

Cost and Schedule Performance Analysis of World Bank International Development Projects in Afghanistan

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Abstract: International Development projects are sponsored and implemented in developing countries with the purpose of poverty alleviation, improving the living standard of the people and economic development in general. World Bank is one of the major donors in sponsoring ID projects worldwide. The Bank has committed more than US \$ 4.1 billion for development projects in Afghanistan in the past one and half decade. This study focuses on some important issues of World Bank ID projects in Afghanistan. Through empirical analysis, we examine the cost and schedule performance, implementation problems and issues related to project execution in the host country. We look at 53 ID projects administered by the World Bank in Afghanistan in the years 2002 to 2017. We observe that most of the projects experience cost overruns and schedule delays. The study reveals that the actual average duration of a project is 58 months with a negative schedule variation of 17months. Similarly, it is observed that 39% of projects experience cost under-run of US \$ 1-30 million, while most of the projects witness huge budget overruns with a negative cost variation of US \$ -20.45 million on an average. Further, we discuss the causes for such cost variation and schedule delays and make an evaluation of projects outcome ratings. The project outcome evaluation reports that most of the projects fall into a satisfactory and moderately satisfactory outcome ratings. Research findings will benefit ID project professionals, organizations, and ID project Body of Knowledge.

Keywords — *International Development Projects, project performance analysis, World Bank projects*

I. INTRODUCTION

International development projects are considered as pivotal to the overall development of developing countries. A Large number of ID projects are funded and executed by bilateral and multilateral funding agencies and financial institutions in developing countries every year. The main purpose of ID project is poverty alleviation and economic development of host countries. According to Ahsan and Gunawan [1] ID projects are specifically designed for the economic and social needs of developing countries and are usually financed by donors. Developing countries are suffering from scarce domestic resources, poverty, an underdeveloped economy, low level of capacity and technology. Bilateral and multilateral donor institutions like World Bank, Asian Development Bank and other government agencies (USAID, UKAID, GIZ, DFAT etc.) provide financial assistance to these nations usually through executing development projects. These development projects can be hard (projects like constructing dams, power plants, roads, railways, and buildings) and or (projects designed for capacity building, health improvement, literacy, education) which are considered as soft projects.

Executing ID projects in any developing country is not always smooth and easy. Unlike industrial or commercial projects, ID projects are characterized by the involvement of large number of stakeholders. These stakeholders (donors, implementing agency, host government ministries, suppliers, contractors, beneficiaries and the public in general) complicate the process of ID project management. Restructuring the scope of the project by donors and implementers, the prevalence of bureaucracy in the host country's public departments, procurement delays, and security issues are factors which cause delays in project duration and increase the project cost.

II. LITERATURE REVIEW

ID projects are different from industrial or commercial projects. The objectives of ID projects by definition, concern poverty alleviation and improvement of living standards, environment, and basic human rights protection, assistance for victims of natural or people caused disasters, capacity building, and development of basic physical and social infrastructures [2]. Various pieces of literature have studied different aspects of ID projects. Palmer [3] explores and discusses that in developing countries due to lack of

proper maintenance, projects run down much faster. Youker [4] identifies lessons learned in managing and implementation of ID projects in World Bank-sponsored projects. Youker [5] further suggests that an ID projects like any other project go through a typical life-cycle with relatively distinct stages of conceptualization, planning, implementation, and closing.

Projects which are specifically designed for the social needs of developing countries and are financed by external donors are considered as ID projects. Youker [5] defines ID projects as medium to large size public projects and/or programs in all sectors of developing countries financed by an external donor. These donor institutions are; multilateral development banks (ADB, AfDB, IADB, World Bank etc.), United Nations Associated Agencies, bilateral and multilateral government agencies (USAID, European Union, CDA), NGOs (CARE, Save the Children, Catholic Relief Services), and government agencies in developing countries. There are a number of different actors involved in the management of ID projects. These actors also referred to as stakeholders, are donor agencies, government departments, suppliers, consultants, contractors, trainers, evaluators, researchers, and local beneficiaries and public in general.

One of the most important characteristics of ID project is the involvement of a large array of these stakeholders [4], [6], [7], [8] which can directly or indirectly affect the project implementation process to a greater extent. There is also a lack of defined or powerful customer for ID projects [1], [9]. Furthermore, ID projects are characterized with a complex and risky environment [4], [10], [2] and the scarcity of resources [4], [11], [12]. Cultural differences which make it difficult to adopt proper project management techniques in such context is another peculiarity of ID projects [1], [12], [12], [14]. Finally, these projects are characterized by the intangibility of project outputs and the difficulty in defining and measuring the same [2], [8], [1]. Youker [5] explains the characteristics of ID projects in terms of their definition, objectives, financing, lifecycle, stakeholders involved, the role of sponsors, and the environment of the host country.

