

# Terminal Evaluation of Public Sector Development Projects: An Analysis of 85 Evaluated Development Projects of Punjab Province

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## Abstract

*Project terminal evaluation, carried out at project closeout stage, is one of the most important tools to determine whether the intended objectives and outcomes from a project have been obtained or not. From July, 2008 to December 2010, Directorate General Monitoring and Evaluation (DGM&E) conducted terminal evaluation of 85 projects of various sectors ranging from Rs. 10 to 300 millions. In this paper, an analysis of 85 evaluated projects has been made. Based on the analysis, it is concluded that mostly desired objectives of the projects were not achieved for which they were designed and implemented. Moreover, in most of the cases projects were revised either for time, cost and scope. Feedback obtained from analysis of evaluation may constructively be used to plan, execute and implement new development scheme for utilization of public spending in most efficient way and to get maximum return of public funds. In this regard, a complete model has been proposed for evaluation of public sector projects, which will help to plan successful development interventions.*

**Key Words:** Evaluation, Public projects, Development schemes, DGM&E, P&D, Punjab.

## 1. Introduction

Fiscal strains and ever-rising expectations from ordinary citizens, accountability pressures from civil society and parliaments, desire for curbing and controlling corruption and other leakages and burgeoning requirements from international donors provide a continuous impetus to governments for enhancing the quantity and quality of government services. Constrained development budget leaves quality improvement as the only viable option. To achieve this objective, governments are increasing the utilization of Monitoring and Evaluation (M&E) which has become an essential element of Good Governance. M&E of development projects results in improvement of their physical effectiveness. An analysis of World Bank development projects shows a significant variation in achievements of interventions with different degrees of M&E as shown in Figure 1 (a). Term "Monitoring" and "Evaluation" are sometimes used interchangeably, however, they are slightly different in real sense and each is performed to attain almost similar objectives. Monitoring is an ongoing process, whereas is a periodic exercise that attempts to assess systematically and objectively output and impact of a project and can be performed more than once in a project gestation period as shown in Figure 1 (b). There are several types of evaluation including terminal evaluation, impact evaluation,

implementation evaluation, out come evaluation and others, however, for the purpose of this study only terminal evaluation is considered, coinciding with the scope of work of DGM&E.

## 2. Literature Review

There are many definitions of "evaluation" in the literature. Rossi and Freeman (1993) define evaluation as "the systematic application of social research procedures for assessing the conceptualization, design, implementation, and utility of ... programs" [1]. Similarly, there are many types of evaluation given in the literature including program and project, formative and summative, terminal and impact evaluation. Terminal evaluation, carried out at project closeout stage, is one of the most important tools to determine whether the intended objectives and outcomes from a project have been obtained or not.

Literature has branded several recognized originators of the evaluation use, as well as its alternative forms. Early studies of the evaluation took a narrow definition that was based on direct observable effects, such as policy change or adoption of a new programme and was called instrumental use [2]. Leviton and Hughes believe that instrumental use is indicated when those engaged in policy or programs would have thought or acted differently in the absence of the information [3]. Patton & Williams introduced

Utilization-Focused Evaluation with the premise that evaluations should be judged by their utility and actual use [4]. Therefore, it can be inferred that the purpose of evaluation is not fulfilled unless it is critically utilized in planning and decision making. Mark and Henry hypothesized that evaluation is closely linked to the types of programmes, policies and practices that affect people’s lives, but itself one step removed from the direct action of these efforts; therefore, most evaluators are drawn to the topic of evaluation use [2]. Kirkhart argues that evaluation influence includes both changes that take place at the location and general time frame of the evaluation and changes that take place elsewhere and later describes three dimensions related to evaluation influence: source, time, and intentions [5]. Mark and Henry further suggest that the focus of influence theory should be on those outcomes such as changes in attitudes about practices or changes in policy that leads towards the ultimate goal of social betterment [2]. Therefore, the influence may include instrumental use, conceptual use, enlightenment and effects on attitudes and actions [7].

