ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

EVALUATION OF OMO - KURAZ 1 SUGAR FACTORY PROJECT USING OECD CRITERIA

BY

EPHREM GEBREGZIABHARE

ID NO.SGS/0540/2009A

July, 2019

ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY COLLEGE, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF MASTER IN PROJECT MANAGEMNT

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APPROVED BY BOARD OF EXAMINERS

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Declaration

I, hereby, declare that this thesis entitled *Evaluation of Omo - Kuraz 1 Sugar Factory Project using OECD* Criteria is my original work, prepared under the guidance of Maru shete (PhD) and has not been presented for a degree in any other university. All source of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

_____ _____

Name Signature

St. Mary`s University,

May, 2019

Addis Ababa, Ethiopia

Endorsement

This is to certify that Ephrem Gebregziabhare has completed his thesis entitled Evaluation of Omo - Kuraz 1 Sugar Factory Project using OECD Criteria. As I have evaluated, his thesis, it is appropriate to be submitted as a partial fulfillment required for the award of Master of Business Administration in Project Management.

_____ _____

Advisor Signature

St. Mary`s University

May, 2019

Addis Ababa, Ethiopia

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The completion of this project work would not have been possible without the support, cooperation and encouragement of many individuals. I would like to thank my advisor Maru Shete (PhD) for his guidance during the whole process of my paper. The next appreciation goes to for Ethiopia Sugar Corporation and METEC staff for their willingness to answer my interview.

List of Acronyms

CV	Cost Variance
CPI	The cost performance index
DAC	Development Assistance Committee
EAC	Estimate at Completion
ESC	Ethiopia Sugar Corporation
ETC	Estimate to Complete
EVA	Earned value analysis
EVM	Earned value management
HRW	Human Rights Watch
METEC	Metal and Engineering Corporation
PMBOK	project management body of knowledge
PMI	Project Management Institute
SWWC	South Water Work Construction
OECD	Organization for Economic Co-operation and Development
MDGs	Millennium Development Goals
SDGs	Sustainable Development Goals
SV	The schedule variance
SPI	The schedule performance index
VAC	Variance at Completion

Abstract

These days Ethiopia is building around 8 sugar factories that has strategically benefit for the country economy. Even though many peoples are anticipated on the projects, due to different reason the projects are tarry, KURAZ I is one of them. In this research using OECD (Organization for Economic Co-operation and Development) evaluation criteria; the relevance, effectiveness and efficiency aspects of the project is analyzed in detail. Descriptive research approach is selected for this study. Data is collected for the study using document review and semi-structured interview. The collected Data was analyzed and interpreted using descriptive analysis technique and earned value analysis. The study found even though the project is consistent with local community need, country requirement and global priorities, it's failed to achieve cost, quality and schedule requirement of the project, and if these constraints of projects is can't be achieved it can be called 'failed project'(George, 2017). Using semi-structured interview the reason behind the project is classified into two categories; the first internal causes of project failure are: Lack of experience in contractors and sub-contractors, corruption, lack of skills and inexperience of project management knowledge and absence of good contract and procurement management are identified**,** from external side; Fluctuation of Prices, Political situation of the country and Political economy of Ethiopia are found. Based on this finding, recommendations are made to overcome these challenges. Accordingly, Termination of the contract with METEC must be the first corrective action of the sugar corporation, for further projects; contingency plans to cover the material price escalation and stopping government officials interferences in their work. They should also make contract with project management Consultant because they are helping organization in the project by managing the project and related specific activities. The research findings will be expected to assist the sugar corporation.

Keywords: project evaluation, relevance, effectiveness, efficiency and OMO-KURAZ

Chapter One
Introduction

1.1 Background of the study

Projects are the basic building blocks of development. Without successful project identification, preparation and implementation, development plans are no more than wishes and developing nations would remain stagnant or regress (Gittinger, 1972). Especially in developing country projects are used as attainment of development objective of the country (Ahmed, 2013). Unfortunately, many project owners and stakeholders do not recognize the need and usefulness project evaluation (Fatino, 2005).

Evaluation is a process that critically examines a project, program and policy. It involves collecting and analyzing information about a project activities, characteristics, and outcomes. Its purpose is to make judgments about a project, to improve its effectiveness, and/or to inform programming and project decisions (Patton, 1987). It's also an important tool that your organization can use to demonstrate its accountability, improve its performance, increase its abilities for obtaining funds or future planning, and fulfills the organizational and country objectives. It's also a systematic investigation of the worth or significance of an object (Gosling, 2010). By communicating the results of the evaluation, your organization can inform its staff, board of directors, service users, funders, the public, or other stakeholders about the benefits and effectiveness of your organization's services and programs, and explain how charities work and how they are monitored. Although there are many benefits in conducting evaluation, it will be a waste of your organization's country resources if the evaluation results are not used (Zarinpoush, 2006). The purpose of evaluation is to provide information for actions such as decision-making, strategic planning, reporting, or project modification. Project evaluation helps to understand the progress, success, and effectiveness of a project, it also help assesses activities that are designed to perform a specified task in a specific period of time.

Evaluations fall into one of two broad categories: formative and summative. Formative evaluations are conducted during project development and implementation and are useful if you

want direction on how to best achieve your goals or improve your program. Summative evaluations should be completed once your project are well established and will tell you to what extent the program is achieving its goals (Jenny and Loek (2005). Using OECD (Organization for Economic Co-operation and Development) evaluation criteria in this thesis KURAZ I sugar factory is analyzed. The purpose of this evaluation is to assess planed performance and delivery of KURAZ I sugar factory project according to OECD evaluation criteria. The evaluation will help to improve its future projects through lessons learned and best practices generated through this project.

The researcher chose OECD as evaluation criterion because it has multiple international evaluation criteria, the evaluation criteria's are: relevance, effectiveness, efficiency, impact and sustainability. According to OECD (2002) glossary definition "OECD Evaluation is the systematic and objective assessment of an on-going or completed project or program, its design, implementation and results. The aim is to determine the relevance and fulfillment of objectives, development efficiency, effectiveness, impact and sustainability."

1.2 Statement of the problem

Governments in developing countries, where approximately 85.4% of the world's population lives in, develop different projects to achieve their social and economic sustainable development objectives (Human Development Report,2011; Zeybek and Kaynak, 2006; Cohen, 2006). This is accomplished through construction of different projects. Because Ethiopia is the nation that has low living standards, undeveloped industrial base, and low human development index (HDI) the 2018 world bank report classify Ethiopia as developing countries.

As developing countries Ethiopia also initiate different projects, construction of Sugar Factories is one of them. Even if annual per-capita per annum sugar consumption of the nation is low, about 5 kg, and 40% of the consumption or effective demand is covered by imported ones (FDRE Sugar Corporation annual report, 2016). FDRE Sugar Corporation has a plane to increase the local production so as to minimize the local sugar shortages, to stop importing and to export sugar at large (GTP I, 2010). Under GTP I, the government assigned the Ethiopian Sugar Corporation (ESC) the challenging task of increasing sugarcane production and processing capacities in order to meet a threefold objective: to meet growing domestic demand; to create employment opportunities in 'structurally weak' regions of the country and to boost foreign currency earnings from the export of sugar(Kamski, 2016).

When the projects intended, its plan was to increase the country sugar production capacity and to become world top ten sugar producer and exporter countries, to achieve this objective in GTP I FDRE Sugar Corporation planned to construct 8 sugar factories, which has a capacity (GTP I, 2010)

Among the factories, KURAZ I sugar factory was one of them, which is discuss in this thesis. When this project intended it was proposed to produce 300,000 ton of sugar per year, from its byproduct, projected to generate 55 Megawatt of electric and 30,000 ton of ethanol, and create employment and give social service to indigenous societies. To complete the sugar factory and other works of the projects activities with METEC and government of south nation and nationality people projected estimated 684,517,000 USD or 13,690,348,000 birr within 18 months (July 1 2011 – January 1 2013) and 3 years respectively. The expected macro-economic effects of the KSDP I was manifold (e.g. export revenues, construction sector, and consumer

market growth). Unfortunately, because of different reasons the project doesn't meet its objective with planed budgeted cost, time and quality, it's just 'sweet promise' only (Kamski, 2016).

Because the source of budget is received from local and foreign financial institutions, the tarry of the project increase the interest of the credit, this in turn affects the economy, social and political sectors of the country (ESC annual report, 2016). Even though the corporation follows up and reports every stage of the project, it doesn't give us clear picture and analyze reason behind the results. In this research the researcher evaluates each aspect of the project and using earned value analysis provide the project status from budget and schedule point of view, it also forecast these two variables(budget and schedule) at project completions.

1.3 Research Question

- The extent to which the objectives of the project development intervention are consistent with beneficiaries' requirement, country needs and global priorities?
- Are resources and inputs converted into outputs in timely and cost effective manner?
- Did the project activities attained its objectives?
- What are the positive and negative changes are appear and will likely to appear due to the projects.

1.4 Objectives of the study

The general objective of this study is to evaluate the performance of Omo-Kuraz I Sugar Development Project using the OECD criteria of project evaluation. The study has the following specific objectives:-

- To examine the achievement of the planed objectives of the project using schedule performance index.
- To examine the performance of the project in terms of its cost performance index
- To assess the relevance of the project from the perspective of different stakeholders

1.6 Significance of the Study

Currently Ethiopia invested huge investment in sugar factory development and most of the factories are reported to perform inefficiently and ineffectively. And still the remaining factories

are continuing implementation (FDRE Sugar Corporation, 2016). So this evaluation is expected to point out the major weakness of the project, clarify the reasons behind ineffectiveness and suggest possible solutions of the selected project. This will directly and indirectly help the ongoing sugar factories and also contribute to the designing of similar future projects.