Many authors studied the success dimensions and critical success factors (CSF) of ID projects. Critical Success Factors in ID projects refer to the activities that must be completed to a high standard of quality in order to achieve the goals of a project. Success criteria on the other hand, refer to measurable terms of what should be the outcome of the project that can be acceptable to all stakeholders. Pinto and Mantel [15] define the project success according to three different dimensions: the efficiency of the implementation process, the perceived quality of the project, and the client's satisfaction or external performance measure of the project. Baccarini [16] identifies four levels

of project objectives: goals, purpose, output, and input. He further proposes that project success consists of two components – product success and project management success. Khan and Spang [17] highlight the success factors in international projects into four dimensions: project, people organization, and national factors. Ika et al [18] identify a set of five critical success factors: monitoring, coordination, design, training, and institutional environment. Further Bayiley and Teklu [19] identify a set of four critical success factors: intellectual capital, sound project case, key manpower competency, and effective stakeholder engagement. Ika and Donnelly [20] propose that high level of multi-stakeholder commitment, collaboration, alignment, and adaption are necessary for projects to succeed.

Most of the literature available on ID projects reports cost overruns and schedule delays. Frimponga et al [21] study the main causes of delays and cost overruns in the construction of groundwater projects in Ghana. These causes are revealed to be; monthly payments difficulties from agencies, poor contractor management, material procurement, poor technical performances, and escalation of material prices. Niazi and Painting [22] identify the key critical causes that results in cost overrun in construction projects in Afghanistan as corruption, delay in progress payment by owner, difficulties in financing projects by contractors, security, and change in order by the owner during construction, and market inflation. Senouci et al [23] find that cost overruns for construction projects increase with increase in contract prices and cost overruns for drainage projects decrease with increasing contract prices. Further Al-Hazim et al [24] explore that there are 20 factors causing delays and cost overruns in infrastructure projects and that terrain and weather conditions are considered as the top factors causing such delays and cost overruns. Various aspects of ID projects have been discussed in the existing literature. But still, there is a lack of empirical research in identifying the current practices and performance of ID projects [25], [12], [7] particularly in post-conflict environment.

III. OBJECTIVES OF THE STUDY

The purpose of this paper is to explicate unexplored issues in World Bank ID projects in Afghanistan through empirical research. The study looks at various aspects of World Bank projects like project performance in terms of time and cost, reasons for cost overrun/under-run, and schedule delays. The specific objectives of this study are;

1. To make an analysis of cost and schedule performance of World Bank projects in Afghanistan
2. To identify the reasons for cost overrun/under-run and schedule delays

3. To evaluate the overall project ratings of World Bank projects from ICR and IEG ratings

IV. RESEARCH METHODOLOGY

This study is based on secondary source data and descriptive statistics is used in the analysis. Secondary data include both quantitative and qualitative data and they are used principally in both descriptive and explanatory research [26]. Research based on secondary data offers great opportunities for new studies in operations and supply chain management [27]. Using secondary data in the project management area is also promising. Secondary data is advantageous since it is: quickly accessible, economical in terms of resources both money and time, good for longitudinal studies, providing you comparative and contextual data, and it can result in unforeseen discoveries. On the other hand, you do not have control over secondary data, it is sometimes costly and not easily accessible [26].

The data is derived from Independent Evaluation Group (IEG) evaluated Implementation and Completion Reports (ICRs) reviews published by the World Bank website which are available for public disclosure. The Bank undertakes ID projects in most developing countries but does not implement them directly. Instead, it relies on implementing partners on the ground in host countries. As many as 141 projects have been undertaken by the Bank in Afghanistan from 2002 till date. Out of which 49 projects are in the implementation process (active) and 92 projects are completed (closed). For this study 53 Implementation Completion Reports reviewed and evaluated by IEG available in IEG/World Bank website are downloaded and from these ICRs, we extracted schedule, cost, and outcome ratings data and information.

The projects are from different themes such as rural services and infrastructure, conflict prevention and post-conflict reconstruction, private sector development, administrative and civil service reforms, gender, governance, civic engagement, public expenditure and financial management, rural development, and health. Cost and time related numerical data and other descriptive information are taken from project Implementation Completion Reports' tables and charts on budget, schedule and performance rating tables.

We analyze numerical data in the form of descriptive statistics and causes for cost overrun/under-run and delays in the form of discussion. We also evaluate the outcome ratings of these project which rate by both Implementation Completion Reports (ICRs) and Independent Evaluation Group (IEG). To analyze the outcome ratings we assign numbers for each rating category e. g (6 to highly satisfactory and 1 to highly unsatisfactory). Further, we use a Z test to find out the difference between the two project outcome ratings i.e. ICRs and IEG.

