



PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES



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ADDIS ABEBA CITY ADMINISTRATION INVESTMENT COMMISSION
A.A

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

TABLE OF CONTENT

LIST OF TABLES.....	2
I. EXECUTIVE SUMMARY	3
1. BACKGROUND INFORMATION.....	5
1.1. INTRODUCTION	5
1.2. PRODUCT DESCRIPTION.....	6
1.3. PROJECT LOCATION AND JUSTIFICATION	6
1.3.1. Location of Addis Ababa.....	6
1.3.2. Demography of Addis Ababa	6
1.3.3. Economic activity of Addis Ababa.....	7
1.4. WHY IS IT BENEFICIAL TO INVEST IN ADDIS ABABA?	9
1.4.1. The city benefit from the investment.....	10
1.5. CURRENT FREIGHT TRANSPORT BUSINESS IN ETHIOPIA	11
1.6. STATUS OF THE FREIGHT TRANSPORT INDUSTRY IN ETHIOPIA.....	12
2. MARKET STUDY, CAPACITY AND SERVICE PROGRAMS.....	13
2.1. MARKET STUDY.....	13
2.1.1. PRESENT DEMAND AND SUPPLY.....	13
2.1.2. PROJECTED DEMAND.....	15
3. TECHNOLOGY AND ENGINEERING	17
3.1. TECHNOLOGY	17
3.1.1. VEHICLES MANUFACTURING PROCESS.....	17
3.1.2. Environmental and social impact assessment of the project	18
3.1.3. Production Capacity and Production Program	19
3.2. ENGINEERING	20
3.2.1. Land, buildings and civil works	20
3.2.2. Machinery and equipment	23
3.2.3. Lists of machinery suppliers.....	24
4. MOTOR VEHICLES ASSEMBLY ORGANIZATIONAL STRUCTURE.....	25
4.1. MANPOWER REQUIREMENT AND ESTIMATED ANNUAL MANPOWER COSTS	25
5. FINANCIAL ANALYSIS.....	26
5.1. GENERAL	26
5.2. INITIAL FIXED INVESTMENT COSTS.....	27
5.3. WORKING CAPITAL.....	28
5.4. PROJECT FINANCING	28
5.5. PRODUCTION COSTS	29
5.5.1. Material inputs.....	29
5.5.2. Utilities.....	29

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

5.5.3.	<i>Over heads</i>	31
5.5.4.	<i>Financial costs</i>	32
5.5.5.	<i>Depreciation</i>	32
5.6.	BREAK EVEN POINT AND ROI.....	33
5.6.1.	<i>Break Even point (BEP)</i>	33
5.6.2.	<i>Return on investment</i>	34
5.7.	PROJECT BENEFITS	34

LIST OF TABLES

Table 1	The projected freight load amount up to 2030.....	15
Table 2	Future truck demand in the industry.....	16
Table 3	Production program in quantity for the next five years.....	19
Table 4	Building costs.....	21
Table 5	Land lease period in Addis Abeba.....	22
Table 6	Land lease floor price in Addis Abeba.....	22
Table 7	Lists of machineries required for CARGO TRUCK ASSEMBLY (Model SINOTRUK HOWO 371HP).....	23
Table 8	Annual manpower costs.....	25
Table 9	Initial Fixed investment costs.....	27
Table 10	Utilities of the factory'000"”Birr.....	30
Table 11	Overhead costs.....	31
Table 12	Depreciation in Birr"000".....	32
Table 13	Source of revenue in Birr"000".....	35
Table 14	Materials input for CARGO TRUCK ASSEMBLY (Model SINOTRUK HOWO 371 HP).....	38
Table 15	Annual total production costs”000”.....	45
Table 16	Calculation of working capital.....	46
Table 17	Projected Net income statement "000".....	47
Table 18	Debt services schedule and computation.....	48
Table 19	Projected Cash flow statement.....	49
Table 20	Total investment costs”000”.....	50
Table 21	Total Assets.....	50
Table 22	Sources of finance.....	51
Table 23	Summary of financial efficiency tests.....	51
Table 24	Calculation of payback period”000”.....	52
Table 25	Calculation of NPV at 17% D.F.....	53

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

I. Executive summary

This project profile is prepared to assess the viability of running motor vehicles assembly factory, in Addis Abeba city administration. Hence Market, Technical, Organizational and Financial study was made to investigate the viability of the envisaged project.

This project profile on motor vehicles assembly factory has been developed to support the decision –making process based on a cost benefit analysis of the actual project viability. This profile includes marketing study, production and financial analysis, which are utilized to assist the decision-makers when determining if the business concept is viable. Ethiopia has a private sector driven motor vehicles assembly industry. According to the latest data sourced from Ethiopian investment commission (EIC) there are about 10 registered companies to invest on motor vehicles manufacturing and other related products.

The location of the plant will be decided on the basis of access to raw materials, infrastructure namely power, water, transport and telecom to easy access to international market. The most locally available raw materials for motor vehicles assembly factory are metals, rubber, plastic and etc.

The factory at full capacity operation can manufacture 300 trackers per year based on 260 working days and their shifts of 24 hours per day.