1.7 Scope and Limitation of the Study

In this study relevance, effectiveness and efficiency of KURAZ 1suger factory will be evaluated. Due to time, cost and experience constraints, evaluation of the project from impact and sustainability dimension is omitted. Some costs like farm mechanization costs are excluded, because the equipment's are used in other sugar factory projects and it was difficult to differentiate from which project the budgets spend. In addition, the reasercher focus only the operating cost and works of the project like; the Sugar and Ethanol factory, Irrigation infrastracture works, Land development, and Housing and Infrastructures, in order to minimize risks of unnecessary distension(become broad), *Pre operating Cost like; Feasibility study cost*, *Training cost* and *Interest during Construction, around 2 billion birr is excluded from the research.*

Other, as with any research project, this study has been subject to various limitations that may have hindered its accuracy. The following major points are critical limitations of the study:-

Difficulty to get information related the project, due to Poor cooperation and reluctance of some respondents for the interview.

Lack of sufficient literature conducted on construction project evaluation using OECD criteria's, are the major limitation of the studies.

Difficulties of differentiate effectiveness from impact evaluation criteria's, its characteristics of the criteria's.

1.9 Organization of the Study

This study contains five chapters. The first chapter deals with background information, statement of the problem, objective of the study, significance of the study, operational definitions and scope of the study. The second chapter deals with review of literature, the third chapter discusses

the utilized research methodology. In the fourth chapter data collected from different sources, about the project is evaluated in the last chapter the study will conclude by summary, conclusions and recommendations parts.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter reviews prior studies on the subject being researched. The chapter has seven parts. The first describes the concept of projects and overview of project management respectively. The second section describes about the meaning and features of Project evaluation, the third section discuss about types of project evaluation, the fourth section summarizes evaluation its importance, the fifth about evaluation procedure, six about evaluation data: Sources and Methods and the last section summarize empirical literature on the subject.

2.2 Definition of Project

Projects are one of the several instruments to achieve particular objectives in a process of development. Thus, projects have to be discussed as an integral part of the national development strategy for they have to be evaluated in close reference to the overall development policy of a country. Projects have been described as "the cutting edge" of development; they embody the policy choices flowing from development objectives and acts as the vehicle or the medium of the described social changes (Rondindlli, 1976). As such then, projects are the means through which development targets are achieved and are considered to be a tangible benefit for the project beneficiaries. Without visible projects on the ground, policies, strategies, and plans for development are simply administrative. In most cases, it's easier to describe than to define a project. However there are different definitions, a project is referred to as:

> *"*Project is a temporary endeavor undertaken to produce a unique product, service or result" (PMI, 2008, p. 5).

> "It is a proposed undertaking involving a complex set of economic activities in which scarce resources are committed in expectation of benefits that exceed the resources in order that investment decisions are wisely carried out in the area of development plan, formulation implementation."

According to PMI (2008) Project management is the application of knowledge, skills, tools, and techniques to project activities to achieve project requirements. Joseph (1997) also define project management as "accomplished through the application and integration of the project management processes of initiating, planning, executing, monitoring and controlling, and closing." It is the universally accepted standard for handling endeavors that are temporary, unique, and done for a specific purpose. PM engages good practices to support coordination, organization, and completion of projects from start to finish (wills, 2012). With project management, you can meet defined objectives and satisfy stakeholders. Stakeholders are individuals who have a vested interest in the project. They can make or break the success of a project

2.3 Project Evaluation and its Types

Once a project has been carried out, it is often useful to look back over what took place, to compare actual progress with the plans, and to judge whether the decisions and actions taken were reasonable and useful. Giving a single definition of evaluation is nearly impossible due to the fact that evaluations adapt to what is wanted or needed by the sponsor, participant, or another involved party. Furthermore, the field of evaluation is relatively new, meaning that terms and opinions about the subject vary greatly depending on the industry, country, and general attitude toward business. However, a few definitions have been chosen which best represent what the evaluation is:

> Evaluation is the systematic collection of information about the activities, characteristics and outcomes of projects /projects for use by specific people to reduce uncertainties, improve effectiveness and make decisions with regard to what these projects are doing (Patton, 1986).
>
> The systematic and objective assessment of an ongoing or completed project or project its design, implementation and results. The aim is to determine the relevance and fulfillment of objectives, development efficiency, effectiveness, impact and sustainability (Austrian Development Agency, 2009).

This kind of assessment can help not only in the management of the project after the initial construction phase, but will also help in the planning of future project. Experience with one

project can give rise to new ideas for extension of the project. Generally evaluation of a project helps to determine whether the objectives sets were realistic, given the capacities with which and the circumstances in which they had to be fulfilled, to assess the impact of the project activities.

Evaluation activities should also follow the project's developmental stages. In general, there is a natural developmental sequence that intervention projects follow, and the evaluation activities should match the development level of the intervention appropriately. The project stage will determine the level of effort and the methods to be used. There are several types of evaluations that can be conducted. Some of them include the following:

1) Formative Evaluation: When new projects, new interventions, new proce-dures, or new elements of existing projects are proposed, formative evaluation is indicated. Formative evaluations in the pre-implementation and design phase of a project emphasize needs assessment, and their data gathering may involve extensive community analysis or community identification procedures in addition to inquiry into a project setting and existing clientele (Steven, 1993).

Formative evaluations are designed to help identify needs or gaps in service which the new project should address or to answer other questions that need to be answered (e.g. what is the most efficient way to recruit participants? What types of project activities are desired?) (Wylle, 1992; Tessmer, 1994).

2) Evaluability Assessment: When the evaluation of existing projects is desired, an evaluability assessment should be conducted. An evaluability assessment will determine to what extent an evaluation is possible (Smith, 1989, 1990; Smith 1981; Fisher, 1982). In conducting an evaluability assessment, the evaluator must be able to clarify project goals and objectives, determine the extent to which the goals and objectives can be achieved, determine what data are available or could be collected to assess project activities, determine the project performance measures and if they can be gathered at a reasonable cost, and explain how the results will be used. In addition, they should be able to identify the project activities responsible for bringing about the intended results (Wholey, 1994). If the project cannot be adequately described in this

way, project managers should focus on gathering the appropriate information and clarifying goals and objectives before any other evaluation tasks are undertaken.

3) Process Evaluation: Determine whether project activities have been implemented as intended and resulted in certain outputs. You may conduct process evaluation periodically throughout the life of your project and start by reviewing the activities and output components of the logic model

As projects develop there is a need to assess how well the implementation of the project is going and, if needed, to make corrections. In these stages, there are many evaluation questions that could be asked, all having to do with project monitoring and evaluation activities related to this problem. Answering these questions involves process evaluation. Process evaluations include documenting actual project functioning (Dehar, 1993), measuring exposure to and diffusion of the interventions (Fortmann, 1982), and identifying barriers to implementation (Demers, 1992). Process evaluation includes the identification of the target population, a description of the services delivered, the use of resources, and the qualifications and experiences of the personnel participating in them (NIDA, 1991). It involves determining what services were actually delivered, to whom, and with what level of resources.

There are project monitoring tasks which must also be conducted before an outcome or impact evaluation can take place. Project monitoring tasks are concerned with documenting actual project functioning. Documenting project functioning is important for two reasons. If the project is working well, there will be interest in replicating the project in other locations that serve similar or other populations. If the project is not working well, it is of tremendous use to know exactly how the project failed, in which component, and in what population (Chen, 2004). Several major questions posed in this evaluation component are:

i. *Which elements of the project actually have been implemented?* Usually the practical problem here is that there are no data readily available to answer the question. When that occurs, the "answer" may be a guess rather than supported by evidence.
ii. *What are the types and volume of treatments or services actually provided to clients?* This question is important to answer both for accountability purposes and also to assist in the development of an outcome evaluation subsequent to project implementation.

iii. *What are the characteristics of project participants?* It is important to determine if the recipients of project services resemble the intended "target group" as identified in the project design and development stage. An effective intervention administered to a non-target group may be just as useless as an ineffective intervention administered to a targeted group.

4) Outcome Evaluation: Measures project effects in the target population by assessing the progress in the outcomes that the project is to address. To design an outcome evaluation, begin with a review of the outcome components of your logic model (Drummond, 1987).

When process evaluation shows that the project was implemented properly, there is often interest in measuring the effectiveness of the actual project (Mohr, 1995).

5) Economic Evaluation: Economic evaluation considers both the outcomes of a project and the cost of producing those outcomes. In some cases, the most effective project may also have the lowest cost, but it is not necessarily true that the lowest-cost option is the most cost effective. It is also possible that the project that produces the most units of a given outcome may be impractical to implement because it is so costly that it diverts too many resources from other uses, or requires more resources than are available. An example is provided at the end of this subsection. To conduct an economic evaluation, it is necessary to know what resources are used in a project, and what these resources cost. In some cases, the costs are not direct (i.e., they don't have to be paid), but indirect (such as an opportunity cost, which is the cost of using a resource in a given project that could be used elsewhere). This process involves measuring or estimating the value of facilities, equipment, personnel, and other resources used. Sometimes patient time commitments and travel costs are relevant, as well (Drummond, 1987). Adequately determining appropriate costs can be difficult, and should not be undertaken without the help of someone familiar with economic analyses (Rossi, 1998). There are different types of economic evaluation, including:

1) Cost Analysis: The simplest form of economic evaluation is a cost analysis. Because it considers only the costs, however, it is a partial economic evaluation (Drummond, 1987). To conduct a cost analysis the costs of a project must be determined, making sure to collect all relevant costs for the perspective being used (Haddix, 1996).