V. PERFORMANCE ANALYSIS OF WORLD BANK PROJECTS

In this study, the performance issues of World Bank projects related to cost and schedule elements of projects are addressed. To describe the project parameters of time and cost we adopt the method used by Ahsan & Gunawan [1]. There are two common parameters to analyze the performance of ID projects in terms of project schedule and budget. In order to check the schedule performance we consider the planned duration and the actual duration, and to check the budget performance we consider the planned budget and the actual cost. To analyze the schedule variation, we consider the difference between the original (planned) schedule and the actual schedule. A positive variation indicates that the project is completed before the planned schedule time and a negative variation means that the project takes a longer time to complete and is schedule overrun. Similarly, for cost performance, we consider the difference between the planned budget and the actual cost. A negative cost variation means an over-budget project and a positive cost variation indicates that the project is an under budget.

Table 1: World Bank projects time performance

Delays in (months)	Frequency (no of projects)	Percentage
Completed within schedule	18	34
1 to 10	3	6
11 to 20	8	15
21 to 30	15	28
31 to 40	4	8
41 to 50	2	4
51 to 60	3	6
Total	53	100

	Estimated duration (month)	Actual duration (month)	Variation (months)
Mean	41	58	-17
SD	16.1	22.7	16.39

The study finds that most of the projects are lengthy in terms of time and duration. The typical duration of World Bank projects in Afghanistan ranges from 7 months to 65 months. It is observed that the estimated average duration of a project is 41 months (3.4 years) with a standard deviation of 16.1 months.

In table 1, it is seen that out of 53 projects only 34 % of projects were completed within the stipulated time. Another 28% of projects experienced schedule overrun of 20 to 30 months. We can also see projects with marginal delays of 1 to 10 months numbering 3. But there are projects with prolonged delays of up to 60 months. This schedule overrun is even more than the average actual duration of a project observed. The average actual duration of a project is 58 months with a standard deviation of 22.7 months. Comparing the estimated duration and the actual duration, we observe that on an average a project is delayed by 17 months with a standard deviation of 16.39. The descriptive statistics show that the schedule variation for the projects is negative. The delay in projects varies from 6 to 57 months. It is also observed that even a single project is not completed before the planned schedule.

Table 2: World Bank projects cost performance

Cost overrun/under-run (\$US million)	Frequency (no of projects)	Percentage	
Completed within budget	6	11	
1 to 10*	15	28	
11 to 20*	5	9	
21 to 30*	1	2	
1 to 10**	16	30	
11 to 40**	4	8	
41 to 100**	3	6	
165**	1	2	
221**	1	2	
335**	1	2	
Total	53	100	
	Approved budget (US \$ million)	Actual budget (US \$ million)	Variation (US \$ million)
Mean	47.4	64.09	-16.72
SD	73.9	117.50	60.38

* Projects with cost under-run - **Projects with cost overrun

Cost is considered as the most important element in analyzing project performance. Table 2, shows the cost performance of World Bank projects in Afghanistan. Most of the projects are found to be large in terms of budget. The budget estimated for projects varies from 5 to 526 million US dollar. In table 2, it is seen that 11% of projects are implemented within the estimated budget. 21 projects experience cost under-run of US \$ 1 to the US \$30 million.

On the other hand, we can observe that the majority of projects have huge cost overruns.

It is revealed that the average estimated budget for a project is US \$ 47.4 million with a standard deviation of US \$ 73.9 million. While the average actual cost of a project is seen to be US \$ 64.09 million with a standard deviation of US \$ 117.50 million. Since the cost overrun for some projects is very high, the mean cost variation is seen to be negative (US \$ -20.45) which means to say that on an average there is a cost over-run of at least US \$20.45 million for each project. The reasons for such prolonged delays and cost under-run/overrun are discussed in section VI.

Table 3: ICR and IEG outcome rating

Project outcome ratings by ICR and IEG	No of projects (ICR)	Percentage	No of projects (IEG)	Percentage
Highly Satisfactory	2	4	0	0
Satisfactory	22	42	10	19
Moderately Satisfactory	15	28	29	55
Moderately Unsatisfactory	8	15	6	11
Unsatisfactory	6	11	7	13
Highly unsatisfactory	0	0	1	2
Total	53	100	53	100
Mean	4.1		3.8	

The study finds that the majority of projects are rated as satisfactory and moderately satisfactory by Implementation and Completion Reports and Independent Evaluation Group evaluation reviews. To analyze the ratings and to run a Z test we assign numbers for each rating category e. g (6 to highly satisfactory and 1 to highly unsatisfactory). IEG performs an objective based evaluation methodology. So the outcomes are rated against the extent to which the projects relevant objectives are achieved efficiently. The evaluation considers the relevance of objectives, their efficacy, and efficiency.

