ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

FACULTY OF BUSINESS AND ECONOMICS DEPARTMENT OF PUBLIC ADMINISTRATION AND DEVELOPMENT MANAGEMENT

ASSESSING THE EFFECTIVENESS OF MONITORING AND EVALUATION SYSTEMS OF ROAD CONSTRUCTION PROJECTS:

THE CASE OF ADDIS ABABA CITY ROAD AUTHORITY

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN PUBLIC ADMINISTRATION

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June, 2008

Addis Ababa

Addis Ababa University

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Assessing the Effectiveness of Monitoring and Evaluation Systems of Road Construction Projects:

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ABSTRACT

The ultimate purpose of this study was to explore and assess the problems in the existing system of road construction projects in Addis Ababa, with regard to monitoring and evaluation (M&E).

To this end, an opinion survey study was designed by taking project managers, resident engineers and counterpart engineers of the road project in the city as target population and as a primary source of data. Accordingly, primary data was collected through questionnaire and personal interview; and secondary data by referring books, journals and documents from within and out of AACRA. The gathered data is described and interpreted using simple descriptive statistics in the form of likely and contradicting opinions of the sample respondents.

The findings of the study have revealed that the monitoring and evaluation system has some strong qualities that have to be maintained and nourished. For instance, strength is exhibited in attempting to follow international consultancy and contract standards, in developing standard specifications, in publicizing tenders and in preparing reports regularly. On the other hand, the study observed, some weak points of the system that require improvement and consideration. This has been noticed in effecting terms of contract, in solving problems on time, in having shallow objectives and performance indicators, in the absence of computerized project information system, in participating citizens in evaluation of projects and in others.

Finally, the study forwards tentative suggestions that may help the M&E system to make road projects more efficient and effective. Such as expanding of performance indicators, introducing trouble shooting reports, project information system, participatory approach to evaluation and others.

ACRONYMS

AACRA	Addis Ababa City Road Authority
ADB	Africa Development Bank
ADF	Africa Development Fund
BADEA	Bank of Arab for Economic Development in Africa
COI	Conflict of Interest
CPE	Counterpart Engineer
CPM	Critical Path Method
CRBC	China Road and Bridge Construction
DFID	Department for International Development (UK)
EC	Ethiopian Calendar
ERA	Ethiopian Road Authority
EU	European Union
FIDIC	International Federation for Civil Engineers
IDA	International Development Association
IDP -	International Development Bank
IEG	Independent Evaluation Group
IHA	Imperial Highway Authority
IMF	International Monetary Fund
M&E	Monitoring and Evaluation
MDG-	Millennium Development Goals
MSC	Masters of Science
NGO	Non Governmental Organizations
OPED	Operation Evaluation Department
PERT	Performance, Evaluation and Review Technique
PM	Project Manager
PMIS	Project Management Information System
PPA	Public Procurement Agency
RE	Resident Engineer
RSDP	Road Sector Development program
SPSS	Statistical Packages for Social Studies
UDP	Urban Development Department
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WB	World Bank

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CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The construction industry plays a vital role in the socio-economic development of any nation. Mainly, in developing countries like Ethiopia where there is a lack of infrastructure, poverty is wide spread, resources are inadequately distributed and productivity and technology is substantially low, it is so difficult to attain development objectives and to think about progress without construction in general and without road construction in particular.

'Construction is a $ 1.7 trillion industry worldwide, amounting between 5 and 7 % of GDP in most countries, it accounts for a significant part of global capital formation a little under one third.' Kenny (2007: preface)

'Road transport is particularly important for developing countries, where it provides about 80 to 90 % of the total inland and/or border crossing transport of people and goods.' Cessor and Gautoh (2001: 2)

The above two statements show how the overall growth of the construction industry is increasing and how it is drawing the attention of policy makers, administrators at all levels and development organizations

Road transport not only plays multifaceted role in development objectives but also helps to attain an effective distribution of population, industry and income. Reduction of poverty, expansion of welfare to citizens and socio-economic transformation toward industrialization and modernization are, therefore, unthinkable without adequate and quality road transport facilities.

Specially, in cities like Addis Ababa which have infrastructural services below minimum standard and with almost 100% road dominated transport, the road facility is not only an essential tool toward development but it is also highly linked with the life of citizens.

Addis Ababa is a city which hosts the largest number of urban population in the country, a seat of many national, regional and international organizations, and almost the heart of Ethiopia. However, the city has inadequate and poor condition of road facilities that do not fit with the new developments in the country. The rugged terrain of the city, the massive influx of cars following the free market economy and the unplanned nature of existing houses and buildings makes the matter more complex. The problem has aggravated congestions and car accidents from time to time. And it has an adverse effect on the country's fragile economy and it is leading to unnecessary time and fuel wastage, which is costly to the country.

In light of this, the Ethiopian Roads Authority (ERA) at federal level and the Addis Ababa City Road Authority (AACRA) claim that currently there is a move at national level as well as by the City Government in collaboration with other donors to enhance accessibility and safe mobility through out Ethiopia and to support economic development by providing access to economic opportunities.

As explained in the ten years Road Sector Development Program (RSDP) performance report of 2007, to address the constraints in the road sector related to limited road network coverage and low road standards, the government has formulated a 10 years road sector development in 1997.

In this regard, it could be said that a due attention is given and a significant amount of money (capital expenditure) has been spent for the sector. For instance,

> *Within 10 years (1997-2007) period of the development program a total of 78,569 km of roads were constructed, upgraded, rehabilitated and maintained at national level. The total cost of projects planned and executed during the same period amounted to be 25.4 billion Ethiopian Birr (ERA RSDP 1997-2007).*

There is also a continual program extended from 2007-2010, which requires a total cost of 35.2 billon birr, and it is expected to be financed by: IDA, EU, ADB, BADEA, and other individual countries.

The Addis Ababa City Road Authority (AACRA) which works independently from the federal Ethiopian Road Authority (ERA) has on the other hand disbursed "about 2.2 billion birr for the last five fiscal years from 1995-1999 EC and has a plan of expending 6 billion* birr capital budget for the coming four years (2000-2003 EC) for road construction projects in Addis Ababa.

To spend such a large amount of capital expenditure for a country like Ethiopia, somehow shows that there is recognition, of the importance of the road transport in supporting socio-economic growth and of its positive impact in achieving poverty reduction objectives.

To realize the intended development objectives and utilize this large amount of capital expenditure in a proper and responsible manner, however, each road construction project requires *appropriate project planning, project implementation and effective M& E as well.* The weak economic condition of our country demands efficient management of road construction projects that effectively reduce construction cost and time without sacrificing the specified quality. The need for good management, performance and monitoring systems of road construction projects emanates not only from the limited and unreliable resource we have but, as other projects do, road projects have long term effect, involve substantial outlay and once they are launched, it is difficult to reverse.

Thus, the requirement for appropriate and effective M&E system of projects at all levels that enhances relevance, efficiency, effectiveness, safety and environmental friendliness of road projects seems vital and timely.

The current construction projects of Addis Ababa are under the management and supervision of AACRA. The authority handles these projects by contracting them out to other contractors or by its own human and capital resources. And the contractors could be

* It doesn't include the budget currently asked to the City Government

from other foreign countries or from domestic sources. The authority also uses road design consultants to offset shortage of professionals. This shows how the construction process involves several specialists with diverse skills and passes through several distinct phases. Hence, since the construction projects in general and of road projects in particular is a risky, complex and lengthy process, to get the right service delivery from this industry, the requirement for M &E system in the sector seems central.

This research, therefore, aims at portraying the problems of the existing M&E systems of road projects, by focusing on the monitoring during construction and, to some extent, on the bidding process, assessing the role of M&E in enhancing the performance of those independently managed and evaluated road projects in Addis Ababa, and in coming up with some intervening solutions to mitigate the problems found.

1.2. Statement of the Problem

Road construction projects are designed /planned to be completed within predetermined time period. Unfortunately, many projects do not get completed in time and this delay results in cost overruns. This calls for M&E systems that identify problems of projects for decisions to be taken in due time.

'The performance of construction projects in developing countries has puzzled governments and policy makers, international development financers and practitioners in the field' Wubshet, (2004: preface).

The above statement tells that the real performances of construction projects mainly of road projects are not as they have to be and as planners and administrators expected them. The problem seems to be more serious with Ethiopian contractors than with foreigners.

As it is being observed from the ground and as many dwellers claim it, this reality is so pervasive in Addis Ababa. Though the size of projects done is increasing from time to time, adding beauty to our capital and contributing to traffic relief, their quality, sustainability and efficiency is not as reliable as planned or promised.

These project delays are incurring a high cost to both the contractor and the client. They are also creating high inconvenience and dissatisfaction to the city's dwellers by blocking roads for a relatively longer time. This in turn has adverse impact on the productivity of business and public enterprises, on traffic congestion and car collisions, and on fuel consumption, which is highly scarce in the country. Additionally, if these projects are not implemented in proper manner, the poor are to be hurt with greater proportion by improper use of funds, by consuming much time, by lagging government's ability to provide basic services, and by discouraging investment and aid.

This situation seriously affects the weak economy of the country in general and of the city in particular, unless the causes of the problems that affect the projects are adequately identified and receive adequate consideration through *appropriate M&E stretched from project level control to city, regional and national supervising authorities* and at all phases of the project starting from design and bid preparation to the completion of the project.

Though it may require a further and deeper study in the area, these problems could be attributed to many reasons. For instance, possible factors could be starting projects without full preparation and inadequate capital; inefficient plan, management, and supervision of project managers and supervisors; poor workmanship, motivation, work attitude and technical capacity of lower level workers and unskilled technicians; poor coordination and integration between stakeholders, poor or inadequate supply of construction materials; delayed payment to contractors; right of way and other problems, but the main portion of the problems seem to be interwoven with the M&E systems of the projects and with concerned authorities at different levels.

This research, therefore, attempts to asses the effectiveness of the current M& E system of road projects in Addis Ababa taking projects as well as authorities into account focusing on the bidding process and implementation.

The assumption is quality could be maintained, delay minimized, cost reduced, safety and environmental friendliness improved if M&E system is considered at macro and micro levels and if appropriate decisions are given in time.

To this end, the study explores how M&E issues are entrenched in the tendering process of works, on how mobilization and coordination of projects is being evaluated, how the supervision is conducted during construction to reveal problems as occurred, how the reporting system is organized to assist timely decisions, to what extent citizens are participating in the planning phase, during construction and after completion of projects, and in general how M&E is designed to show the effectiveness and the efficiency of contracted road projects in the city.

1.2.1. Objectives of the Study

In light of the above problem statement, the general objective of the study is to assess the effectiveness of M&E systems of road construction projects in Addis Ababa.

And the specific objectives are:

1. To clearly understand the existing system of M&E and to reveal problems road projects encounter during bidding and construction,
2. To evaluate and critically assess the appropriateness and effectiveness of the current monitoring systems of road construction projects; and
3. To recommend feasible measures that can be taken to improve the M& E systems of road projects.

1.2.2. Significance of the Study

The findings of this study are assumed to be important for road authorities, administrators and project managers to identify the root causes of road construction project M&E system problems in the city and to find ways to ensure the completion of these projects in time, within the realm of their budget and in accordance with the desired quality using appropriate M&E systems.

The findings of the research may also be informative inputs for formulating policies and strategies in monitoring projects and implementing the same at national level.

The study will, hopefully, give a modest insight to researchers, project managers and administrators, and academicians.

1.2.3. Research Questions

The study attempts to investigate its point of interest via the following research questions:

- Do projects have clear objectives and are they closely linked with the general development objectives?
- What are the performance indicators being used in the evaluation and monitoring of projects?
- Is there a proper pre, ongoing and post project evaluation?
- What are the M&E tools used to collect and evaluate information of projects?
- Is the tendering process to contractors and consultants fair and transparent?
- Is the citizen (taxpayer) properly represented in the planning and evaluation of projects?
- Are projects properly coordinated across different infrastructural projects and stakeholders?
- Is there a proper reporting and information system to assist decisions?
- Are performance defects remedied in time?
- Do projects and authorities have effective M&E system to enhance the performance of projects?

1.3. Research Methodology

1.3.1. Research Design

The research is basically an exploratory type attempting to diagnose the main problems and challenges of M&E system of road construction project in Addis Ababa city.

Of course some descriptive analysis is made in order to measure opinions and perceptions of main participants in the road constructions and opinions of other stakeholders. Attempt has also been made to describe the difference and similarities of opinions and attitudes between different parties (stakeholders) of the road construction industry.

1.3.2. Data Collection Tools

To assess the problems and to evaluate the M&E system of road projects in the city, the data collection tool designed and conducted are *questionnaire* and *semi structured personal interview.*

Accordingly, for the opinion survey, a questionnaire is designed to gather opinions from the targets of the study. The questionnaire contains six parts (bidding process, mobilization of resources, monitoring during construction, the reporting and decision system, the overall effectiveness of the M&E system of AACRA and personal data), which are assumed to be basic factors to investigate the effectiveness of the road construction system. (The detail questionnaire is shown in Annex I)

A semi-structured interview focused on the general development of projects, coordination, and participation of citizens in the projects, evaluation and impact analysis was also designed and conducted upon the plan. In this regard, 12 key informants from AACRA management, municipality of the city, contractors, consultants and other stakeholders were selected and interviewed along with few beneficiaries (citizens) selected randomly. (The guidance for semi- structured interview and the names of the key informants are in annexes II & III)

1.3.3. Data Sources

The resident engineers who work on behalf of consultants, the counter part engineers who are assigned by the Roads authority and the project manager who works for the contractors, in other words those who are so close to and direct participants of the supervision and management of each contracted road project in Addis Ababa were considered as principal primary sources of data for the opinion survey made through the questionnaire. (Size of sample respondents is shown in Table 1).

Additionally, relevant information has been gathered from top managers of AACRA and the city's municipality, from selected consultants and from contractors through interview. Some beneficiaries (citizens) of these projects and some media were also sources of data mainly for questions related to problems faced during constructions, on society's role in planning, construction and monitoring of road projects and other pertinent issues.

Significant secondary data is gathered from books, journals, Internet, ERA library, AACRA planning and program service, and from AACRA Contact Administration and Supervision Documentation.

Regarding population of the study, the completed and under way road projects in the city are known and limited in number. Based on the information collected from documentations, and from preliminary interviews made with those concerned, the number of resident engineers, counterpart engineers and project managers involved in the past five years and who currently work in road constructions in the city are estimated to be about 110. Accordingly the original sample plan was to cover 50% of the target population and selection was made randomly upon accessibility and willingness.

For the semi-structured interview survey few contractors, consultants, the municipality and beneficiaries have been selected as key informants based on judgmental sampling. (The Size of *Distributed and Responded questionnaires are shown in table 1 below)*

Table 1 Distributed and collected questionnaires

Distributed	Distributed	Responded	Not completed/ rejected	Analyzed	Response rate in %
Resident Engineer	30	23	3	20	67
Project managers	30	20	2	18	60
Counterpart Engineer	6	4	2	4	67
Total	66	47	5	42	64

Source: Own Survey Data

1.3.4. Data Analysis

The analysis is to relay the gaps in M&E from responses of various stakeholders. It attempts to describe the opinions of target respondents using simple descriptive statistics (percentages and averages) first, and then attempts to draw implications of responses on the system. Similarities and conflicts of opinion among different group of respondents (stakeholders) on the some questions (factors) is also sought using SPSS cross tabulation. But in many cases results are interpreted in terms of likely responses using percentages and averages, validity tests and other further analysis are not take place. Comparison is also made between the conceptual frameworks, the contract documents and reports of the authority, with the opinions collected through the questionnaire and interview.

1.4. Scope and Limitation of the study

Scope: regarding the time frame, the study covers road projects constructed in the past 5 years and those currently under construction works. The study concentrates on those new and large expansion projects, which are supervised by contracting out and using consultants. The reason for focusing on these projects is that, unlike former days, these projects are increasing in number and these days they cover a large portion of road projects in the city.

In terms of purpose, the main goal of the study is not to assess the over all engineering and technical capacity, specification and contracts of these projects but to investigate how the management at higher level (authorities) are monitoring and evaluating the projects from conception to completion to enhance performance and to achieve organizational developmental objectives.

Limitation: since AACRA is only a decade old (established in 1998), the documentation system is infant, not well-organized and not rich in data. Hence, it is difficult to get a complete, summarized, historical and current data.

As the road projects are complex and are handled by tripartite agreements (contracts), the target population is dispersed almost throughout the city. Therefore to access all relevant data within the budgeted time was a chronic hardship to the researcher.

The willingness, accessibility and sensitive attitude toward surveys (questionnaires, interviews or otherwise) of some consultants, contractors and road authority officers was not also as positive as expected. The attitude of our society to the minimal sharing of ideas was also another limitation.

1.5. Operational Definitions

- **Client:** Is the owner of the road projects and who initiates the construction process. For this study AACRA is the public sector client, and owns and manages the road works on behalf of the public and his acts are governed by Addis Ababa City Government.
- **Consultant:** Is a construction professional with diverse skills, and offers design and management services for fee.
- **Contractor:** Is essentially a commercial company (individual or organization), who constructs the road works based on specified contracts.
- **Citizens:** are tax payers and the ultimate owners of public projects like roads. They are beneficiaries of good results and victims of many problems in the construction process as well.
- **Public Sector Agencies and Authorities:** Federal and Local Authorities and public agencies that contribute to the success of construction through regulations, directions, and coordination of activities.
- **Financers:** The Federal and City/Local Governments, Road Fund, the Community, International Organizations and other countries who support the construction

through budget, loan and aid. In this study case the fund for contracted projects is principally funded from Addis Ababa City Government and Road Fund.

- **Resident Engineer (RE):** an engineer assigned by the consultant for a project and responsible to supervise the contractor's activity and administer contract on behalf of the client.
- **Project Manager (PM) :** A person who is assigned by the contractor and responsible to plan, implement and control the task of the project to meet project contract objectives
- **Counterpart Engineer (CPE):** an engineer assigned by a client (in this case by AACRA) to the project for following up and to facilitate operation.
- **Monitoring:** critical management tool for tracking or measuring what is happening in the road construction process.
- **Evaluation:** periodic review of performance and important tool for learning and ensuring accountability.
- **Base line data:** Facts about the condition or performance of a project /subject prior to programs application/construction used for evaluation before program starts.
- **Ex-ante evaluation:** An appraisal of situation before development of a program /project commences.
- **Ex-post evaluation:** Evaluation of performance /project after it has been complete.
- **Mid term evaluation:** Evaluation carried out during implementation.
- **Participatory evaluation:** An approach to the collective examination and assessment of a project / program by stakeholders.
- **Right of way:** Clearing the road construction area before project work commences.
- **Conflict of Interest:** Is a situation in which a consultant provides biased professional advice in order to obtain un due benefit for him/her self or affiliates
- **Indicator:-** Objective measure of change/result brought about by project/activity

1.6. Thematic Organization of the Study

The final out put of the research is organized and presented into five chapters.

Chapter 1: Is the *Introduction* of the research paper and it discusses the background of the problem, the problem statement the objectives and the significance of the study, the scope and the limitations of the research. It also explains the research methodology employed in collecting and presenting the data.

Chapter 2: Is on Monitoring and Evaluation of Projects: A *Conceptual framework*

By referring to different books, journals and studies, the chapter attempts to summarize the relevant concepts, approaches and tools regarding the M&E of projects.

The considerable budget it demands, the complexity, the technical expertise it requires; and the risky and less predictability nature of road construction projects usually call for contractors and consultants. Accordingly issues of the contract and consultancy service in the construction industry are discussed in brief.

Chapter 3: Explains *the Monitoring and Evaluation Situation of Addis Ababa City Road Authority.* Using document analysis and interviews, it describes how the existing M&E system is functioning and how it is contributing to the performance of the projects. The available tools and approaches, performance indicators, and the reporting system used by the authority are discussed including the structure and objective of the road authorities.

Chapter 4: Is concerned with *Findings.* The data/information collected through opinion survey, personal interview, and document analysis, is described qualitatively and analyzed using descriptive statistical tools.

Chapter 5: This chapter delivers *conclusions* drawn from the analysis and the *recommendations* made in view of the conclusions.

CHAPTER TWO

MONITORING AND EVALUATION OF PROJECTS: A CONCEPTUAL FRAMEWORK

The poor quality outcome, unnecessarily delay and cost overrun problems in developing countries including Ethiopia, create a demand by all stakeholders (government agencies, donors, citizens and others) for systems of monitoring, evaluation and accountability. A well-designed M&E has come to be highly demanded because of the considerable amount of money budgeted to infrastructure projects mainly to road construction projects, the rapid expansion of international development assistance to the sector since 1970's, the accountability and transparency issues arising from civil societies and tax payers, and some corrupt practices existing in developing countries.

As stated in EMI (2002:2) *''M&E provides macro and micro level description and analysis respectively of the process and effects of project activities to program or project managers/ administrators and designers and to those who allocate resources'*

Though the monitoring and evaluation systems at different levels (micro/project, program, ministry/authority and national/macro) are varied in scope (in terms of required information, size of parties involved in the process and power of decision making); to be effective all should have well designed components, appropriate data collection tools and reporting systems that contribute something to the performance management of each level.

Accordingly, the conceptual frame work of the study attempts to discuss the relevant concepts, approaches, components, data collection tools and reporting systems of M&E systems of projects. Since road construction projects are more complex and governed by contracts, nature of the construction industry, contract elements and consultancy services are also dealt in brief.

