

175. PROFILE ON HIGH GRADE CONTRACTOR

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I. SUMMARY

This profile envisages the establishment of a plant for the establishment of higher grade contracting firm with a capacity of undertaking Birr 250 million worth construction projects per annum.

The market study shows that currently an additional 30 high grade contractors are required. If additional higher grade contractors are not materialized the requirement will increase to 665 by the year 2020.

The total investment requirement is estimated at about Birr 82.73 million, out of which Birr 59.35 million is required for construction machinery. The service will create employment opportunities for 68 persons.

The project is financially viable with an internal rate of return (IRR) of 14 % and a net present value (NPV) of Birr 26.68 million, discounted at 8.5 %.

II. SERVICE DESCRIPTION

According to the Guidelines issued by the Ministry of Works and Urban Development there are four categories of contractors. Of these categories, General Contractors is considered for the envisaged project profile. This consideration is made on the basis of the scope of the all encompassing nature of the category and the indication of the market study conducted.

A General Contractor is a company qualified to undertake a variety of construction works such as buildings, roads, bridges, airports, dams, railways, etc.

Grade One General Contractor can undertake any or a combination of all these types of works of unlimited contract value.

III. MARKET STUDY AND SERVICE CAPACITY

A. MARKET STUDY

1. Past Supply and Current Demand

A contractor is defined as a company, or a person with formal contract to do a specific job, supplying labour and materials. According to Ministry of Works and Urban Development contractors in Ethiopia are categorized into four major groups including:

- General Contractors,
- Building Contractors,
- Road Contractors, and
- Specialised Contractors.

As per the Ministry of Works and Urban Development a General Contractor is a contractor that is allowed to engage in any types of construction contract works, a Building Contractor only in building construction, a Road Contractor only in road construction, and A Specialized Contractor in a special construction works other than those mentioned above such as water works, airport field construction...etc.

Based on the data acquired from the Addis Ababa Bureau of Trade and Industry Development the total licensed contractors in the city is 13, 557 as of June 2006¹. Out of the total contracting firms about 60% or 8,140 are general contractors and about 38% or 5,189 are building contractors. The number of specialized contractor and road contractors is insignificant contributing 1 % and 0.69% to the total number of contractors in the city respectively (see Table 3.1).

¹ Note that this number does not include those firms licensed by the Ministry of Works and Urban Development. There are 1,619 firms (1,021 general contractors, 593 building contractors, and 5 road contractors) licensed by the Ministry in 2005/06. According to the Ministry, the Ministry licenses only national firms that are allowed to work in all regions of the country. Regional contractors are licensed by respective regional states and are not allowed to work out side the region where they are licensed.

Table 3.1
NUMBER OF CONTRACTORS LICENSED BY THE CITY ADMINISTRATION
BY TYPE AND CAPITAL AS AT JUNE 2006

Type	Birr 5000 and below	Birr 5001- 20,000	Birr 20,001 - 200,000	Birr 200,000 and Above	Total Number	% Share
Building Contractor	1,833	1,843	1,163	350	5,189	38.28
Road contractor	36	29	20	8	93	0.69
General Contractors	2,791	2,963	1,905	481	8,140	60.04
Specialized Contractors	55	37	29	14	135	1.00
Total	4,715	4,872	3,117	853	13,557	100.00
% Share	34.78	35.94	22.99	6.29	100.00	

Source: Bureau of Addis Ababa Trade and Industry Development, 2006(Unpublished).

As can be seen from Table 3.1 most contractors are small in size. About 36% registered capital between Birr 5001- 20,000 and 35% Birr 5,000 and below. Overall the two categories of firms account about 71% of the total contracting firms licensed by the City Administration. Those firms who registered capital Birr 200,000 and above account only about 6% of the total licensed firms in the city.

As per the regulations of the Ministry of Works and Urban Development all types of contractors are categorized into ten grade levels. The grade level in which contractors are registered determines the type and the size of works they are allowed to engage and could be taken as a proxy indicator of the size and capacity of the contractors. Most of the contractors are from grade 6 to grade 8, which can be depicted as medium level contractors.

Of the total contractors in the city 28.27% of the contractors are grade 6, 26.01% grade 7 and 20.58% grade 8. The share of the three grades (grade6-8) together is 74.86%. Those contractors that are at grade one to four levels are very few indicating low level of

capacity to undertake large contract works in the city. Grade one contractors account only 2.39%, grade two 0.21%, grade three 2.91% and grade four 3.79% of the total number of contractors in the city. Moreover, there are no specialized contractors registered at grade level 1-4 indicating the gap in this category of construction works in the city (see Table 3.2).

