for Engineers. So the sample size was 70 for this study.

Data Analysis Techniques

Statistical One Sample T-Test

Using a statistical analysis, more important tasks for conflict avoidance and highly practiced tasks was identified. For this, one sample t-test was used and the significance level (P value) was identified using the test. The following formula was used in one sample t-test.

$$T = \frac{\bar{Y} - \mu}{SD/\sqrt{N}}$$

Where;

\bar{Y} - Mean importance/practicing level given by the respondents for particular task

μ -Mean of the hypothesized population

SD-Standard deviation of the sample

N-Sample size

Content Analysis

At the end of above analysis, heavily practiced tasks and not practicing tasks were identified. As the last outcome of this research, possible enablers were proposed to implement those not practicing tasks and through that RIBA plan of work (2013) can be promoted in Sri Lankan context. To identify these enablers, content analysis was carried out as a qualitative approach. In here NVivo 11 software was used for this analysis.

Analysis and Discussion

Rate of Respondent

Among all together 70 questionnaires, 42 filled questionnaires were received back. All those 42 questionnaires were used in analysis. Response rate was 60% overall. The response rate for completed questionnaires according to their profession was summarized as shown in following Table.

Table 2: Rate of respondent

Respondent	Distributed	Received	Respondent Rate
Quantity Surveyors	40	28	70%
Architects	20	10	50%
Engineers	10	4	40%
Overall	70	42	60%

Respondents were classified based on their years of experience in construction industry. According to filled questionnaires, 31% from total respondents has experience on both local and foreign construction projects. Out of total respondents 36% has experience on government funded construction projects. Following Table summarizes the respondents' profile on their total experience on construction industry.

Table 3: Experience of respondents

Subject	Total Number	Percentage
Less than 5 years	11	26%
6-10 years	19	45%
11-15 years	4	10%
16-20 years	2	5%
21-25 years	2	5%
26-30 years	3	7%
More than 30 years	1	2%

Approximately 75% from total respondents has more than 5 year experience. Hence the majority of the respondents has more than 5 year experience.

Important RIBA Tasks for Conflict Avoidance

When significance level (p value) is less than 0.05, it was said that there is an enough evidence to reject null hypothesis and accept the alternative hypothesis. Furthermore if t-value is more than 3 (checked mean), it was concluded that the particular task is important in conflict avoidance. So that by evaluating all this data, it was clearly identified that, out of total twenty pre contract RIBA tasks, eighteen tasks having lesser p values than 0.05 while they having t-values more than 3. Following table represents that t-values and p-values (significance level) of selected RIBA tasks in pre contract phase.

Table 4: Important RIBA tasks for conflict avoidance

RIBA work stage	Tasks	Mean	T	P
Strategic	Identify client's business case, strategic brief and other core project requirements	4.55	15.86	0.00

Definition				
	Initial considerations for assembling the project team	4.36	13.41	0.00
	Establish project programme	4.17	9.18	0.00
	Review feedback from previous projects	4.07	9.75	0.00
Preparation and Brief	Develop project objectives and quality objectives and finally prepare the initial project brief	4.31	11.86	0.00
	Undertake feasibility studies and review of site information	4.36	13.41	0.00
	Prepare project roles table and their scope, contractual tree and continue assembling the project team	3.90	6.68	0.00
	Prepare risk assessments and agree schedule of services, design responsibility matrix	4.19	10.42	0.00
Concept Design	Prepare concept design for structural elements and building services systems	4.17	8.58	0.00
	Agree alterations to brief and issue final project brief	4.33	12.58	0.00
	Review project programme	4.14	10.84	0.00
	Review and update project execution plan	4.09	8.98	0.00
Developed Design	Prepare developed design, including coordinated and updated structural design proposals building services systems and project strategies	4.36	11.58	0.00
	Prepare a preliminary cost estimation by considering developed design	4.5	17.61	0.00
	The project programme will be finalized with the specific stage dates and detailed programme durations	4.07	7.76	0.00
Technical Design	Prepare technical design in accordance with design responsibility matrix and project strategies by including all architectural, structural and building services information	4.38	12.24	0.00
	Include specialist subcontractor design and specifications to the particular design	4.09	8.08	0.00
	Finalize with the building contract and all procurement activities	4.55	14.22	0.00

Practicing Level of RIBA Tasks in Sri Lankan Construction Industry

List of the most important pre-contract RIBA tasks for conflict avoidance, were shortlisted according to their “T” values and “P” values of practicing level under this section. In here, not practicing RIBA tasks were selected and then possible motivation enablers were provided for those tasks to promote RIBA plan of work (2013) in Sri Lankan construction industry. When significance level (p value) is less than 0.05, it was said that there is an enough evidence to reject null hypothesis and accept the alternative hypothesis. Furthermore if t-value is more than 3 (checked mean), it was concluded that the particular task is fairly practicing in Sri Lankan context. So that by evaluating all this data, it was clearly

identified that, out of total eighteen pre contract RIBA tasks, seven tasks having lesser p values than 0.05 while they having t-values more than 3. Following table represents that t-values and p-values (significance level) of the fairly practicing RIBA tasks at pre contract phase in Sri Lankan construction projects.