### 3. Public Sector Development Projects

Projects may be classified Public and Private sector projects. Public projects are those authorized, financed and operated by federal, provincial, district or local governments. Public projects may be of any size but frequently they are much larger than private ventures. A number of important factors exists that are not ordinarily found in privately financed and operated projects such as purpose, source and method of financing, multipurpose, nature of benefits, beneficiaries of the project and measurement of efficiency. Public sector development projects are initiated with intent of providing multipurpose services e.g. reservoir project for water storage, flood control, electrical power generation, irrigation, recreation and for research and education purposes. Primarily the purpose of the public sector projects is to provide health, education, clean drinking water, sanitation, transportation and housing to general public. Besides providing basic necessities they generate revenue and employment [6]. Although the performance of public sector projects in Punjab has been improved in many aspects over the years, however, their Monitoring and Evaluation (M&E) systems, in particular needs to be improved at various level of project execution.

Punjab has the largest development budget comparing to other provinces of the Country. During 2009-2010, a target of 3128 development projects (including both ongoing and new schemes) having a total investment volume of Rs. 637.5 billion (current year allocation Rs. 182 billion) in Punjab had been set. Social and Infrastructure sector constitute bulk of development funds i.e. 80% as shown in Figure 1 (b). A total of 1754 schemes, out of which 98 are new, belong to Social sector which includes health, education, water supply and sanitation, regional planning and local government departments. Similarly, 1039 projects, out of which 125 are new projects, are for Infrastructure sector which includes building and roads, irrigation, and urban development. DGME’s team, consisting of Engineers, Statisticians and Economists, has been specifically formulated for managing this aspect of development projects.

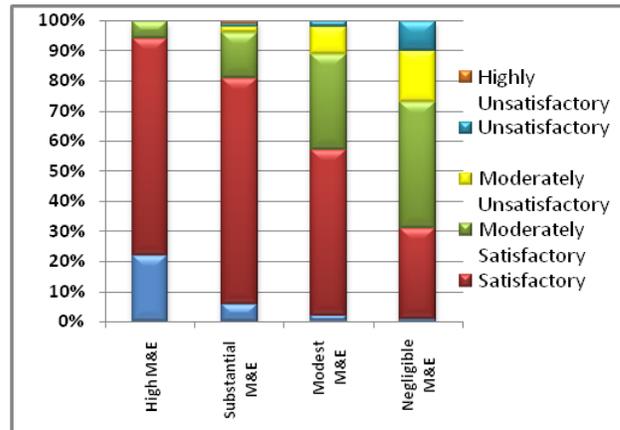


Figure 1(a): Effect of M&E on Results of World Bank Financed Projects (2007-09)

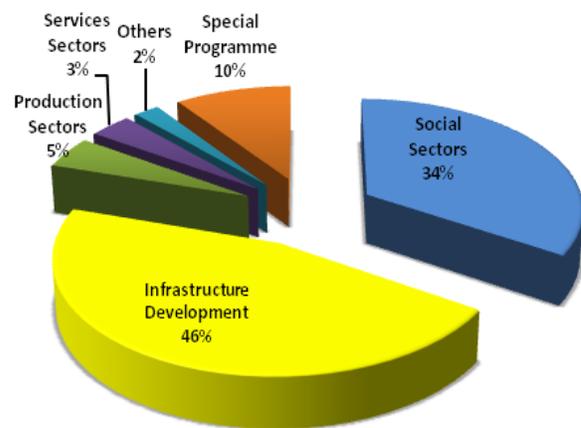


Figure 1(b): Sector wise break up of development funds of Punjab (ADP 2009-10)

### 3.1 Project Life-cycle of public sector projects

Public projects are planned, approved, executed and evaluated as per instructions of Planning Commission, Govt. of Pakistan. The project life of a public sector project includes inception, planning, approval, execution, close out and implementation as shown in Figure 2. At origination stage feasibility study of the proposed project is conducted through PC-II which is also approved by the competent forum. Once project is concluded to be feasible, PC-I of the project is prepared by line department (Figure 2). PC-I is discussed in pre-PDWP meeting convened by concerned sector member of Planning and Development board. On recommendation of pre-PDWP PC-I is placed before PDWP for approval.

After project is approved, periodic funds are released by Finance department for execution of work. During project execution line department submits project performance on PC-III format based on which interim funds are released according to yearly allocation. Once the project is completed department submits project completion report (PC-IV), which is again evaluated by Planning and Development department. Based on the recommendations of Evaluation Committee further decision to transfer

project to non-development side is made, Departments are also supposed to submit PC-V for post completion review of the project.