In table 3, the outcome rating of all 53 projects evaluated by both ICR and IEG is presented. We can see that 4% of projects are rated as highly satisfactory by ICR while IEG does not rate any project the same. Majority of projects fall into satisfactory and moderately satisfactory outcome ratings. We also observe that ICR and IEG rated 11% and 13% of projects as unsatisfactory respectively. One project is rated as highly unsatisfactory by IEG. The average outcome rating for ICR is 4.1 and 3.8 for IEG. Further, the Z test result shows that the mean difference between ICR and IEG outcome rating is not significant.

VI. FINDING AND DISCUSSIONS

The study revealed that the World Bank ID projects in Afghanistan experience prolonged schedule delays and cost under-run/overruns. We have reviewed all 53 ICRs to find out the causes/reasons for such delays and unusual costs in relation to these projects. The most important factors causing projects overrun in relation to project schedule are found to be problems related to security, frequent changes in scope and project restructuring, procurement delays, bureaucracy, and delays in payments.

Security issues: one of the major challenges impeding the implementation of projects in Afghanistan is the prevalence of ongoing conflicts and deteriorating security situations in most of the provinces. The worsening security situation makes it very difficult to attract international expertise and recruit them in such areas.

Change in scope and restructuring; most of the projects reported a change of scope mid-project implementation. Frequent widening or change of project scope by donors and host country has resulted in changing tasks and resource scheduling which have caused delays. Almost 66% of projects experienced delays which most of the times is due to changing the scope and restructuring. Most of the projects were extended up to three times and in most cases more than 12 months each.

Procurement delays: in post-conflict states with low capacity human resources, efficient procurement is not easy. Long bidding processes of the government procurement system, delays in procurement processes by implementing agencies, and lack of experience in international procurement often cause delays in procurements.

Bureaucracy and delays in payments: The clumsy clearance requirement of payments by the government agencies is a major substantial cause of delays. There is an instance reported in ICR that “as many as 40 – 45 signatures were taken for a payment clearance”.

The most important reason for cost overrun is the change in project scope and project restructuring. Major program expansions and project scale-ups in most of the projects also caused huge cost overruns. Underestimation of costs in preparations stage and sometimes depreciation of currency and US dollar to SDR rate fluctuations also have increased the actual costs. On the other hand, parallel financing and intervention in the same area by different donors, local currency depreciation against US dollar, exchange rate fluctuations between SDR and US dollar, and cancellation of funds due (to low absorptive capacity, rigid timelines, delays in implementation and project downsizing) are major causes for project cost under-runs.

VII. CONCLUSION

The study explored the characteristics of World Bank projects in Afghanistan. The projects are medium to large in terms of budget and duration. We analyzed the time and cost related data and information on projects. We also made an evaluation of project outcome ratings.

The study carries out a thorough analysis of time and cost performance of 53 World Bank projects in Afghanistan. We observe that most of the projects experience schedule delays and cost overruns. The actual average duration of a project is found to be 58 months with a negative schedule variation of 17 months. This indicates a schedule overrun of 17 months on average for each project. Security challenges, frequent changes in projects scope and restructuring, procurement delays, bureaucracy and delays in payments are major factors causing delays in the implementation process of projects.

The study further identifies the unusual cost under-run and overrun in relation to projects. Almost 39 % of projects experience a cost under-run of US \$ 1- 30 million. This is due to parallel financing in the same area by other donors, local currency depreciation against US dollar, SDR - US dollar exchange rate fluctuations, fund cancellation, low absorptive capacity, project downsizing and delays in implementation processes. On the other hand, most of the projects witness huge budget overruns with a negative cost variation of US \$ -20.45 on average. The most important causes for cost overruns are program expansion, project scale-ups, and restructuring, underestimation, appreciation of the local currency and SDR to US dollar rate fluctuations. Moreover, the analysis of overall project outcome assessments evaluated in ICR and IEG reports show that the majority of projects are rated as satisfactory and moderately satisfactory. The study covers some of International Development projects performance issues in Afghanistan. However, research findings are relevant to similar ID projects and also applicable to post-conflict and fragile states. This study can be further expanded taken into consideration the impressions of consultants, project team members, and concerned ministries' staff engaged in the process of project implementation, and more importantly local beneficiaries because they are the ultimate customer of ID projects.

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