Once costs are determined, there are three common methods used for comparing the costs and conse-quences of different interventions: cost effectiveness, cost-utility, and cost-benefit analysis.

2) Cost Effectiveness Analysis (CEA): CEA divides the net cost of a project by the out-comes produced by the project. Since CEA involves two metrics (cost and an effectiveness measure) one cannot obtain a single measure of social net benefits; one can only compute the ratio of the two. This can be done in two ways: cost per unit of outcome effectiveness or outcome effectiveness per unit cost, i.e.

$CE_i = C_i/E_i$ – average cost per unit of effectiveness – lower is better

$EC_i = E_i/C_i$ – average effectiveness per unit cost – larger is better

As CEA computes the ratio of input to output (or vice versa), it is a measure of technical efficiency and is not necessarily a good measure of allocate efficiency.

3) Cost-Utility Analysis (CUA): Is form of economic analysis used to guide procurement decision. Its used to determine cost in terms of utilities, especially quantity and quality of life. Its common specially in health center.

4) Cost-Benefit Analysis (CBA): CBA is also similar to CEA, except that it places a monetary value on the outcomes of projects.

2.4 OECD Project evaluation criteria

Currently most of projects are evaluated specially in developing countries are through the five OECD/DAC evaluation criteria. Even though there are different criterions the five evaluation criteria from the Development Assistance Committee of the Economic Cooperation and Development (OECD/DAC) have been a strong foundation for project evaluation since 1991 (Thomas, 2008). According to Austrian Development Agency (2009), OECD/DAC criterion is the most inclusive criterion because, it criterions evaluate almost all aspects of the project. The Organization for Economic Co-operation and Development's (OECD) Development Assistance Committee (DAC) is a forum to discuss issues surrounding, development and poverty reduction

in developing countries. Both OECD and Europe aid project cycle management handbook list the followings as the major criteria for project and project evaluations:

Relevance: The extent to which the objectives of a development intervention or the project are consistent with beneficiary requirements, country needs global priorities and partner and donor policies. When relevance of the project is evaluated the following questions should be raised:

- To what extent does the development intervention or the project aim at the solution of a core problem of the target group(s)? Is the most recent perspective taken into account? Does it play a role in terms of development policy (according to gender, ethnic groups, conflict parties, etc.)?
- To what extent does the project correspond with the most recent objective of the partner country's development policy (Government: Poverty Reduction Strategy Paper (PRSP) or similar other relevant groups in case of conflict of interests, if applicable)?
- To what extent does the objective of the project in terms of development policy correspond with the objectives and directives of the Federal Ministry for Economic Cooperation and Development (BMZ) (poverty reduction, Millennium Development Goals (MDGs).
- To what extent does the basic orientation and conception regarding development policy of the development intervention correspond with the most recent requirements, standard of knowledge and framework conditions (For example, is the cause-effect hypothesis plausible?)

Effectiveness: A measure of the extent to which an aid activity attains its objectives. Effectiveness aims at measuring the extents to which the objectives of the development intervention are being achieved, whether at output, outcome or impact levels. Due to the difficulty of measuring effectiveness at impact level and depending on the purpose of the evaluation, it may be decided to focus the evaluation on outputs and outcomes only. In evaluating the effectiveness of a project or a project, it is useful to consider the following questions:

- To what extent were the objectives achieved or are likely to be achieved?

- ❖ What were the major factors influencing the achievement or non-achievement of the objectives?

Efficiency: Efficiency measures the Outputs qualitative and quantitative in relation to the inputs. Efficiency is a relation between resources allocated to the project and the results achieved. The results are usually measured at output level, as outputs can easily be observed and measured and are in the control of the development intervention. Efficiency involves assessing the extent to which the project produced the intended results with an economical use of resources. It also involves assessing whether the same outputs could have been achieved with a different and more economical use of resources. Questions asked when efficiency is evaluated includes:

i. Were activities cost-efficient?
ii. Were objectives achieved at the least cost?
iii. Was the project or project implemented in the most efficient way compared to alternative ways?

Besides asking questions efficiency can be evaluated using Earned Value Analysis (EVA). Earned Value Analysis (EVA) is an industry standard method of measuring a project's progress at any given point in time, forecasting its completion date and final cost, and analyzing variances in the schedule and budget as the project proceeds. It compares the planned amount of work with what has actually been completed, to determine if the cost, schedule, and work accomplished are progressing in accordance with the plan. As work is completed, it is considered "earned". Key Elements of EVA

- **Planned Value (PV)** – The approved cost baseline for the work package. It was earlier known as Budgeted Cost of Work Scheduled (BCWS).
- **Earned Value (EV)** – The budgeted value of the completed work packages. It used to be known as Budgeted Cost of Work Performance at a specified point (BCWP).
- **Actual Cost (AC)** – The actual cost incurred during the execution of work packages up to a specified point in time. It was previously called Actual Cost of Work Performed (ACWP).

2.5 Importance of Project Evaluation

Literature shows project evaluation plays an important role to the success of projects. It determines whether the overall status of the project is acceptable, in terms of intended value to the client once the project is finished. Evaluation is a risk management tool, which allows project managers to reduce uncertainties when making decisions (Chapman et al., 2005). It often generates (written) reports that contribute to transparency and accountability, and allows for lessons to be shared more easily. Farbey (1992) summarized the importance of evaluation as:

i. Evaluation could be used as part of justification for a project, either an existing or a new project;
ii. evaluation enables organizations to compare between a numbers of projects. It provides a set of measures supporting the monitor and control system and
iii. It determines the success or failure of projects base on initial benchmarks and provide lessons learned for the future

2.5 The Project Evaluation Procedure

According to Steven (1993), project evaluation is a combination of a number of activities ranging from setting indicators, developing model, defining measurable outcomes, identifying key stakeholders and their interests, selecting methodology for evaluation, collecting information, analyzing data and disseminating evaluation results for further learning.

i. **Sources of evaluation information:** A variety of information sources exist from which to gather for evaluative data. In a major project evaluation, it may be needed more than one source. The information sources select will depend upon what is available and what answers the evaluation questions most effectively. The most common sources of evaluative information fall into three categories: Existing information, People, and Pictorial records and observations.

Existing information: Before start to collect data, check to see what information is already available. For instance, if evaluation purpose is to

- *Establish the need for a project***:** it might be able to use local census data, demographic data, media feature stories, maps or service and business statistics.

- *Describe how the project was carried out and who it reached***:** it can be used project documents, log books, minutes of meetings, enrollment records, accomplishment reports, or media releases.
- *Assess results***:** it can be able to use public records such as acres planted to a particular crop, local employment statistics, agency data, scorecards and judges' comments, or evaluations of similar projects. (Ellen and Sara, 1996)

People: People are the most common source of information for an evaluation, they provides information about the need for the project, its implementation and its outcomes. (Ellen and Sara, 1996). Some of them are:

- Participants, beneficiaries—those who benefit directly or indirectly from the project
- Nonparticipants, proponents, critics, victims.
- Key informants: anyone who has particular knowledge about the project or how it benefits participants. Examples: teachers, parents, religious leaders, previous participants
- People with special expertise, Examples, judges, college faculty, historians County residents, local leaders, and those who are influential in a community
- Project staff, administrators, volunteers
- Collaborators; competitors
- Funders
- Policy makers, legislators, federal, state or county agency/organizational staff

Pictorial records and observations: The third major source of evaluative information is through visual accounts pictures, photographs and video tapes—or direct observation of situations, behaviors, project activities and outcomes. Observation has the advantage that it does not depend upon people's willingness and ability to furnish information. Observations can provide information about real-life situation sand circumstances that are useful in designing or understanding what is happening in an extension project and why it is happening. (Ellen and Sara, 1996).

Methods for collecting information about an evaluation: For many years, scientific methods have dominated the field of evaluation. These methods seek to establish cause effect

relationships, produce generalizable results and provide quantitative data through structured data collection procedures.

Given the varied approaches to evaluation, there is no single list or categorization of data collection methods. A list follows of the most common methods used in Extension project evaluation, some of which also stand as social science research methodologies (survey, case study). Some are geared toward collecting quantitative (numeric) data; others toward qualitative (narrative) data. Some may be more appropriate for certain audiences or resource considerations (Ellen and Sara, 1996). These include:

Survey: collecting standardized information through structured questionnaires to generate quantitative data. Surveys maybe mailed (surface and electronic), completed on site or administered through interviews, conducted either face to face by telephone or electronically. Sample surveys use probability sampling which allows you to generalize your findings to a larger population, while informal surveys do not.

Case study: an in-depth examination of a particular case—a project, group of participants, single individual, site, or location. Case studies rely on multiple sources of information and methods to provide as complete a picture as possible.

Interviews: information collected by talking with and listening to people. Interviews range on a continuum from those which are tightly structured (as in a survey) to those that are free-flowing and conversational.

Observation: collecting information by "seeing" and "listening." Observations may be structured or unstructured.