2.1. Concepts and Approaches of Monitoring and Evaluation

2.1.1. Purpose of Monitoring and Evaluation

Creating a system of control and accountability, which can provide rapid feed back to policy makers, planners and managers in the performance and potential problems of development programs and projects are very crucial

Monitoring and evaluation is increasingly recognized as an indispensable tool of both project and performance management. Krawford and Bryce (2003: preface) writes *'Project M&E is a method of enhancing the efficiency and effectiveness of project implementation.'*

The urban development program of the World Bank also summarizes the benefits of effective M&E systems as follows:

- Provide constant feedback on the extent to which projects are achieving their goals.
- Identify potential problems at an early stage and propose possible solutions.
- Monitor the accessibility of the project to all sectors of the target population.
- Monitor the efficiency with which the different components of the project are being implemented and suggest improvements.
- Evaluate the extent to which the project is able to achieve its general objectives.
- Provide guidelines for the planning of future projects and give feedback as to the design of new initiatives. (Bamberger Cited in WWW WB OPED)

2.1.2. Concepts of Monitoring and Evaluation

i. Monitoring

Though the definitions given to M&E are slightly different from one book to another, the real essence is similar. Bamberger, for instance, defines monitoring, as: *'a continuous assessment of project implementation in relation to agreed schedules, and to the use of inputs, infrastructure, and services by project beneficiaries'*. UNDP Manual (2008: 3)

As stated in the introduction part of this thesis, monitoring is the continuous and systematic collection of information over the life of the project, which allows making adjustments and defining objectives to be refined.

Monitoring involves setting indicators of achievement or progress together with the means to measure of these indicators. Hence, *monitoring* is a type of evaluation performed while the project/ work is being implemented and it is a basic part of project implementation management.

Types of monitoring

Monitoring can be made on the process monitoring and impact monitoring

'Process monitoring: involves about the use of resources, the progress of activities,) and the way there are carried out in a process monitoring' Girma, (2044: 8). Therefore, it is a means for reviewing and planning work on a regular basis.

Impact monitoring: on the other hand, is carried out to evaluate whether the economic, social, organizational, technological resulted by intended or unintended results.

The following have to be closely monitored in projects:

a) *Program/physical progress*: This is directed to assist managers and owners of the project in keeping a check on whether activities in the project are up to the schedule and within the budget.

b) *Financial progress monitoring:* Owners, managers and administrators are also concerned with measuring financial progress. This has to do with the total project budget, ascertaining the costs of individual items and activities comparing them to the original estimate.

   This process also requires the aptly monitoring of the cost incurred and committed for each item and activity in the work break down structures.

c) Beneficiary Contact Monitoring: In project management, it is important to know whether the output/ services provided are being accepted by intended beneficiaries and how they are being integrated into the existing systems. The

monitoring staff can develop many useful insights by talking to project beneficiaries and summarizing their comments.

ii. Evaluation

Evaluation, on the other hand, is a systematic and periodic gathering, analysis and interpretation of inputs or information on the effects and impacts of a project. In other words, it is an assessment of both the functioning of project/construction activities in the context of implementation schedule, and of the use of project inputs by the project in the context of design/ plan expectations.

'Evaluation *is a periodic assessment of project's relevance, performance, efficiency and impact (both expected and unexpected) in relation to stated objectives.' WWW* WB OPED (2008)

Types of Evaluation

Even if the evaluation function differs depending on the type of project, it can be seen in two ways i.e. in periods of evaluation and on persons who are evaluating.

Based on the periods there are four types of evaluations.

i. **Ex-ante Evaluation**: It which is carried out before the implementation of the program/project in order to assess the feasibility, potential effect and impact of the proposed project. Many projects aimed at developing infrastructures like road construction projects which require a substantive amount of investment can be conducted in the form of baseline study in which the situation of the project area, the target group and its environment is described. At a later stage, the effects and impacts of the program or project can be compared with this situation.

ii. **Mid-term or Ongoing Evaluation**: It takes place while the implementation of the planned project is on progress. Its primary focus is on project performance and enables managers and agencies to make a timely correction in the project on the basis of findings and recommendations. It can lead to suitable modifications in the project design and implementation strategies.

iii. **Terminal Evaluation**: Also known as a project completion report, it is conducted when the funding for projects and the work comes to an end. The distinguishing features of terminal evaluation are that

- It takes longer time for review of the initial inputs and effects,
- It undertakes a careful examination of performance; and
- It assesses the sustainability of the benefits allowing the target group for the project and rate of return on investment is assessed mainly for profit oriented projects.

iv. **Ex-post Evaluation**: It is often called impact evaluation. Though the effect and impact of projects of infrastructure like roads is difficult to evaluate, it is designed as in-depth studies of the impact of a project that has been already executed or an intervention (support) given for certain development activities.

It is made sometime after project activity has been terminated, in order to determine the impact on the target group and the local area.

Impact analysis /evaluation is, therefore, the systematic identification of the effects positive or negative, on individuals house hold (citizen), institutions, the environment and on society in general caused by a given development program or project.

Finally, evaluation can be classified into internal and external.

Internal Evaluation: It is performed by persons who have a direct role in the implementation/ project. On going or mid-term evaluation can be done by the management team or persons assigned from the implementing agency.

External evaluation: Here the evaluation is carried out by persons from outside the program /project. Terminal and ex-post evaluation is often conducted by external evaluators, in most cases, by authorities; it is conducted by the ministries, by funding /sponsor agencies with formally designated persons outside the project at fixed point in time.

iii. Differences and Similarities between Monitoring and Evaluation

M&E are complementary functions in managing and supervising projects. They are separate but related functions of managing development projects including road construction projects. While monitoring is the basic part of the implementation, evaluation is a periodic review of the whole process even after completion of projects.

A handbook from USAID ETHIOPIA (1997) summarizes the difference and complementarities of M&E as depicted in Tables 2 and 3. Apart from their other features, the data collection and analysis system of both is for instance; almost the same and the indicators for monitoring may be included in the range of information required for evaluation.

Table 2: Major Differences between M&E

	Monitoring	Evaluation
Objective	• to determine the efficiency and legitimacy of the application and use of inputs as well as their conversion into out puts • to facilitate an adjustment of activity plans, time schedules or budgets.	• To determine whether the objective set were realistic, given the capacities with which and the circumstances in which they had to be fulfilled • To undertake review of things done i.e assess the impact of the project activities
Reference period (frequency)	• It takes place during the execution of a program/ project activity • It is a continuous feed back system that remains in force through out the program/ project implementation stage. • Focus on in puts, process, out put and work plan	• Carried out periodically i.e before the implementation of the program/ project and on different periods while the planned activities are on progress as well as after it become operative • Focus on effectiveness relevance of impact and cost effectiveness
Primary user	• It is a tool for project managers to use in judging and influence the progress of implementation	• Results are used by funding agencies and the relevant institution in future program /project design
Data gathered	• Primary quantitative	• Primary qualitative

Source USAID/ Ethiopia workshop handout (1997:8)

Table 3: ComplementaryFeatures of M&E

Monitoring	Evaluation
• Implementation oriented	• Policy oriented
• Task results	• Explain result
• Assessing intermediate results	• Asses attributes
• Focus on timeliness	• Focus in rigor
• Emphasis on multi level results	• Emphasis or final results
• Informs budgeting	• Informs broad resource allocation
• Strengthens accountability for managing results	• Strengthens accountability for results them selves.
• Essential for program implementation and improvements	• Essential for strategic development
• Can use disaggregated data	• May need aggregated data

Source USAID/ Ethiopia workshop handout (1997:9)

2.1.3. Approaches to Monitoring and Evaluation

I. The Logical framework approach

The logical framework approach is a widely recognized project evaluation approach. The logical framework (log frame) helps to clarify objectives of any project, program or policy. It aids in the identification of the expected causal links of the program "Logic" in the results chain: inputs, processes, outputs (including coverage) outcomes and impact 'Log *frame is a vehicle for engaging partners and in clarifying objectives and designing activities.'* Carrin and A. Good (2004: 3) write.

Log Frame also leads to the identification of performance indicators at each stage in work chain, as well as risks, which might impede the attainment of objectives.

Using categories of logical framework, it is possible to link different forms of evaluation with different purposes at different times during the project.

'The Logical Framework has the following advantages:

- *It brings together in one place a statement of all the key components of a project (this is particularly helpful when there is a change of staff)*
- *It presents them in a systematic, concise and coherent way, thus clarifying and exposing the logic of how the project is expected to work*
- *It separates out the various levels in the hierarchy of objectives, helping to ensure that inputs and outputs are not confused with each other or with objectives and that wider ranging objectives are not overlooked*

- *It clarifies the relationships which underlie judgments about likely efficiency and effectiveness of projects*
- *It identifies the main factors related to the success of the project*
- *It provides a basis for monitoring and evaluation by identifying indicators of success, and means of quantification or assessment*
- It encourages a multidisciplinary approach to project preparation and supervision'. http://www.ehrfoundation.org/Logframe.htm

II. Cost-Benefit and Cost Effectiveness Analysis

Even though the benefits of many public projects like road construction projects are difficult to assess, many agencies and organizations use benefit cost and/or cost effectiveness analysis for assessing whether or not the costs of an activity can be justified by the outcomes and impacts.

> *Cost-benefit analysis measures both inputs and out puts in monetary terms. Cost effectiveness analysis estimates inputs in monetary terms and out comes in non-monetary quantitative terms.* WB, OPED 2008)

Appraisal of public investment projects entails a wide range of benefits and costs than a private investment. For example, a public transportation project would include environmental costs in addition to transportation costs and savings. The outputs of some public projects do not have market price associated with them.

2.2. Components of an Effective Monitoring and Evaluation System

Before jumping to the implementation phase, every program, project and activity requires a good M&E design at the preparation phase. According to the Operations Evaluation Department of the World Bank org. (2008:1) a good M&E design has five components: These are project *objectives, performance indicators, collecting data and managing records, institutional arrangement and capacity building, and how and when to use M&E findings as feedback in decision making.*

i. Project Objectives

A project that commits resource must have a stipulated goal or objective and that goal has to be clearly formulated and agreed upon by actors (project participants).

A clear statement of measurable and relevant objectives for the project and its components for which indicators can be defined is very important. Since most projects are designed for further sectoral long-term goals and to put into effect these long term economic development objectives, public infrastructure projects may not be easy to measure, but, the immediate objectives should at least be measurable.

Though projects are varied in ownership, size and type, as Kerzner defined it, *'A successful project management is one who achieve project objectives; within time, within cost at the desired performance (technical level) while utilizing the assigned resource effectively and efficiently'* Harold Kerzner (2000: 3).

The main objectives of any project including road construction projects, falls into three key issues. (View Figure 1 Triangle of Objectives)

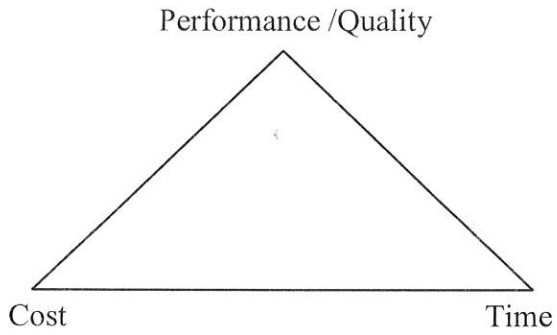
A. *Performance quality:* The end result of the project must fit the purpose for which is intended. The specification, set by the client, must be satisfied.

B. *Time to completion:* The time scale objective is extremely important; failing to keep delivery promises cannot only affect the contractor's reputation but any project that continues to use the contracting company's resources beyond its scheduled finish date is likely to have a knock on effect and disrupts the company's following projects.

C. *Budget*: The project must be completed with out exceeding the authorized expenditure as much as possible too.

Long term and high level objectives, however, may include long term development goals, environmental soundness and other impacts on the society.

Fig. 1 Triangle of project objectives



Source: Gower (1996)

ii. Performance indicators

A structured set of indicators, covering output of goods and services generated by the project and their impact on beneficiaries by the project are very important in designing M&E Selection of indicators that will be used to judge project progresses and achievement is critical to conduct M&E.

An indicator is an objective measure of change or results brought about by an activity. *'Performance indicators are measures of inputs, processes, out puts, out comes, and impacts for development projects, programs or strategies.'* WB org. (2008: 6)

If appropriate indicators are chosen and supported by sound data collection system they may help the M&E activity by: setting performance targets, enabling administrators and administrators, to track progress, identifying problems via an early warning system, enabling progress to be compared with the planned targets, assisting in input-output and cost-benefit analysis and by facilitating bench mark comparison between different organizational units, districts, and over time.

The choice of basic indicators should be both sector and project specific. What is appropriate for one project is not for another and what can be measured in one environment cannot be in another. When we come to the road sector, things are more complex and projects highly vary from place to place.

Indicators can be classified *broadly* as *input, process, output* and *impact* indicators.

Input indicators: These are quantified and time bounded statements of resources to be provided. Information on these indicators comes largely from accounting and management records. A good accounting system is needed to keep track of expenditure and provide cost data for performance analysis of output. Input indicators are mainly used by manager's closet to the tasks of implementation and are consulted frequently, and a daily or weekly basis. Examples could be periodic reports about; vehicle operation cost, amount of material required for a given task and human resource mobilized for a given road construction task.

Process indicators: Such indicators show whether the planned activities are actually being carried out effectively. They measure what happens during implementation. Often they are tabulated as mile stone events for a set of contracted completion, taken from an activity plan.

Example: Date by which right of way clearance must be completed and/or the number of days allotted to complete the bridge.

Output indicators: They show the immediate physical and financial outputs of the project. They measure physical quantities, organizational strengthening and initial flows of services and may include performance measure based on cost or operational ratios.

Example: Cost incurred per kilometer of road constructed and/or saved fuel cost because of the improved road

Impact indicators: are used to assess what progress is being made towards meeting the project objectives and what impact the work has had on the different groups of people affected by the work.

Impact refers to medium or long-term developmental change. It measures change and often involves complete statistics about economic, social, welfare and depends on data that are gathered from beneficiaries.

Example: Increase in personal income of beneficiaries.

It should be noted, however, before adopting them that criteria must be developed for effective indicators such as simplicity, validity, specificity, sensitivity, cost effectiveness, relevance and timeliness.

iii. Collecting data and managing records

Provisions for collecting data and managing project records so that the data required for indicators are compatible with existing statistics and are available at reasonable cost is another important component following the indicators.(Data collection tools and report systems are to be discussed later in the following section.)

iv. Institutional arrangement, capacity building

Institutional arrangements for investing on gathering, analyzing and reporting project data to sustain M&E services are anther requirement. A good M&E should develop the capacity of the implementing agency and build on the existing systems. Capacity building, though widely acknowledged to be important, is often poorly defined.

It is also vital to give due emphasis to upgrading skills in M&E, which include project analysis, design of indicators and reporting systems, socio-economic data collection and information, management improving procedures to create functional systems that seek out and use information for decisions and strengthening organizations to develop skilled staff in appropriate for their positions and accountable for their actions.

v. How and when to use M&E findings as feedback in decision making.

Mechanisms (proposals) for the ways in which M&E findings could be a feedback in decision making is also another significant component of the design.

In projects where operating performance standards are quested as objectives or where decentralized processes call for realized capacity to plan and mange work programs and budgets, designers need to describe how and when findings will be used to shape work plans and contribute to program or policy development.

The analysis of implementation will depend upon the functioning of a central database about sub-projects. The database will produce the reports required for the project approval and decision procedures.

Results from the implementation database will be analyzed in order to target field reviews and mid-term review.

2.3. Data Collection Tools for Monitoring and Evaluation

Though the basics are almost the same, since construction projects mainly roads are highly professional, complex and time taking activities, the M&E tools used in other sectors, may not equally apply to them. M&E, an activity that takes place at higher level of administration, are highly rely on the lower (project) level quality, safety, cost, schedule and performance control, and record systems.

2.3.1. Tools at Project (micro) level

'Planning and controlling are two complementary aspects while plan is the base line for controlling provides and it feedback or updating/ implementing the plan'. Westerng, (1985:85)

Thus the basis for control is the preconstruction planning (design) which sets the base lines (time, resources, budget) against which comparison can be made. Therefore, the *detailed design*, the master program prepared by the contractor/consultant is the important basis for the monitoring activity of administration /authorities at all levels.

'Project control is an action based process that encourages continual monitoring of operation to be successful, the actual work with its cost and duration must be completely and accurately documented, comparison should be made to project standards and variances noted.' Gould and Joyce (2000: 275)

In technical terms, the estimated cost and the scheduling techniques developed at the planning phase of constructions are the basis for progress monitoring and control.

Progress Monitoring

Progress monitoring is done by means of project milestone. Which refers to; *'Milestone is unambiguous identifiable completion point of a project'* Anthony, (1992: 768). *Bar chart, Network analysis and* other techniques are some of the methods that can be used for progress control at project level.

Cost control

The main purpose of cost control in construction projects is to reduce cost of work items so that:

- Efficiently can be measured.
- Variance from original budget can be detected
- Cost estimate and plan for future projects can be improved.

The effectiveness of cost control depends on the estimate done during plan phase. Hence to use accurate baseline is vital. Therefore, to exercises cost control:

- Establish base line cost for each work package and the total project cost:
- Measure the cost of actual work completed and compare with the base line.
- Take corrective action if there are deviations and
- Follow up the corrective measure, taken for efficiency.

Resource and Quality Control

The pre-requisite for resource control in construction is to have time phased resource schedule based on the master program (project schedule) which identifies the type, quantity and time or phase when each resource is required.

In addition to this, material and equipment procurement should have there own schedule to follow up. The key to quality and success of construction projects are the resources (labor including profession, material, equipment and finance) which are the means to do the job. Specifically, resource control at the right time, quality and quantity, and comparison of the actual resource utilization against plan is mandatory.

Thus, it requires a strict adherence to quality specifications set on design phase and on the contract made based upon it. To assure quality in construction it requires a special attention of quality surveyors and a-day-to-day follow up of every single pace of activity.

Meetings and Reports

Reports and meetings are important tools for the monitoring of events in a project. They are used to give feedback on progress, cost performance, problems encountered and other matters (reports will be discussed later in this chapter).

The complexity of as road construction projects are by its very nature requires coordination between the professionals and other parties involved, exchange of views and information and effective teamwork.

This situation necessitates the periodic meeting of the different parties involved in the project. This is because; '*Beside coordination and information exchange meetings are used to review the progress of work, analyze trends, and problems encountered, decide on the corrective measures to be taken and plan for future work based on finding'. As* Coheneal cited in Ibrahim, (1998: 38) writes.

The monthly site meeting with contractor, consultant and counterpart engineer is a typical example of road construction meeting control.

If meeting is to be held preparation of relevant agenda and taking minutes in the meeting should also be considered.

Site inspection, Samples and Testing

Routine and regular inspection of the work in progress is one of the monitoring tools. The frequency of the inspection, however, depends on the site and complexity of the construction. The other issue is the consultant may call for samples of various materials /components required for the use in the construction for his/her comments and approval. *(Additionally he/she may instruct the test of some material such as a concrete and bricks to determine their comprehensive strength and so forth)* (Kwakye (1997: 77)

2.3.2. Tools at Middle and Macro level

The appropriate M&E design at project level should be supported by sound data collection tools and systems endorsed by authorities at higher level in order to enable managers and administrators to track progress, demonstrate results and take corrective action to improve service delivery.

Some of the tools that can be used for this purpose are:

a) Formal surveys and studies

Formal surveys and special studies can be used to collect standardized information from a carefully selected sample of people. These studies are useful to measure out put and impact. Of course, they may demand staff skills and training better than what is there needed for regular collection of data.

'Information collected by surveys can be used for providing; Base line data against which the performance of the project can be compared, it could also be used for comparing different groups at given point in time, changes over time, actual conditions with target established in the project design and providing a key input for a formal evaluation of the impact of a program or project' (WB OPED, 2008).

The types of survey can be different from project to project based on the nature of the problem. For instance, the *citizen report cards which* are conducted by NGOs and think tanks in several countries, investigate the extent of corruption encountered by ordinary citizens.

Client satisfaction (service delivery) survey is also used to assess the performance of government services based on client experience. Such survey shade light on the views of clients about the quality and adequacy of services and the accountability of government of officials. These surveys are usually conducted by a government ministry or agency. They may not be directly relevant to many other like projects but others like living standard survey and care welfare indicators may be used as alternatives for development evaluation.

b) Rapid appraisal methods

Rapid appraisal methods are quick, low cost ways of gathering the views and feedback of beneficiaries and other stakeholders; in order to respond to decision makers needs for information. These methods may provide context for interpreting quantitative data collected by more formal methods.

The following sub methods can be used for this purpose.

Key informant interview: Relying on interview guides that list topics or questions, open-ended questions could be posed to individuals selected for their knowledge and experience in a topic of interest.

Focus group discussion: Facilitates discussion with 8 to 12 carefully selected participants with similar background. Participants might be beneficiaries or program staff, (Note takers record comments and observations).

Mini survey: A structured questionnaire with a limited number of close-ended questionnaires that is administered to 51-75 people. Selection of respondents may be random or purposive.

c) Participatory methods for data collection

Participatory approach can bring new insights into peoples needs for project planning and implementation. These methods provide active involvement in decision making for those with a stake in a project, program, or strongly and general a sense of ownership in the M&E results and recommendations.

Participatory method can be used for:

- Identifying problems and trouble shooting problems during implementation
- Learning about local conditions and local people's perspectives and priorities to design more responsive and sustainable interventions.
- Evaluation of a project, or policy

This method can be deployed in the form of beneficiary assessment, which involves systematic consultation with project beneficiary and other stakeholders to identify and design development of initiatives and provide feedback to improve activities and services. In other way they can be performed in the form of participatory M&E, which involves working together to identify problems, collect and analyze information and general recommendations.

This method is becoming a widely spread evaluation method through out the world. In Japan for instance, "*In formulating the new five years road improvement and*

management program in 1995, in addition to the proposal of the road council, the opinion of about 130,000 citizens were reflected in the visions and proposals drawn up by local economic order and requests from each region.' Michi Japan (1998: 35)

This shows the possibilities and presence of many ways to involve public in the form of kick of reports, voice reports and interim reports.

d) Informal data sources

There are highly informal modes of data collection for which precise procedures are not established. *'In many project cases problems may be uncovered and corrective action taken before a formal report is prepared.'* Anthony (1992: 979).

