

Critical Factors Causing Delay on State-Funded Construction Projects in Vietnam

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Abstract: Delay on State-Funded Construction Projects (SFCPs) in Dong Thap – a province in Mekong Delta of Vietnam, as many provinces of Vietnam, have caused budget overrun through many recent years. The budget-overrun situations, in turn, have deepened the delay. Identifying critical factors affecting delay SFCPs plays a key role to mitigate negative impact of delay. 134/160 questionnaires were collected from personals working for project owners, consultants, supervisors and contractors in Dong Thap Province. Convenient sampling method was used. EFA was resulted in critical 04 factors with 20 variables caused delay in SFCPs, including: “Project technic, contractor’s financial capacity and adjustment role of the government”, “Regulation and Policy”, “Mutual benefit support and concern between the government and residents”, and “Disadvantage of construction site and weather season”. Reliable measures to reduce delay on SFCPs are discussed to establish legal corridors to strictly controlling the process, consider mutual benefit between the government and its residents, and evaluating construction conditions. Those measures are considered could be applied in not only Dong Thap province, but most provinces of Vietnam as well.

Keywords: Dong Thap Province, State-Funded Construction Projects (SFCPs), critical factors, delay

I. INTRODUCTION

Infrastructure developing is one of the most important bases for domestic developing. Therefore, Vietnam Government has invested continuously in infrastructure to develop its economy. Against this purpose, in the recent years, a lot of state-funded projects were delayed. Delay on land clearance work, escalation price, the lack of comprehensive in cooperation between partners; the incompetency of the partners, and illogicalness in resource allocation, etc. are reported reasons.

According to Vietnam Ministry of Investment & Planning (2012), there were 4.436 delayed projects in year 2011, account for 11.55% of state-funded projects.

In Dong Thap province, a report of its government indicated almost its state-funded projects were delayed in year 2012. The delay of state-funded projects caused high increasing in total costs, caused bankruptcy of contractors or even caused the failure of their assigned budgets, negative impacts to social-economic.

By study completed state-funded projects in recent years (2008 – 2013) was basis of the finding the contextual situation of state-funded projects of Dong Thap province, which help offering feasible solutions to prevent delay-causing factors for Dong Thap province’s projects as well as for other province of Vietnam.

Can Tho and Da Nang. Ministry of Civil in Vietnam (2007) has investigated the factors leading to cost and time overruns in construction projects such as low financial

II. METHODS

The study was designed to explore critical factors causing delay on state-funded construction projects, in which 160 questionnaires were sent to personals working for project owners, designers, supervisors and construction contractors in Dong Thap Province of Vietnam by convenient sampling method. Then 134 questionnaires were collected. There were 6 groups of participants, in which the largest groups were Project owner (37.3%) and contractor (17.9%) (Figure 1).

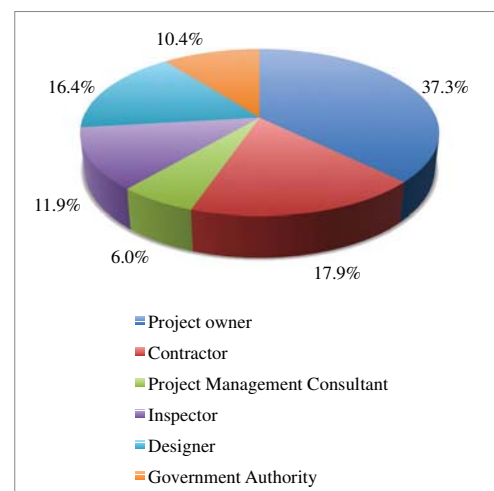


Figure 1. Participant Role in State-Funded Projects

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Most of the participants (77.6%) were experienced from 3 or more projects; especially, in which 75% of participants were experienced from 6 or more projects (Figure 2).