### 3.2 Terminal Evaluation Of Public Sector Projects

Since July 2008, DGM&E evaluated 85 projects and presented to Evaluation Committee for decision and recommendation. Period wise evaluation of development schemes is given in Figure 3(a), where as graph in Figure 3(b) represents the sector wise distribution of evaluated projects. An analysis for objectives, planned and actual gestation period, planned and actual costs, planned and physical achievement and others of the projects was carried out to find out important aspects which may be utilized efficiently for policy planning and implementation. Standard procedure and guidelines developed by DGM&E were utilized to conduct the evaluation and to attain consistency of results. Standard procedure for evaluation includes formal in house meeting for team formation, guidelines and procedure for project document review, identifying key indicator to measure performance and outcome of the project, site visit and data collection, data analysis and report writing presenting conclusions and recommendations about the project.

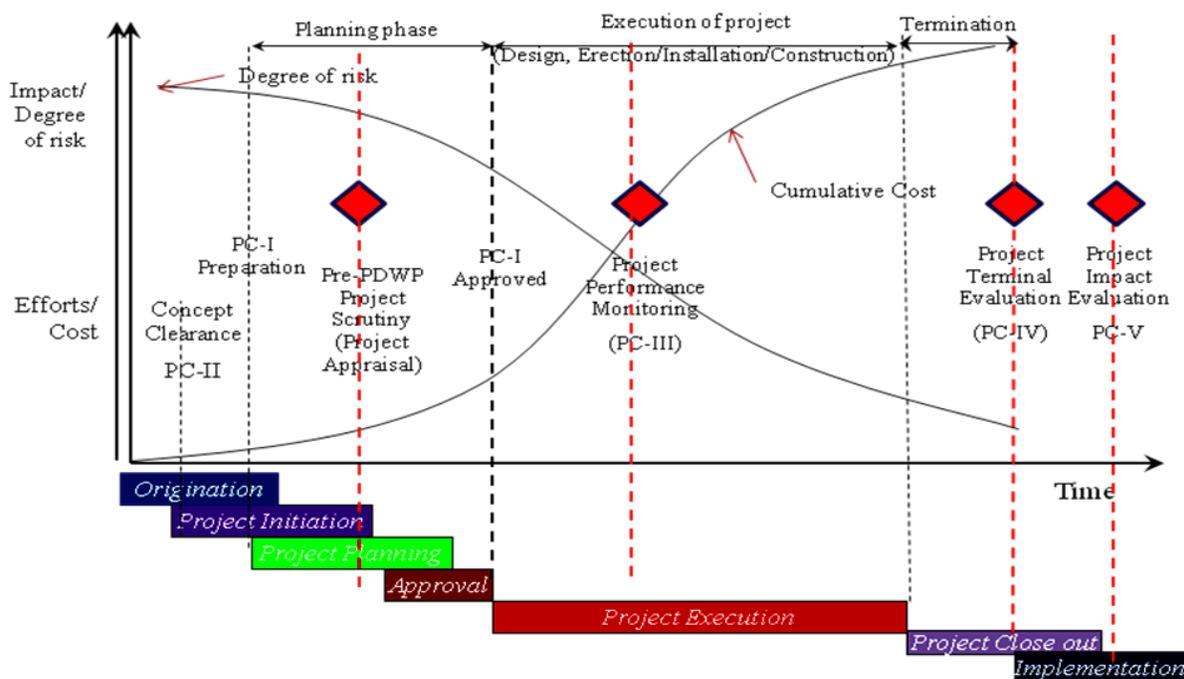
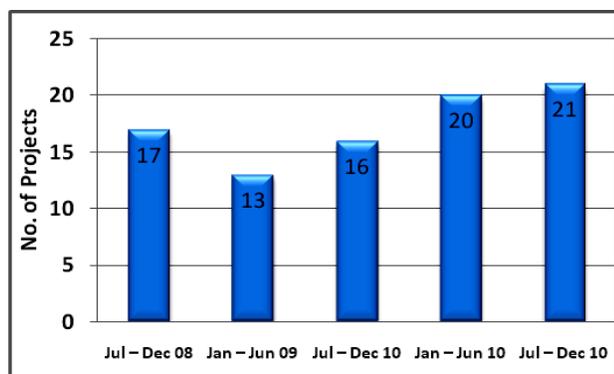
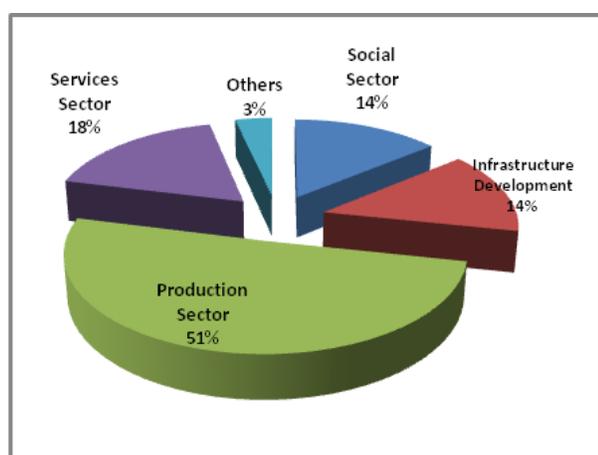