These informal sources may include: conversations with concerned individuals, general readings of official records, and short visits to existing or planned project sites or institutions or market places, the media and others. *'The problem with informal approaches is the uncertainly concerning the quality of information gathered, personal biases and prejudices can affect the reliability and validity of the information collected.'* (UNICEF M&E Manual 2008:18)

Therefore, managers and administrators at different level should not only rely on formal reports but also to informal project contacts and meetings but with care.

e) Structured direct observation

This method involves careful gathering of data, based on well-designed observation forms, which are designed to take into consideration the nature of the object to be observed. Observation may be of physical surroundings, on going activities, processes and discussions with physical objects such as roads, agricultural production, and community meetings.

It should be noted however, in terminal evaluation and impact analysis, in addition to the above tools, project records, documents and outputs, an enquiry should be made into secondary data that are relevant for comparison.

2.4. Monitoring and Evaluation in Construction Projects

2.4.1. Nature of Construction Industry

Construction involves large, complex and non-standard activities in which quality can be very hard to assess. Projects involve a multitude of actors (the client, consultant, engineer and architects, financier, insurers, a main contractor and scores of subcontractors, and beneficiaries)

The failure factors in construction mainly in road projects is much higher than they are in other industries because extrinsic factors such as government funding, demographics, and market trends largely determine demand.

Another reason for high risk lies in the unpredicted nature of the work itself. For instance, since construction takes place out side, it depends a lot on weather conditions. Because of all these and other factors, it is difficult to accurately predict how much money will be necessary to complete a project. That is why the sector, mainly the infrastructure part, is closely intertwined with the government.

> *Government remained the dominant portion of infrastructure service which account for 78% of investment (1984-2003). Government investment in road transport alone can accounts for between 2 to as high 3-5% of GDP* Kenny, (2007: preface)

'National infrastructure tends to be given great prominence in the poverty reduction effort of most developing country governments'. DFID, (2002:4)

Thus road construction and other infrastructure services these days are considered by many as a central element of strategy for achieving the development goals.

2.4.2. Parties in Construction Projects

Since constructions are complex and involve of many activities, which require careful planning and decision making and proper monitoring as well, their actualization calls for the proposals of designers, constructors, suppliers and statutory authorities. This is even more critical in the case of road construction.

The direct participants of construction project procurement are: The client/owner: who is the initiator of the project, multidisciplinary construction consultant: who act as client's professional advisor and the contractor (constructor): who constructs the work" kwakye (1997: 21)

But, it should be noted that mainly in public infrastructure /developmental projects, the actors are not limited to the above three; there will be other participants including citizens, financial donors and intermediaries.

a) The client /owner: is the key to the whole construction process from inception to completion and at times to post-occupancy maintenance. With out the client there would be no construction project. According to Gould and Joyce (2000: 29) *'Clients/ owners can be individuals seeking a home for their growing family, a large organization spending to a change in a technology, a municipality seeking to improve its infrastructure, or a developer working to make money by filling a perceived market need'*

Owners can be generally classified as public or private owners. But in most cases many construction projects, including roads are done by a public owner which is the government. The money can be obtained from federal sources of/and from local government but in all cases the owner is the taxpayer.

Some of these projects are done through public agencies that commission the construction..

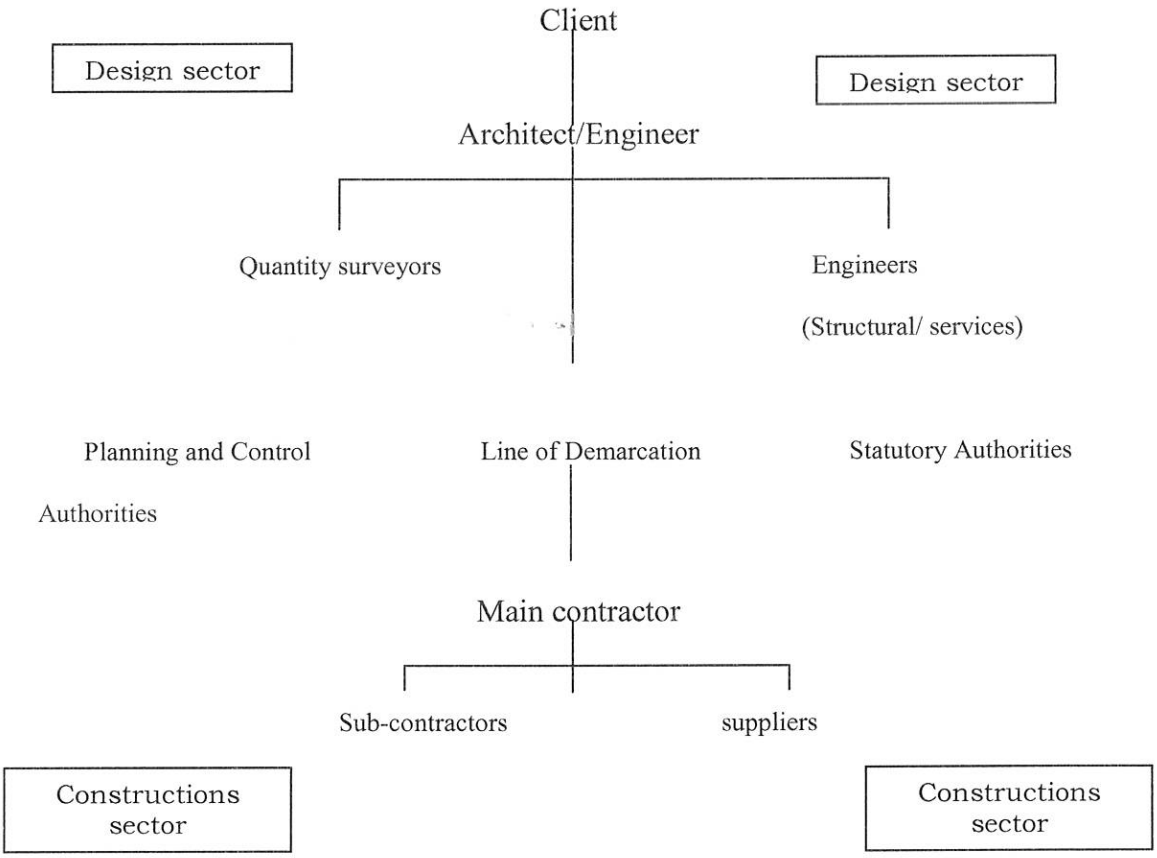
The consultants: *'Are architects, engineers (structural/ services) and quantity surveyors who are construction professionals with diverse skills and hence, offer design and management services for a fee'.* Kawakye (1997: 4).

Architects and engineers are the principal designers of construction projects. On most building construction projects the architect is the lead designer laying out the concept on the paper with the owner. The engineer is usually brought in after the basic concept is worked out but before the details are developed. The engineer designs the building systems; structure as well as mechanical, electrical and plumbing systems. *'On infrastructure and industrial project the lead designer is usually an engineer; the architect is brought in to work on the aesthetics'.* Gould and .Joyce (2000:34)

The contractor by E Gould language *the constructor* is the general term used to define the professional responsibility for all construction activities, whether he/she works as a general contractor or a construction manager. (Ibid)

The contractors, specialist sub-contractors and suppliers are essentially commercial companies (in some cases partially or fully public owned) who supply materials/components and carry out the construction production for profit.. (Main participants of construction projects are shown in Figure 2)

Fig.2 Structure of Construction Project Participants



Source: Kwakye (1997:70)

2.4.3. Construction Process (Life Cycle)

Even if, the steps to be followed in construction projects and their details vary from one author to the other, Chitkara (2001:23) broadly classifies them as: Formulation,

Mobilization and Construction. In order to critically understand the construction process, however, Kwakye's (1997) points out six stages which are briefly discussed below:

1. *Conception*: the owner (public/private) who has initiated and decided to do the project briefs the professional consultant /architect regarding his/her requirement and capital limit to the project.
2. *Design*: The appointed/assigned/selected architect offers-exploring feasibility of the proposal, and designs the project according to client requirement in terms of accommodation, cost, quality and time.
3. *Documentation and Formulation*: Client's professional advisors select the type of contract that meets the design and prepare tender document.
4. *Tendering and Estimating*: Completed documents forwarded to contractors for competitive bid. In most cases contractor who submit lower tender price is awarded the contract.
5. *Construction:* The selected contractor constructs the project up to the shape, size and quality depicted in the consultant's drawings and specifications.
6. *Commissioning*: The completed construction is handed over to the client and the consultant (advisor architect) ensures the project meets the owners' expectation.

It should be noted, however, that sub-steps are there under those broad stages. For instance, between tendering and construction phases there are a lot of activities to be undertaken that require the due attention of implementers and administrators. Checking the mobilized resource of the contractor by consultants before the construction begins is one.

2.4.4. Overview of Construction Project Contracts

As mentioned earlier, most road construction projects are performed through contractors, and consulting services are sought based on natures of contracts. These contracts are the basis for the pertinent M&E of contractors and consultants.

According to Shrivastiva (2007:350), *'Agreement enforceable by law is called contract. The contract invariably follows a proposal from one party and its acceptance by the other'*. Thus, a *contract* is a legally binding agreement or an undertaking by person or firm to do some work under certain conditions.

Legal binding allows the injured party to claim a legally enforceable remedy from the party who commits the breach.

The essentials of a valid or legally binding contract are *legally competent parties, free consent of parties, a lawful subject mater, proper and valid consideration, meaningfulness of the deal and signature of both parties.*

A tender Document: Includes general and special conditions of contract, complete specification and schedules of quantity of work to be done, tools and plants to be supplied by a department, if any.

Tender notice: It is issued in the prescribed form for coding tender for execution of some works. And it is advertised in all the leading newspapers and also posted on the notice board of the agency inviting tenders. Though they vary in complexity, many organizations have standards for tender notice.

Tender appraisal: On receipt of competitive tenders, they are evaluated by the assigned body or by quantity surveyor and reported to the client with a recommendation for consideration.

Global Tender: For very large and higher specialized jobs like Road Construction, the authority concerned invites tenders globally to get competitive offers from various specialized or reputed agencies throughout the world.

Award of contract: Contract is awarded on the basis of ranking the comparative statement of tenders. Generally, it is awarded the cheapest bidder provided the authority is satisfied with the reliability and past experience of the contractor concerned. The contractor should also possess the adequate resources (men, machinery, money, etc) to meet the demands of the project easily. If the authority has any doubt regarding the credentials of lowest bidder, the contract may be awarded to the next cheaper bidder.

Conditions of contract

While preparing the contract agreement, both parties of a construction team should be fully acquainted with their rights and duties. The main purpose of the condition of the contract is to avoid dispute and keep the parties from court litigation as far as possible. Therefore, it is imperative that all clauses of condition of the contract are precise and definite and there should not be any room for misconception therein.

The condition of contract depends upon the nature of work. For most of civil engineering construction projects, however, there are certain clauses customarily included by many parties. The international federation for civil engineers (FIDIC) has also developed a format that is being put at work in many cases.

Contractor selection

A good contractor for a project is an important factor contributing to successful completion. Selection of contractor for the road construction project is, therefore, the crucial decisions in the client's development ambitions.

The criteria for contractor selection may be price, time, contractor's expertise and quality in client's developments project. According to Kwakye (1997), the client's professional advisor may need the following attributes for drawing a list of suitable contractors from whom to invite bids. (Guide lines for selection of consultants is summarized on Table 4)

Table 4 Guidelines for contractor selection

1	Contractor's reputation in business	Good past record
2	Contractor's financial standing	Knowledge of contractor's current financial record
3	Contractor's potential resources	Physical as well as human resources
4	Contractor's normal conduct of business	Type of work package normally under taken by the contractor
5	Contractor's attitude on contractual claims	Good record of not being claim conscious
6	Performance of the contractor	Performance on past contracts
7	Non economic factors	Some reasons unrelated to performance

Source: Kwakye (1997:130)

Work order: When the contractors receive a letter of acceptance a formal agreement takes place between the contractor and the authority/ owner. The contractor is instructed to take possessive of the site and start the work immediately.

Contract administration and supervision

Though the offer is accepted by the client, prior to signing the contract and the commencement of construction on site, the client's professional advisors usually should make a second check on the following.

a. A clear site /land -to prevent delay
b. Necessary planning and program approval
c. Availability of funds to ensure the following construction
d. Insurance cover
e. Statutory authorities ensure that all information is acquired about the proposed construction.
f. Nominated subcontractors
g. Contract documentation and others.

As soon as the contract is awarded, the successful contractor prepares a suitable program to enable the works to be carried out in an orderly and efficient manner. The contractors program normally consists of a statement of intended construction operations set in a logical order to assist the smooth running of the project.

The administration of the project is however a collective responsibility of the project team, made up of the architect consultant, quantity surveyor, structural engineer, services engineer and contractor.

During the process of the work the project team exercises control over site performance to ensure that what planned and programmed to happen is going as intended. The culture is a continuous activity, which occurs through out the production phase.

Termination and arbitration of contract

The contract could be *terminated* if the construction work is completed according to the specifics of the contract agreement and the owner is satisfied. It is not possible to complete the work because of unavoidable circumstances (Force Maguire) the contract could be terminated by mutual agreement.

The other issues that confront contract are, disputes may arise between the contractor and the owner /agency/ client because of several factors

Such situations are resolved through law courts or arbitration. But the complex procedure of the law court is extremely time-consuming and may take years. A quicker disposal of such cases is highly imperative and this makes by the process of arbitration preferable.

Arbitration is therefore, the process of the settlement of a dispute not by means of a court but by impartial referees, who are called arbitrators, selected or agreed upon by the parties concerned. Care is required, however, in the process of selecting arbitrators because of the need to exhibit expertise and impartiality in settling disputes.

2.4.5. Overview of Consultancy in Construction Projects

By World Bank *"consulting service refers to services of a professional nature provided by consultant, using their skills to study, design, organize and manage projects" WB Manual (2006:1)*

A consultant offers a client /agency the possibility of more effective and efficient allocation of their resource by providing specialized service for limited amount of time without any obligation of permanent payment.

As stated out in a standard format issued by the PPA (2006: 2) for the procurement of consultancy services, the objective of consultancy service is to conscientiously fulfill to the highest professional standards the role of the engineer/ engineer's representative, as defined under the works of contract and to supervise the of works underway (on behalf of the client) throughout the entire construction period, including the defects liability (maintenance) period. The road consultant is required to ensure that the road is constructed: *with contracted price and time, the use of available material resources and in accordance with technical specifications.*

The Selection of consultants

'Understandable the collection and dissemination of information is the cornerstone of transparency and fairness' WB Manual (2006:4). Since all consultants have equal access to the same information so that interested

consultants can make informed decision on how best to apply their efforts. Therefore a due attention shall be given for advertisement, selection criteria and for evaluation proposals.

The three-selection procedures recommend by ADB/ ADF (2000) are:

a) Procedures based on the technical quality of proposals (for example high risk nature)

b) Procedure based on the technical quality with price consideration

c) Procedure based on establishing the comparability of technical proposals and selection of lowest financial offer.

Other area of concern in selecting and assigning consultants is the Conflict of Interest (COI) that may arise because of different reasons. Conflict may crop up for instance, a consultant is: Invited to suggest the works or equipment, obtained from their affiliates, if consultants are caused to certify the financial statements of an affiliated firm or parent company, if consultant propose their services for acceptance based on assignment for which they have proposed under prior assignment, if an consultant nominates a client employee as key staff in its technical proposal or if consultants working simultaneously for two or more clients whose interests are in conflict. WB Manual. (2006:10)

Therefore, the client has to take some specified measures to make the consultant perform the assignment in an objective manner.

COI should be considered when preparing a term of reference, when short listing, in selection and evaluation of proposals at the time of implementation of the assignment, while monitoring or reviewing consultants' work. The client should check for any new circumstances that could create down stream COIs.

Supervising Consultants

After the consultant signs the contract begins the work, the client or the donor (if any) are responsible for monitoring the progress of the work, the timely completion of deliverables, and money expended (for time based contracts), and determine what the contract changes in the scope of work might be appropriate. To ensure consultants begin

work promptly and to make the contract effective the client should make arrangements for supervision.

In particular, the client has to:

- Appoint the counterpart manager and staff within the agency
- Prepare office space, vehicles, and other supplies (upon contract)
- Inform all concerned institutional parties
- Effectuate advance payments; and obtain authorizations, data, and background material. WB Manual (2002: 110).

It should be noted that the agency/clients should designate a counterpart project manager with adequate *technical qualifications, managerial experience, and power of authority*.

During Supervision;

- The client or the consultants may propose amendments to the contract when either unforeseen events arise or due to client's decisions on scope of work.
- Disputes may arise in between; hence they shall be resolved promptly and constructively. In accordance with the contract.

Unsatisfactory performance of one or more staff of the consultant team should not be tolerated and the consultants should act quickly to comply with a reasonable request to improve the performance of the team or to replace particular staff, if the consultant fails to take an adequate corrective action and if corrective action requires extra work and the delay cannot be attributed to the consultants, the extra work should be reimbursed in accordance with the contract. *'Any mistake or incomplete work on the part of consultants should be remedied at no cost to the barrower' WB Manual (2004: 134).* Says the World Bank and this is sound enough for construction projects as well.

2.4.6. Areas Prone to Claims, Dispute and Corruption

Claims are problem areas (unresolved issues) that occur during construction and remain unresolved after the job is complete. If they are resolved during the life of the construction, the resolution can be formulated by a change order.

Since projects are varied in many ways, to detail all the entire dispute and claim areas is difficult however, some of them as listed by Kwakye (1992:251) are:

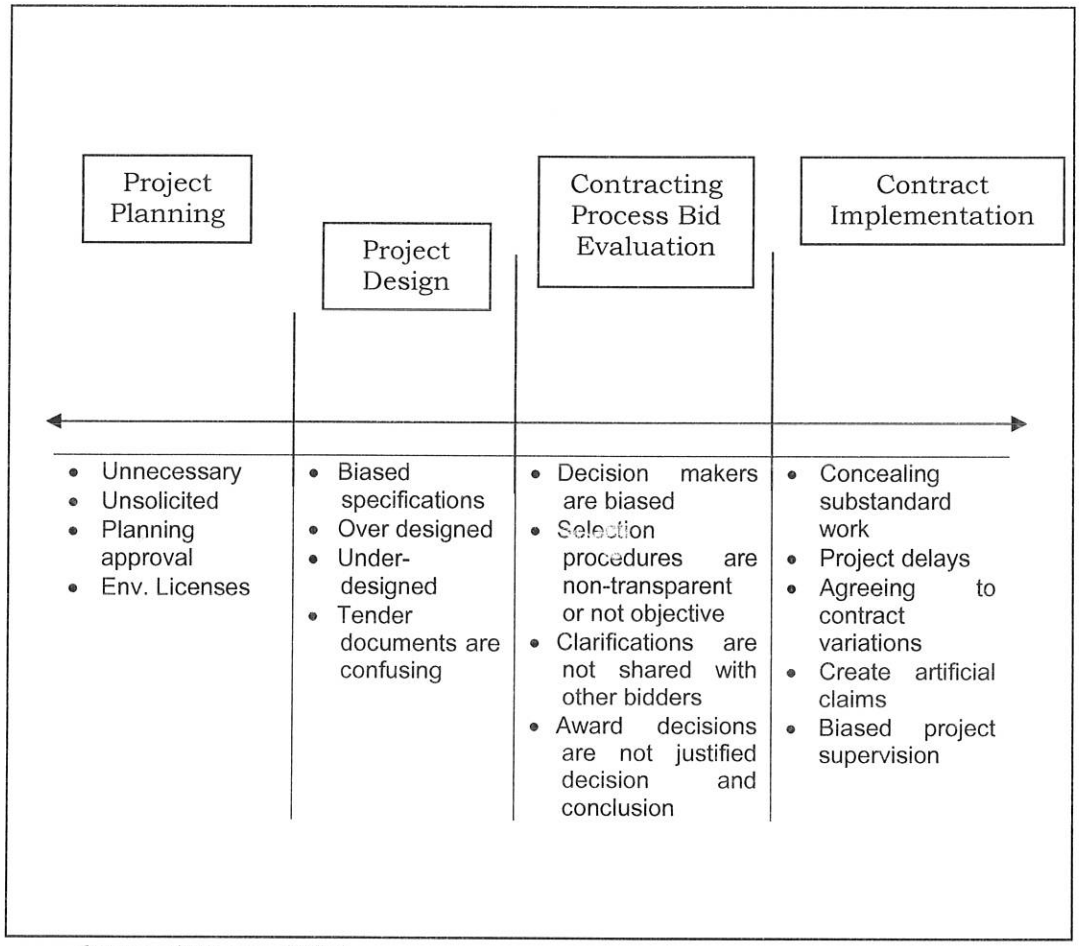
- Ambiguities due to shortcomings, omissions, and error in contract preparation and documentation.
- Delay's in supply of general construction information.
- Increase in scope of work (changes, extras and errors) without consideration of any extended production time.
- Poor workmanship and failure to use specified materials, skilled operatives and recognized methods.
- Failure to inspect works in progress regularly and condemning, only when works are completed.
- Inaccurate valuation of variations and work in progress.
- Late or no payment for works satisfactorily completed when payment is due.... Kwakye (1997: 251).

Acceleration is expediting production pace to meet the original or revised schedule and *disruption* is a direct loss and/ or external claim which arises as a result of client's variation on the project having extensive disruptive role on site construction are other problem areas in construction.

The problems of less quality, delay and lost overrun in developing countries like Ethiopia is not restricted only to expertise, capacity, contract, management and unforeseen issues; it is also marred by the extent and diversity of corruption present in the sector. *'Survey evidence shows that starting from bribes designed to manipulate budgeting decisions, project selection, tender specification, procurement out comes or contract negotiations*

and re-negotiations through bribes designed to cover the poor quality, construction practices and to the theft of material usually occurs in construction industry in developing countries' Charles Kenny (2007:3) Areas vulnerable to corruption in infrastructure planning and implementation are depicted in Figure 3.