Table 5: Fairly practicing RIBA tasks

RIBA work stage	Tasks	Mean	T	P
Strategic Definition	Establish project programme	3.59	3.72	0.00
Concept Design	Prepare concept design for structural elements and building services systems	3.76	4.49	0.00
	Agree alterations to brief and issue final project brief	3.64	3.95	0.00
Developed Design	Prepare a preliminary cost estimation by considering developed design	4.38	12.24	0.00
	The project programme will be finalized with the specific stage dates and detailed programme durations	3.38	3.57	0.00
Technical Design	Prepare technical design in accordance with design responsibility matrix and project strategies by including all architectural, structural and building services information	3.48	3.47	0.00
	Finalize with the building contract and all procurement activities	4	8.47	0.00

Comparison between Importance of Tasks for Conflict Avoidance and practicing Level of Tasks

Following table represents the importance and practicing level of all RIBA tasks in pre contract phase and it was helped to carry out a comparison regarding the respondent's opinions on importance of tasks for conflict avoidance and practicing level of tasks in organization.

Table 6: Comparison between importance and practicing level of tasks

RIBA work stage	Tasks	(Important/not important) task for conflict avoidance	(Practicing/not practicing) task in organization
Strategic Definition	Identify client's business case, strategic brief and other core project requirements	Important	Not practicing
	Initial considerations for assembling the project team	Important	Not practicing
	Establish project programme	Important	Practicing
	Review feedback from previous projects	Important	Not practicing
Preparation and Brief	Develop project objectives and quality objectives and finally prepare the initial project brief.	Important	Not practicing
	Undertake feasibility studies and review of site information.	Important	Not practicing

	Prepare project roles table and their scope, contractual tree and continue assembling the project team	Important	Not practicing
	Prepare risk assessments and agree schedule of services, design responsibility matrix	Important	Not practicing
Concept Design	Prepare concept design for structural elements and building services systems	Important	Practicing
	Agree alterations to brief and issue final project brief	Important	Practicing
	Review project programme	Important	Not practicing
	Consider construction strategy, including offsite fabrication	Not important	Not practicing
	Develop health and safety strategy	Not important	Not practicing
	Review and update project execution plan	Important	Not practicing
Developed Design	Prepare developed design, including coordinated and updated structural design proposals, building services systems and project strategies	Important	Not practicing
	Prepare a preliminary cost estimation by considering developed design	Important	Practicing
	The project programme will be finalized with the specific stage date and detailed programme durations	Important	Practicing
Technical Design	Prepare technical design in accordance with design responsibility matrix and project strategies .	Important	Practicing
	Include specialist subcontractor design and specifications to the particular design	Important	Not practicing
	Finalize with the building contract and all procurement activities	Important	Practicing

Possible Enablers to Promote RIBA Plan of Work (2013)

The possible motivation enablers were proposed by the respondents to promote the RIBA plan of work (2013) as a conflict avoidance tool. According to the analysis above, eleven pre contract tasks from RIBA plan, were not practiced much in Sri Lankan context since they were very much important in conflict avoidance. So these possible enablers were proposed to implement those tasks. According to the questionnaire, these enablers should be provided by respondents only for not practicing tasks in their organization. Therefore out of 42 respondents only 9 respondents were provided possible enablers in their questionnaires. Those are as follows.

- Need to create a proper data base
- Improve core competencies of consultants on several specified areas
- Implementation of government rules and acts
- Need to consult the design part with qualified lead consultant
- Enhance the capacity of the project team
- Conduct health and safety awareness programme for clients and consultants
- Professional development of the industry practitioners
- Implementation of computer software
- Allow professionals to get foreign exposure
- Usage of innovative techniques
- Enhance client awareness on construction industry
- Allow a sufficient time period for design phase
- Need to implement comparison on previous project

- Regulate the process with proper deadlines

Conclusion

Most of the tasks in strategic definition and preparation and brief stages were not practiced in Sri Lanka due to lack of knowledge of client, conventional operation system of consultant organizations, urgency of clients and lethargy among Sri Lankan consultant professionals. But this initial part is essential to implement since proper briefing and concept of the project will govern the success of the project. However latter part of pre contract phase was somewhat implemented in Sri Lanka due to the essentiality of these tasks to implement a project. So initial briefing, concept designing, detailed designing, preliminary estimation and project programming activities were implemented at pre contract phase of most of the projects. But new concepts and tasks such as project feedback systems, feasibility studies, risk assessments, construction and other strategy implementations and design integrations were not practiced in Sri Lanka due to practicing conventional operation systems in organizations and due to the resistance to change. Out of eighteen tasks, eleven tasks were not properly practiced. That implicates that RIBA plan of work (2013) is not at its' proper implementation level.

Therefore as the final conclusion, it was identified that most of the pre contract tasks in RIBA plan of work (2013) are important in conflict avoidance since majority of them were not practiced much in Sri Lankan context. However by implementing above stated possible enablers, it would assist to promote RIBA plan of work (2013) as a conflict avoidance tool and it would minimize the number of conflicts in the industry. Sri Lankan construction industry practitioners can directly use these findings of the research for implementation of RIBA plan of work (2013) and through that to avoid conflicts. Therefore these findings will be more worthy for the industry.

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