Figure 2: Project Life cycle of Public Sector Development Project



**Figure 3(a):** Evaluation of public sector development project by DGM&E (from July 2008 to December 2010)



**Figure 3(b):** Sectoral Break up of evaluated projects (from July 2008 to December 2010)

#### 4. Methodology of Research

The analysis presented in this paper is based on the terminal evaluation reports of the development projects conducted during the period from July 2008 to January 2011. The analysis of such reports was challenging in a sense that the public sector projects are diverse in their scope, objectives and outcomes; therefore, it is not possible to treat all the projects in a similar behavior. Several Key Performance Indicators (KPIs) were developed which are based on the information available in the project evaluation reports along with the Planning Commission Performa PC-I, PC-II and PC-IV of these projects. The list of the KPIs is provided in Table-1. The analysis was carried out using statistical measures e.g. the averages and standard deviations for quantitative information and the percentages, bar charts and pie charts for qualitative information.

**Table 1:** Key Performance Indicators (KPIs)

Indicator	Description
Planned Cost	Total Approved Planned Cost of the Project in PC-I Performa
Revised Cost	Total Approved Revised Cost of the Project in Revised PC-I Performa
Actual Cost	Total Actual Cost of the Project in PC-IV Performa
Planned Time	Total Approved Planned Time of the Project in PC-I Performa
Revised Time	Total Approved Revised Time of the Project in Revised PC-I Performa
Actual Time	Total Actual Time of the Project in PC-IV Performa
Revisions	Total Number of the Revisions of the Project PC-I Performa
Success Rate	Result of the Evaluation of the Project

Assessment of current standing is always the best way for prognosis of future strategy. A detailed analysis of results of 85 evaluated projects of various sectors has been made. Sectors wise distribution of evaluated projects is given in Figure 3(b), whereas department wise distribution is given in Table-2. Statistical Package for Social Sciences (SPSS) was used to carry out this analysis. Important findings of the analysis are presented in the ensuing paragraphs.

**Table 2:** Department wise detail of evaluated projects

Department	No. of Evaluated Projects
Agriculture	20
TEVTA	17
Livestock	20
Forestry, Wildlife & Fisheries	11
Social Welfare	4
Irrigation & Power	3
Mines & Minerals	2
Food	1
Information Technology	1
PITB	2
P&D (Bureau of Statistics)	1
Environment	1
Culture & Youth Affairs	1
Labor & HR Development	1
<b>Total:</b>	<b>85</b>

## 5. Findings and Discussion

### 5.1 The Size of Cost Overruns and Benefit Shortfalls

Cost overrun is an important aspect which has been exposed through this analysis. Analysis shows that proper cost scheduling of project had not been done. 47 % of total studied projects were revised for cost with the average increase of project cost of Rs. 69.34 million to 98.26 million. An important aspect highlighted during analysis that departments made cost revisions for their projects but the actual costs at completion remained lesser than planned. Similarly, development projects are initiated to achieve specific objectives. If those objectives are not achieved than it constitutes a waste of public money. Projects objectives are the destination of a project team. Analysis clearly depicts that qualitative (immeasurable) objectives outweigh quantitative objectives. In most of the cases (i.e. 68%) of total projects objectives were vague and unquantifiable, which were not measurable to check whether they have been fully achieved or not. The analysis on the other hand shows a very different picture.

### 5.2 Frequent Revisions for Time, Cost or Scope

The revisions of projects show ill planning at inception stage and anticipated risks of the project were not taken into consideration. Total 58% of studied projects i.e. 85 were either revised for time, cost or scope. 29% of total studied projects were revised for both time and cost, whereas, 24% projects were revised for cost only and 5% projects were revised for time only i.e. revised to increase the gestation period of the projects as shown in Figure 4(a). As a matter of fact, there were some projects which were revised thrice in project tenure.