Group assessment: collecting evaluation information through the use of group processes such as a nominal group technique, focus group, Delphi, brain storming, and community forums.

Expert or peer review: examination by a review committee, a panel of expert's orders.

Portfolio review: a collection of materials, including samples of work that encompass the breadth and scope of the project or activity being evaluated.

Testimonial: a statement made by a person indicating personal responses and reactions.

Photograph, slide, and video: uses photography to capture visual images.

Diary and journal: recording of events over time revealing the personal perspective of the writer/recorder.

Log: recording of chronological entries which are usually brief and factual.

Document analysis: use of content analysis and other techniques to analyze and summarize printed material and existing information.

2.6 Empirical Review

There are extensive empirical studies in relation to project evaluation using OECD criteria's. Therefore, in this section the most selected and related empirical finding of related literatures is presented.

According to Chianca (2008), the most widely used evaluation criteria after the 1990s has been the OECD/DAC five project evaluation criteria (relevance, efficiency, effectiveness, impact and sustainability). Several institutions including African Development Bank, Asian Development Bank, International Fund for Agricultural Development, International Federation of Red Cross and Red Crescent Societies, Austrian Development Agency and the Joint Information Systems Committee have either used this criteria or criteria that have some of its elements.

Different projects evaluation studies are conducted using OECD criteria's, for example studies conducted by Ninson (2018) on cosmetics and Oil palm processor project on Ghana; all respondents agreed that their projects were **Relevant**. Approximately half, 21 out of 40, saw their project as very beneficial, while 19 considered it beneficial, representing 52% and 48% respectively, Almost all, 33 out of 40 respondents (82.5%) perceived the objectives as fully achieved/**Effective** while the remaining seven (7) respondents believed they had been partially achieved, All 40 respondents generally agreed that much of the resources were contributed by the NGOs in the form of building materials, expertise and finance.

Welde(2016) also study the relevance, effectiveness and efficiency of Sandvika-Asker intercity railway and in his study found that even though the project is relevant, like most of the project it exposed to ineffectiveness and inefficiency

The other study Conducted by Maxima Consulting (2018) on Leskovac Green Zone in Serbia, The Green Zone is being developed as an agro-industry. The Zone itself incorporates a 100 hectare site provided by the Government, as a warehousing and product distribution center. Their evaluation also shows: "The project shows overwhelmingly relevant to Serbia's needs and fit within national priorities and donor policies", their effectiveness evaluation shows that, there are missed outcomes and under-performance against expected results and it consume highest costly resources (time/cost) possible in order to achieve the desired results. But the result doesn't present in figure.

These types of poor performance projects are common in developing countries like Africa Lavagnon and Jan (2014). Even though the above study does not mention the reason behind poor performance of projects, other studies list their findings in different areas.

The reasons behind project failures in different countries are various. For example a research had done by Fidelis and Esther (215) in Anambra State, South East Nigeria. Information collected from sourced from a survey of one hundred (100) project professionals, with a minimum of 5 years of experience. Illustrate five most important causes of project ineffectiveness and inefficiency: 1) Increase in the price of raw materials 2) Poor planning of Project Implementation 3) Variation of Project Scope 4) Award of Contract without reference to availability of funds (corruption) 5) Political Pressure

Other research done by Damoah (2015) on Ghana government projects, data collected through questionnaire surveys of 265 (contractors=78, PMP=81 and general public=106) participants, findings indicate that contractors, project management practitioners and general public agreed that the top 10causes of Ghanaian government project failure in descending order are: (1) poor monitoring (2) corruption (3) political interference (4) change in government (5) bureaucracy (6) lack of continuity cooperation (7) fluctuation of prices (8) planning (9) delays in payment and (10) release of funds.

Okereke (2017) study on title of 'Causes of failure and abandonment of projects and project deliverables in Africa', conducted on 8 failed projects; he illustrate Corruption, bad politics, Lack of skills, absence of training and ignorance of project management knowledge, and failure to include the local community in planning and project implementation as main cause for failure.

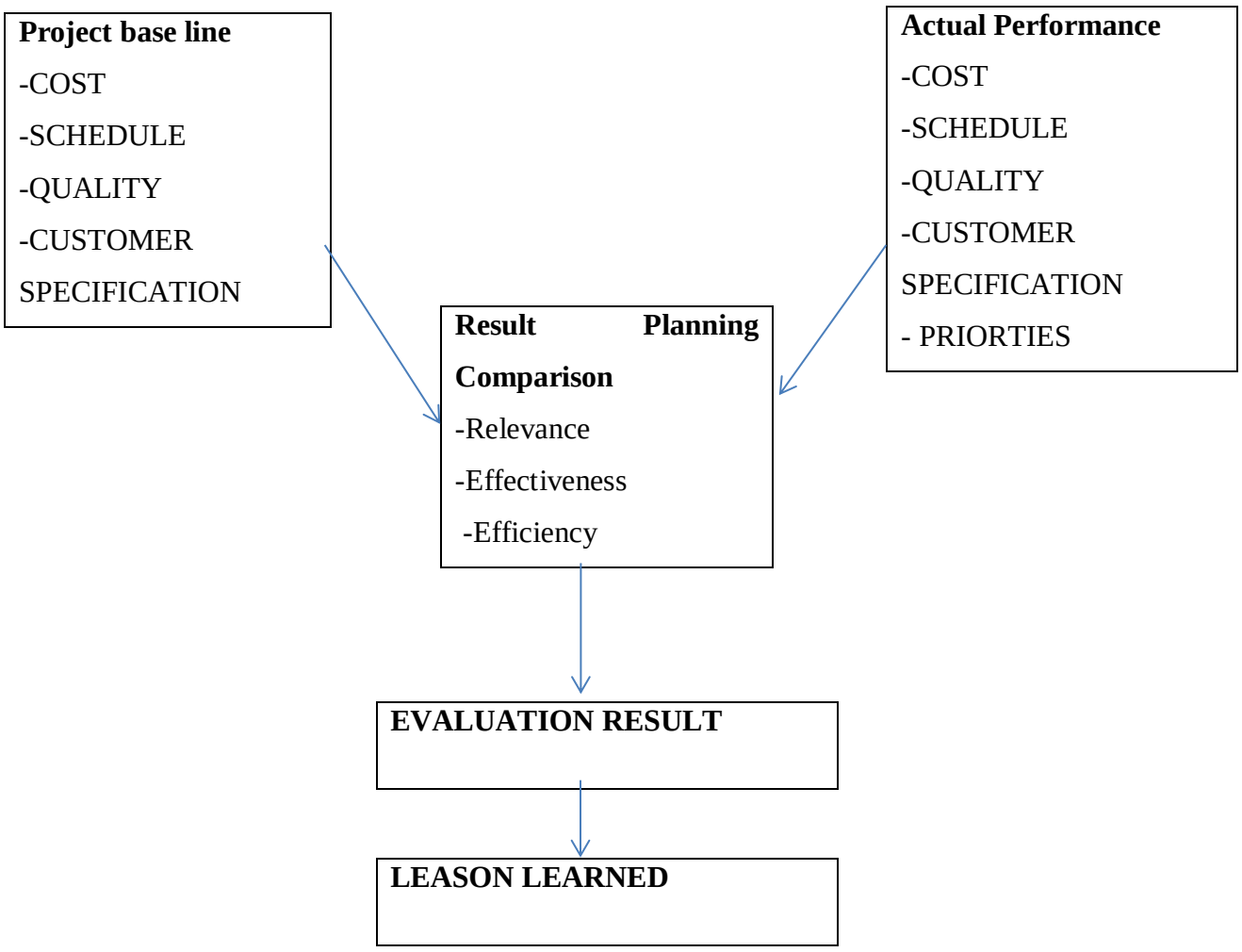
Symonds (2011) also found the reasons most common causes of project failure: Poorly defined project scope, Inadequate risk management, Fluctuation of prices, Project managers who lack experience and training and No use of formal methods and strategies

As the above information shows even though they present different reasons; deficiency in project management knowledge, fluctuation of prices, corruption and political interferences made them common.

2.7 Conceptual Framework

Based on the above analysis on project evaluation process a conceptual model has been designed by the researcher. The framework depicts the evaluation process. It illustrates the success indicator of the project or Project base line intended to achieve at the end of the project and Actual Performance of the project. Next to that the actual performance of the project is evaluated using baseline as standard. The result of the evaluation used as a lesson learned practice for the ongoing and future projects.

Figure 1 Conceptual Framework for OECD project Evaluation (Developed by the current researcher, 2019)



CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter discusses the methodology that was used in gathering the data. The researchers try explaining the methods and tools used to collect, analyze, and interpret data to get relevant and reliable research results. The following sections present the research design and methodologies that are used in the research, including research design, target population, sample size determination, research and data collection instrument, data analysis and ethical consideration

3.2 Research design and approach

There are three types of research approaches namely, quantitative, qualitative and mixed methods approach (Leedy and Ormrod, 2005). Quantitative approach is used to answer question about relationships among measured variables with the purpose of explaining, predicting and controlling phenomenon. Whereas, qualitative approach is used to answer questions about the complex nature of phenomena and its purpose is describing and understanding the phenomena (Leedy and Ormrod, 2005). To draw data from sources including individuals, groups and organizations, this study adopted mixed approach in which both qualitative and quantitative methods are employed.