Fig. 3 Corruption Vulnerabilities in Infrastructure Planning and Implementation



Source :(O'Leary (2006)

As The World Bank and the ADB claim there are also corrupt and fraudulent practices related with consultants (ADB/ADF/2000) Defines corruption;

> *As offering, giving, receiving or soliciting of any thing of value that influences the action of a public official in the procurement process or in contract execution. Fraudulent practice in turn means a*

misinterpretation of facts in order to influence a procurement process or the execution of contract to the determent of the client and includes collusive practices designed to establish bid prices at artificial, non-competitive levels ADF, (2000 8)

To prevent these and other malpractices the client should device a strategy throughout the procurement process. Care should be taken at all stages during the life cycle of the project from bidding to completion.

Having clear and transparent criteria, appropriate selection method, appointing an independent evaluator, setting a credible complaint management system, appointing important advisory staff with clear responsibilities, adherence to the provisions of the contract, adopt an enforceable code of conduct with proper sanctions, and others may help a lot to mitigate the problem. But it should be noted that regulation of the sector will remain a vital role for government, because monitoring technical standards in construction is both complex and central to ensuring quality.

2.5. Reporting Systems and Users of Monitoring and Evaluation

2.5.1. Reporting Systems for Monitoring and Evaluation

Designing a proper information system is a pre-requisite for effective project monitoring. The Project Management Information System (PMIS) may help in this regard by providing managers with information needed to take timely action in pursuant to project objectives.

Reporting happens both during M&E and is used to determine, if the objective have been met and impacts are attained.

Results discovered through M&E are not as such important, if not reported on time to those concerned.

What ever variance exists in the information requirement of different partners, a good M&E report must be planned, systematic and presented in a simple, clear and logical manner.

The structure of M&E report often depends on what is required; who needs the report? And how much information is required? And many organizations have their own standard M&E reporting formats.

The type and quantity (amount) of report is varied from project to projects and from stage to stage with in a project.

A project existing in an execution (implementation) phase for instance may be at least expected to have 3 types of reports.

- Trouble reports: where critical problems are flagged
- Progress report: to compare actual results with planned and to detect variance
- Financial reports: to control budget Anthony (1992: 979)

But as projects become big and complex, like road construction projects and the level of decision making increases; the required reports could be of many types, including periodic evaluation and impact assessment reports.

In general, to develop effective reporting systems for M&E of a project or supervising agency the following points must be considered:

I. Know objectives and the audience of your report including the requirement of audience

II. Design appropriate data collection tools and formats for reporting

III. Create a closer contact between data sources and users.

IV. Simplify M&E reports by using only items that are relevant for input, process and impact evaluation and decision.

V. Analysis and update data using analytical and statistical models

VI. Have a good data base system

VII. Share results of M&E reporting

VIII. Ensure appropriate management response

IX. Review M&E and reporting systems

2.5.2. Users of Monitoring and evaluation information

Reporting is a systematic activity of processing and distributing information to partners, authorities and managers, depending on the type of information they require.

The principal users of the information are the direct participants of the project process. For instance; in the case of construction; the client (public or private owner and initiator of the project), the consultant, the contractor, suppliers and others may use results of M&E for their respective tasks and purposes. And may be used to assess results of activities (Project outputs) to measure progress of programs according to objective, to learn the way the program is managed and style of work and others.

However, users of M&E information are not limited to the direct participants of the construction, but many other parties that may positively or negatively affect the process. For instance;

- Supervising authorities and funding organizations to assure that their money is efficiently spent.
- Civic societies and media to observe good governance, equity, fairness and transparency issues.
- Central planers for future economic plans and resource allocation to different sectors and activities.
- Regulatory bodies for policy directions
- Above all citizens to evaluate projects and the performance of authorities and others

2.6. Organization for Monitoring and Evaluation

The experience for M&E organization is different from country to country and project to project. Monitoring and Evaluation can be made internally by persons who have a direct role in program/ project management or externally by persons outside the program or

management. For instance, ongoing or mid-term evaluation can be done by the management agency.

Terminal and expost evaluation is often conducted by external evaluators, with formally designated persons outside the project at fixed points in time.

What ever the case M&E unit within the project is vital. Particularly to serve as a management tool, monitoring system that fit the management system should be organized at each level of management.

If the project assumes a separate M&E unit, the staff of the M&E unit can contribute the following activities:

- Sort, summarize and disseminate the information flowing from the various units and staff engaged in implementing the project,
- Analyze the administrative files and records pertaining to the project implementation,
- Collect and analyze data from intended beneficiaries of the project to supplement the available records and reports,
- Identify problems being encountered by the project and conduct diagnostic studies bearing on those problems,
- Maintain the various data series in a retrievable format over time as an aid to later evaluation; and
- Prepare reports that high light the findings of the various analyzes and appropriately present a range of logical options and required decisions by the management of the project or other concerned body.

Summary of the conceptual framework

To conclude the conceptual frame work part, the related literature have indicated that to build roads with lesser cost, better quality and safety, to construct them faster, in general to enhance performance of these projects we require appropriate M&E systems at macro and micro level of the management of the projects. To do so a properly designed M&E

system with appropriate data collection tools, reporting system that considers the nature and complexity of construction projects seems central to achieve project objectives

In this case the process of monitoring and ongoing evaluation seems relevant to be carried out by the concerned project management and concerned authorities/. For completing the projects within the time, specified quality and cost, sustainability and impact M&E have to be carried out by concerned ministries/ central lanners

To sum up projects may not have a specific M&E unit. Instead, each management and subunit may be responsible for the technical oversight of a component for ensuring the quality and timelines of data collection and for producing and analyzing reports. However, as we go up through different levels of authorities the nature of M&E, (the lower level standards and routines) will be enhanced by more participatory approach and overall impact analysis. And we can notify from the writings that the micro level information is the basis for further evaluations to be made at macro level. And the requirement for independent M&E unit or third party involvement can be sought mainly for professional, complex and large projects that may highly affect the life the society.

The following chapter deals with the existing systems of M&E in the case of road construction projects in Addis Ababa.

CHAPTER THREE

MONITORING AND EVALUATION SITUATION OF ADDIS ABABA CITY ROAD AUTHORITY

3.1. Road Works in Ethiopia

Though some of the road works for vehicles in Ethiopia started during Minilik the II about 100 years ago, more visible road works along with an organization for this purpose, were observed during and after Ethiopian occupation (1936-1941) *'The roads and trails built and improved during the brief period of 5 years of Italian occupation were about 6000 kms.'* ERA Journal (2001:2)

By having specific duties to plan, design, construct and maintain high ways, roads and bridges through out the Empire, the first independent legal body established for road works with capacities to borrow from international organizations was Imperial Highway Authority (IHA). And it was born by Proclamation number 115/1951, in 1951. Since then series of high way programs were conducted from 1951 up to 1977, aiming at constructing and maintaining badly damaged and all weather roads.

After military government came into power, reforms were made in 1978 and 1980, which changed the scope of work, accountability, and name of IHA.

ERA was established by proclamation No. 63, 1993 with a view to providing a strong administration under the leadership of a board. *'The current government of Federal Democratic Republic of Ethiopia (FDRE) has introduced policy instruments in response to transport problems and constraints as part of process of facilitating the structural adjustment of the economy.'* Tefera (1998:1)

In order to provide on effective framework of rural and urban road transport services in Ethiopia, a strategy coherent with economic and social priorities was a requirement. As explained in RSDP (2007-2010) (2007:1) *'after years of neglect under the previous*

regime and, to an extent in early years of the current government, the critical role of road sector development in supplying implementation of strategic development program has to be recognized in the design of government economic and social development programs'

In view of the above, ERA has prepared series of RSDPs as basis for the social sector component of the government strategy toward poverty reduction. Accordingly, the 1st phase of RSDP was from 1997-2002, the second from 2002-2007 and now the third one (2007-2010) is under way. These programs are funded from internal sources (Ethiopia government, road fund and the community) and from international community (IDA, EU and other governments) which constitutes 63% and 37% respectively. RSDP 2002-10 (2007:4)

As ERA claims these programs are exhibiting a lot of changes in the road network of the nation and the involvement of local contractors is also increasing from time to time. (The growth of road network since 1951 is depicted in Annex VI)

In order to provide an effective framework for rural and urban road transport service in Ethiopia, and following the decentralization process, currently, ERA is charged for planning and programs of trunk, link and main access roads while the regional governments have responsibilities for classified rural roads (feeders and collectors), setting road design standards is the responsibility of ERA.

As shown on ERA Brochure (2004: 4), the authority has a vision of *'Better roads for better Ethiopia'*. Now days, ERA is an autonomous authority. For only coordination purpose however, is under the Ministry of Work and Urban Development, following the structural adjustment of 2005.

3.2. Background of AACRA

Unlike other regions and cities, however, the historical development of AACRA is not associated with ERA but with the municipality of Addis Ababa. The expansion of roads and modernization of Addis Ababa city is a recent phenomenon and almost associated with the rule of Haile Selassie I. Upon the AACRA (Bulletin 2000) Addis Ababa City's road construction and maintenance was originated by the municipality after the city got a council and a Mayor in 1942. However the department was organized together with

building works and was called "Road and Building Works" department. The department was stayed without significant organizational change and with limited structure and capacity until the fall of Dergue regime in 1991. As some interviewees and reports said the rugged terrain of the city, unplanned former establishments, improper and inconsistent policy, the absence muster plan and others including addition the limited capital expenditure allotted to the sector has made the department handicap to take some necessary steps to improve the road conditions of the city. Hence the chronic problems related to limited road network were rolling over from one system to the other.

After 1993 Addis Ababa was established as one of the regions of Ethiopia with autonomous powers to administer itself. *"Bureau of works and urban development" was a bureau established to carry out the road construction and maintenance works of the city, until AACRA was established on March 15, 1998 by Regulation number 7/1998"* (brochure 2008). Since then *AACRA* is the authorized and responsible body to construct, maintain and administer the road works in Addis Ababa. (AACRA, Brochure, 2008)

The authority initially was doing its work using its own work force and its performance was unsatisfactory. But, after starting to contract out the works in 1996 E.C. significant changes were noticed in terms of number and size of constructed roads in the city. Unlike ERA (which is financed by international donor organizations and other countries in addition to government budget) AACRA receives most of its budget from the city government and small proportion form road fund.

3.3. Duties, Performance and Plan of AACRA

As cited on Brochure (2008) AACRA's vision is: *'Enabling the Addis Ababa city to have efficient ad reliable transport services so that it would sustain of being political city of Africa and Centre of international organization and to be a model of other cities with both management and service delivery capabilities'*

In addition its mission is: *'To be a safe, effective, efficient and fully integrated road authority which will best meet the needs of all residents of the city of Addis Ababa in improving the level of service and reducing costs of living for economic and social development, while being environmentally and economical sustainable'* as cited in the same brochure.

3.3.1. Duties of the Authority

As explained in (Addis Negari Gazeta) Issue No. 7 on March 15, 1998, the Authority is given some powers and duties to attain its objective, which are:

- Initiate policies and laws with regard to road network, construction, protection and use of roads
- Determine designs and standards for roads and implement the same.
- Prepare long term, medium and short term plans and programs with respect to the construction of roads and other related activities, and implement the same upon approval.
- Carry out or cause the carrying out of feasibility study and implement the same.
- Construct roads by own work force or have them constructed through contractors.
- Determine the criteria for the selection of consultants and contractors for roads to be constructed by other bodies.
- Plan and study ways and means that help to prevent roads from damage and implement the same upon approval.
- In cooperation with the appropriate organs of the city government, supervise whether these roads are utilized in accordance with their lawful purpose and general use.
- Prepare and cause the preparation of work of consultancy service contracts, conclude contract and see to it that there is supervision with a purpose of ensuring that works are executed as per contracts concluded and supervise the same.
- Determine the type and site of trees to be planted on the centre or opposite sides of a road and supervise the implementation thereof.
- Involve the community that may use the road to be constructed, with a view to gaining support to that and . . . (Addis Negari no.7,1998)

3.3.2. Physical Performance (Constructed Roads)

As officials of AACRA said, between the years 2002-2007 the authority has constructed a lot of new asphalt (100kms) and gradual roads (183km) in the city. Besides of it design works, maintenance, drainage, construction and maintenance, road marking (painting),

side walk constructions and maintenance, traffic signs and other are done by the authority.

About 14 asphalt roads are completed during this period and some of them are:

1. Addis Ababa city ring road phase I and II
2. Ethio-China Friendship road
3. Urael-Medhanealem Church Bole air port
4. Megenagna Ayat Road (right side)
5. Gofa Mazoria - Kirkos
6. Alert Keranyo and others

And there are about 22 road projects under construction and expected to be completed by 2009. Some of them are;-

1. Gotera interchange
2. Winget ring road round about - Gojjam ber
3. Yekatit 12 Road about - Afrinch Ber semen Hotel
4. Ayat - Yerer Goro School
5. Gofa - Mazoria - Kirkos

(See completed construction roads in Annex IV)

3.3.3. Future Plan of AACRA

Currently the total area of the city is 54, 000 hectare and the built up area of the city constitutes 169.02km^2. The length of the road constructed (Asphalt as well as gravel) compared with the built up area density is 14.5km^2. And the coverage of road constructed compared with the built up area is 8.3 percent. AACRA, Brochure (2008) The General Manager of AACRA Ato Fekade Haile said, *'The ideal standard coverage in the world is 33 percent; now our plan (objective) is to reach 15 percent in the coming 5 years'*

Based upon the 5 year (1999-2003E.C) strategic plan of AACRA, the authority has set the following construction and maintenance objectives.

1. 450 kms new and old asphalt roads construction and expansion
2. 220kms asphalt road maintenance

3. 249 kms asphalt road maintenance
4. 150 kms gravel roads maintenance
5. 24 kms new and old bridges construction and improvement and others. (AACRA, strategic plan 1999-20003)

Additionally, beside the construction and maintenance the authority has a plan:

- On Human resource development and implementing civil service reform,
- On improving the financial management so that expenditures on contractors and consultant can be easily seen,
- To develop proper management information system of different departments and services

3.3.4. Evaluation of Physical Performance

As observed from annual reports of AACRA the performance of road construction in terms size is measured against plan and it has an increasing trend. For instance, as exhibited in Table 5 there is a significance difference between 1998 and 1999 E.C. Therefore progress in terms kilometers can be said, there is a significant improvement.

Table 5 Physical Performance of New Road Construction

(1998-2000)

Fiscal year	Planned in Kms	Worked in Kms	Performance in %
1995-1997†	31.25	25.2	81
1998	20.10	17.78	88
1999	72.0	51.84	72
2000‡	28.63	21.40	64

Source: AACRA annual reports of each year

3.3.5. Capital Budget Utilization

The authority gets fund for its road project principally from the City Government and some amount of money is also sourced from Road Fund.

† it is of three years in aggregate
‡ It is only of nine months performance of the year

As depicted in Table 6 the capital budget allowed to the authority is increasing from year to year. And utilization is also somehow increasing from year to year.

Table 6 Allowed Capital Budget and Utilization (1995-2000)

Year in E.C.	Allowed Capital budget	Used amount	% of utilization
1995	296,701,975.00	206,989,301.95	70
1996	366,761,988.00	265,053,928.21	72
1997	308,697,688.80	186,244,305.94	60
1998	700,071,698.00	576,926,141.00	82
1999	1,121,437,638.00	921,587,927.00	82
2000 (9 months)	1,507,915,880.00	633,925,776.00	56
Total	**4,301,586,867.8**	**2,790,727,380.1**	

Source: Annual reports of AACRA of each year (Amounts are in Ethiopia Birr)

This allowed budget doesn't include the fund from road fund and the used expenditure doesn't include administrative expenses.

The additional budget demanded by the authority from the city government currently is not also included in the budget.

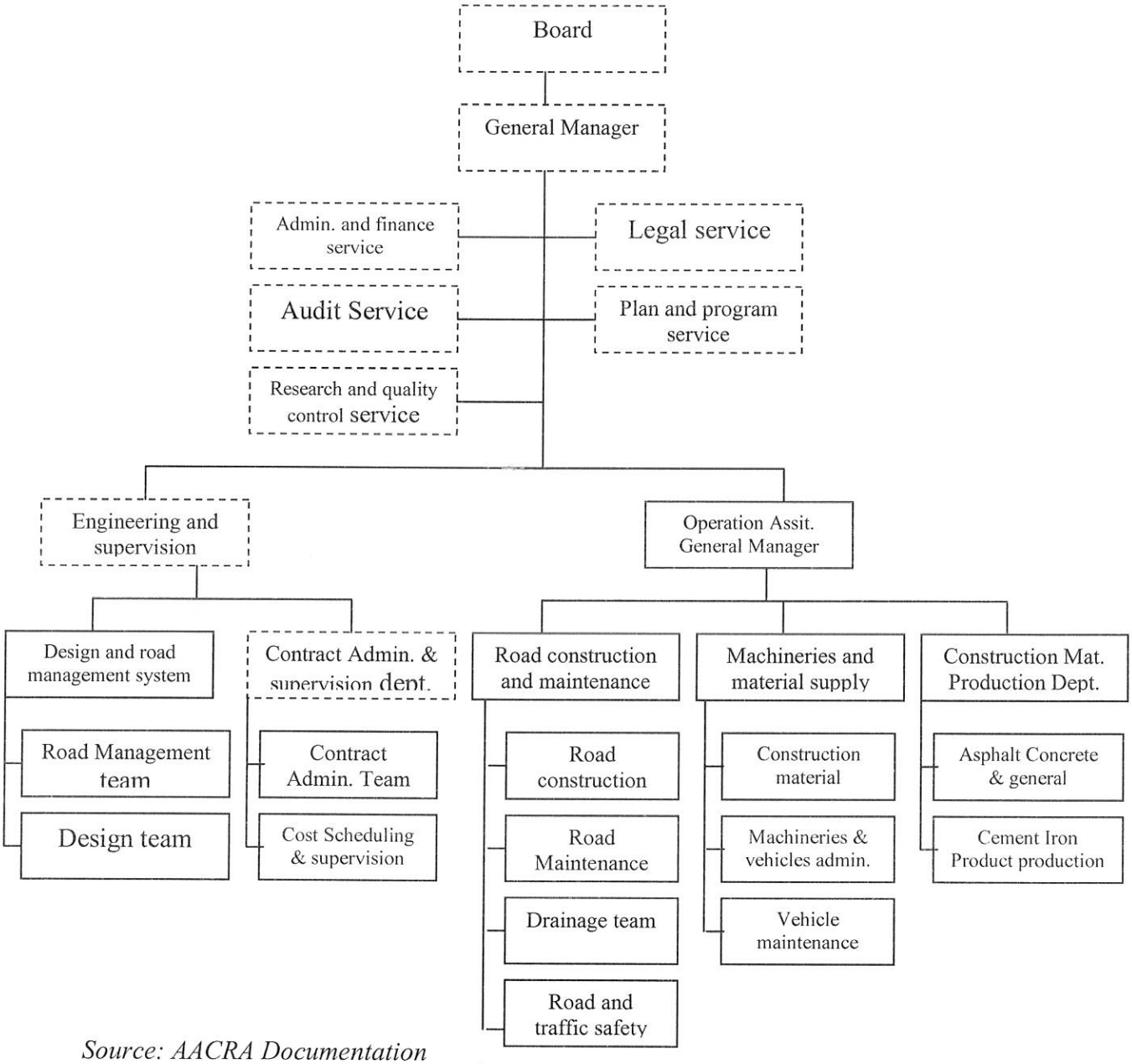
From the Table we can clearly observe how the city government is giving attention to the expansions of roads in the city. There is a significant increase from year to year and it is almost a five-fold increase from 296,701975.00 in 1995 E.C 1,507,915,880.00 in 2000 E.C.

3.4. Monitoring and Evaluation of AACRA

3.4.1. Organizational Structure and Management

As clearly explained in Addis Negari Gazeta No. 7 1998, the over all management and supervision of the road authority is under the Executive Board. As stated by law and as it is in practice the Board is chaired by the Chairman of the Council of the City (See the organizational structure in Fig. 4 below)

Fig.4 Organizational Structure of AACRA



Source: AACRA Documentation

The Board examines the budgets and programs of the Authority before submission to the Council, evaluates the annual, financial and work performance reports of the Authority and other duties given by law. Accordingly the existing Board is being chaired by the Mayor of Addis Ababa and makes monthly meeting for this purpose. Dr. Samuel Tadesse, one of the members of the Executive Board of AACRA said;

Our task is not to involve in the day to day operation of the authority; rather we approve plans, we handle problems that are beyond the capacity of general manager, we check whether activities are in line with rules and procedures and sometimes we make physical visit on projects. The detail task and controls are the responsibilities of the General Manager.

Next to the Board the main responsibility to plan, organize, direct, administer and control the works of the Authority is of the General Manager.

Subject to the general directives of the Board, the General Manager is the main responsible person to plan and implement the same regarding the whole task of road construction of authority including the contract administration.

Under the General Manger there are two Assistant General Managers with different departments. And most of the departments and units are more concerned with the operations of own work force rather than the contracted projects. The other concerned body that is responsible to administer and monitor the road construction projects held by contractors is the contract administration and supervision team, which is organized under engineering and supervision Assistant General Managers. The dotted line in the organizational structure shows the part of top management which is involved in close administration and supervision of projects handled by contractors.

The contract administration section manages and supervises the contracts with consultants and contractors which are originally formulated and developed by steering committee which is nominated by the General Manager.

3.4.2. Performance Indicators

As observed from the strategic plan (1999-2003 E.C.) of AACRA there are indicators outlined to measure and diagnose performance problems during the planed period.