Scope, Time & Cost are the parameters need to be considered for successful project management. Changes in Scope, time and cost parameters of the project estimated so far are plotted in relative terms in the Figure 4(b). Aforementioned triple constraint shows that in all three aspects the projects have failed particularly projects were completed with 7% reduced scope with overall time overrun of 32% and average cost increase of 35%. The above analysis shows that improvement in PC-I is needed on war footings for enhancing the efficiency of public sector project management.

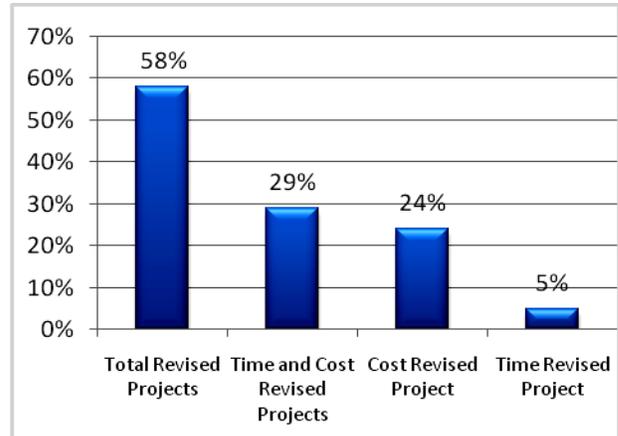


Figure 4(a): Revisions of time and cost

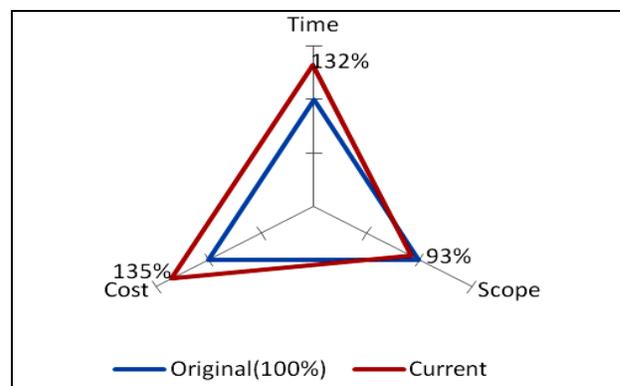


Figure 4(b): Planned v/s actual time, cost and scope of projects

### 5.3 Revisions and Increase of Gestation Period of Projects

Timely completion of project is essential for achieving the aims of intervention. Delays in project result significant increase in direct and indirect cost of the project due to escalation and other indirect expenditure. Therefore, it is of prime importance to complete the project within planned duration. Analysis of 85 evaluated project shows that 29% projects were revised for time and cost and 5% of studied projects were revised for time only resulting increase in average planned gestation period of project of 31 months to actual average gestation period of 41 months as shown in Figure 5(a).

### 5.4 Project Success Rate

All interventions are initiated for success but not all projects were declared as successful on the prescribed guidelines and criteria of project evaluation developed by DGM&E. No project was declared as exceptionally successful and 19% of 85 projects

remained successful. Whereas, 65% of total projects remained partially successful, 9% were declared unsuccessful and 7% projects remained failure i.e. attaining less than 50 percent of intended objectives of the project as shown in Figure 6(a) and (b).