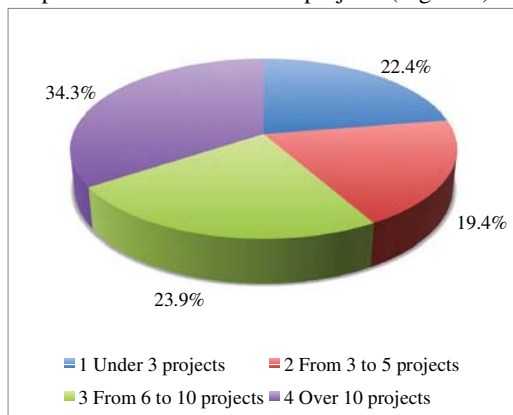


Figure 2. Number of Project Experienced

13.4% of participants played a role as Management board, 35.1% as Chief of division, 17.2% as Specialist, 31.3% as Engineer / Architecture (Figure 3).

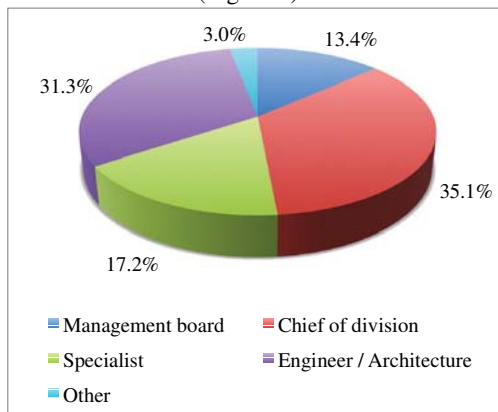


Figure 3. Job Position in State-Funded Projects

Most of participants worked in Industrial/Civil and Traffic projects (50.7% and 44.0%).

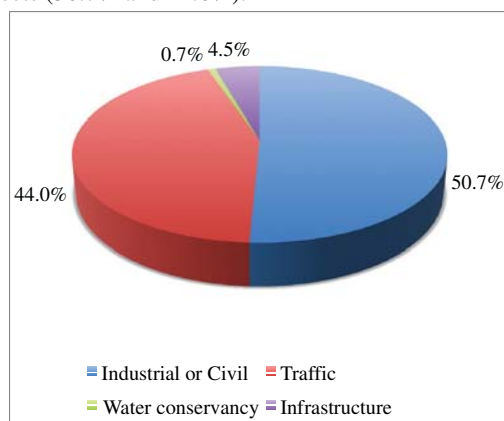


Figure 4. Type of State-Funded Projects Participated

89.6% of participants had at least 5 years experiences (Figure 5).

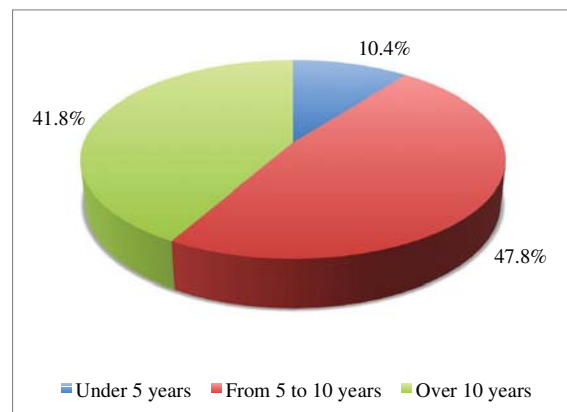


Figure 5. Experience Years in State-Funded Projects

The study was conducted focusing on SFCPSin Dong Thap – a province in Mekong Delta of Vietnam.

A. Research Procedure

The research was conducted with 2 stages.

- Stage 1. Face-to-face discussing method with 32 specialists, who were working in state-funded projects in Dong Thap Province, was induced with the support of Dong Thap province government officers. The specialists were asked to list variables which they experienced causing the delay. Then a list of summarized and categorized variables was final collected by deeper discussing with those specialists using a 5-likert scale (from 1 as “did not affect at all”, to 5 as “affected very much”).
- Stage 2. Official questionnaires were sent to participants. Collected questionnaires were coded and processed using SPSS version 18 program.