Table 3.2

NUMBER OF LICENSED CONTRACTORS BY GRADE LEVEL IN 2006

Grade	Building Contractor		Road Contractor		General Contractor		Specialized Contractor		Total Contractors	
	No.	%	No.	%	No.	%	No.	%	No.	%
Grade 1	224	4.32	7	7.53	93	1.14	0	0.00	324	2.39
Grade 2	20	0.39	0	0.00	8	0.01	0	0.00	28	0.21
Grade 3	298	5.74	12	12.90	85	1.04	0	0.00	395	2.91
Grade 4	443	8.54	18	19.35	53	0.65	0	0.00	514	3.79
Grade 5	1,029	19.84	5	5.38	420	5.16	49	36.30	1,503	11.09
Grade 6	921	17.75	15	16.13	2,885	35.44	12	8.89	3,833	28.27
Grade 7	987	19.02	22	23.66	2,501	30.72	16	11.85	3,526	26.01
Grade 8	936	18.04	9	9.68	1,812	22.26	33	24.44	2,790	20.58
Grade 9	306	5.90	0	0.00	252	3.10	6	4.44	564	4.16
Grade 10	25	0.48	5	5.38	31	0.38	19	14.07	80	0.59
Total	5,189	100.00	93	100.00	8,140	100.00	135	100.00	13,557	100.00

Source: Bureau of Addis Ababa Trade and Industry Development, 2006(Unpublished)

Despite the increase in the number of private contractors since the economic deregulation and liberalization measures, MEDAC (2002) survey suggests the capacity of the private sector to undertake big and complex construction projects is limited. Such type of complex construction projects is therefore contracted out to foreign-based construction contractors.

Regarding demand currently, there are high potential opportunities in the road, building and other construction areas. Ethiopia government's guiding strategic framework i.e.

” Plan for Accelerated and Sustained Development to End Poverty (PASDEP)”, define the nation’s overall development strategy for the five-year period 2005-2010 and lay out the directions Ethiopia will take, with the ultimate objective of eradicating poverty. The plan outline the major programs and policies in each of the major sectors. Accordingly, those strategies and policies which have an impact on the demand for high grade contractors are briefly discussed below

- Roads network

The program targets construction of almost 20,000 km of new roads by 2010 (90% of them in rural areas) and improved maintenance so that 84% of the network is in good condition.

- Clean water supply

With regard to drinking water supply, in rural area the plan envisages the construction of 2,133 deep wells, 14,908 shallow wells, and 101,355 hand-dug wells, 404 ponds, 556 cisterns and 14 surface water sources and 11,065 springs development. Moreover, 48,510 schemes rehabilitation works will be carried out. While in urban areas study and design of 738 town water systems, construction works for 514 towns and rehabilitation works for 228 towns will be carried out. Accordingly, water supply will be expanded to reach 85% of the population compared to an estimated 42% by the end of 2004/05.

- Irrigation

With respect to irrigation development, within the program period, pre-design studies will be carried out for 17,988 hectares, full-fledged design studies will be undertaken on 464,051 hectares, and construction works will be completed for 430,061 hectares.

- Power supply

Under PASDEP, power supply will be increased by three-fold with the construction of 5 major new dams, and addition of 668 MW of generating capacity. A major rural electrification program is being undertaken so that by the end of the program period it is expected that 50% of the population will have potential access to electricity, compared to

about 16% by the end of 2004/05.

- Housing

The Ministry of Works and Urban Development has developed an integrated housing development program. The plan envisaged the construction of 396,000 housings in 203 towns located in seven regional states by the year 2010.

- Education sector

During PASDEP (2005-2010) period the government's goals regarding education include an increase of primary education net enrollment coverage from 67.6% to 86.6%, secondary school enrolment from 27.3% to 39%, TVET gross acceptance capacity for 94,592 to 313,826 and higher education under graduate enrollment capacity from 36,405 to 150,071. Accordingly, in order to achieve the above goals it is obvious that one of the requirements are new schools. Accordingly, the plan envisages the construction of a total 170,713 rooms by 2010.

- Health sector

PASDEP proposes a faster rate of establishment of primary health care facilities, as an essential institutional framework to scale up primary health coverage to reach the target of one low-level health facility within 10 km for almost all of the population by 2010. Accordingly, the plan envisages the construction of 12,249 health posts and 563 health stations by the year 2010.