For instance, as the AACRA's main purpose is to construct standard asphalt and gravel roads including bridges. The indicators selected for this purpose are:

- Objective indicators - to increase the standard of road network site of the city (coverage)
- Out put indicators - The amount and size or roads and bridges to be built per fiscal budget year.
- Outcome indicators - Type and amount of works done based on the allowed budget and schedule.
- Impact - By increasing road network to satisfy beneficiaries

3.4.3. Supervising Through Consultants

The board and the General Manager are there to monitor along with contract administration. However, because of the limited capacity of the authority, the design and construction supervision of contracted road projects is basically done by out-sourced consultants; as the officials of the authority tell. And the contracts and (specification) made with contractors and consultants are the basis for supervision and progress evaluation.

Based on the sample contracts observed and interviews made, the consultant is fully responsible to supervise contractors, so that construction of road is in alignment with specified standards set out by the contracts. And he/she acts on the behalf of the authority.

Accordingly, the consultant is responsible:-

- To carryout detail engineering design
- To prepare final and complete tender document for the construction of the road.
- To give construction supervisors of contracts administration service on behalf of AACRA.

To select these consultants, AACRA has developed its own contract and specification document (after 2004), which are almost in line with the rules of PPA, guidelines of the Ministry of Work and Urban Development and with the international standards of FIDIC.

3.4.4. The Tendering Process

Based upon the information collected from those concerned and the documents observed, the bidding process consultants and contractors of AACRA roughly follow the following steps.

1. It starts by sorting out roads to be built from the priority list prepared ahead based on the master plan of the city.
2. Preparation of bid document by tendering committee and announcement for consultants first.
3. Consultants are selected based on the quality of proposal they submit, experience, CV and previous performance.
4. Consultant provides preliminary design
5. AACRA offers bid to contractors using the bid document to be prepared by the assistance of consultants selected at the 1st phase
6. Contractors are selected based on technical (80%) and financial (20%) criteria
7. Awarded contractors start construction within 15 days. (These days it is 6 months) However, in addition to consultant the management assigns a steering committee to facilitate early start and to observe preparation of consultants and constructors, and additionally assigns counter part engineer to facilitate smooth functions of the projects.
8. In addition to consultants, the contract is administered and supervised during construction by top management, the contract administration and supervision team and by counterpart engineers assigned to each project.
9. Then temporary and final hand over of road projects takes place. Firstly, after projects are completed and following the completion report provided by the consultant the authority takes over the road for use temporarily, usually using steering committee to be established by the General Manager. And after one year of defect liability period, final take over the project will take place if project passes the defect liability list test.

The contract administration team which works under the immediate supervision of the General Manager is the main responsible unit to plan, manage and control these contracted projects from their inception to their completion.

As mentioned above the unit assigns counterpart engineers for close supervision and facilitation of each project after they are awarded to contractors. Of course because of the limited number of these engineers and as practically shown one person might be assigned for many projects. For instance one person may have as many as 5/6 projects.

The counterpart engineer by rule under take monthily meeting with contactors and consultants to solve problems they may face and to facilitate operation. In addition, they approve the reports from consultants so that payments to works done can be effected.

3.4.5. Reporting System

Other monitoring tool used by the authority is the written reports to be prepared and provided by contractors and consultants. Most of the reports are initiated by the consultant based on work performance of the contractor. These reports are however aggregated and compiled at the center by contract administration team and by planning and program services at least for quarterly and annual authority report. (The types of reports are listed in Annex V)

Based on the standard bidding document of No. 2004 AACRA, which is prepared based on FIDIC 1999 standards the consultant is responsible to provide reports. The reports are prepared in many copies and distributed to the General Manager and to concerned departments.

As the General Manager of the authority tells, in addition to reports; *site visit by management and board members; and quarterly meeting between consultants, contractors* and the authority take place regularly.

And he says: *'Other information also comes from the society and used as a tool to monitor and evaluate the performance of road project held by contracts. Our door is also open to every one for claim. The entire Thursday is allotted for this purpose.'*

3.4.6. Monitoring and Evaluation Environment

The M&E environment of contracted project of AACRA is affected by multitude of actors who directly or indirectly involve in the construction process.

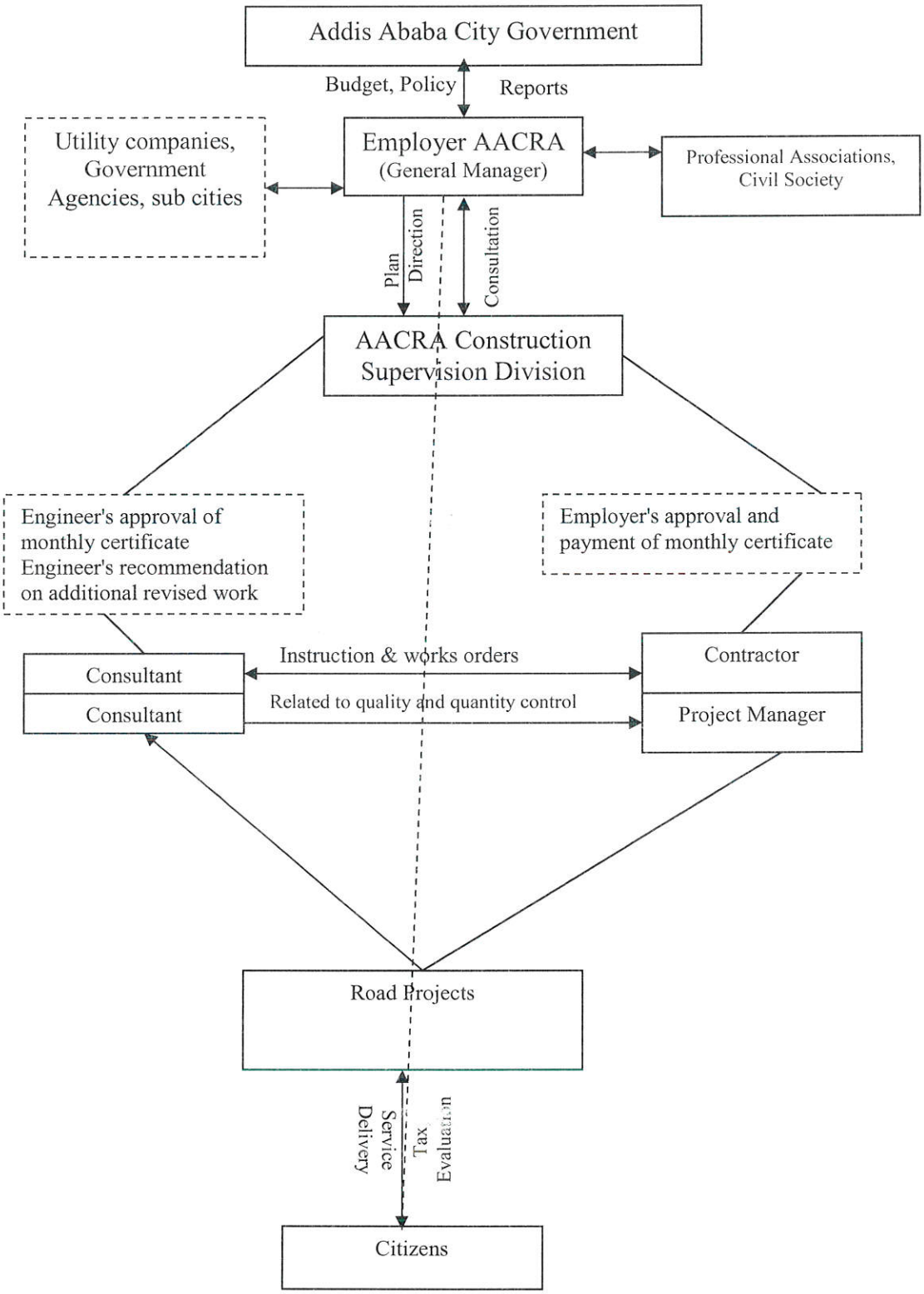
Of course, we can clearly observe from Figure 5 that the primary stake holders are *AACRA (client)*; who initiates, plan and manage these projects, *the contractors* (local and foreign construction companies); who construct the roads by winning competitive bids, *the consultants*; construction and engineering professionals who assist AACRA in designing, bidding and supervising constructions, and the community along the construction area who is to be affected negatively or positively by the construction. However, success is not dependent only on these primary actors, but, by additional actors like;

- City Government; by allocating budget to the sector and by over all policy guidance and coordination
- Housing and Utility Agencies; such as EELPA and Tele...who are expected to work closely with AACRA
- Sub Cities, Ministry of Work and Urban Development, ERA and others
- The Civic Society, Donors and Media
- Legislative authorities and auditing organizations
- At large the citizens of Addis Ababa who are beneficiaries of the projecs and Tax payers
- The over all economy and policy of the nation
- The experience knowledge and size of existing construction professionals
- Supply of construction materials
- The work attitude and culture of the society in general and others.

Therefore the M&E system of AACRA should able to work in such complex environment and should satisfy these actors. The system should able construct sustainable projects in time with the allocated budget.

For doing so timely information is vital from the projects as well as from the external environment. And the information can be used for timely decision, coordination, measuring performance, assessing satisfaction, assuring transparency and produce reports to all parties

Fig.5 M&E environment of AACRA (Contracted Projects relationship)



Source: own source adapted from progress reports and observation

CHAPTER FOUR

FINDINGS

The data collected through the opinion survey questionnaire are summarized, presented, described and discussed in this chapter. The survey results found using personal interviews with key informants from AACRA and from others who have a stake in the construction of road projects in the city are also presented. The presentation and discussion commences by describing the personal characteristics of respondents.

4.1. Data Description

I. Personal Characteristics of Respondents

Respondents' current work area, work experience in construction, education and additional training condition are depicted below under Tables 7, 8, 9 and 10.

Table 7- Current Work Area of Respondents in Road Construction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	RE	20	47.6	47.6	47.6
	PM	18	42.9	42.9	90.5
	CPE	4	9.5	9.5	100.0
	Total	42	100.0	100.0	

Source: Survey data

As exhibited in Table 7 above, the sample respondents were 20 resident engineers, 18 project managers and 4 counterpart engineers with 47.6 percent, 42.9 and 9.5 percent of the total respectively.

In terms of experience in construction, as depicted on Table 8, 38.1 percent have more than 15 years of service, 57.1 percent from 6-15 years and the remaining, 4-8 percent have less than 5 years of experience.

Table 8 Years of Experience in Construction:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<2yrs	1	2.4	2.4	2.4
	2-5yrs	1	2.4	2.4	4.8
	6-15yrs	24	57.1	57.1	61.9
	>15yrs	16	38.1	38.1	100.0
	Total	42	100.0	100.0	

Source: Survey data

Regarding the academic status of respondents, 88 percent of them are degree holders and 11.9 percent have MSC degree as it is shown below in Table 9. As explained in the open space provided in the questionnaire, most of their first and MSC degrees are in civil engineering, except one respondent who has MSC degree in Road Transport.

Table 9 Academic Status of Respondents:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Degree	37	88.1	88.1	88.1
	MSc	5	11.9	11.9	100.0
	Total	42	100.0	100.0	

Source: Survey data

Respondents were also asked *whether they have additional training or not.* Accordingly, as shown in Table 10, 61.9 percent have additional training while 38.1 percent of them do not have. Though all trained respondents did not explain the type of training they have taken, some of them said that their training was in project management, supervisory level of management, construction management, AUTOCAD and engineering management.

Table10- Additional Training Condition of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	26	61.9	61.9	61.9
	No	16	38.1	38.1	100.0
	Total	42	100.0	100.0	

Source: Survey data

II. Data on the Tendering Process

As presented in Table 11, respondents were asked if *the tender of all works of AACRA is published on known media or not*, accordingly, 19 percent of respondents strongly agreed and 45.2 percent 35.7 percent of them are undecided.

Table 11- The Tender of all Works is properly published on known Media.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	8	19.0	19.0	19.0
	Agree	19	45.2	45.2	64.2
	Undecided	15	35.7	35.7	100.0
	Total	42	100.0	100.0	

Source:- Survey data

As presented in Table12 to the statement *the road authority provides equal access to information of bidding;* 40.5 percent of them remained undecided, 45.2 percent agreed and 14.3 percent strongly agreed to the statement.

Target respondents were also asked whether *the authority properly checks the correctness of filled bills, qualifications and documents of the tender proposed by consultants and contractors,* accordingly, while 4 of the 42 respondents strongly agreed, 12 of them agreed and 3 undecided which is 9.5 percent, 45.8 percent and 7.1 percent respectively.

The opinions to the statement *consultants and contractors are selected based on objective predetermined and known criteria;* out of the 42 sample respondents 11.9 percent strongly agreed, 21.4percent agreed, 59.5percent undecided and 7.1percent of them disagreed. *The bid process leaves no loophole for consultants and contractors to influence the selection process in favor of them* was another question asked to the engineers. To this question 2 (4.5 percent), 15 (35.7 percent), 6 (14.3 percent) and 19 (45.2 percent) of the respondents respectively strongly agreed, agreed, undecided and disagreed.

Other question related to the tendering process is *whether the selection process is open to citizens or not.* As depicted in Table 12, 21.4 percent of the respondents have a disagree

opinion, 40.5 percent undecided, 35.7 percent agree and only 2.4 percent have strongly agree.

Table 12 - Bidding Process Related Questions

No	Item	Strongly Agree		Agree		Undecided		Disagree		Strong disagree		Total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	The Road Authority provides equal access to information and bidding.	6	14.3	19	45.2	17	40.5	-	-	-	-	42	100
2	The authority properly checks the correctness of filled bills, qualifications, and documents of the tender proposed by consultants and contractors	4	9.5	12	28.6	3	7.1	28	54.8	-	-	42	100
3	Consultants and Contactors are selected based on objective, predetermined and known criteria.	5	11.9	9	21.4	25	59.5	3	7.1	-	-	42	100
4	The bid process leaves no loop hole for consultants and contractors to influence the selection process in favour of them.	2	4.8	15	35.7	6	14.3	19	45.2	-	-	42	100
5	The selection process is open to citizens.	1	2.4	15	35.7	17	40.5	9	21.4	-	-	42	100
6	In general the tendering process is fair, transparent and participatory	3	7.1	29	69	5	11.9	5	11.9	-	-	42	100

Sources:- Survey Data

In the same table to the statement, *in general the tendering process is fair transparent and participatory;* their perception is 7.1 percent strongly agree, 69 percent agree 11.9 percent disagree, while the remaining 11.9 percent remained indifferent for which they preferred undecided.

In addition, to the responses of closed questions some of the respondents have forwarded the following suggestions on the space provided in the questionnaire. For instance, one respondent 'project manager' said *'The tendering process is fair and transparent up to some level but less participatory because of the lesser experience and capacity of the available contractors and consultants'.*

Another consultant said *'Difficult to say 100% objective since there are many issues which require subjective judgment, for instance performance of a contractor'*

Table 13 Responses Related to Terms of Contract

No	Item	Strongly Agree		Agree		Undecided		Disagree		Strong disagree		Total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	The terms of contract are clear and precise so that they can minimize disputes during and after construction	4	9.5	15	35.7	3	7.1	9	21.4	11	26.2	42	100
2	Penalty for poor quality and delay of work process is clearly pointed out in contracts.	4	9.5	28	66.7	4	9.5	6	14.3	-	-	42	100
3	By your opinion the designer of the road has also to be construction consultant.	3	7.1	29	69	5	11.9	5	11.9	-	-	42	100

Sources:- Survey Data

Regarding terms of contract, to the statement, *the terms of contract are clear and precise so that they can minimize disputes during and after construction;* as Presented on Table (13.1), 9.5percent of respondents replied strongly agree, 25.7 percent said agree, 7.1 percent undecided 31.4 percent disagreed and 26.2 percent strongly disagreed. As shown in the same Table(13.2) to the question, *penalty for poor quality and delay of work process is clearly pointed out in contracts*; out of the 42 sample respondents 4 strongly agreed, 28 agreed 4 undecided and 6 disagreed, Which is 9.5, 66.7, 9.5and 14.3 percent respectively.

Respondents were also asked *if the design consultant be construction supervision consultant. A*s depicted in Table (13.3), 7.1percent of the respondents strongly agreed, 69 percent agreed, 11.9 percent undecided and 11.9 percent disagreed.

III. Data on Monitoring the Resource Mobilization

To the statement; the *road authority assigns counterpart engineers for all works (Projects) on timely manner (Table 14.1), 7.1* percent of respondents strongly agreed, 47.6percent agreed, 9.5 percent remained undecided and 35.7 percent disagreed.

Table-14 Mobilization of Resources

No	Item	Strongly Agree		Agree		Undecided		Disagree		Strong disagree		Total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	Road authority assigns counterpart engineers for all works (projects) on timely manner.	3	7.1	20	47.6	4	9.5	15	35.7	-	-	42	100
2	Road authority supplies necessary materials for supervision to consultants.	7	16.7	28	66.7	4	9.5	3	7.1	-	-	42	100
3	Consultants check (monitor) whether the contractor has:												
	a. all the necessary & relevant information about the work/project	13	31	26	61.9	2	4.8	1	2.4	-	-	42	100
	b. has prepared master work program.	11	26.2	30	71.4	1	2.4	-	-	-	-	42	100
	c. has prepared the detailed program and controlling techniques	12	28.6	25	59.5	4	9.5	1	2.4	-	-	42	100
	d. has mobilized the necessary equipment and human resource as per the contract.	11	26.2	22	52.4	4	9.5	4	9.5	1	2.4	42	100
	e. the contractor has set in place command station for the field work.	13	31.0	25	59.5	2	4.8	2	4.8	-	-	42	100
4	The authority checks office arrangement, man power, & necessary materials	3	7.1	24	57.1	3	7.1	12	28.6	-	-	42	100
5	Road authority effectuate advance payments as per the contract	5	11.9	31	73.8	1	8.4	4	9.6	1	2.4	42	100
6	In general mobilization of resources and preparation of contractors and consultants is properly evaluated before the construction work commences.	-	-	21	50.0	6	14.3	15	35.7	-	-	42	100

Source: Survey Data

In Table 14.2, for the question, *road authority supplies necessary material for supervision to consultants;* the opinion is 16.7 percent strongly agree, 66.7 percent agree, 9.5 percent undecided and 7.1 percent disagree.

Another question forwarded in this section (Table 14.3) is, *whether the consultants check (monitor) the contractors master work program, preparation deployment of equipment and human resources as per the contract, and command station condition;* by average 28.5 percent strongly agree 60.9 percent agree 6.2 percent undecided and 4.8 percent disagreed.

It is also asked whether *the authority cheeks the consultants office arrangement, man power and necessary materials*, or not and the opinion is 28.6 percent disagree, 7.1 percent undecided, 57.1 percent agreed and 7.1 percent strongly agree (Table 14.4).

The opinion for the statement, *road authority effectuates advance payments as per the contract* is; 11.9 percent strongly agree, 73.8percent agree, 8.4 percent undecided, 9.6percent disagree and 2.4percnt strongly disagreed (Table 14.5).

In general *to the evaluation of mobilization of resources & preparation of contractors,* respondents perception is 50% agreed 14.3% undecided and 35.7% disagreed (Table14.6).

IV. Data on Coordination and Impact

The following questions were also asked to asses the coordination of road works with other activities and to understand whether plans of construction incorporate social-environmental impact on the society. Accordingly, to the question, *projects are coordinated with other infrastructural activities and projects in city (Table 15.1);* 2.4 percent respondent chose strongly agree, 14.3 percent agree, 4.8 percent undecided 54.8 percent disagreed, 23.8 percent strongly disagreed. To the statement, *clear of road/right of way* is *checked to prevent delay;* the result is 28.6 percent agree, 7.1 percent undecided, 57.1 percent disagreed & 7.1 percent strongly disagreed (Table 15.2).

To the question, *the impact of the road construction on the coming and traffic is well considered and tried to minimize;* 7.1 percent strongly agreed, 40.5 percent agreed, 9.5 percent undecided and 42.9 percent disagreed (Table15.3).

Table 15 Coordination & Impact

No	Item	Strongly Agree		Agree		Undecided		Disagree		Strong disagree		total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	Projects are integrated (coordinated) with other infrastructural activities and projects in the city.	1	2.4	6	14.3	2	4.8	23	54.8	10	23.8	42	100
2	Clear of land (right of way) is checked to prevent delay.	-	-	12	28.6	3	7.1	24	57.1	3	7.1	42	100
3	The Impact of the road construction on the community and traffic is well considered and tried to minimize.	3	7.1	17	40.5	4	9.5	18	42.9	-	-	42	100
4	The Impact of construction on environment is well considered and tried to minimize.	1	2.4	5	11.9	7	16.7	27	64.3	2	4.8	42	100

Source: Survey Data

In the same Table to the statement, *the impact of construction on environment is well considered and tried to minimize;* the response is 2.4 percent strongly agreed, 11.9 percent agreed, 16.7 percent undecided, 64.3 percent disagreed and 4.8 percent strongly disagreed (15.4).

V. Data on M&E during the Construction

As presented in Table 16 to the statement, *penalties are explicitly stated and exercised;* 2.4 percent strongly agreed, 52.4 percent agreed, 9.5 percent undecided, 31percent disagreed and 4.8 percent strongly disagreed (Table16.1)

Table 16 Inspection and Quality Test

No	Item	Strongly Agree		Agree		Undecided		Disagree		Strong disagree		total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	Penalties are explicitly stated and exercised if projects do not start on time as per the contract.	1	2.4	22	52.4	4	9.5	13	31.0	2	4.8	42	100
2	Monitoring and inspection of performance is made regularly.	3	7.1	24	57.1	3	7.1	12	28.6	-	-	42	100
3	The consultants spend most of their M&E time on field work instead of from the office.	1	2.4	19	45.2	5	11.9	16	38.1	1	2.4	42	100
4	Defects of construction are noticed immediately before the contractor go long with its unacceptable performance.	2	4.8	6	14.3	3	7.1	31	73.8	-	-	42	100
5	Volume and quality of inputs is always checked and tested by comparing to predetermined standards	4	9.5	22	59.4	2	4.8	14	33.3	-	-	42	100
6	There is a frequent and consistent quality test.	5	11.9	28	66.7	3	7.1	6	14.3	-	-	42	100

Source: Survey Data

For the statement, *the monitoring and inspection of performance during construction is made regularly;* the opinion is 7.1 percent strongly agreed, 57.1 percent agreed, 7.1 percent undecided and 28.6 percent disagreed (Table 16.2).