B. Sampling

The research model with 26 variables need 130 samples (26*5) (Bollen,1989).

With assumption that 85% questionnaires were collected, it need 153 questionnaires. Officially, 160 questionnaires were published to project owners, consultants, work superintendents and deputy, project engineers and architects, etc.

C. Data analysis methods

In the study, statistical analysis methods (frequency, descriptive, EFA) were used to analyze the collected data.

III. RESULTS

A. Exploratory Statistics

“Regulation and Policy” factor had 4 observable variables:

- CSPL1 – Inadequate serious inspection of government authority.
- CSPL2 – Late in dissemination about the changing Building quality control policy dissemination.
- CSPL3 – Volativity in quality control, investment and bidding policies.
- CSPL4 – Unclear guiding regulations and rules.

All of variables of “Regulation and Policy” factor (CSPL1, CSPL2, CSPL3, CSPL4) were scored as variables from

'affected' to 'affected very strong' to project progresses (Figure 6).

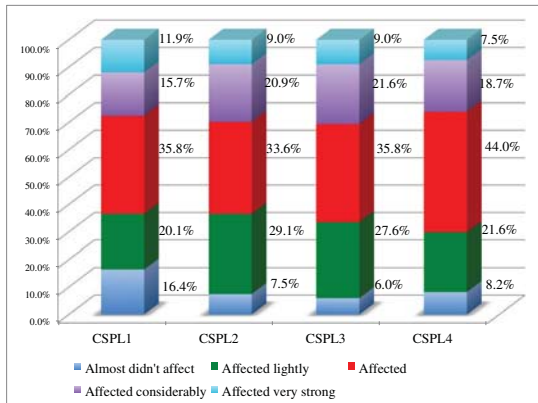


Figure 6. "Regulation and Policy" factor scoring
 "Environment" factor had 3 observable variables:

- CSHT1 - Unfavorable construction site location.
- CSHT2 - Construction in high water period.
- CSHT3 - Environmental impact evaluation report of the project owners were not accurate.

Most of sample (73.8%) scored CSHT1 and CSHT2 variables that affected significantly or even very strong to project progress. The large part of sample (57,2%) considered CSHT2 as the variable that affected clearly or even very strong to project progress (Figure 7).

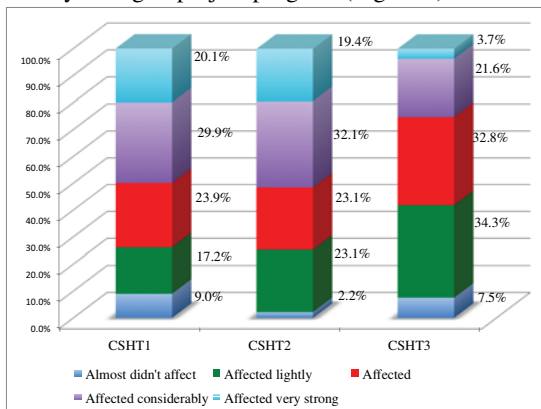


Figure 7. "Environment" factor scoring

The "Social-Economy" factor had 4 observable variables:

- KTXH1 – Delay on or short of capital supply from the government or project owners.
- KTXH2 – The low support or consideration of the government to the community.
- KTXH3 – The low support of residents in affective zone of the projects.
- KTXH4 - fluctuation of material prices or market changing.

Most of participants considered KTXH1, KTXH2, KTXH3 and KTXH4 as variables affected significantly or even very strong to project progress (in turn are: 92.6%, 78.2%, 80.6% and 84.4%) (Figure 8).