Regarding the private sector one of the factors that indicate housing construction activity is trend in the provision of land by the city administration. In this regard the city administration has provided a total of 11,387 plots of land with a total area of 7 million m² during the period 1998 – 2005 to private residential quarters, commercial buildings and real estate developers.

From the total land provided during the period of analyses the largest share in terms of number of plots is accounted by private residential quarter (93.9%) however, in terms of

land area the largest (52.79 %) is provided to real estate developers followed by commercial buildings (24%) and private residential quarter (23%).

During the period under review provision of land by the city administration for housing construction activity has registered an average annual growth rate of 49.63% indicating the high magnitude of housing demand and construction activity in the city both for commercial and residential purpose.

From the discussion it can be concluded that there is a supply gap of high grade contractors and an adequate demand for contacting service. However, in order to quantify the demand for high grade contractors, construction sector's contribution to the Gross Domestic Product (GDP) which is an indicator of the sector's growth trend is scrutinized (see Table 3.3).

Table 3.3
CONTRIBUTION OF THE CONSTRUCTION SECTOR TO GDP
(in million Birr)

Year	Construction Sectors Contribution to GDP
1996	2,012
1997	2,118
1998	2,405
1999	2,545
2000	2,617
2001	2,828
2002	3,288
2003	3,447
2004	3,974
2005	4,301
2006	4,526

Source: Annual Publication of National Bank of Ethiopia.

As can be seen from Table 3.3 the contribution of the construction sector to the Gross Domestic Product (GDP) during the period 1996 - 2010 have been growing at annual average growth rate of 8.5 per cent.

Moreover, the construction sector is one of the priority sectors selected by the present government. Accordingly during PASDEP which covers the 2005 – 2006 the government has envisaged to implement a Construction Policy and Construction Capacity Building Program, which will build on the recent Engineering Capacity Building Road Map, and which is intended to create an efficient and effective domestic construction industry. The aims will be to enhance the quality and efficiency of production of construction materials, improve competitiveness of the contracting industry, build technical and managerial capacity, to create adequate capacity within the Government to plan and monitor, and create a conducive environment for the domestic industry.

The main elements of this program include:

- Review and formulation of all policies, systems, and regulations to create a productive enabling environment;
- Development of standards and quality guidelines;
- Building the potential of existing construction MSEs and providing training;
- Providing a stakeholders forum and capacity-building programs for large and medium-scale contractors;
- Completing a Needs Assessment and then developing a full short and medium-term training programs – for technical as well as managerial skills;
- Curriculum reform and development;
- Reviewing and revising the licensing system;
- Developing a legal framework for quality management, and development and implementation of construction standards; and
- Strengthening Associations in the construction industry to enable them to play a proactive role.

Additional measures foreseen during the PASDEP period include a program of research by the Ministry of Works and Urban Development and the private sector on local construction materials, material production, and improved building technologies and techniques as well as compilation of a construction industry database.

Therefore, in the near future it can be assumed that the construction sector will at least maintain the average growth rate it registered in the past, which was 8.5%. Accordingly, in order to keep up with the growth of the construction sector the number of local high grade contractors has to grow at the same rate. As of the year 2006 there were 352 high grade contractors (grade 1 and 2) . Table 3.4 shows projected number of high grade contractors required , existing number of high grade contractors and the demand supply gap.

Table 3.4

PROJECTED NUMBER OF HIGH GRADE CONTRACTORS REQUIRED ,
EXISTING NUMBER OF HIGH GRADE CONTRACTORS AND THE DEMAND
SUPPLY GAP.

Year	Projected Number Of High Grade Contractors Required	Existing Number Of High Grade Contractors	Demand Supply Gap.
2008	382	352	30
2009	414	352	62
2010	450	352	98
2011	488	352	136
2012	529	352	177
2013	574	352	222
2014	623	352	271
2015	676	352	324
2016	734	352	382
2017	796	352	444
2018	864	352	512
2019	937	352	585
2020	1017	352	665

As can be seen from Table 3.4 it is estimated that during the year 2008 an additional 30 high grade contractors are required which will grow to 324 by the year 2015 and 665 by the year 2020.

B. SERVICE CAPACITY AND CONSTRUCTION PROGRAMME

1. Service Capacity

Grade one contractor would have the capacity to undertake construction works with contract value of about Birr 250 million per annum

2. Construction Programme

The Contractor can attain its full capacity in the third year. It is envisaged that it can utilize 70% and 85% of its capacity in the first and second years respectively. The Programme is shown in Table 3.5 below.