In the same table for the question, *the consultants spend most of their M&E time on field work;* 2.4 percent strongly agreed, 45.2percent strongly disagreed, 11.9 percent undecided 38.1 percent disagreed and 2.4percent strongly disagreed.(Table 16.3)
Other question posed is *whether defects of construction are noticed immediately before the contracts go long with its unacceptable performance.* The opinion of respondents in this regard is, 4.8 percent strongly agreed, 14.3 percent agreed, 7.1 percent undecided and 73.8 percent disagreed (Table 16.4). For the statement, *volume and quality of inputs is always checked and tested by comparing to predetermined standards;* 9.5 percent strongly agreed, 59.4 percent agreed, 4.8percent undecided and 33.3 percent disagreed (Table 16.5).

Table 17 - Supervision and Site meeting

No	Item	Strongly Agree		Agree		Undecided		Disagree		Strong disagree		Total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	There is evaluation format to evaluate the performance of consultants	1	2.4	3	7.1	12	28.6	25	59.5	1	2.4	42	100
2	The manpower and equipment deployed by contactors and consultants are as per the contact and monitored properly.	3	7.1	5	11.9	12	28.6	20	47.6	2	4.8	42	100
3	A site meeting between consultants, contractors and counter part engineer with minutes and evaluation of previous performance is made regularly.	3	7.1	21	50	4	9.5	14	33.3	-	-	42	100
4	Contractors, consultants and supervisors strictly follow the master program and effectively use the project planning and controlling techniques	2	4.8	8	19	4	9.5	18	42.9	10	23.8	42	100

Source: survey data

For the idea that there is a frequent and constant quality test; 11.9 percent of respondents strongly agreed, 66.7 percent agreed 7.1percent undecided and 14.3 percent of them disagreed (Table 16.6).

The responses (agreement/disagreements) to other questions related to supervision during construction in Table 17 are; to *the presence of evaluation format to evaluate performance of consultants;*2.4 percent,7.1 percent, 28.6 percent, 59.5 and 2.4 percent, strongly agree , agree, undecided, disagree and strongly disagree respectively (Table 17.1). *To the deployment of manpower and equipment of contractor as per the contract (Table17.2);* 7.1 percent strongly agreed, 11.9 percent agreed, 28.6 percent undecided, 47.6 percent disagreed and 4.8 percent strongly disagreed.

To the question site meeting between consultants, contractors and counterpart engineers is made regularly; 7.1 percent strongly agreed, 50 percent agreed, 9.5 percent undecided and 33.3 percent disagreed. *And whether contractors, consultants and supervisors strictly follow the master program* 4.8 percent strongly agreed, 19 percent agreed, 9.5 percent undecided, 42.9 percent disagreed and 23.8 percent strongly disagreed (Table 17.4).

To questions related to *records*, *problems during construction, and capacity of assigned supervisors* to *monitor and evaluate*, are *also shown* on table 18. Accordingly, to the check of material records at project level 7.1pecent strongly agreed, 23.8 agreed, 9.5 undecided, and 57.1 percent disagreed 2.4 percent strongly disagreed (Table 18.1).

To the statement, *the project engineers assigned by the authority have the required capacity to monitor and evaluate*; 7.1 percent strongly agreed, 16.7 percent agreed, 19 percent undecided 54.8 percent disagreed and 2.4 percent strongly disagreed (Table 18.2).

To the statement, *there is a mechanism by the authority to ensure whether all parties and supervisors in construction are on their assignment or not;* the response is 2.4 percent strongly agreed, 21.4 percent agreed, 31.4 percent undecided 42.9 percent disagreed and 2.4 percent strongly disagreed (Table 18.3).

Table 18 Records and Problems during Construction

No	Item	Strongly Agree		Agree		Undecided		Disagree		Strong disagree		Total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	The material records (data entry/exit) at project level are proper and genuine and they are checked by consultants for their quality and quantity.	3	7.1	10	23.8	4	9.5	24	57.1	1	2.4	42	100
2	The project managers assigned by road authority have the required capacity to monitor and evaluate the tasks of consultants and contractors.	3	7.1	7	16.7	8	19.0	23	54.8	1	2.4	42	100
3	There is a mechanism by the authority to ensure whether all parties and supervisors in construction are on their assignment or not.	1	2.4	9	21.4	13	31.0	18	42.9	1	2.4	42	100

Source: Survey Data

VI. Reporting system

Assuming that the report system highly affects M&E conditions and decision making, questions on problems related to reporting system are forwarded to respondents. And their opinions are presented using frequency Table 19. Accordingly, 57.1 percent agreed, 7.1 percent undecided and 35.7 percent disagreed to the statement; *most of the project reports are simplified and clear to understand (Table19.1).* To the statement, *reports are prepared and disseminated on timely manner; 52.4 percent agreed, 9.5 percent undecided and 38.1 percent disagreed (Table 19.2). Reports receive prompt response and decision from those concerned,* was another question posed to respondents and their responses are 4.8 percent agreed, 23.8 percent, 47.6 percent disagreed and 23.8 percent strongly disagreed (Table 19.3). To the question related to data base; 7.1 percent agreed, 45.2 percent undecided, 28.6 percent disagreed and 19 percent strongly disagreed (Table 19.4). To the readiness of the authority to receive information from other parties and to

make prompt correction; 2.4 percent strongly agreed, 16.7 agreed, 45.2 percent undecided and 35.7 percent disagreed (Table 19.5). Finally, to the question related to the general effectiveness of reporting system at project level; 19percent agreed, 26.2 percent undecided and 54.8 percent disagreed (Table 19.6).

Table 19 - Report Related Questions

No	Item	Strongly Agree		Agree		Undecided		Disagree		Strong disagree		total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	Most of the project reports are simplified and clear to understand.	-	-	24	57.1	3	7.1	15	35.7	-	-	42	100
2	Reports are prepared and disseminated on timely manner.	-	-	22	52.4	4	9.5	16	38.1	-	-	42	100
3	Reports receive prompt response and decision from those concerned.	-	-	2	4.8	10	23.8	20	47.6	10	23.8	42	100
4	Centrally there is a data base for all projects and for external data that help to store, analyze & retrieve data promptly.	-	-	3	7.1	19	45.2	12	28.6	8	19.0	42	100
5	The authority is ready and has mechanism to receive/solicit information from other parties and make prompt correction accordingly.	1	2.4	7	16.7	19	45.2	15	35.7	-	-	42	100
6	In general the M&E system of Addis Ababa City Road authority and at project level has defined and effective reporting and information system.	-	-	8	19.0	11	26.2	23	54.8	-	-	42	100

Source: Survey Data

VII. Effectiveness of monitoring and evaluation system of the authority

As presented in Table 20 and 21, some of the questions posed to target respondents to access the effectiveness of M&E system were; *are there M&E guide lines for projects? does the M&E system has clear objectives and performance indicators? whether appropriate tools are used to collect information for M&E or not and others.*

Accordingly, to the statement, *there are monitoring and evaluation guidelines for projects*; the agreement/ disagreement position is 2.4 percent strongly agreed, 11.9 percent agreed, 31 percent undecided and 54.8 percent disagreed (Table 20. 1).

Table 20 Monitoring Guidelines, Objectives and Indicators

No	Item	Strongly Agree		Agree		Undecided		Disagree		Strong disagree		Total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	There are monitoring and evaluation guide lines for projects	1	2.4	5	11.9	13	31.0	23	54.8	-	-	42	100
2	The M&E system has clear objectives and performance indicators to diagnose problems as they happened	-	-	14	33.3	8	19.0	19	45.2	1	2.4	42	100
3	Appropriate tools are used to collect information for M&E.	-	-	12	28.6	13	31.0	17	40.5	-	-	42	100

Source: Survey Data

To the presence of clear objectives and performance indicators; 33.3 percent agreed, 19 percent undecided, 45.2 percent disagreed and 2.4 percent strongly disagreed (Table 20.2). To the appropriateness of tools to collect information; 28.6 percent agreed, 31 percent undecided and 40.5 percent disagreed (Table 20.3).

Even though significant number of respondents remained undecided, to many of the questions, the survey results on other questions related to *general effectiveness of M&E system*, are depicted in Table 21.

Accordingly, the results to the question *the system explicitly shows the productivity and efficiency of different resources and different projects;* 2.4 percent have replied strongly agree, 40.5 percent agree, 19 percent undecided and 38.1 percent disagree (Table 21.1).

In the same table, to the statement, *there is a mechanism to receive and use information from society and other sources; 2.*4 percent of respondents strongly agreed, 26.2 percent agreed, 54.8 percent undecided 14.3 percent disagreed and 2.4 percent strongly agreed (Table 21.2).

Table 21 - General Effectiveness of M&E

No	Item	Strongly Agree		Agree		Undecided		Disagree		Strong disagree		Total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	The system explicitly shows the productivity and efficiency of different resources and different projects.	1	2.4	17	40.5	8	19.0	16	38.1	-	-	42	100
2	There is a mechanism to receive and use information from the society and other sources..	1	2.4	11	26.2	23	54.8	6	14.3	1	2.4	42	100
3	Post-project evaluation is done to assess the sustainability and impact of the project on the society.	-	-	5	11.9	15	35.7	21	50.0	1	2.4	42	100
4	The role of M&E in enhancing efficiency and effectiveness (performance) of road projects is vital.	17	40.5	18	42.9	6	14.3	1	2.4	-	-	42	100
5	In general Addis Ababa road authority has an effective M&E system to effect contracts as designed.	1	2.4	5	11.9	11	26.2	24	57.1	1	2.4	42	100

Source: Survey Data

To the question, *post-project evaluation is done to asses the sustainability and impact of the project on the society;* out of the 42 respondents the 11.9 percent of them agreed, 35.7 percent undecided 50 percent disagreed and 2.4 percent strongly disagreed (Table 21.3).

Other question forwarded to receive the opinion of respondents is, to indicate there level of agreement /disagreement, on *the role of M&E in enhancing efficiency and effectiveness (performance) of road project is vital. A*ccordingly, 40.5 percent of respondents said strongly agree, 42.9 percent agree, 14.3 percent of them undecided and 2.4 percent disagree (Table 21.4).

Finally, to the statement, i*n general AACRA has an effective M&E system to implement contracts as designed;* while 2.4 percent strongly agreed, 11.9 percent agreed, 26.2

percent remained undecided, 57.1 percent disagreed and 2.4 percent strongly disagreed (Table21.5).

VIII. Observation on documents and Reports of AACRA

In addition to the questionnaire survey, it was also attempted to see sample reports, and other documents related to contracted projects.

Accordingly, it has been observed that; there is a documentation section (manual) for projects administered by contracts. In the section, there are standard specifications on biding and road engineering issues which were developed in November 2004, by consultants. (See the types of specifications in Annex V). These specifications are prepared (adopted) from FIDIC 1999 and serves as basis for contracts and supervisions to be made by AACRA. Contracts of each project are also documented.

Reports of each project are also observed, in the form of monthly progress reports, quarterly reports, completion reports and others (See list of reports in Annex V)

Most of the project reports are with similar in fashion and content. They are prepared by consultants (Resident engineers of each project) and submitted in five copies to different Departments of AACRA including the General Manager.

The reports show variations between:

- Manpower required in contracts and actually deployed (mobilized) by the contractor
- Original cost amount, revised contract amount and actual cost incurred
- Equipments required and actually deployed
- Original completion schedule, revised and percentage of elapsed time using a format given for this purpose.

Additionally, these progress reports; report activities performed, percentage of work accomplished, meeting held, commencement and completion dates, and problems encountered . . . etc. However, even if many of the reports tell the gap between what it is to be and what it is, they do not explain the reasons and the measures taken against unfavorable variations from the contract. For instance, some reports say:

- No meeting in the month
- Field test was not conducted during the quarter
- Machineries proposed by contract and deployed are varied
- Experienced engineers required 3, and deployed 1, and others. But they say nothing why this gap is created, and what measure is taken by the consultant as well as by other concerned body to correct problems.

IX. Key informant's views on the performance of AACRA

As the ultimate purpose of M&E is to enhance performance of projects, in addition to the questions discussed in the analysis part, key informants and few beneficiaries were also asked for their opinion on the performance of road construction projects in terms of physical progress (quantity), quality, timeliness and cost effectiveness.

Accordingly, regarding the quantity (works done in kilometers) almost all (100%) interviewees have agreed to the idea that there is visible change and a lot of progress in the city comparing with what it was in the city in the former days.

But many of the interviewees have doubts on quality matters and sustainability of the roads. One of the interviewees for instance, have said; *'Though there is an improvement still there are problems in leveling in embankment and finishing, and the problem is more severe in local contractors construction'*

On the other hand, some others, including AACRA officials, said that there is no a significant quality problem. *'Things are being done as per the specification and the capacity of contractors and of designers and are also being improved from time to time'* was their opinion.

In terms of cost, most of the interviewees mainly those beneficiaries responded that they do not have knowledge about, but they have claimed that since there are delays it is difficult to say that road projects are cost effective. Others from the Road Authority and consultants also said, it is difficult to judge whether they are cost effective or not, they are done based on contracts (engineering estimates), and might be relaxed to some extent due to uncontrollable factors. One engineer from AACRA for instance, said: *'contracts are given based on fixed price; and, there are no exaggerated costs overruns'*

As far as schedule is concerned, almost all interviewees responded that there is chronic problem in meeting promised target time. One engineer from Midrock Construction, for instance, said *'We do have four projects in Addis City and by chance all of them are behind the schedule, and the main problem is right of way problem, even though there is inadequate capacity (equipment and manpower) for urban road construction from contractor side'*. The General Manager of AACRA, on the other hand, admits the severe problems of right of way and broadly classifies the reasons of delay into three as; *contractors' less preparation and capacity, consultants' capacity and less exposure to urban road and the right of way problem.*

By the researcher point of view these problems in turn lead the contractor, to deploy lesser manpower and machineries to site; the consultant, to poor design and frequent change of design and AACRA not to properly manage projects upon contract. Hence, all parties tend to compromise to compensate their respective problems.

4.2. Data analysis and Interpretation

I. Observations on the personal characteristics of target respondents

Though the sample size of counterpart respondents is relatively smaller than the other categories, from the cross tabulation (Table 22) and SPSS results revealed that the average experience, education and training taken by project managers seems better than that of resident engineers and counter parts.

Table-22 Cross Tabulation on Experience & Work Area

		Total years of your experience in construction:				Total
		<2yrs	2-5yrs	6-15yrs	>15yrs	
Your current work area in road construction is:	RE	0	0	15	5	20
	PM	0	0	7	11	18
	CPE	1	1	2	0	4
Total		1	1	24	16	42

Source:- Survey data

In this regard, the average education and experience of a counterpart engineer is lesser than that of others. For instance, all the 4.8 percent those who have less than 5 years of

experience are those counter part engineers assigned by the authority to supervise and facilitate the smooth operation of each road project. And other observation in this part is that there are almost no engineers who specialize in urban road construction and in M&E, except those few resident engineers' and project managers' who have acquired training in supervisory and project level management.

II. Tendering process and terms of contract

As depicted form Table 11 in the former section, 64.2 percent of the respondents agreed and strongly agreed that the tendering process of AACRA is properly published in a Media. As presented in Table 12, though significant numbers of respondents which are 40.5 percent have found it difficult to decide, 59.5 percent of the respondents said there is equal access of information to bidders.

On the other side (Table 12.2), 61.9 percent respondents have disagreed or have at least chosen to take the undecided position regarding the checking of the authority to ensure the correctness of filled bills, qualifications and document of the tender proposed by consultants and contractors. This may indicate that the available man power of the authority (in terms of experience, size and knowledge) is not adequate to do so, or because of the high push /need for construction there is an urgency that may not allow concerned bodies to check everything, or the existing information and monitoring system has difficulty to show the flaws in proposals and bills, or there would be negligence to strictly scrutinize data.

From the same Table (12.3) and from suggestions, it is learned that more than 66.6 percent of respondents have found it difficult to decide or have disagreed on the objectivity of the selection criteria and to the question on the presence of loopholes of the bid process to be influenced by contractors and consultants. In addition to this, there are some respondents who have explained their positions in the open question. For instance, one respondent said: *'the tendering process is fair and transparent to some degree but it is less participatory because the experience and capacity of the available contractors and consultants is insufficient'.*

Another respondent said; 'It is *difficult to conclude that there are no loopholes and it is objective, there are rooms for subjective judgment in the technical area in assessing manpower experience even though they are stated in paper*'.

There is no strong response asserting the availability of the loopholes yet, there is a general agreement that the contractors and consultants capacity is low, those participating are few, and there it is no strong evidence to say that things are fully objective. As one consultant said; '*it is good to involve a third party during evaluation and to hear claims, if any. Otherwise, no one dares, to tell the truth or to ask rights to a dominant client.*'

There are also conflicting views on participation citizens in bidding and selection process. One of the officials from AACRA, for instance, has reservation on the importance of participation of citizens in the selection process. And said: *'What is the benefit? It is technical, professional and confidential; participation rather may affect the process negatively and it is confidential."*

To sum up, as most of the respondents perceive and as the general result of the survey suggests, the AACRA tendering process is to same extent fair and transparent though a good size of the respondents doubt openness to citizens and /or objectivity of selection.

Regarding to the terms of contract (Table 13), while 47.6 percent of the sample respondents say terms are not clear and precise, 45.2 percent of respondents believe that there is precision and clarity of terms or contract conditions. The difference in view could be attributed to some engineers who support clarity thinking that terms of contract are almost adapted from international standards (specification). And on the other hand, however, there could be a view (thinking) that this specification should be adapted and modified to the national and local condition, even though this could be difficult with the existing capacity of the country.

Other respondent also said; *'Disputes are more of not adhere to the terms of contract, not a matter of clarity'*.

On the contrary, one consultant interviewee told; '*No one has right to change terms but a specifications, terms are almost internationally accepted norms*'.

As shown in Table13, almost 76.2 percent of the respondents strongly agree and agree on the merit of penalty whenever there is delay in contract. On the other hand, one respondent claimed that: *'Penalties are stated in contracts but not exercised'*

This shows somehow the problem is enforcement of contracts, not of enacting laws and rules. And this might be due to problems of technical capacity, commitment and belongingness of the contractor, the consultant and the authority supervisors as well.

Table 23: Cross Tabulation on Opinions of Consultancy by Work Area

		Your current work area in road construction is:			Total	Percent
		RE	PM	CPE		
By your opinion the designer of the road has also to be a construction consultant.						
	strongly disagree	1	5	0	6	14.3
	Disagree	4	7	0	11	26.2
	Undecided	5	0	0	5	11.9
	Agree	9	6	0	15	35.7
	strongly agree	1	0	4	5	11.9
Total		20	18	4	42	100.00

Source: survey data

The subjects of the study were also asked, *if the design consultant be a construction supervisor*; as depicted in Table 23 above the result is debatable. 40.47 percent of the respondents disagree/strongly disagree while 47.61 percent of them agree and strongly agree. However, when we see the cross tabulation, while 67 percent of the project managers strongly disagreed and disagreed, only 25 percent of resident engineers strongly agreed and agreed, showing a significant difference from the former. 100% of counterpart engineers agreed that the idea of playing both roles is useful. Yet, one interviewee (contractor) disagreed saying; *'Significant mistake of design problem may not be revealed if one person handle both tasks'.*

By the same token, one of the road consultants in the city, Engineer Eskindir, agrees with the idea of using separate consultants but he says; *'This works, if there are no envies and if we are true professionals, otherwise, it may lead to an even extended delays and disputes.'*

On the other hand, Engineer Fekade, General Manager of AACRA, says;

> *'To make a single person responsible at all stages is a success story of AACRA, by doing so we have reduced design costs and boosted the responsibility of consultants'.*

This may suggest the need for further investigation on the matter and that seems why view of the PMs is different from that of the REs, and on its advantages and disadvantages. From the opinions, we can understand that making the same consultants for both (design and supervision) may have its own advantage as explained above. For instance it might be good for:

- Reducing design cost because original design is revised (during construction) without extra cost
- Increasing belongingness and responsibility as said and
- Decreasing disputes between different consultants at different stages, so that time may be saved.

On the other hand, may have disadvantages like hiding mistakes of original design. And these may lead to frequent design revision and so that delay follows. From the researcher point of view, the second idea seems reasonable since construction costs are higher than design costs.

III. Observations on Resource Mobilization

Concerning the timely assignment of counterpart engineers, since significant percentage (42.9 percent) also agreed and strongly agreed on the idea that the authority assigns counter parts on timely manner, difficult to deduce that the authority does not assign counterparts on timely manner, which is 47.6 percent. As presented on the cross tabulation (Table 24), results however, varied by work area.

Other point is; there is significant agreement (76%) on the authority's supply of necessary materials for supervisors and consultants (Table12.2), though some contractors have opposite view in the way it is provided.

Table 24: Cross tabulation on assignment of counterpart by work area

		Your current work area in road construction is:			Total
		RE	PM	CPE	
Road authority assigns counter part engineers for all works (projects) on timely manner.	Disagree	7	6	0	20
	Undecided	2	2	0	4
	Agree	9	8	3	15
	Strongly agree	2	2	1	3
Total		20	18	4	42

Source: Survey Data

Mr. Zafar Sur Construction, Construction Manager for instance, said: *'By the current procedure the contractor is obligated to provide office and other facilities for the consultant, this to me, leads the contractor to focus on less important issues and to unnecessary dispute between the contractor and consultant'*

On the other hand, other consultants and officials from AACRA favored the existing system (providing facilities through contractors) this is a better way and it can speed up matters. If it is to be provided by client (AACRA) due to the cumbersome public procurement procedures it may lead to delay. This conflicting view suggests the way facilities are provided should be sought critically, in order to minimize duplication of resources (expense) across road projects in the city.