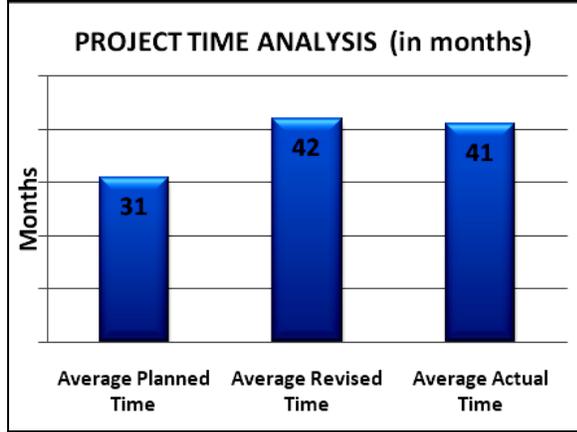


Figure 5(a): Average planned, revised and actual, duration of projects

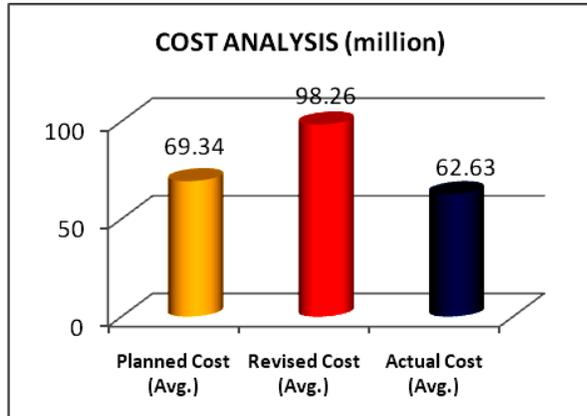


Figure 5(b): Average planned, revised and actual, cost projects

## 6. Remodeling of Evaluation Procedure (Based on Results of Analysis)

Based on the analysis, methodology of project evaluation is remodeled is shown in figure 7 below with component wise detail in ensuing paragraphs.

### STEP 1: Team Formation

To conduct evaluation, in house meeting regarding the brief on the project and formulation of team for monitoring purposes must be held to organize evaluation team. Team may be organized based on the qualification of and experience of individual. If in-house expertise is not available, services of consultants may be hired.

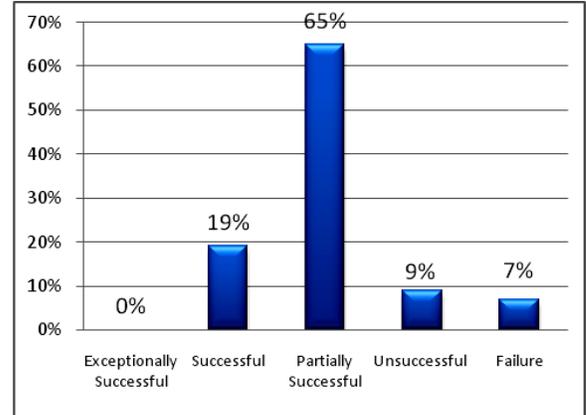


Figure 6(a): Success and failure rate of projects

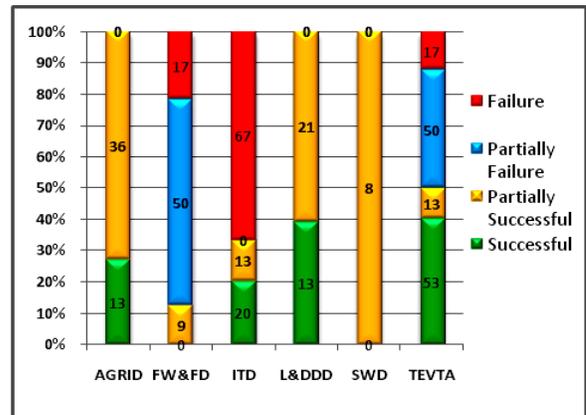


Figure 6(b): Department wise success and failure of projects

### STEP 2: Review of Project Documents

To conduct evaluation, the following project documents may be reviewed;

- PC-I of the project
- PC-II document (in case of feasibility study of the project)
- PC-III document (If internal M&E has been performed)
- PC-IV document coupled with Sponsor Assessment Report (SAR)
- Literature review and Others (if any)

### STEP 3: Identification of Performance Indicators

To validate a project against its planned objectives, first of all the project inputs be converted into measurable performance indicators to obtain a more comprehensive understanding of the project