Table 3.5
CONSTRUCTION PROGRAMME

Year One	Year Two	Year three
Birr 175 million	Birr 212.5 million	Birr 250 million

IV. MATERIALS AND INPUTS

A. MATERIALS

In a typical construction project, it is estimated that about 80% of contract value is spent on materials (the materials vary from project to project). Accordingly, for grade one

general contractor the materials required at full capacity utilization- is estimated to be about Birr 200 million per annum.

B. UTILITIES

The utilities requirements of the project are shown in Table 4.1.

Table 4.1
UTILITIES REQUIREMENT & COST

Utility	Unit	Unit rate	Qty.	Cost(Birr)
Electricity	kWh	0.4736	1,351,351	640,000
Water	m ³	3.25	80,000	260,000
Total				900,000

V. TECHNOLOGY AND ENGINEERING

A. TECHNOLOGY

1. Process

The processes involved in undertaking construction project include the following:

- Study the terms of reference or bidding documents prepared by the client/ consultant;
- Conduct visit to project site;
- Prepare proposals-technical and financial- to carry out the work;
- Conduct negotiation on terms and conditions of the contract;
- Sign contract;
- Mobilize resources-manpower and machinery-to project site;
- Follow-up work;
- Carry out contract administration work;

- Handover work;
- Arrange for and receive provisional and final certificates of acceptance;

Used oil from machinery, if not collected and disposed off in an environment friendly manner, could pollute ground water levels and rivers. Hence, employees of the envisaged firm should take the necessary care in collecting and disposing of used oil. The used oil can also be supplied to firms engaged in recycling.

2. Source of Technology

There are a couple of number of agents in Addis Ababa that represent suppliers of the required machinery. These include the following:

- Ries Engineering S.Co.
- Equatorial Bussiness Group
- K.K Plc.

B. ENGINEERING

1. Machinery and Equipment

The list of machinery and equipment required by General Contractor Grade One is given in Table 5.1 .The total cost of machinery and equipment is estimated to be about Birr 59.4 million; all of which would be in foreign currency.

Table 5.1
LIST OF MACHINERY AND EQUIPMENT

Sr. No.	Description	Qty.	Price(Birr)
1	Dozer ,200 hp	5	17,500,000
2	Tower crane 30 mt.	1	2,500,000
3	Loader ,1.6m ³	3	6,000,000
4	Crusher,30TPH	2	2,000,000
5	Grader, 100 HP	2	4,000,000
6	Excavator, 0.5m ³	1	2,000,000
7	Sheep Foot Roller,10T	1	1,500,000
8	Roller,10T	4	4,000,000
9	Dump Truck,7m ³	12	10,800,000
10	Truck	4	3,000,000
11	Pick Up	3	1,800,000
12	Concrete Mixer 500- 750lt	3	2,250,000
13	Hand Compactor	6	500,000
14	Workshop equipment – set	1	1,500,000
Total			59,350,000

2. Land, Building and Civil Works

The total land area required by the project is 3000 m². The built-up area is about 2700 m²; of which 1500 m² would be for office, canteen, etc, 700 m² would be for warehouse, and 500 m² would be for workshop. These would cost about Birr 6.21 million (@ Birr 2300/m²).

According to the Federal Legislation on the Lease Holding of Urban Land (Proclamation No 272/2002) in principle, urban land permit by lease is on auction or negotiation basis, however, the time and condition of applying the proclamation shall be determined by the concerned regional or city governments depending on the level of development.

In Addis Ababa the city's Land Administration And Development Authority is directly responsible in dealing with matters concerning land. Accordingly, the initial land lease rate in Addis Ababa set by the Authority based on the location of land is as shown in Table 5.1.

Table 5.1
INITIAL LAND LEASE RATE IN ADDIS ABABA

Sr. No	Location of the land	Land Grade	Initial Price in m²
1	Central Business zones	1	1167.3
		2	1062.9
		3	916.2
		4	751.5
		5	619.2
2	Places That are Under Transit	1	716.4
		2	647.1
		3	559.8
		4	472.5
		5	384.3
3	Expansion Zones	1	245.7
		2	207
		3	150.3
		4	132.3

Source; Addis Ababa City Land Administration Authority

As can be seen from Table 5.2 the initial land lease rate ranges from Birr 1,167.3 to 132.3 per m². Currently, most of the contractors in Addis Ababa are located on the central business zones of the city. Therefore, places under transit and expansion zones are recommended as the best locations for the project. Accordingly, the average of the

highest land lease rates in places under transit and expansion zones which is Birr 481.05 m² is adopted.