AACRA has also remarkable positive result (opinion) on effecting advance payments (Table14.5). Almost 85percent of respondents agreed and strongly agreed on the authority's ability to effectuate advance payment for timely commencement of projects. This seems because of the source of fund. Unlike ERA (Significant amount of fund receives from international organizations and donors), ACCRA is 90percent financed by the city government budget and the remaining from road fund so that payments can be effected easily.

As observed on Table 14, there is also no significant problem on whether the consultants check the contractor's preparation of master program and controlling-techniques, necessary equipment and manpower, placing of command station or not.

Most of the respondents agreed that the consultants including AACRA engineers usually check contractor's preparation before commencement of project. The problem is on reporting and taking measures on the gap between proposed on contract and the deployed, or as one consultant interviewee said it; *'There is to some extent a tolerance on problems since capacity of out contractors is yet limited'* or as the General Manager and Assistant Manager Ato Biniam Bedilu said it; *'AACRA is not only building roads but also consultants and contractors mainly those domestic ones'*

Of course many of progress reports show the gap between the manpower and equipment required and deployed, but they don't explain why and what measures are taken to solve the problem.

In general, though the mobilization and preparation evaluation of contractors is said to be good (agree) by about 50 percent respondents, due to many reasons no strong evidence on the idea that contractors and consultants are deploying resources as proposed on contract.

IV. Observations on Coordination and Impact

Form Table 15, we clearly observe that how the authority has a major problem in coordinating its tasks with other projects and infrastructure activities and 'the right of way' problem. 78.6 percent of the respondents have said that road projects are not integrated with other infrastructure tasks and 71.4 percent of them, strongly disagree or disagree or at least have doubt, to the idea that the authority checks right of way (clear of land) problem to prevent delay.

From the opinions given from the interview made with stakeholders and form the reality of the ground we can deduce that the significant reason for project delays in the city. And this in turn may show the flaws in the M&E system on its ability in solving such problems in time.

For instance, one of the ongoing construction form ARAT- kILO to MEGENAGNA which was started March 29, 2006 is only with 40 percent finished till today which was expected at the original contract to be completed within one year (AACRA Documentation).

Though there is a significant number of variance in response Table (15.3), in which 42.9 percent of target respondents have said that there is no a consideration on the unfavorable impact of the construction on the society, while 47.6 percent of them say there is. The agreement might be arising because of the some task done by contractors to alleviate the traffic problem. However, difficult to conclude whether the projects consider overall impact on the society. One interviewee from "1080 village" (one of the current construction areas) has said; *'There is no water in the area for about 6 months, we are suffering because of the road being constructed'.*

One manger interviewee from A.A City Municipality said; *'AACRA is doing well in many ways but I do not think social impact analysis is well considered.'*
Ato Amare Aregawi (Interviewee from media) also said; *'even, there is no apology for mistakes they commit against the dwellers'.*

Happening of similar problems like prolonged blockage of public road, to interrupt water and electric city system without knowledge of citizens some how shows that the concern for citizens as tax payers is not yet developed by contractors, supervisors and the authority. And implies the authority has no means or no capacity to enforce all laws cited in contracts and the given rights in the proclamation, neither through consultant nor through own supervisors.

This indicates that the authorities' and contractors' concern is simply to adhere to master plan and following the engineering specifications. It should be noted however, there are some experiments mainly from Chinese contractors to minimize problems for instance, *'they spray water to prevent dust* say' said one citizen interviewee.

On the other hand *Ato Abera Shibiru* from ARCRA said; '*Contractors have an obligation and have commitment to prevent negative impacts on the society and they are stated on contracts'*

Regarding the environmental impact (Table 15.4), 85.7 percent of respondents strongly disagree and disagree or at least have doubts on the attention to the environmental impact.

This may lead us to suggest that the primary concern of authorities is simply to increase the size of roads or still the authority requires strong design team that observe and check design problems of consultants.

V. Observations on M&E during Construction

For the question penalties are explicitly stated and exercised if projects do not start on time as per the contract (Table 16.1), 54.8 percent of respondents agreed and strongly agreed, the remaining were indifferent or disagreed, but as many respondents expressed it, on the space provided, this is one of the main reasons for delay, even if penalties are stated in contracts. The reasons for delayed commencement may arise from both parties (from the contractor or client) and this in return, may lead them either to compromise, tolerate or at least not to make claim each other.

Since 50 percent of them were undecided and disagreed, as shown on Table (16.3), there is no also strong evidence on the idea that consultants and supervisors spent most of their time in fieldwork.

Other observation in the same Table is 73.8 percent respondents disagree for the question defects of constructions are noticed immediately (Table 16.4). Hear there is similar view from one interviewee Ato Amare Aragawi; *'I don not think that there is a system to diagnose problems as they occur, the authority takes action after extended time, for instance, measures against BERTA were taken after two years of remorse and push of media and of the victim dwellers around the construction.'*

This in turn may affect time, cost and quality of works and the reason could be the inadequate capacity and size of counterparts, and consultants as supported by 73.8 percent on Table 18.2, or timely supervision is not done by both parties.

There is also a significant doubt on checking the volume and quality of inputs, since 38.1 percent (Table16.5) remained in disagreed position. Some interviewees claimed that even though there are improvements in quality, still there are problems in leveling, grading, finishing, and embanking. Because, many of the contractors are new to urban road construction.

Another interviewee says *'I don't think all constructors are supervised equally, for instance, Chinese fill rocks; which are against rule and they work at night without supervision.'*

This may indicate the presence of flaws of inconsistent quality test. On the contrary, there are some interviewees who argue that there are no significant quality problems since defects can be exposed soon unlike other constructions.

In Table17 about 80 percent of respondents' opinion in the manpower and equipment deployed in the work is not as per the contract or at least they have doubt on. This could be because of the reason that contractors have no real capacity to do the work; or there is a compromise since it is known that they have low capacity, or they are not reported properly, and/or penalties for the gap are not clearly stated in contracts, or/and not effected properly.

Survey results showed that 85.7 percent of the opinions support the poor workmanship of many contractors due to failure of using specified materials and skilled operatives.

A Chinese contractor CRBC deputy manager (Mr. Tong) however, argued on the contrary says;

> *'The reason for many problems is not a matter of skill, her we are using Ethiopian technicians; they are improving. Hence, the problem is rather of supervisors and managers in the way they schedule assign and supervise tasks. They don't make keep the employees working as we do'.*

As observed in Table 18, there are unfavorable opinion results on reliability of records, on capacity of AACRA to supervise contractors and consultants, on using master program and proper controlling techniques. 67.7 percent of respondents for instance, disagreed or strongly disagreed) on the use of programs and controlling techniques. This may show that the size, training and experience of engineers assigned to administer contracts is inadequate comparing to the complexity of the task and size of allocated budget to the sector. On the other hand, though not strong there are positive opinions on site meetings.

The results shown at personal characteristics part of this chapter, and the real practice in the office, (upon interview there are only few experienced individuals that can handle matters), and their task is not supported by other competent staff. *'Even the cost and scheduling control team in the structure (Fig 4) works only for own forces'* upon some interviewees in the authority of AACRA. And this may force these people to look to additional (part time) task so that their belongings and commitment could be affected.

VI. Reporting System

As clearly presented on Table 19, 57.1 percent of respondents say that reports are simplified and clear to understand and 54.8 percent of them also said that they contain relevant items stated by contract. However, in item 4 of the same table, significance number of respondents (71.4 percent) have disagreed the idea that reports receive prompt response and decision from those concerned, and on managers' allocation of time and resource for validity and reliability of reports. This might imply that decision makers are overloaded by bulky reports from many projects so that they may not be seen critically or there is no system that assists managers in preparing and summarizing reports that are urgent and require managerial decision.

Significant number (45.2 percent) of respondent also remained undecided for the presence of database in the authority. This may show most of them may have no knowledge about the center, or there is no database and organized project information system to assist managerial decisions (item 5). Though it is understood from the documents that there is an established system of reports mainly from consultants, in general the reporting and information system is perceived as ineffective by 54.8 percent opinions (Item 7).

Other observations on reports based on the document analysis are;

- Reports do not consider the human of projects properly (work attitude, motivation & participation), there is only physical count.
- Reports are not summarized, do not show severe problems to decision makers at the center, they are reported equally as a standard, but checked by counterpart engineers before they are submitted for payment approval. Only quarterly and annual reports are prepared at the center.

- They show delays and cost overruns but do not list the main reason for delay and cost overrun what ever the reason is.
- They don't show cost effectiveness at project level as well as at the center; hence difficult to assess which project is cost effective.
- Most of the reports do not show defects
- Reports do not show the inconvenience and problems of dwellers which are created during the construction.
- Causes of vibrations in cost are not clearly figured out. For instance, from the semi annual reports its observed that the total contract amount for the current projects up to now is 2,262,582,493.63 ETB, and paid up to march 2008 is 2,423,487,539.00 ETB (source: semi annual report, 2008 AACRA, Contract Administration Unit). The causes of the cost overrun which is 160,905,096.00ETB are not however, clear. In other words whether they are caused by inflation, by change order, or by other reason are not reasoned out so that solutions for problems will also be difficult.

VII. General Effectiveness of M&E System of the Authority

Many of the respondents are indifferent to the questions related to the general M&E system. There is no strong evidence on the presence of clear objectives and performance indicators, whether the system shows productivity or not, in appropriateness of tools for M&E, in considering citizens as partners and source of information for projects.

Through opinion results are highly dispersed 46.6 percent of respondents agree and strongly agree with the presence of guidelines, while 54.8 percent of them disagreed (Table 20.1). This proves that the evaluation format is available in contract documentation but not exercised properly.

Even though significant number of respondents remained undecided to many of the questions the survey results on other questions related to general effectiveness of M&E system as depicted in table 21, there are unfavorable results on post project evaluation, impact analysis and on the presence of M&E guidelines for projects.

Off course there are objective and performance indicators stated in plans but thy do not seem linked with the actual problems on the ground and they have limited scope to diagnose the productivity and the problems in timely manner.

For instance, as explained on chapter 4, the performance indicators stated in the strategic plan seem limited to the number of kilometers/network done every year. They don't touch social and economic issues, and not linked with the practical problem AACRA is facing. Such as, design revision, quality problems, delay and others.

There is also no significant evidence that shows the authority has a mechanism to solicit or receive information. While 54.8 percent of respondents remained undecided, 16.7 percent agreed and strongly disagreed and only 28.6 percent of them agreed and strongly agreed on the presence of the system. As the General Manager said; *'Our office is open to citizens we have allocated time to hear problems from citizens'.* This may some how show that AACRA has a good start to receive information and of correct problems accordingly but seem requires extra effort to use other sources as a tool

As many of interviewees responded and as supported with the opinion survey the application of appropriate tools is not adequate to clearly understand the problems and the challenges of each project and of the authority in general. Of course there are good signs by the management to hear citizens by allocating time, site visit of management, project progress reports, meetings & periodic evaluations however, seem required to a expand the tools to formal surveys, informal sources, to use media, employees and other concerned bodies.

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As depicted in table 21, there is no a strong opinion agreement on the question that the M&E system shows the productivity and efficiency of different resources and projects. In Table (21.1), While 42.9 percent of respondents perceived that it shows productivity (agree) 38.1 percent disagreed the 19 percent remained in different (undecided).

As also observed from annual reports of AACRA the main yardsticks used to assess performance and efficiency are the physical outputs (Kms worked per year) in relation to

past year and plan, and how much budget is worked comparing to the allowed by the city government.

However (from the researcher point of view) this system by itself is not adequate to measure productivity. At least the resources deployed mainly the budget allowed and used should be compared not only to engineering estimated costs of each project but also to the out come for instance used budget by work done in kms.

For the question; *post project evaluation is done to asses the sustainability and impact of the society*, as shown on (Table 21.3), 52.4 percent respondent disagreed /strongly disagreed while 35.7 percent remained undecided. This implies there is no formal known and presented post project evaluation to assess sustainability.

Of course by the projects very nature, after projects are completed there is a tendency (contract) to evaluate before final take over takes place, after a year of defect disability period and this by itself is a positive activity. But post project and impact evaluation is more than that, by which it demands to evaluate projects after 3 or 4 years, whether they are serving the intended purpose or not, whether the roads are serving the planned time or not, including the maintenance costs. The result will help as feedback for other further projects and may help the evaluation of the performance of contractors or consultants

Other question forwarded to respondents is on, the *role of M&E in enhancing efficiency & effectiveness;* while only 2.4 percent disagreed the remaining 97.6 percent opted agree or are in different position. This indicates where ever to be located, the presence of M&E is not questionable by all parties including the key informants.

Finally in (Table 21.5) respondents are asked to assess the overall effectiveness of M&E system of the authority. Most of respondents (59.5 percent) disagreed and strongly disagreed to the idea, 26.2 percent of them were undecided. This strongly implies that majority of respondents at least have doubts on the effectiveness of the system to effect road projects properly with quality and punctuality.

The opinion seems true for the reason that the authority M&E system to be said effective should at least fulfill two requirements:

First, there should be a good M&E system design (plan) and this can be expressed by the presence of clear objectives and performance indicators; by having defined effective reporting and decision system; by the capacity of the people assigned to effect programs and contracts; and in general by having defined system that could work in a sustainable manner.

The second issue is, if there is effective system it should enhance performance of road projects, diagnoses problems as occurred and show that expenditure is used in an effective manner.

When we compare AACRA to what it was of former days, by looking to the size of roads constructed and under construction as most interviewees also agreed, AACRA is moving a step ahead.

But to be effective in performance it is further required to see how we are going to measure performance. In this regard, based on the opinions from key informants and citizens on performance of AACRA, and as explained in the pas section, almost all interviewees agreed that the authority is doing a good job in terms of coverage of road network in the city. This in turn may have positive impact on the overall well being of the society, in reliving traffic problems and in a lot other significant positive changes. But many of them have doubts on the quality and sustainability of roads, environmental friendliness of roads and on whether they are costly efficient or not.

Especially in meeting planned schedule and coordination there are severe problems as per the opinions of interviewee. The questionnaire surveys also noticed the same.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

This chapter attempts to concisely present the main opinion- survey results based on the findings in chapter five and it forwards tentative suggestions (recommendations) that may help to improve the existing M&E system.

5.1. Conclusions

The survey results (findings) of the study revealed that the existing M&E system of road construction projects in Addis Ababa has its own strong points that have to be maintained, weak points that require improvements and some other points that require further (deep) investigation.

Accordingly, some of the positive sides observed through the study are:

The survey results indicated that the tendering process almost attempts to follow international standards and procedures of contracting projects. Based on the document analysis made, it is understood that the authority has attempted to develop standard design (in 2004) specifications and contract documents based on international standards. The survey results also showed that the tendering process of AACRA is announced through a known media. Additionally, there is no significant problem observed, in giving equal information access to bidders, and in aspects of fairness and transparency.

In addition, the terms of contract are clear and penalties are figured out, based on standards. There is a due assignment of counterpart engineers, effectuating advance payment site meetings and checking the contractors and consultants preparation before commencement of a project so that projects can be launched properly. It is also revealed that there is an established tradition to hand over road projects after evaluation using the defect liability list.

Other positive point observed is, there is a good start and result to capitalize the advantages of private institutions by contracting out projects and consulting services to local and private companies. The city government support in terms of allocating necessary budget to the sector is also positive.

Regarding M&E, there is a trial to set objectives and performance indicators in the authority's annual plan, though not exhaustive and not linked to actual activities. There is also an established tradition to submit and receive reports from projects prepared by contractors and consultants in the form of progress report, quarterly reports, annual reports and completion reports. And these reports are documented, though manual system. In addition to that, there is an attempt by top management to hear complaints from citizens by allocating some time for this purpose. Quarterly evaluation and management visit of projects is also made regularly.

As many key informants agreed on and the overall observation indicated there is a team work, commitment and high need to change the city form top management of the authority. Above all, there is a tremendous and visible progress (change), in Addis Ababa in terms of size of works done and being done comparing with what it was in the city.

Some of the weak points revealed through the opinion survey are: -

The objectives and performance indicators AACRA are shallow and not linked with the general development objectives of the city. And do not reflect and properly show the existing problem the system faces and the environmental conditions of AACRA. For instance, they only put coverage (size) in kilometers of work done per year, performance against plan, and budget used against allowed by city government. Hence, these parameters may not show performance of the authority properly, and sometimes using budgets consumed as measure stick could mislead decisions.

Other observation is that, the organizational structure is not defined well and not inline with what is done. The size, experience and knowledge of manpower assigned to administer and supervise a large amount of expenditure on road projects are also

insufficient and not fully supported by other stakeholders. At least there is no section of scheduling, costing and design for contracted road projects. The existing system is conducting contract formulation, administration and supervision interactively by few engineers in contract administration and supervision unit, hence, counter check could be lesser.

Project problems are not reported in due time. They are made part of periodic reports and they are, as a result, hidden in bulky reports. There is no rule on the way they are reported and how they are resolved as well. Similarly, the finding of the survey revealed that the system has significant problem in checking and ensuring the correctness of filled bills, qualification and other tender proposals and reports proposed and reported by consultants and contractors.

On the other hand, many of the reports show the gap between what is deployed (equipment and manpower) and what is realized in projects but the measures taken to correct the problems is not clear. Additionally, project program is not properly followed by all parties, though there is a custom to prepare a master program. This some how show, the system is not capable enough to enforce them fully, even if contracts and specifications are almost of standard.

M&E tools being used are limited to technical and engineering specification and reports stated in contracts, though M&E is more than technical supervision and it demands active participation of citizens, media, professionals and other informal sources.

As revealed from the key informants and from opinion survey, though there is no problem on fairness and transparency, the tendering process has not yet acquired full participation from stakeholders and contractors. Above all dwellers of the city are not properly represented and consulted in the planning, bidding and construction process.

There is no proper computerized information system to assist the collection, storage, retrieval and analysis of data that support decision makers. It is difficult to unveil over estimated and/or under stated bills and reports and to measure productivity of projects and resources. Documentation system is manual and the bases for estimation are not clearly understood. Due to this reason, the existing evaluation and report system does not properly show the productivity (efficiency) of different projects and resources; only engineers estimate is being taken as a base line to measure performance.

Ex-post evaluations (impact analysis after completion) are not made to ensure the projects are serving as intended, sustain ably to get feed back for other future projects and to asses' impacts on the community. If there are no almost ex-post and impact analysis once projects are completed, hence no feedback into future projects, sustainability and problems of post construction. Similarly, most of the road projects do not properly consider the unfavorable socio economic and ecological impact. Even there is no feasibility study in launching projects.

Survey results also showed that, though there are improvements, there is still a long way to go concerning quality for rock filling, asphalt, leveling, embankment and finishing. In addition, there are no strong design teams that assure quality of designs and minimize the frequent design revisions during construction by revealing potential problems early so that delay could be minimized.

Even if, there are specifications on quality, delay, environmental protection, contractor and consultant evaluation, the extent of enforcement is low. This implies that accounting chain is very feeble and, instead, compromise and tolerance among parties is high leaving the final burden on tax payers. For instance, in most cases of delays there are no penalties but simply claim of each other , (the *contractor* says: the reasons are the right of way problem and frequent design revision; the *consultants* on the other hand blame contractors for their poor preparation, workmanship and low capacity, and the *client (AACRA)* curses both the consultant and the contractor for their low capacity and

experiences in road construction, and infrastructure branches, housing agencies and sub cities for their lower collaboration to the right of way problem and to the coordination of tasks in general).

There is a significant problem in coordinating road works with other infrastructural works; thereby making the sustainability of road works questionable. No guarantees on the accomplished road works for not being damaged soon. Mainly, a constant problem of right of way is being managed inconsistently using ad hoc committees.

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In general, the research results have revealed that the existing M&E system is not effective enough to enforce contracts as stated. And the engineers being assigned to supervise and diagnose problems of each project are fewer, less experienced and less knowledgeable compared to the supervisees.

Matters that require more (deep) investigation: -

- Whether a separate (independent) unit is required for M&E or whether it has to be integrated with the existing management and contract system.
- Whether facilities to consultants shall be accessed through contractors or through AACRA or other means in order to minimize duplication of resources.
- Though contracts are made based on fixed- sum with some allowance for unpredictable factors to relax, why the percentage increase in cost is so unbalanced with the percentage of elapsed time. For instance, Bole Bulbula bridge (as shown in its completion report), the time given to accomplish was originally 365 days but was completed after 840 days with 230 percent elapsed time but the cost incurred comparing to original contract amount is only 10 percent which is from 29,167,845.60 to 32,063,682.29ETB.
- Whether from the very beginning to chose capable and experienced contractors and consultants with higher cost so that final delays, defects and other problems might be minimized or by taking our national condition and capacity into consideration to choose less capable and less experienced contractors and consultants so that the risk of extended delay, less quality and cost overrun remain there.

5.2. Recommendations

Based on the findings and conclusions drawn, some tentative suggestions to promote effective M&E system are offered below.

Roads are meant to increase the economic welfare of citizens. Thus, citizens, as taxpayers and owners of projects, should be well considered in monitoring and evaluating projects during and after construction. In executing road projects the need of citizens must be adequately reflected, well understood and satisfied. For this purpose, participatory approach (pre, on-going and ex-post) evaluation should be introduced in the sector.

Project objectives and performance indicators should be enhanced by including ideas of poverty reduction objectives, lowering delayed commencement, minimizing the number of design revisions, and lowering traffic congestion in the city, increasing cost savings from fuel, and showing cost per kilometer done by comparing to other standards. Focus of monitoring should also expand from technical specifications and control system to broad participatory approach. In order to correct the flaws of formal reports, data/information collection tools like survey, key informants, informal sources, media and others should be used in planned and organized manner.