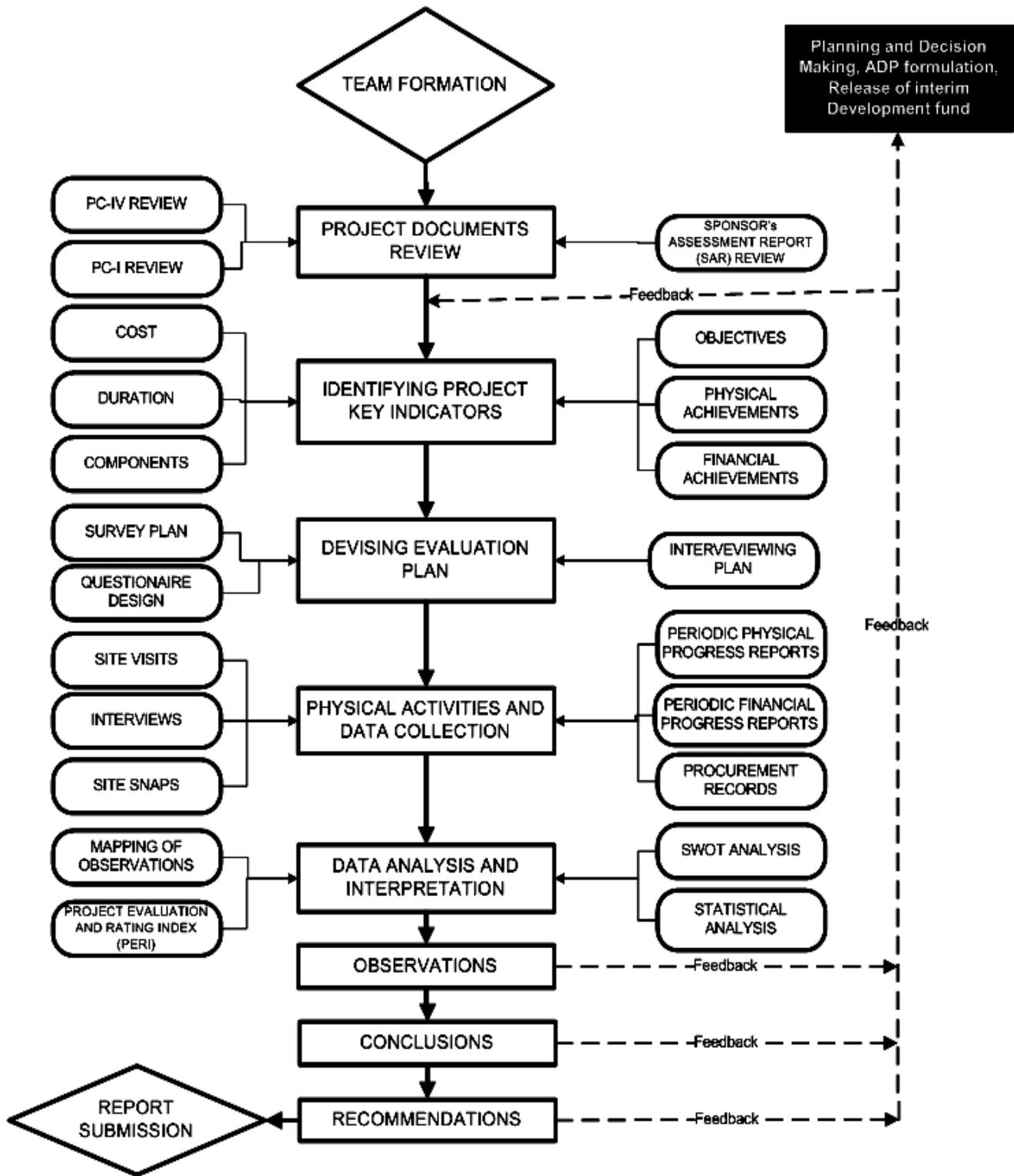


Figure 7: Remodeled methodology (flow chart) for evaluation of public sector projects

achievements during its execution. Indicators need to have an established baseline against which performance may be measured in view of the initial project plan during execution process. Overall M&E indicators to assess the performance of project implementation process can be identified as under;

### **1. Primary Indicators**

- Completion of preliminaries like building, structure, road as per schedule.
- Financial utilization viz-a-viz plan provisions, allocations, fund releases and item-wise cost utilization.
- Physical progress, as per approved work scope.
- Managerial performance (timely decisions, efficiency and controls, inventory level, rate of progress).

### **2. Secondary Indicators**

- Economic parameters (capacity utilization, crop production, yield, growth rate, etc)
- Social parameters (income distribution index, availability of basic needs, etc)
- Technical/qualitative parameters, quality control standards, input usage rate, extension services (transfer of knowledge and technology with adoption rate etc.)
- Environmental parameters (pollution, climate consideration, etc).

### **STEP 4: Devising Evaluation Plan**

After identification and selection of performance indicators, methodology can be devised to plan for data collection against selected indicators along with scheduling project site visits for evaluation purposes. While devising evaluation plan, methods for data collection and analysis are also selected along with survey and interview planning and preparation of questionnaire.