Research design is the general plan of how research question(s) will be answered (Saunders, 2009). There is no single way of conducting a research. Research design depends on many factors such as research topic, audience of the research, time and resource availability and practical considerations like access to people and information (Martelli & Greener, 2015). It is a master plan to specify the methods and procedures for collecting and analyzing the needed information (Adams et al, 2007). It describes the plan used in collection of information. This research implements both descriptive and analytical method. The researcher chooses descriptive method to describe the state of affairs as it exists at present. It attempts to describe systematically a situation, problem, phenomenon, project, or provides information about the situation (Kothari, 2004). So, using this method the intended planed project objective, budget, schedule works and

actual results are described as they are. After gathering of facts or information already available, each will be analyzed to make a critical evaluation of these facts/ information.

3.2 Data Source and Collection method

No single source has a complete advantage over all others for this particular study. Hence, both primary and secondary sources were used. In order to perform relevance, effectiveness and eared value analysis, information about estimated and actual cost, planned and actual duration for different project activities is necessary, such like information's is collect through document review of project plan documents and different reports. Because this research is comparison in nature (it compare actual and progress of the project with its intended plan) most of the data's are found from secondary sources.

In addition to secondary data, primary data is collect using semi structured interview. Semi-structured interview technique follows a framework in order to address key themes rather than specific questions. At the same time it allows a certain degree of flexibility for the researcher to respond to the answers of the interviewee and therefore develop the themes and issues as they arise. (MacDonald & Headlam, (n.d)) After evaluation each aspects of the project, to assess the reason behind the status of the project interview is made with the project manager, four KURAZ I sugar factory project follow up team, three project team leaders and four high level technical worker.

3.3 Population of the Study and Sampling technique

The selection of participants in terms of answering the interview was just limited to supervisors and management areas. The basis for this selection was, because they have enough information about the project progress and easy to be found. The total population in KURAZ I was around 40 obtained from Ethiopia Sugar Corporation.

The study adopted a purposive sampling method. Tayie (2005) explains a purposive sample as one that comprises of subjects who are selected based on certain specific characteristics needed for a study. The nature of the project is such that privilege and sensitive information is required. This necessitated the use of purposive sampling technique for this study. Because most of the interview questions are concerning project officials, 1 project manager, 4 KURAZ I sugar factory project follow up team, 3 project team leaders and 4 high level technical workers are

purposively selected. The limitedness of the sample size came from, one the target population in itself is limited other they were difficult to be located.

3.4 Data analysis method

This thesis, analysis different aspects of the project through different evaluation criteria's, Earned value analysis (EVA) is used as a systematic approach to the integration and measurement of cost, schedule, and technical (scope) accomplishments on a project or task. EVA technique is used to show past performance of the project, current performance of the project and to predict the future performance of the project by use of statistical techniques.

Calculating earned value: Earned Value Management measures progress against a baseline. It involves calculating three key values for each activity in the work breakdown structure (WBS)**:**

The Planned Value (PV), (formerly known as the budgeted cost of work scheduled or BCWS) that portion of the approved cost estimate planned to be spent on the given activity during a given period.

The Actual Cost (AC), (formerly known as the actual cost of work performed or ACWP)—the total of the costs incurred in accomplishing work on the activity in a given period. This Actual Cost must correspond to whatever was budgeted for the Planned Value and the Earned Value (e.g. all labor, material, equipment, and indirect costs).

The Earned Value (EV), (formerly known as the budget cost of work performed or BCWP)—the value of the work actually completed.

These three values are combined to determine at that point in time whether or not work is being accomplished as planned. The most commonly used measures are the cost variance:

Cost Variance (CV) = EV – AC

And the schedule variance:

Schedule Variance (SV) = EV - PV

These two values can be converted to efficiency indicators to reflect the cost and schedule performance of the project. The most commonly used cost-efficiency indicator is the ***cost performance index (CPI)***. It is calculated thus:

CPI = EV / AC

The sum of all individual EV budgets divided by the sum of all individual AC's is known as the cumulative CPI, and is generally used to forecast the cost to complete a project.

The ***schedule performance index (SPI),*** calculated thus:

SPI = EV / PV is often used with the CPI to forecast overall project completion estimates.

A negative schedule variance (SV) calculated at a given point in time means the project is behind schedule, while a negative cost variance (CV) means the project is over budget.

Calculation of Forecasting Indexes

Forecasting of schedule and costs is done by calculating the forecasted values, which are expressed as below (Gapaldo & Volpe, 2010):

Estimation to Complete (ETC) expresses the forecast for the expected cost required to complete all the remaining works. This evaluation is done by taking into consideration Budget at Completion (BAC), Earned Value (EV) and the indicators of the performance of costs and plan. ETC is expressed by this formula

ETC = EAC – AC

Estimation at Completion (EAC) expresses the expected total cost required to finish all the works of the engineering project. This evaluation is done by summing the Actual Cost (AC) at a given moment in time T, with Estimation to Complete ETC. It is expressed by this formula:

$$EAC = \frac{BAC}{CPI}$$

Variance at Completion (VAC): Expresses the variance of the total cost of the work and the expected cost. It is expressed by the following formula:

VAC = AC + ETC - BAC

The data collected from documents and interview also analyzed and interpreted using descriptive analysis technique and result - planning comparison. The internal and external factors, that tarry the project work is analyzed using this interview. Lastly the challenges were ranked based on the interviewees' response and top challenges also identified.

3.5 Ethical Issues

Before answering the questions, the interviewees were informed and assured that the research is conducted purely for educational purpose and the confidentiality and anonymity will be maintained. Prior permission was obtained for reviewing the document available at the Ethiopia Sugar Corporation. And assurance has been given that the research data will not be used for new purpose other than for this research.

Chapter Four

Results and Discussions

4.1 Introduction

This chapter presents the findings from the data collected through document analysis and interview. In this chapter different aspects of the project is evaluated. Three criteria are used for evaluation, and different data sources were used to evaluate the project. For example, to assess the Relevance of the project; the study used the intended plan of the project to determine either the purpose of the project is helpful, to evaluate the Efficiency of the project; the study used secondary data from the project such as planned budget/time and actual cost/time and carried out comparative analysis, and to asses Effectiveness; the study examined if the objectives of the project were fulfilled. As a follow up, by using semi-structured interview the reason behind different result of the evaluation were discussed.

4.2 Respondent's profile

To get the respondents' profiles, they were asked to introduce themselves. This captured their, education, position, years of experience in current position and the organization in which they work (the interview is made with Ethiopia Sugar corporation(ESC), METEC and SWWC worker's)Respondents profiles

Table 4.1 Interview respondent profile

Respondents	Education	Work of experience	Sector	Position
R1	civil engineering	10	ESC	Project monitoring
R2	project management	9	ESC	Project monitoring
R3	civil engineering	9	METEC	Project manager
R4	Management	10	METEC	Project coordinator
R5	Logistic management	10	ESC	Project coordinator
R6	project management	9	ESC	Site manager
R7	Mechanical	8	METEC	Site manager

	engineering			
R8	Economics	6	ESC	Coordinator
R9	Management	5	SWWC	Coordinator
R10	Management	6	ESC	Project coordinator

4.3 Evaluation Results of Omo-Kuza 1 Sugar Factory Project

4.3.1 Relevance of the Project

Relevance is the first OECD criteria of evaluation. It evaluates the purpose, overall goal, meaningfulness and the extent to which its objectives are consistent with recipient's needs. Relevance analysis is very important, because if the project does not help to address present needs or problems, then it does not matter how effective, efficient or coherent it is – it is no longer appropriate (this is why relevance is sometimes called the "kill" criterion!) ("European commission publication", n.d).

The researcher evaluated the purpose and importance of the project by referring to the intended plan of the project. Thus, most of the data are collected from the project's plan and reports. First, when relevance of the project is evaluated based on the major promises of the project, and the intended to achieve, it will be evaluated the extent to which the objectives of the project are consistent with local community and country needs, and global priorities.

According to Australia Development Agency (ADA, 2009) guidelines for project and program evaluations, it suggest to evaluate the objective of the project in terms of its correspondence with the most recent objective of the country's development plans and Millennium Development Goals (MDGs) or Sustainable Development Goals(SDGs), therefore from the country development plan and priority angle, the Growth and Transformation Plan(GTP) is selected as a reference to evaluate either the project is relevant, because GTP is the grand plan of the country that locate where the country is going. Sustainable Development Goals (SDGs) are used because Millennium Development Goals (MDGs) effective up to 2015 only. So, let's illustrate the major promise of the project and examine their importance by asking the OECD questions used for evaluating relevance:

How important is the relevance of the project regarding local community? (OECD, 2000)

When this project anticipated Analysis carried out at the beginning of the project reflecting, the local community where the project implemented is secluded from the country, structurally weak and exposed to different disasters. The pastoralists have been leading their lives denied of infrastructures and social service giving institutions for a very long time. They knew no school, health stations, potable drinking water, flour mills, and other basic infrastructures. They are marginalized to keep on leading their cumbersome day-to-day lives throughout their history. (Demeke, 2015). And, it is only now with the inception of the Omo-Kuraz Sugar Development Project those natives of project area begin to get the privileges of various infrastructures and social services. Elementary schools of first and second cycle, health centers of both human and cattle, pastoralists training centers, kebele administration offices, community policing offices, residential houses of health extension and agriculture professionals, roads, potable water, ponds, cattle-crossing structures, irrigable land, etc. are built and have started giving services to natives and employee. Therefore it's clear that planned project objectives are very useful, relevant and realistic to the situation on the ground .The project have manifold advantage for the local community.