The Federal Legislation on the Lease Holding of Urban Land legislation has also set the maximum on lease period and the payment of lease prices (See Table 5.2 and Table 5.3.)

Table 5.2

LEASE PERIOD

Type of Service	Lease Period (Years)
Residential area	99
Industry	80
Education, cultural research health, sport, NGO and religious	99
Trade	70
Urban Agriculture	15
Other service	70

Table 5.3

LEASE PAYMENT PERIOD

Sr. No.	Service Type	Period of Payment According to the Grade of Towns
1	Private residential are obtained through tender or negotiation	50 - 60 years
2	Trade	40 - 50 years
3	Industry	40 - 50 years
4	Real estate	40 years
5	Urban Agriculture	8 - 10 years
6	Trade and social service	40 - 50 years
7	Others	40 years

Moreover, advance payment of lease based on the type of investment ranges from 5% to 10%. For those that pay the entire amount of the lease will receive 0.5% discount from the total lease value and those that pay in installments will be charged interest based on

the prevailing interest rate of banks. Moreover, based on the type of investment, two to seven years grace period shall also be provided. The lease price is payable after the grace period annually.

Regarding, the terms and conditions of land lease the Addis Ababa City Government have adopted Article 6 of the Federal Legislation with very minimal changes. Therefore, for the purpose of this project profile assuming it is categorized under other services , 70 years lease period, 40 years lease payment completion period, 5% down payment and seven years grace period is used.

Accordingly, the land lease cost of the project, at rate of Birr 481.05 per m² for 70 years of holding is estimated at Birr 101.02 million. Assuming 5% of the total cost (Birr 5.05) will be paid in advance as down payment and the remaining Birr 95.97 million will be paid in equal installments with in 40 years, the annual lease payment is estimated at Birr 2,399,237.

VI. MANPOWER AND TRAINING REQUIREMENT

A. MANPOWER REQUIREMENT

The manpower requirement of the project is 68. The annual cost is estimated to about Birr1, 216,800. The details are given in Table 6.1.

Table 6.1**MNAPOWER REQUIREMENT & LABOUR COST (BIRR)**

Position	Req. Number	Monthly Salary	Annual Salary
General Manager	1	4,000	48,000
Secretarial Staff	5	6,000	72,000
<u>Engineering Department</u>			
Head	1	8,000	96,000
Civil Engineer	2	12,000	144,000
Draftsman	1	1,500	18,000
Surveyor	1	2,000	24,000
<u>Finance</u>			
Head	1	7,000	84,000
Accountants	6	9,000	108,000
<u>Equipment and Supply</u>			
Head	1	8,000	96,000
Mechanic Foremen	3	4,500	54,000
Mechanics	9	9,000	108,000
Electrician	1	1,000	12,000
Related Craftsmen	5	3,500	42,000
Purchasing Head	1	2,500	30,000
Purchaser	6	6,000	72,000
Warehousemen	4	3,200	38,400
<u>Employee Relations</u>			
Head	1	3,500	42,000
Personnel Staff	4	3,200	38,400
Archives Staff	2	1,000	12,000
Health Staff	3	3,000	36,000
General Service Staff	10	3,500	42,000
Total	68		1,216,800

B. TRAINING REQUIREMENT

The technology and machinery involved are familiar. Therefore, only orientation and induction modules can be arranged as part of the supply contract.

VII. FINANCIAL ANALYSIS

The financial analysis of the higher grade contractor project is based on the data presented in the previous chapters and the following assumptions:-

Construction period	1 year
Source of finance	30 % equity 70 % loan
Tax holidays	-
Bank interest	8%
Discount cash flow	8.5%
Accounts receivable	30 days
Raw material local	30 days
Work in progress	360 days
Cash in hand	3 days
Accounts payable	30 days
Repair and maintenance	5% of machinery cost

A. TOTAL INITIAL INVESTMENT COST

The total investment cost of the project including working capital is estimated at Birr 82.73 million, of which 72 per cent will be required in foreign currency.

The major breakdown of the total initial investment cost is shown in Table 7.1.