### **STEP 5: Site Visits & Data Collection**

Data collection is the most important step of evaluation process and quality of data directly influence the evaluation results. To collect data against selected indicators after the project closure, different techniques may be applied. Data collection

methods include engineering techniques for construction related projects along with formal/informal methods (including study of project literature, official interviews, surveys, questionnaire, field worker reports, direct observations and applying sampling techniques etc.) for other sectors' projects. Once selecting different data collection techniques, tentative schedule for sampling based visits of project sites may be planned to validate the execution process within a time framework. The methods can vary in cost, accuracy, simplicity and technical expertise required to assess the project activities however, keeping in view the requirement and resources, any appropriate method may be selected.

### **STEP 6: Data Analysis & Interpretation**

After all phases of data collection, the team will scrutinize the raw data collected and prepare it for a format appropriate for analysis. After data collection, data will be processed and analyzed by using any or all of the methods including statistical/non-statistical, mathematical analysis, SWOT analysis and mapping of observation etc. It will be the responsibility of the evaluation team to select the most appropriate method data analysis.

### **STEP 7: Conclusion / Output of Evaluation**

After data analysis and the assessment work including Project Evaluation Rating Index (PERI); a tool developed to gauge the performance of project on rational basis, which rates the project as a successful/failure.

### **STEP 8: Lesson Learnt**

It will include valuable information obtained during evaluation of the project for future policies, strategies, design and implementation to facilitate decision makers on most significant project findings in the form of feed back i.e. performance measurement and efficiency of administrative decisions along with general development lessons aimed at improving development plans and strategies. Lesson Learnt will also be useful as feedback for the executing and sponsoring agency for initiating and executing similar nature of project.

## **7. Conclusions**

1. Keeping in view Sectoral breakup of Annual Development Programme (2009-10) of Punjab, the largest share of public fund is being spent on

infrastructure i.e. 46%, however, 34%, 05%, 04%, 02% and 09%, are spent on Social Sector, Production sector, Services sector, Special programmes and others respectively.

2. Total 58% of studied projects were either revised for time, cost or scope due to one reason or the other. 29% of studied projects were revised for time and cost, whereas, 24% and 5% of studied projects were revised for cost and time respectively. It shows that projects were not carefully planned or scrutinized at inception stage. Projects are initiated with lesser efforts on PC-I preparation and feasibility of project along with its justification and needs.
3. Average gestation period of 85 projects was 31 months, however, the average revised average gestation period remained 42 months, whereas, in actual projects were complete in 41 months averagely.
4. Projects were more frequently revised for cost rather than gestation period. Average cost of 85 projects was remained Rs. 69.34 million, however, the average revised gestation cost of the projects remained Rs. 98.26 million, whereas, in actual projects were completed in Rs. 62.63 million averagely.
5. In most of the cases i.e. 84% objectives of public sector development projects were qualitative, i.e. difficult to evaluate through normal evaluation procedures, whereas, only 12% objectives of the projects were qualitative giving rational basis for evaluation and performance measurement of projects.
6. By and large, no project was concluded as exceptionally successful project, where as 19% of studied project remained successful, 65% of studied project remained partially successful, 9% of studied project remained unsuccessful and 7% of studied project remained failure. Sector wise, Services Sector had the major failure rate of executed projects, whereas, department wise Information Technology department had maximum failure rate of the projects followed by Forestry, Wildlife and Fishery department.

## 8. Recommendations

1. Projects were more frequently revised for cost rather than gestation period. Therefore, more focus is required on financial planning of public sector development projects.
2. With reference to conclusion No. 6, it is recommended that object of project selected by the planners must be in quantifiable terms to evaluate the project effectively.
3. One of the major reasons for project delays and cost overrun was that the projects were not properly planned at inception stage and most of the departments tend to utilize their ADP funds to initiate a project, regardless of their immense need, requirement and evaluation recommendations. Planning is the most critical stage in which risks are highest about the success or failure of any intervention. Therefore, improvement in PC-I format, preparation by line department and scrutiny/approval in P&D department is needed on war footings for enhancing the efficiency of public sector project management.
4. Evaluation has come a long way since its timid beginnings. It is not a luxury but a vital necessity and improves effectiveness of the development projects. Therefore, use of lesson learned and feed back of evaluated project is of prime importance and must be used in planning, approval, execution and interim releases of the public sector development projects as proposed in Figure 7.

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