In addition, the role of the city government should be clearly figured out and it must participate in M&E of road projects, since they consume part of its capital budgets. The city government should not only support AACRA through not only budgets but also by at least making the infrastructure and construction unit play an important role in the coordination of infrastructural works. It should also assist the sector by developing independent media, advocacy groups and over sight bodies. Government should ensure that investment on roads make the maximum contribution to the poverty reduction.

Other important point is, trouble shooting report mechanism should be devised (sought) to solve urgent problems before they got worse. Rood constructions as long term commitments and associated the life of citizens, requires strict adherence to quality specifications set on design and special attention for quality follow up at single pace of

activity. Inspection should be made at appropriate stages as construction proceeds and defects noticed during inspection should be pointed out and received immediately.

AACRA (client) requires to be reinforced with competent and sufficient professionals and effective M&E training should be considered to ensure authority objectives. Particularly, strong and capable deign team at a central level seems a requirement, otherwise, there is a possibility of passing weak road design to construction in turn, thus leading to frequent revision and delay, high cost overrun and leaving at last the burden on the public.

Third party involvement (like that of the media, professional associations and universities) should be considered in bidding, reviewing designs, evaluating performance of projects and to hear complaints (if any) so that objectivity and participation can be enhanced.

Though the tasks of engineering and consultancy require high level of freedom, some system should be sought to check whether supervisors and consultants are duty bound through participatory approach, by developing explicit reward and penalty system and other mechanisms like frequent surprise site visit and more demanding reports. Inculcating the spirit of ethics, professionalism, belongingness, accountability, and nationalism is what the system should strive for on top of rules and regulations.

Separating the tasks of contract formulation, administration and supervision should be considered rather than leave them to one unit as is the case so far. The organizational structure should also be revisited to meet the current developments of AACRA. Currently, it looks old, and focuses, only on managing the tasks of own forces, which are significantly low compared to contractor tasks. (For 2000 fiscal year for instance, the budget held for contract works constitute 83 percent of the total capital budget allocated to the authority while the remaining is to own forces).

Other point that require due consideration is the establishment of well-organized computerized information system that holds base line data for evaluation, and assists to collect, analyze, retrieve and distribute relevant information in due time is vital. If there is adequate project management information and knowledge at the center; to approve over stated or under stated reports and proposals, and to reveal potential design problems early is possible.

Separating the tasks of design consultancy, and construction supervision may help to develop counter checking and to minimize frequent revision of design which could in turn decreases construction costs and delays. The assumption is if design and construction supervision are the same it may lead to a compromise between consultants and contractors without the consent of the client (AACRA) and this in turn could also lead to frequent design revisions, delays, hide of poor qualities and cost overruns. Since the project construction cost is by far higher than the design cost, to spend more on design is better than the construction.

In general new approach to an effective M&E system that implements better the performance of road projects is needed as integrated part of the management; in which stake holders participate and learning takes place if we are to create real impact. Since road construction is a public project created for good of citizens, expected to deliver more quality, service, satisfaction, environmental friendliness and safety than others.

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ANNEX I

Addis Ababa University

Faculty of Business and Economics

Department of Public Administration and Development Management

Opinion survey questionnaire to be filled by contractors, consultants and counter part engineers from road authority involved in road construction projects.

Dear respondent:

This questionnaire is designed by a graduate student from A.A.U to conduct a study in a partial fulfillment of Master's Degree in Public Administration. And the main purpose of the study is to collect information that helps to ***"asses the effectiveness of monitoring and evaluation system of road construction projects in Addis Ababa".***

The results of this study will have of high importance in academic institutions for further study and for road authorities and policy makers in order to make appropriate measures in the sector. Your genuine and timely response is therefore highly appreciated.

The data to be collected from individual respondents will be kept confidential and whenever needed, it will be presented in aggregate, hence in no ways will affect your personal position.

I thank you in advance for the valuable information you are sharing and for the golden time you are going to spend for this purpose.

For further comment and information you may contact me at:

ghgmh_2000@Yahoo.com ***or Phone- 0911-60 57 89.***

General Instruction for Filling Responses

i. you do not have to write your name

ii. Please indicate your position or level of agreement/disagreement by using tick " ✓" mark on the box (format) provided for the rating scale (closed) questions and write your response in brief, (if necessary) on the space provided in the case of open questions.

Part I. Personal Information

1. Your current work area in road construction is:
   - Resident Engineer (on behalf of consultant) ☐
   - Project Manager (on behalf of contractor) ☐
   - Counterpart Engineer (on behalf Addis Ababa Road Authority) ☐
   - If other, Specify _____
2. Total years of your experience in construction:

   Less than 2 years ☐ From 2-5 years ☐

   From 6-15 years ☐ More than 15 years ☐
3. Your academic status in education is:

   Diploma and below ☐ BSC Degree ☐

   MSC Degree ☐ PhD ☐

   Please specify the special area of your study _____
4. Do you have additional formal training

   Yes ☐ No ☐
5. If your answers "Yes" to question No. 4

   What is the specific area of your training? _____

   For how long is given?_____

   How often is given? _____

Part II. Questions related to tendering process and mobilization of resources

6. Please indicate the level of your position (agreement or disagreement) to the following statements related to the tendering process of road construction projects in Addis Ababa.

No	Item	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
		5	4	3	2	1
6.1	The tender of all works is properly published on known media					
6.2	The Road Authority provides equal access to information and bidding.					
6.3	The authority properly checks the correctness of filled bills, qualifications, and documents of the tender proposed by consultants and contractors					
6.4	Consultants and Contactors are selected based on objective, predetermined and known criteria.					
6.5	The bid process leaves no loop hole for consultants and contractors to influence the selection process in favour of them.					
6.6	The selection process is open to citizens.					
6.7	The terms of contract are clear and precise so that they can minimize disputes during and after construction					
6.8	If there are disputes between the authority and contractors, these are due to poorly defined contracts and specifications.					
6.9	Penalty for poor quality and deleyance of work process is clearly pointed out in contracts.					
6.10	Contracts contain the elements of monitoring and evaluation at all stages in the project life cycle.					
6.11	By your opinion the designer of the road has also to be construction consultant.					
6.12	In general the tendering process is fair, transparent and participatory					

6.13 If you have some other comments on the problems of tendering process please specify _____

_____

_____

7. Preconstruction resource mobilization and preparation related questions

No	Item	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
		5	4	3	2	1
7.1	Road authority assigns counter part engineers for all works (projects) on timely manner.					
7.2	Road authority supplies necessary materials for supervision to consultants.					
7.3	The authority does every necessary task for timely commencement of the project.					
7.4	Projects are integrated (coordinated) with other infrastructural activities and projects in the city.					
7.5	Consultants check (monitor) whether the contractor has:					
	d. all the necessary & relevant information about the work/project					
	e. has prepared master work program.					
	f. has prepared the detailed program and controlling techniques					
	d. has mobilized the necessary equipment and human resource as per the contract.					
	e. the contractor has set in place command station for the field work.					
7.6	The authority checks the consultant's:					
	- office arrangement					
	- manpower/staff					
	- necessarily materials					
7.7	Clear of land (right of way) is checked to prevent delay.					
7.8	Road authority effectuate advance payments as per the contract					
7.9	The Impact of the road construction on the community and traffic is well considered and tried to minimize.					
7.10	The Impact of construction on environment is well considered and tried to minimize.					
7.11	In general mobilization of resources and preparation of					

No	Item	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
		5	4	3	2	1
	contractors and consultants is properly evaluated before the construction work commences.					

7.12. If you have other information on resource mobilization please comment here ____

_____

_____

Part III. Monitoring and Evaluation Issues during construction

8. Please indicate that to what extent do you agree/disagree to the following statements regarding monitoring and evaluation issues in road construction projects in Addis Ababa.

No	Item	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
		5	4	3	2	1
8.1	Penalties are explicitly stated and exercised if projects do not start on time as per the contract.					
8.2	Monitoring and inspection of performance is made regularly.					
8.3	The consultants spend most of their monitoring and evaluation time on field work instead of from the office.					
8.4	Defects of construction are noticed immediately before the contractor go long with its unacceptable performance.					
8.5	Volume and quality of inputs is always checked and tested by comparing to predetermined standards					
8.6	There are clear objective and performance indicators for evaluation					
8.7	There is a frequent and consistent quality test.					
8.8	There is evaluation format to evaluate the performance of consultants					
8.9	The man power and equipment deployed by contactors and consultants are as per the contact and monitored properly.					
8.10	If There are repetitive defective works, they are result of supervision not being done while defect is accomplished.					
8.11	If there is poor workmanship, it is because of failure to use specified materials and skilled operatives.					
8.12	A site meeting between consultants, contractors and counter part engineer with minutes and evaluation of previous performance is made regularly.					
8.13	Contractors, consultants and supervisors strictly follow the master program and effectively use the project planning and controlling techniques					
8.14	The material records (data entry/exit) at project level are proper and genuine and they are checked by consultants for their quality and					

No	Item	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
		5	4	3	2	1
	quantity.					
8.15	Most problems and disputes happen during construction (if any) are resolved promptly as occurred.					
8.16	If there are poor quality of work and inflated bills it is because of :					
	- negligence of consultants and counter part engineers					
	- collusion between contractors and consultants.					
8.17	The project managers assigned by road authority have the required capacity to monitor and evaluate the tasks of consultants and contractors.					
8.18	There is a mechanism by the authority to ensure whether all parties and supervisors in construction are on their assignment or not.					
8.19	In general there is adequate inspection and reporting system during construction to diagnose problems as they occur and to solve them promptly.					

8.20. If other comments and observations on problems during construction please specify

_____

_____

9. Report systems and decision making related questions

No	Item	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
		5	4	3	2	1
9.1	Most of the project reports are simplified and clear to understand.					
9.2	Most of the regular or periodic reports hold relevant items to decision makers.					
9.3	Reports are prepared and disseminated on timely manner.					
9.4	Reports receive prompt response and decision from those concerned.					
9.5	The road authority and managers at lower level allocate resource and time to assess the validity and the reliability of data in reports.					
9.6	Most reports are planners oriented and for formality, not problem solving oriented					
9.7	Centrally there is a data base for all projects and for external data that help to store, analyze & retrieve data promptly.					
9.8	The authority is ready and has mechanism to receive/solicit information from other parties and make prompt correction accordingly.					
9.9	In general the monitoring and evaluation system of Addis Ababa Road authority and at project level has defined and effective reporting and information system.					

9.10. If other observations on report systems & decision making situation please specify _____

_____

_____

_____

_____

_____

Part IV. Monitoring and Evaluation Systems in General

10. To What Extent do you Agree/disagree to the following statements regarding the general elements of monitoring and evaluation system of road construction projects in Addis Ababa

No	Item	Strongly Agree	Agree	Undecided	Disagree	Strongly disagree
		5	4	3	2	1
10.1	There are monitoring and evaluation guide lines for projects					
10.2	The monitoring and evaluation system has clear objectives and performance indicators to diagnose problems as they happened					
10.3	Monitoring & evaluation issues are well considered from preparation to the completion of road projects					
10.4	The Monitoring and Evaluation system is more of process oriented than out come (result) oriented.					
10.5	The monitoring and evaluation system is more cost focused than time.					
10.6	The system explicitly shows the productivity and efficiency of different resources and different projects					
10.7	The monitoring and evaluation system enables to check and to reveal false reports, inflated bills, and not genuine change orders.					
10.8	Appropriate tools are used to collect information for monitoring and evaluation.					
10.9	There is a mechanism to receive and use information from the society and other sources..					
10.10	Post-project evaluation is done to assess the sustainability and impact of the project on the society.					
10.11	The role of monitoring and evaluation in enhancing efficiency and effectiveness (performance) of road projects is vital.					
10.12	In general Addis Ababa road authority has an effective monitoring and evaluation system to effect contracts as designed.					

10.13. If you have other observation on the monitoring and evaluation system of Road Construction Project please specify

_____

_____

I Thank You!

Annex II

Guidelines for Semi -structured personal interview (survey) of key informants from road authority, consultants, contractors and citizens.

1. How do you evaluate the performance of AACRA in terms of physical progress (quantity), quality, timeliness and cost effectiveness?
2. What are the existing criteria for short listing and selecting contractors and consultants?
3. Who are the participants in selecting (awarding) contracts to consultants and constructors?
4. What are the monitoring evaluation tools exercised (reports, meetings, site visit, informal source, media . . .)?
5. What are the mechanisms to discover false reports, inflated bills, conflict of interest of consultants, and wrong change orders?
6. Do the impact of the construction on the society well considered at plan phase and during construction?
7. Does the authority make pre-ante, terminal and impact evaluation regularly?
8. Who involves in evaluation of the above phases?
9. What are the performance indicators to evaluate the input, process and output of the project?
10. Do citizens participate in project planning and implementation? If so how?
11. Why do design consultants become construction consultants?
11. What is actual/average time required to correct problems reported from projects.
12. Is there a mechanism that helps to assure where the project managers and supervisors of the authority are on their assigned task?

Annex III

Key informants for the personal interview

1. Engineer Ali Mohammed: Medrok Construction Business Development
2. Ato Fekade Haile: AACRA General Manager
3. W/ro Demkech Mengesha: AACRA Planning and Program services Head
4. Ato Ambaye Aklilu :Addis Ababa City Infrastructure and Construction Manager
5. Ato Abera Shibiru :AACRA, Contract Administration and Supervision Head
6. Ato Amare Aregawi : Ethiopian Reporter, Chief Editor
7. Mr. Zafar Iqal : Sure Construction, Construction Manager.
8. Mr. Tong Yanhui: Deputy Manager, China Road and Bridge Construction (CRBC)
9. Ato Binyam bedilu: AACRA, Design and Construction Supervision Assistant Manager.
10. Ato Kiflom _____ : NET Consultants Manager
11. DR. Samueal Tadesse : ACCRA, Member of Executive Board.
12. Engineer Eskinder Zewdie: Zewdie consultant manager

Annex IV

The completed Asphalt Roads (2002 – 2007)

1. Addis Ababa City ring road phase I and II
2. Ethio-China friendship road
3. Ourael- Medhanealem Church – Bole Airport
4. Adwa square =- Adwa ridge Kazanchis
5. Semen Terminal – Kotebe kara
6. Alert Keranyo
7. Abo Roundabout – Bublula extension.
8. Mekanisa round abou t- Jambo Lebu roaund about Lafto
9. Yerer Ber gurdhsola CMS road
10. Megenagna Ayat Road (right side)
11. Gofa Mazoria Kirkos
12. Bole medhanealm Roundabou t- Hayat Hospial
13. Abo ring road roundabout – Debre Zeit road
14. Semien bus terminal road – CMS road

Roads construction to be completed whose construction to be completed till 2009

1. Gotera Interchange
2. Winger ring road roundabout – Gojjam ber
3. Yekatit 12 round about Afincho Ber –Semien Hotel
4. Adwa square (Megenagna – CMC Ayat ()left side
5. Megenagna England Embassy – Kebena Gnfile Arat Kilo and Kebena Minelik Hospital
6. Yerer Ber Yerer Goro Sewerage Treatment
7. Yeshi Debele –Ambo Road
8. Ayat – Yrer Goro School Meri Radio Beken Extension Area
9. Dama Hotel – Hanna Mariam Bridge ring road oer bridge
10. Gofa Kamp Mekanisa ring road roundabout
11. Mexico square (Africa union) Pushikn quare Mekanisa ring road round about

12. bus No. 3 terminal – Bisrate Gebriel Tele Dese Hotel / Tele pushkin square
13. Tor Hailoch ring road roundabout – Keranyo
14. Kolfe Philipos Akso Addisu Sefer
15. bole medhihanealm Rondabout – Bole road (Alem Building
16. Adwa Bridge Gedera Hotel – Parlama Banko D'roma
17. Yosef Ring road roundabout – Woreda 17 Health Center
18. Axum Hotel – Bole secondary school
19. Torhailoch roundabout- Building college
20. Kirkos – Lagar Train Terminal

Source: AACRA Strategic Plan and Annual reports

Annex V

Types of Reports expected from consultants

- Monthly program report
- Quarterly report
- Engineering report
- Inceptive reports
- Topographic report
- Preliminary design reports
- Hydrological reports
- Pavement design reports
- Soil and material report
- Design standard report
- Right of way reports
- Geotechnical investigation report
- Street lighting design report and including drawings

Standard specifications developed in 2004

- Standard biding documents
- contact administration documents
- Street light specification documents
- Soil and material specifications
- Bridge design
- Technical specifications
- geometric design
- Traffic and axel load design
- Pavement design
- Drainage design

Source: AACRA Contract Documentation

Annex VI

Ethiopian Road Network Growth

(1951-1975)

Year	Length in Kms.	Index (%)
1951	6400	100
1959	6850	107
1963	7600	119
1968	7950	124
1969	8400	131
1970	8450	132
1971	8750	137
1972	8900	139
1973	9160	143
1974	9260	145
1975	9360	146

(1976-1991)

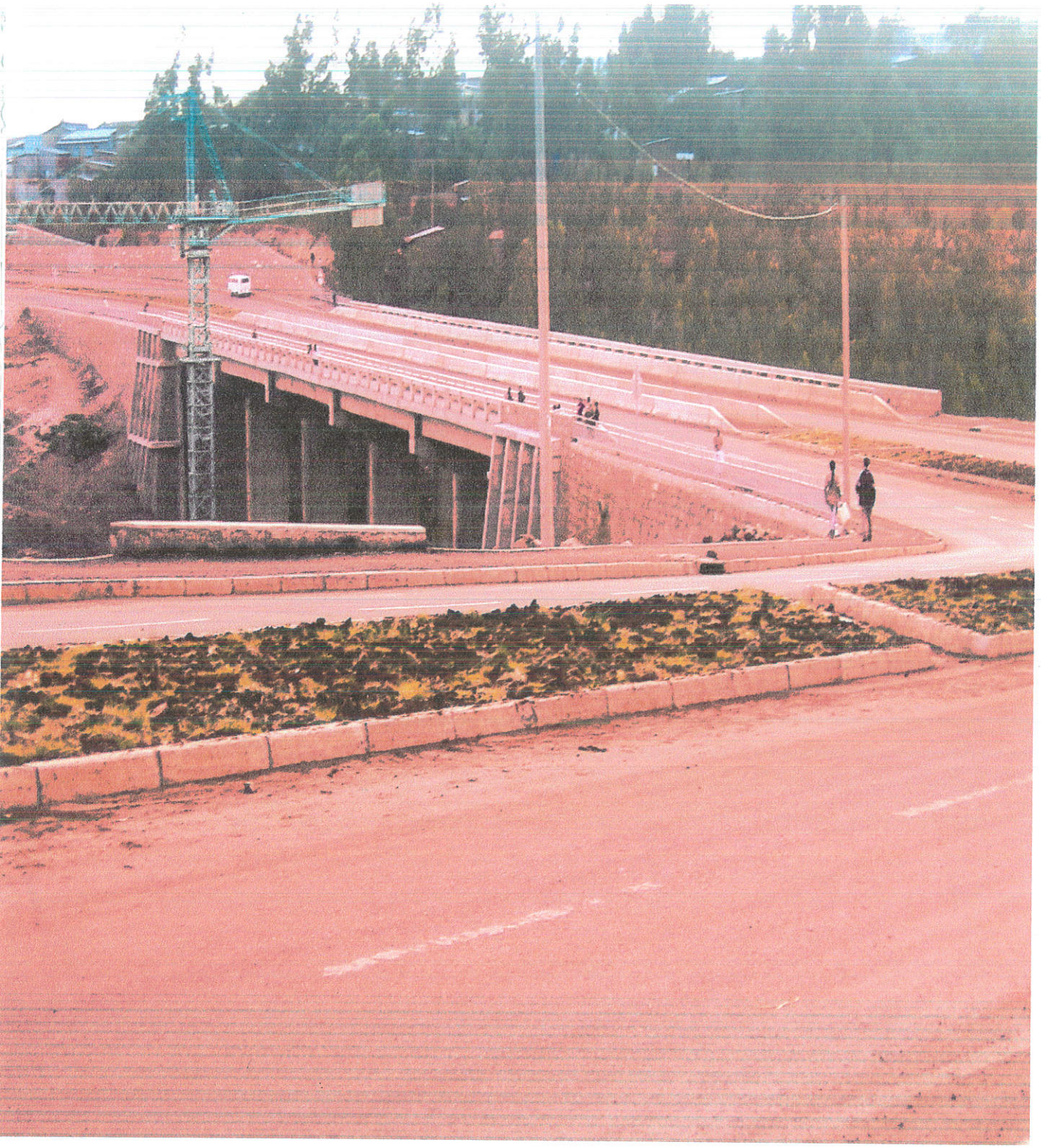
Year	Length in kms	Index (%)
1976	9520	100
1977	10068	106
1978	10642	112
1979	11534	121
1980	122208	128
1981	12775	134
1982	14931	157
1983	15501	163
1984	16638	170
1985	16638	175
1986	17237	181
1987	18214	191
1988	18611	196

Year	Length in kms	Index (%)
1989	18611	196
1990	18946	199

(1992 – 2000)

Year	Length in kms	Index (%)
1992	18081	100
1993	18366	102
1994	21534	119
1995	23442	130
1996	23832	132
1997	23832	132
1998	26053	144
1999	28652	159
2000	31571	175

Source: ERA Journal (2001)



BOLE - BULBULA BRIDGE, BY VARNERO APRIL 1997

GOTERA INTERCHANGE (UNDER CONSTRUCTION)

DECLARATION

I, the undersigned, declare that this thesis is my original work and has not been presented for a degree in any other University, and that all sources of materials used for the thesis have been duly acknowledged.

Declared by:

Name: Gebrehiwot Gebremariam

Signature: _____

Date: July 16, 2008

Confirmed by Advisor:

Name: Minas Hiruy

Signature: _____

Date: July 18, 2008