To what extent does the project comply with development policy and planning of the country or the partner government? (OECD, 2000)

The development of sugar industry together with Kuraze I Sugar factory has its own roles in boosting the economy of the country through saving /gaining foreign currency i.e. import substitution/export rising; narrowing the local demand and supply gap of the products(sugar and related products); creating job opportunities(improving incomes); it's by-products use for generating steams and electricity (bagasse), production of ethanol/use for industrial, medicine, fuel (by mixing with petrol) and drinking purposes/, and for livestock feed; and others (Chianca, 2008). Because it used mechanized agriculture and close linkage with the factory, the project is also support the agricultural development lead industrialization policy of the country. The project also helps the country's works for; to become industry lead economy (in the future) and making trade balance/increasing export. The direct employment creation to be as high as 5000 jobs by the cultivation and processing industry in the lower Omo-Valley, and development of major urban centers–so called 'main towns', near each processing factory demanding temporary labor

during the construction phase, this in turn create indirect job opportunities (i.e. service delivery, road and infrastructure construction, land preparation), this goal of the project also attain one of the major development objectives of the Government in GTP II is reducing poverty and generating employment for the expanding labor force. Other this project also contributes for achievement of Growth and Transformation Plan II special focus of infrastructure development; large scale energy, transport and telecommunication infrastructure development programs and social sector development; increase national potable water supply coverage, expansion of the education service coverage and make essential health services accessible to all citizens.(GTP II, 2015/16). As the data's show the project is in line with development policy and planning of the country. It's may be because of the project is intended by the government and they make it compatible with their national plans of the country.

The extent to which, the objective of a project is consistent with global priorities?

Ethiopia is one of the nation among 193 member state signed, The Sustainable Development Goals (SDGs), 17 global goals set by united nation general assembly for the year of 2030 ("the 2030 agenda for SDG", 2015). These goals are the major objective of the world that every nation should achieve. So evaluating project's significance in attaining these goals tells either the project is fit with global priorities. Among 17 goals of the SDGs the KURAZ I sugar factory contribute for attainment of 7 of them;

End hunger: This project achieves food security and improved nutrition and promotes sustainable agriculture. The majority of the people living in and around the command area of the project are pastoralists leading their lives wondering around searching for grazing land and water of their cattle. Besides to this they had been repeatedly exposed to shortage of food due to erratic rainfall. And, it is only now with the inception of the Omo-Kuraz Sugar Development Project those natives become semi pastoralist, the corporation has made irrigable land ready to those who had joined the villagization program.

Good health and well-being: This project helps in ensuring healthy lives and promotes well-being people through development of health centers for both human and cattle.

Primary and quality education: By building elementary schools of first and second cycle, and have started giving services to natives

Clean water and sanitation: Everyone on earth should have access to safe and affordable drinking water. That's the goal for 2030. This project also intended to provide potable drinking water for locals

Affordable and clean energy: One of the SDGs is "ensure access to affordable, reliable, sustainable and modern energy for all" this project also projected to generate 55 Megawatt of electric.

Decent work and economic growth: As above mentioned the development of sugar industry in Ethiopia together with KURAZ I Sugar factory has its own roles in boosting the economy of the country through saving /gaining foreign currency i.e. import substitution/export rising; narrowing the local demand and supply gap of the products and by creating job opportunities(improving incomes).

Industry, innovation and infrastructure: This achieved through plantation of the sugar factory, and because is located at that area begins to get the privileges of various infrastructures like road and telecommunication.

From the above information it can be conclude that, the objective of a project is consistent with local community requirements, country development policy and planning, and global priorities. But even though the project has these benefits it has physical environment effects, are occurred due to disposal of excavated soil, increased soil erosion and sedimentation, generated solid wastes, impact on water balance and downstream environmental release, change in water quality, water logging and ground water rise (ESC report, 2013).

4.3.2 Efficiency of Omo-Kuraz 1 Sugar Project

Efficiency is the other OECD evaluation criteria, it has been defined by OECD/DAC as the determination of whether project use "the least costly resources possible in order to achieve the desired results" (OECD, 1992, p. 1). From the beginning of a project and throughout all its stages, different stakeholders of the project have to address many questions. The most common questions are those who deal with the time schedule and the projected cost of the project. For instance, are we ahead or behind schedule? How efficiently are we using time? When will we likely finish the project? Are we under or over budget? How efficiently are we using our resources? How efficiently must we use our remaining resources? How much is the project likely to cost? Will we be under or over budget at the end of the project? How much will the remaining work cost? (PMI, 2005). EVM is a very powerful tool which is able to address the above questions and because it integrates cost, time and the work done (or scope) and can be used to forecast future performance and completion dates and costs, and better answer OECD questions related to efficiency, that is why the method chosen as to monitor the efficiency of KURAZZ I sugar factory project. All of the calculations are made using formula cited in chapter 3.

Table 4.2: Earned value of the Project Note: All Costs are expressed in 000'birr.

Major Investment Cost Items	BAC	AC	PV (BCWS)	% COMPLETION	EV (BCWP)	SV	SPI	CV	CPI
Sugar Factory	4,129,351	4,783,480	4,129,351	90%	3,716,415.9	-412,935.10	0.9	-1,067,064.10	0.78
Ethanol factory	*341,197.00*	0	*341,197.00*	-	-	-341,197.00	0	-	-
Irrigational infrastructure works	3,386,319	4,515,020	3,386,319	58%	1964065.02	-1,422,253.98	0.58	-2,550,955	0.4
Land Development	478,808	968,740	478,808	50%	239,404	-239,404.00	0.5	-729,336	0.25
Housing and Infrastructure	2,007,490	923,180	2,007,490	62%	1244643.8	-762,846.20	0.62	321,464	1.35
GRAND TOTAL	**10,343,165**	**11,190,420**	**10,343,165**	32	**7,164,528.72**	**-3,178,636.28**	**0.7**	**-4,025,891**	**0.64**

1) Cost Variance (CV) and Cost Performance Index (CPI)

Cost Variance (CV) It is a very important factor to measure project performance. It indicates how much over budget or under budget the project is. Since the project cost variance is negative, project is over budgeted, the cumulative cost variance of the project indicate, the project is -4,025,891 amount of birr is over spend compared to budgeted cost which is very unfavorable for the project resulting in project to be over the budget.

The cost performance index (CPI) it indicates an index showing the efficiency of the utilization of the resources on the project. If the spending less on the work performed than was budgeted, the CPI will be greater than 1. If not, and spending more than was budgeted for the work performed, then the CPI will be less than 1. The cumulative Cost Performance Index (CPI) of the project 0.64 tells, the project is currently running over the budget by 46% for the total cost we spend, this means for every 1 birr spent, it's is getting only 64 cents' worth of performance.

2) Schedule Variance & Schedule Performance Index

The schedule variance (SV) indicates how much ahead or behind schedule the project is. The cumulative SV of the project is **-3,178,636.28** since negative resulting in project to be behind the schedule. As the result shows, the indicated amount of the work is yet to be completed as per the schedule.

The schedule performance index (SPI) is a measure of how close the project is to performing work as it was actually scheduled. If we are ahead of schedule, EV will be greater than PV, and therefore the SPI will be greater than 1. Obviously, this is desirable. On the other hand, an SPI below 1 would indicate that the work performed was less than the work scheduled. Not a good thing. Hence, the Schedule Performance Index is 0.7. It's behind schedule since the Schedule Performance Index is less than one. SPI 0.7 means that, for every estimated hour of work, the project team is only completing 0.7 hours (just around 42 minutes). This value indicates that there are 30% of work is yet to be completed as per the schedule. Because both CPI and SPI of the project is less than 1 the project is over budget and behind the schedule. This show as the project resource is inefficiently utilized, and the project is inefficient.

3) Forecasting: Given this current status of the project, what will be the future performance? There are four variables which allow the project manager to forecast the future performance of the project here there of them direct related to the project is discussed:

- Estimate to Complete (ETC)
- Estimate at Completion (EAC)
- Variance at Completion (VAC)

Estimate to Complete (ETC): ETC represents the expected cost required to complete the project. It measures only the ***future*** budget needed to complete the project, not the ***entire*** budget. Using calculation formula of ETC = (BAC – EV) / CPI, additional 4,966,619.1875 birr is needed to complete the rest of the project works.

Estimate at Completion (EAC): The EAC is the full task or project cost expected at completion (the new project budget). It can be calculated on a task by task basis or once for the entire project. Here the entire project is used as calculation. Using calculation formula of EAC = AC + ETC, the total cost of the project is forecasted, it will be 16,157,039.1875 birr

Variance at Completion (VAC): The VAC is a forecast of what the variance, specifically the Cost Variance (CV), will be upon the completion of the project. It is the size of the expected cost overrun or under run. Using above calculation formula of VAC = BAC – EAC = Old Budget – New Budget, it's found that there will be 5,813,874.1875 amount of birr over budget compared to its original plan.

5.8 billion birr for countries like Ethiopia is a huge amount; this amount of variance for this project is greater inefficiency.

4.3.3 Effectiveness of Omo-Kuraz 1 Project

Evaluation effectiveness is central to project development and its evaluation. The OECD (2002) Glossary of Terms defines development effectiveness as "the extent to which a given project objectives were achieved, or are expected to be achieved, taking into account their relative importance." It evaluates to what extents are the reason for project existence immediate objectives is (most likely) achieved? And it's the target group reached? When the effectiveness of the project executed, it follows the appropriate means of verification for tracking progress,

performance and achievement of indicator values from the intended plan and compare with the current status of the project.