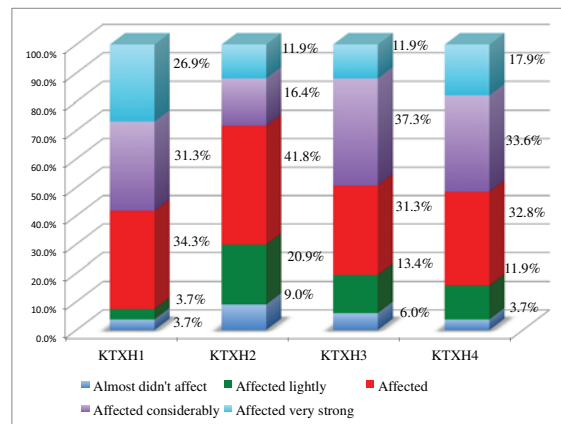


Figure 8. "Social-Economy" factor scoring

"Project technic" factor was with 9 observable variables.

- KTDA1 - Clear and consistent technical drawing and documents.
- KTDA2 - Safety and sanitation in construction sites maintaining.
- KTDA3 - Compliance with Statutes and Regulations in bidding.
- KTDA4 – Sound establishment of the government in scope and scale of the project.
- KTDA5 – Regular inspection and in time feedback of the project owner.
- KTDA6 – The authorized project management consultant had enough competency and experience.
- KTDA7 – The designers had enough competency and experience.
- KTDA8 – The contractor had enough experience and resource capacity (human, machine, equipment).
- KTDA9 – The development of advanced technology in construction.

Except KTDA2 variable was considered influencing from slightly to very strong to project progress, most of samples considered 8 remain variables (KTDA1, KTDA3, KTDA4, KTDA5, KTDA6, KTDA7, KTDA8, and KTDA9) influencing to project progress significantly or even very strong (Figure 9).

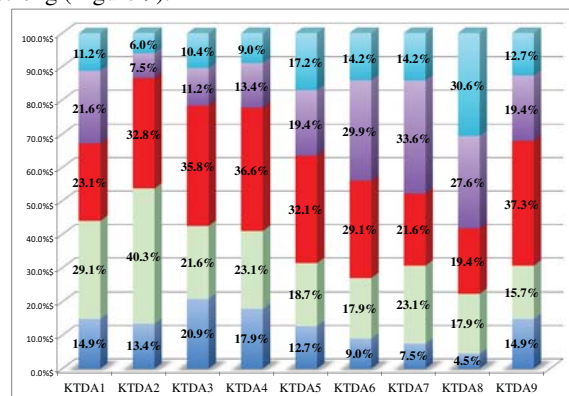


Figure 9. "Project technic" factor scoring

"Non-technical" factor included 6 observable variables.

- PHIKTDA1 - Transparency and unbureaucratic in from project processes.
- PHIKTDA 2 - Compliance with financial statutes and regulations.
- PHIKTDA3 - Conflict solving competency of the government or project owner.
- PHIKTDA4 - The contractor had sound financial capacity.
- PHIKTDA5 - Clear work scope and responsibilities of project partners.
- PHIKTDA6 – Site clearance work was in time and favorable.

The large part of participants chose “Non-technical” factor (including PHIKTDA1, PHIKTDA2, PHIKTDA3, PHIKTDA4, PHIKTDA5, and PHIKTDA6 variables) as the variable affecting significantly or even very strong to project progress (Figure 10).

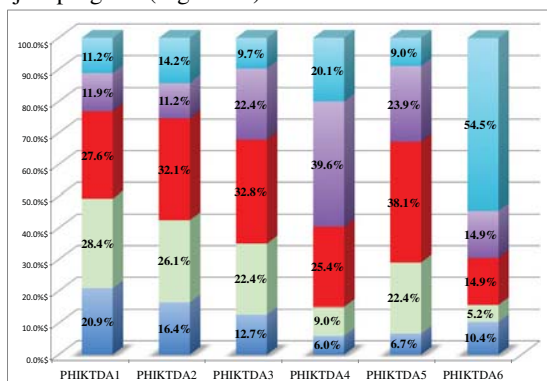


Figure 10. “Non-technical” factor scoring

B. Exploratory Factor Analysis

All initial factors had Cronbach’s alpha > 0.5. Using Principal Component Analysis extraction method with varimax rotation method, the 26 variables included in 5 mentioned initial factors were EFA by SPSS version 22.0. The final Kaiser-Meyer-Olkin Measure of Sampling Adequacy was indicated at 0.811 (>0.5). Finally, there were 20 remained variables, which were re-grouped into 4 new categorized factors with all factor loadings > 0.5; initial eigenvalue >1; and Accumulate Extraction Sums of Squared Loadings = 67.9%. The final list of categorized factors was showed in Table 1.