Table 7.1
INITIAL INVESTMENT COST (‘ 000 Birr)

Sr. No.	Cost Items	Local Cost	Foreign Cost	Total Cost
1	Land lease value	5,050.00	-	5,050.00
2	Building and Civil Work	6,210.00	-	6,210.00
3	Plant Machinery and Equipment	-	59,350.00	59,350.00
4	Office Furniture and Equipment	150.00	-	150.00
5	Vehicle	450.00	-	450.00
6	Pre-production Expenditure*	4,506.51	-	4,506.51
7	Working Capital	7,014.13	-	7,014.13
	Total Investment cost	23,380.64	59,350.00	82,730.64

* *N.B Pre-production expenditure includes interest during construction (Birr 4.41 million) and Birr 100 thousand costs of registration, licensing and formation of the company including legal fees, commissioning expenses, etc.*

B. OPERATION COST

The annual operation cost at full capacity is estimated at Birr 214.67 million (see Table 7.2). The raw material cost accounts for 93.17 per cent of the operation cost. The other major components of the operation cost are depreciation, repair and maintenance and financial cost which account for 2.97%, 1.38 % and 1.35% respectively. The remaining 1.13 % is the share of direct labour, utility, labour over head and other administration cost.

Table 7.2**ANNUAL OPERATION COST AT FULL CAPACITY ('000 BIRR)**

Items	Cost	%
Raw Material and Inputs	200,000.00	93.17
Utilities	900.00	0.42
Maintenance and repair	2,970.00	1.38
Labour direct	730.08	0.34
Labour overheads	304.20	0.14
Administration Costs	486.72	0.23
Land lease cost	-	-
Total Operating Costs	205,391.00	95.68
Depreciation	6,385.50	2.97
Cost of Finance	2,896.33	1.35
Total Production Cost	214,672.83	100

C. FINANCIAL EVALUATION**1. Profitability**

Based on the projected profit and loss statement, the project will generate a profit through out its operation life. Annual net profit after tax will grow from Birr 4.38 million to Birr 9.06 million during the life of the project. Moreover, at the end of the project life the accumulated cash flow amounts to Birr 127.71 million.

2. Ratios

In financial analysis financial ratios and efficiency ratios are used as an index or yardstick for evaluating the financial position of a firm. It is also an indicator for the strength and weakness of the firm or a project. Using the year-end balance sheet figures and other relevant data, the most important ratios such as return on sales which is computed by

dividing net income by revenue, return on assets (operating income divided by assets), return on equity (net profit divided by equity) and return on total investment (net profit plus interest divided by total investment) has been carried out over the period of the project life and all the results are found to be satisfactory.

3. Break-even Analysis

The break-even analysis establishes a relationship between operation costs and revenues. It indicates the level at which costs and revenue are in equilibrium. To this end, the break-even point of the project including cost of finance when it starts to operate at full capacity (year 3) is estimated by using income statement projection.

$$\text{BE} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable Cost}} = 7\%$$

4. Payback Period

The pay back period, also called pay – off period is defined as the period required to recover the original investment outlay through the accumulated net cash flows earned by the project. Accordingly, based on the projected cash flow it is estimated that the project's initial investment will be fully recovered within 7 years.

5. Internal Rate of Return

The internal rate of return (IRR) is the annualized effective compounded return rate that can be earned on the invested capital, i.e., the yield on the investment. Put another way, the internal rate of return for an investment is the discount rate that makes the net present value of the investment's income stream total to zero. It is an indicator of the efficiency or quality of an investment. A project is a good investment proposition if its IRR is greater than the rate of return that could be earned by alternate investments or putting the money

in a bank account. Accordingly, the IRR of this project is computed to be 14 % indicating the viability of the project.

6. Net Present Value

Net present value (NPV) is defined as the total present (discounted) value of a time series of cash flows. NPV aggregates cash flows that occur during different periods of time during the life of a project into a common measuring unit i.e. present value. It is a standard method for using the time value of money to appraise long-term projects. NPV is an indicator of how much value an investment or project adds to the capital invested. In principle a project is accepted if the NPV is non-negative.

Accordingly, the net present value of the project at 8.5% discount rate is found to be Birr 26.68 million which is acceptable.

D. ECONOMIC BENEFITS

The project can create employment for 68 persons. The project will generate Birr 34.05 million in terms of tax revenue. The establishment of the project will contribute to the increases of the domestic private contractors capacity to undertake big and complex construction projects. By utilizing local contractors the country can save a substantial amount of foreign exchange that might have been paid to foreign contractors.