The extent to which the project objectives as defined are achieved, and the extent to which outputs have led (or are expected to lead) to expected outcomes as planned? (OECD, 1992)

When KURAZ I sugar factory development initiated on **2011** its immediate objective to achieve at this time (2019) was to have:

- Sugar factory that has a capacity of crashing 41,7430 tons of sugar per year at the beginning 2013 and increasing its crashing capacity to 312,139 tons of sugar at this time
- Irrigation Systems and Network / Canals, Irrigation Pumps and Pumping Stations for 2100 hectares.
- 2100 hectares of prepared land for sugarcane.
- Building houses 3707 for residence and 204 for service providing purposes.
- Produce 31,213,870 liter of ethanol
- 35 mw Power generation for the national grid. And
- Starting paying its credit and play important role on boosting the country economy.

But after 6 Years the entire project works must be completed, none of them finished/achieved completely yet, there status is presented on previous table 4.1.2. According to the intended plan, at this time (2019) the sugar factory at least it must produce 312,139 tons of sugar per year, but currently rather than its test production for few weeks, it's not producing properly. From 2100 hectares of wet land and irrigational infrastructure essential for KURAZ I sugar factory only 50% and 58% respectively of them are prepared. The ethanol factory yet not started because the sugar factory consumes its budget and the house development works are still at 62%. These show even though the project used 110% budgeted cost and over 300 % times schedule/time of the project, it still can't achieve immediate objectives properly and the project can't making sufficient progress towards its planned objectives. The other, the project promise to enhance the country economy through exporting the sugar and gaining foreign currency is its still 'sweet promise' only. Because the factory is not crushing sugarcane properly, leave support for the improvements of the country economy, the project doesn't start paying its credit.

When the project starts, it estimated that the project's initial investment will be fully recovered within eight years. But after 6 years of the project must be completed, it's not generating any revenue. Because the project is not completed and start production as expected, and the schedule, cost and interest of the credit is increasing time to time, this instead of helping the country economy, together with other projects, KURAZ I sugar factory move in the country to high debt burdens. According the International Monetary Fund (IMF) 2018 report on sub-Saharan Africa country credit status, changed the debt stress rating of Ethiopia from moderate to high recently, it also indicate, the country come in to this situation because most of the government debit for developmental project aren't payoff, this indicates how the project affect the country economy and the project effect (positively) on the country economy can't be shown in near future. From the above information it can be conclude that the costs and benefit of the project isn't in a reasonable proportion to each other from a business and economic point of view. The only success of the project is starting school and clinic services for local community, even though the researcher can't found the exact number, currently numbers of native children's are enrolled in school.

4.4 Reasons behind the failure

Project failure is defined as "a project that fails to achieve projected time, cost, deliverables, stakeholder satisfaction, contribution to the sector in which they are implemented and contribution to national development."(Isaac, Mouzughi and Cynthia, 2015). As evaluation indicates the project is totally inefficient and ineffective or failed. For this project failure and its effects, different reasons are raised; the aim of this sub-section is to explore the extent of project failure, and causes and effects of project failure in KURAZ 1 sugar factories projects with the use of semi structured interviews. Using interview data the researcher validate the findings from the literature review and other project finding, especially projects in developing countries.

Ahmed et al. (2003) grouped causes of overrun in two broad categories: the internal causes which come from parties involved in a particular contract; and external ones come from the proceedings that exceed the parties 'control. The researcher also by analyzing and taking direct response of the interviewee, grouping causes of overrun in to two parts.

4.4.1 Internal causes

1) Lack of experience in contractor: Lack of experience is the main reason for project failure in developing countries (Sturup, 2009; and Flyvbjerg, et al., 2003), and Ethiopia is not escape from this truth. When METEC is established in 2010 it was responsible for production of military equipment and civilian product. And from its initiation it play significant role in country development, unfortunately in construction of sugar factory it can't succeed, and most of this corporation officials.(R1,R2 , R4 and R9) put reason the lack of experience.

2) Corruption: According to Gyimah (2002), the opportunity for corruption normally occurs when systems and institutions of accountability are weak lack checks and balances and when moral decency is very low among officials. A study conducted by Transparent International (TI) between 2015 and 2016 points out that Ethiopia was put on most corrupted African state; this corruption is also the major causes of project failure in Africa (Giorgio, 2016). Generally in business and official dealings in Africa, most failures are blamed on corruption. In this project also, from ten of interviewee six respondents (R1, R2, R3, and R4, R7 & R8) mention corruption as a reason for the project failure. According to two interviewees (R1 & R2) response "most of the sub-contract works are awarded without any biding; they are given just in favor".

The selection of consultants, award of contracts and procurement of goods and services are the main areas for corruption. (R8) The other respondent also comments these sub-contractors are "inexperienced contractors" (R7). Currently in suspect of corruption the project officials and some contractors are in jail. This finding supports a prior study conducted by Isaac (2015) into construction projects, which asserted that corruption is a common problem of project cost and time overrun in developing countries.

3) Lack of skills and inexperienced project management knowledge: According to the interviewees, lack of project management knowledge and skills is the root cause of this project failure. Most of the failures were recorded as a result of lack of skills, poor planning and absence of project management training. Many of the respondents (R1, R4, R5 and R6) observation are projects managers are chosen on the basis of political patronage rather than their skill. One project monitor put it: "they don't have any formal knowledge or experience and necessary technical skill" (R4). One respondent also said "Inadequate planning and scheduling, and wrong

method of estimation is the main reasons of delay" (R2). Lack of skilled labor on the market, on technical work of the projects is also raised as a reason behind the delay (R2).

This finding is in agreement with earlier researchers of Baloyi and Bekker (2010), and Fugar and Agyakwah (2010) findings which have concluded lack of skilled human power and inexperienced project management will lead to cost and time overrun, and project failure.

4) Absence of good contract and procurement management: The contract sighed between METEC and ESC was not binding, which mean there was not specification indicate, if unfavorable condition exist ESC can terminate the contract (R1, R3, and R4).

5) Interdependency of works: for example lateness of sugar factory constriction, hold the work of land preparation work by SWWC.

4.4.2 External causes

1) Fluctuation of Prices: When this project started the exchange rate of one USD was 18 birr, then it was immediately increased ("inter-bank exchange rate", 2011), this in turn increase the prices of materials and cost of labor. This is the major external cause behind cost escalation of the project. All of the respondents also assert this. One interviewee put it like this "most of the machinery and equipment's, used in the project are imported from other countries, and when the dollar to Ethiopian birr exchange rates escalate, the prices of materials will also". The study conducted by Fugar and Agyakwah (2010) supports this finding; it ranked fluctuation of prices as one of the most important factor for project escalation.

2) Political situation of the country: Between 2015 – 2019 Ethiopia was politically unstable country, in many areas of the country there was people violence and this disrupt the activity of the country; one is this project. (R1, R3, R4 & R5) also put this as a reason for time overrun of the project. The study conducted by Musa (2015) also found that political factor has a direct effect on project success, and the relationship is significant.

3) Political economy of Ethiopia: Ethiopia follows mixed economy (developmental government) system and in this system government agencies are participating in different business sectors of the country, it emulates the experience of South Korea and Sweden. METEC, which is the contractor of the project, established aimed to transform the agriculture led economy to

industrialization. Most of projects are awarded to this corporation without any biding, by just political decision, even if the corporation doesn't have any experience of building sugar factory, because of this political economy system it given without checking any alternative (R5).

Chapter Five

Summary, Conclusion and Recommendation

This chapter is about the conclusion and recommendations of the research study. The major findings and the recommendations suggested by the researcher are included in this part.

5.1 Summary of Findings

After thoroughly analyzing the information gathered through document analysis and interview the following major findings are presented. The general objective of this study is to evaluate different aspects of the project. For this purpose three OECD criteria's are selected; Relevance, Effectiveness and Efficiency from evaluation it's found that:

The project is Relevant, because the objectives are consistent with beneficiaries' requirements, country needs, and global priorities. Unfortunately it used excess amount of budget and time, and this consecutively overrun the cost and schedule of the project, and none of the project works are finished completely yet.

List of objectives intended to achieve at this time, mentioned in the project plan about; sugar and ethanol factory, irrigational infrastructure and land development, house construction and support economy of the country, are become dreams only.

Using interview and secondary data analysis the reason behind the failure of the project also identified; Lack of experience in METEC and sub-contractors, corruption, lack of skills and inexperience of project management knowledge and absence of good contract and procurement management are identified as internal causes of project failure**.** On external level**;** Fluctuation of Prices, Political situation of the country and Political economy of Ethiopia is found.

5.2 Conclusion

A project is considered a failure when it has not delivered what was required, in line with expectations. Therefore, in order to succeed, a project must deliver to cost, to quality, and on time; and it must deliver the benefits presented in the business case (George, 2017). Even though the objective of this project is consistent with local community need, country requirement and global priorities, as definition of George indicate, because it failed to achieve cost, quality and schedule requirement of the project, it can be called failed project.

5.3 Recommendation:

Based on the study findings, the following recommendations are forwarded.