IV. DISCUSSION

Through the EFA, there were 4 critical factors causing delay on SFCPs in Vietnam, showed as in Table 1, named as follows

- **“Project technic, contractor’s financial capacity and adjustment role of the government”** factor, including: “Clear and consistent technical drawing and documents” (KTDA1), “Safety and sanitation in construction sites maintaining” (KTDA2), “Compliance with Statutes and Regulations in bidding” (KTDA3), “Sound establishment of the government in scope and scale of the project” (KTDA4), “Regular inspection and in time feedback

of the project owner” (KTDA5), “The authorized project management consultant had enough competency and experience” (KTDA6), “The designers had enough competency and experience” (KTDA7), “The contractor had enough experience and resource capacity (human, machine, quipment)” (KTDA8), “The development of advanced technology in construction” (KTDA9), “Conflict solving competency of the government or project owner” (PHIKTDA3), “The contractor had sound financial capacity” (PHIKTDA4), and “Clear work scope and responsibilities of project partners” (PHIKTDA5). The factor indicated the critical role of the government authorities in establishment and continuous improving legal corridor for SFCPs in objective establishment, bidding (to choosing contractors, designers, consultants, etc.), administrative formalities, feedback and conflict solving mechnism, etc.

TABLE I
 FINAL ROTATED COMPONENT MATRIX

	Component			
	1	2	3	4
KTDA1	0.712			
KTDA2	0.661			
KTDA3	0.7			
KTDA4	0.627			
KTDA5	0.828			
KTDA6	0.879			
KTDA7	0.855			
KTDA8	0.83			
KTDA9	0.65			
PHIKTDA3	0.706			
PHIKTDA4	0.793			
PHIKTDA5	0.759			
CSPL1		0.747		
CSPL2		0.84		
CSPL3		0.831		
CSPL4		0.789		
KTXH2			0.809	
KTXH3			0.751	
CSHT1				0.811
CSHT2				0.722
Cronbach’s alpha	0.932	0.847	0.717	0.685

- **“Regulation and Policy”** factor, including: “Inadequate serious inspection of government authority” (CSPL1), “Late in dissemination about the changing Building quality control policy dissemination” (CSPL2), “Volativity in quality control, investment and bidding policies” (CSPL3), and “Unclear guiding regulations and rules” (CSPL4).
- **“Mutual benefit support and concern between the government and residents”** factor, including: “The low support or consideration of the government to the community” (KTXH2), “The low support of residents in affective zone of the projects” (KTXH3). The research showed that the mutual benefit between the

government and its residents should be thoroughly considered when design and communicate the project. Actually, some projects were failure because these factor was ignored.

- **“Disadvantage of construction site and weather season”** factor, including: “Unfavorable construction site location” (CSHT1), “Construction in high water period” (CSHT2). The factor indicated it will be also a difficult problem if site location and condition problem ignored when planning the projects. These environment impact must be careful evaluated not only in planning stage, but also controled in construction stage of the projects in order to prevent delay of projects.

V. CONCLUSION

Based on identified factors, reliable measures to reduce delay on SFCPs are strictly controlling competency of partners in the construction projects, penetrating project parties with regulations and policies, and evaluating construction conditions. Many of regulation, policy and solution for SFCPs should be approved by Vietnam Ministry of Construction, therefore, those measures are not only could be applied in Dong Thap Province, but also applied in almost other provinces of Vietnam as well.

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