- *Recommendation for ESC*

  - ✓ Termination of the contract with METEC, as the previous chapter indicate the project is very late and over budget because of the contract inefficiency, so to properly accomplish the rest of the project terminate the contract of this ineffective contractor is a best method, at the interview time the sugar corporation officials told me they are also trying to end the contract.
  - ✓ ESC managers must enforce the government officials, not to interferences in their work; like on selection of contractors or if the policy is the problem, they must try and enforce for amendment.
  - ✓ During estimation and planning phase, escalation of material prices in coming future should be kept in mind to avoid this problem.
  - ✓ Make contract with project management Consultant because they are helping organization in the project by managing the project and related specific activities within given constraint of time , budget quality and managing risks in the best way

- *Recommendation for METEC and Other sub-contractors*
  - ✓ There must be continuous training programs related to project management for its staff.
  - ✓ Highly professional and experts in project management can play a vital role for the on time and cost completion of a project. So it's important to heir this kind of professional.
  - ✓ The previous recommendation for ESC 'make contract with project management Consultant', is also help this organization.

REFERENCES

Adams, John & Khan, Hafiz & Raeside, Robert, (2014). Research Methods for Graduate Business and Social Science Students, New Age International (P) Ltd., Publishers

Ahsan, K. & Gunawan I. (2010) Analysis of cost and schedule performance of international developmental projects. International Journal of Project Management, Vol. 28, No. 1; pp. 68–78

Ahmed, S.M., Azhar, S., Kappagntula, P. and Gollapudil, D. (2003), "Delays in construction: a brief study of the Florida construction industry", Proceedings of the 39th Annual ASC Conference, Clemson University, Clemson, SC, pp. 257-66.

Ayman Ahmed & Ezzat Othman, (2013) "Challenges of mega construction projects in developing countries" research paper of The British University in Egypt (BUE)

Chapman,C., Ward, S., & Harwood, I. (2006). Minimizing the effects of dysfunctional corporate culture in estimation and evaluation processes: A constructively simple approach. International Journal of Project Management, Vol.20, No. 24, pp. 106-115.

Chen, H-t. (2004). Practical Program Evaluation: Assessing and Improving Planning, Implementation, and Effectiveness. Thousand Oaks, CA: Sage.

Ellen Taylor-Powell and Sara Steele.(1996) Collecting Evaluation Data: An Overview of Sources and Methods. Madison; cooperative extension publication.

Dehar M, Casswell S, and Duignan P. (1993). Formative and Process Evaluation of Health Promotion and Disease Prevention Programs. Evaluation Review 17 #2: 204-220,

Damoah, S. I., Akwei C. & Mouzughi, Y. (2015) Causes of government project failure in developing countries – Focus on Ghana. Conference proceedings. British Academy of Management (BAM Conference 2015 at University of Portsmouth). The value of pluralism in advancing management research, education and practice. 8-10 September, 2015, ISBN: 978-0-9549608-8-9

Drummond MF, et al. (1987) Methods for the Economic Evaluation of Health Care Programs. Oxford University Press, Vol 15. pp 0-19

Ethiopian Sugar Corporation. (2015) Annual physical reports on execution projects

Farbey B., Land F. & Targett D. (1992) Evaluating investments in IT. Journal of Information Technology, 7 (2), 109 -122.

Fisher RJ and Peters L. (1982) the Role of Evaluability Assessment in Mental Health Program Evaluation. Canadian Journal of Community Mental Health, 1,34.

Flyvbjerg, B., Bruzelius, N. and Rothengatter, W. (2003). Megaprojects and Risk: An Anatomy of Ambition. Cambridge: Cambridge University Press.

Fortmann SP, William PT, Hulley SB, Maccoby N, Farquhar JW. Does Dietary Health Education Reach Only the Privileged? Circulation 661: 77-82, 1982.

Fugar, F. D. K. & Agyakwah-Baah, A. B. (2010) Delays in building construction projects in Ghana. Australasian Journal of Construction Economics and Building, Vol.10, No.(1/2); pp.103-116

Growth and Transformation Plan (GTP) 2010/11-2014/15. Ministry of Finance and Economic Development 2010, Ethiopia.

Gyimah Boadi, E. (2002) Confronting corruption in Ghana and Africa, briefing paper: Ghana Centre for Democratic Developmen(CDD-Ghana), Vol.4, No.2, pp. 16

Haddix AC, Ackerman SP, Shaffer PA. (1996). Cost-Effectiveness Analysis. Prevention Effectiveness: A Guide to Decision Analysis and Economic Evaluation. New York: Oxford University Press.

Human right watch report. (2012). “What Will Happen if Hunger comes?” retrieved from http://www.hrw.org

https://www.un.org

Isaac Sakyi. (2015). An investigation into the causes and effects of project failure in government projects in developing countries: Ghana as a case study. Unpublished degree of Doctor of Philosophy Thesis, Liverpool John Moores University.

J. Price Gittinger. (1972). Economic Analysis of Agricultural Projects, Baltimore: The Johns Hopkins University Press, p. 1

Kothari, C. R. (2004), Research Methodology: Methods and Techniques, (Second Edition), New Age International Publishers.

Leedy, P.D. and Ormrod, J.E. (2005). Practical Research: Planning and Design.8th Ed. Pearson Educational International.

Mohr LB. (1995). Impact Analysis for Program Evaluation. Thousand Oaks: Sage publisher.

Mok, K. Y.,Shen, G. Q. & Yang, J. (2015) Stakeholder management studies in mega construction projects: A review and future directions. International Journal of Project Management, Vol.33, No.2; pp.446-457

Morten Welde. (2016). Ex post evaluation of transport projects – experiences from Norway Norwegian University of Science and Technology; Concept Research Programme. Trondheim; Norway

National Institute on Drug Abuse. (1991). Handbook for Prevention Evaluation. Department of Health and Human Services. Thousand Oaks: Sage publisher.

Ninson. (2018). Evaluating Community Development Projects Using the OECD/DAC Evaluation Criteria. Journal of Multi-Disciplinary Evaluation. Vol. 14.

Organization for Economic Cooperation and Development (OECD). (1998). Review of the DAC principles of development assistance. Paris: DAC Working Party on Aid Evaluation.

O. Chima Okereke. (2017) Causes of failure and abandonment of projects and project deliverables in Africa. PM World Journal Causes of failure and abandonment of projects and Vol. VI, Issue I.

Patton, M.Q. (1997). Utilisation-focused Evaluation. CA, Thousand Oaks: Sage publisher.

PMBOK Guide.3rd ed. Project Management Institute, Inc., (2008). A Guide to the Project Management Body of Knowledge. Newtown Square, PA, USA: Project

Management Institute (PMI).

PMI. (2005). A Guide to the Project Management Body of Knowledge. 5th ed. USA: Project Management Institute, Inc.

Rondindlli, D. A (1976). Why development project fail: problems of project management in developing countries. project management quarterly, 7(1),10-15.

Rossi PH, Freema HE. Programs, Policies, and Evaluations. Evaluation: A Systematic Approach. Newbury Park: Sage publisher.

Sanders, & Cunningham, D. J (1974). Techniques and procedures for formative evaluation. In G. D. Borich (Ed.), Evaluating educational programs and products. Englewood Cliffs, N. J: Educational Technology.

Saunders, M., Lewis, P. and Thornhill, A. (2009). Research Methods for Business Students. 5th Edition, Prentice Hall, Harlow

Smith M. Evaluability Assessment: Reflections on the Process. Evaluation and Program Planning 13: 359-364, 1990.

Stevens, F., Lawrenz, F., & Sharp, L. (1993). User friendly handbook for project management: Science, Mathematics, Engineering and Technology Education.Washington DC: National Science Foundation.

Sturup, S. (2009). Megaprojects and Governability. World Academy of Science, Engineering and Technology, 54.

Stuart MacDonald & Nicola Headlam. (n.d). Research Methods Handbook: Introductory Guide to Research Methods for Social Research. Manchester: The Centre for Local Economic Strategies (CLES)

Samy Tayie (2005) Research Methods and Writing Research Proposals, Path Way to Higher

Education Project, PP 19, 31,35 & 38

Steven Cohen et al (1996) The Effective Public Manager , 4th Edition. Josse-Bass Publisher.

Thomaz Chianca. (2008). The OECD/DAC Criteria for International Development Evaluations: An Assessment and Ideas for Improvement. Journal of Multidisciplinary Evaluation, Volume 5, Number 9

Tessmer M. (1984). Formative Evaluation Alternatives. Beverly Hills: Sage publisher.

Wholey JS (1994). Assessing the Feasibility and Likely Usefulness of Evaluation. Handbook of Practical Program Evaluation: 15-39.

APPENDIX

Interview Guideline

Dear Respondent,

I am a post graduate student at st. Mary's University at the department of Project Management. I am currently doing a research about Evaluation of Omo- Kuraz 1 Sugar factory project using OECD Criteria. You are here by kindly requested to answer the questions listed below sincerely.

The data collected from the interview and the result of the survey will be used strictly for an academic purpose and will be kept confidential. Thank you in advance for taking your time to answer the questions.

Ephrem G/egziabhare

Job Position in the Ethiopia sugar corporation……

Interview Questions

What are the causes of KURAZ I sugar factory project failure in your area? (List them)

Of the various challenge mention, which are the most serious one?

Identify KURAZ I sugar factory project management practices that hinder success?

What are the effects of these failures on the various stakeholders of the project?

How would you explain the effects of the project inefficiency and negative-impact on national development?

What action the corporation does to reduce the negative impact facing due to the project?