The total investment capital including establishing the factory is Birr 331 million. Out of the total investment capital, the owners will cover Birr 99.30 million (30 %) while the remaining balances amounting to Birr 231.70 million (70 %) will be secured from bank in the form of term loan.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

As indicated in the financial study, the cash flow projection of the project shows surplus from the first year on. The net cash flows of the project range from Birr 193.67 Million in the first year to Birr 283.45 million at the end of the 10th year of operation. At the end of the 10th year of operation period the cumulative cash balance reaches Birr 2.688 billion. The Benefit-cost ratio and Net present value (NPV) have been calculated at 17% discount factor (D.F) for 10 years of the project activity. Accordingly, the project has NPV of 1.73 billion Birr at 17%D.F. and the benefit-cost ratio of 1.22 at 17% D.F.

Therefore, from the aforementioned overall market technical and financial analysis we can conclude that the motor vehicles assembly factory business is a viable and worthwhile.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

1. Background information

1.1. Introduction

This document was undertaken to show Motors vehicles assembly investment profile in Addis Ababa. In compiling the report, information from Addis Ababa investment commission, Addis Ababa trade and industry development, Ethiopian custom commission and published sources have been augmented.

A well advanced transport network designates a well-advanced economy. For rapid development, a developed and knit transportation system is crucial. Presently, in spite of high demand and its crucial importance, cargo transportation vehicles are in short supply and also significant amounts are imported from abroad.

The provision of adequate cargo transport vehicles is fundamental importance to Ethiopia's present and future demand. In Ethiopia, the demand for cargo transport vehicles is expected to increase considerably in the next few decades as a result of increased population growth, urbanization and increasing income levels. Thus, identifying potential of cargo transport vehicles production is crucial in a country like Ethiopia.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

1.2. Product description

A motor vehicle, also known as motorized vehicle or automotive vehicle, is a self-propelled land vehicle, commonly wheeled, that does not operate on rails (such as trains or trams) and is used for the transportation of cargo. The vehicle propulsion is provided by an engine or motor, usually an internal combustion engine or an electric motor, or some combination of the two, such as hybrid electric vehicles and plug-in hybrids.

1.3. Project location and justification

1.3.1. Location of Addis Ababa

Addis Ababa is the seat of the Ethiopian federal government. It is located on the central highlands of Ethiopia in the middle of Oromia Region. The absolute location is around the intersection point of 901'48''N latitude and 38°44'24"E longitudes. This is very near to the geographical center of the country. It is, therefore, equidistant to the peripheral areas or is equally accessible to almost all parts of Ethiopia. Addis Ababa is located on a well-watered plateau surrounded by hills and mountains. The city is in the highlands on the edge of the Ethiopian rift valley or the eastern slopes of the Entoto Mountain ranges bordering the Great Rift Valley. The total area of Addis Ababa is about 540 km² of which 18.2 km² are rural. Addis Ababa's built-up urban area spans 474 km². It is also the largest city in the world located in a landlocked country.

1.3.2. Demography of Addis Ababa

According to the CSA (2013) population projection, Ethiopia's total population reaches about 105 million people in 2022. Of the total population 22.9% (24 million people) live in urban areas. Ethiopia's urban population is expected to triple by 2037 (World Bank, 2015). Addis Ababa hosts

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

an estimated 3,859,638 people. Currently, Addis Ababa is experiencing an annual growth rate of 3.8% and is estimated to reach 4,696,629 inhabitants by 2032 (CSA, 2015).

1.3.3. Economic activity of Addis Ababa

The transformation of Addis Ababa has especially been rapid since 1991. According to the data from the city's Bureau of Finance and Economic Development (2006), per capital income of Addis Ababa has grown from USD 788.48 in 2010 to USD 1,359 in 2015. The city also achieved a decline in the poverty index from a high of 29.6 in 2012 to 22.0 in 2014. Moreover, the current poverty headcount index for Addis Ababa is estimated at 18.9 while the poverty severity account for 5 and 1.8 index points respectively. Even though, the poverty status of Addis Ababa has an improvement over previous years, there is still much work to be done to curb both the incidence and severity of poverty.

The major contributor to the economic growth of the city is the implementation of publicly financed mega urban projects like condominium housing, the Light Rail Transit, the international airport and industrial zone development (The state of Addis Ababa, 2017). The existence of international large and medium-size enterprises in and around Addis Ababa have also significant role in creating huge opportunity for employment and technology transfer. Furthermore, there are strong demand for goods and services following the existence of many embassies and inter-governmental organizations like the African Union, the United Nations Economic Commission for Africa.

The manufacturing sector's contribution to Addis Ababa's GDP is high. Despite the fact that 86% of the industries in the city are micro and small scale (cottage and handicrafts, and small-scale), the majority of the country's large and medium scale industries are found in the city. Noticeable increases are also registered currently in other aspects of industrial growth.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

The service sector is both the largest contributor to the city's economy and the largest employer. It contributes to 76.4% of the city's GDP while industry's share makes up (almost all) the rest. This sector is dominated by three major sub-sectors: Transport and communication; Real estate, Renting and Business services; and Trade, Hotel and Restaurants. According to the state of Ethiopian Cities 2015 report, the service sector has also been responsible for more than 50% of the growth in the estimated annual growth of the city's GDP. Although 75% of employment in the city is also generated in the service sector, a large proportion of the employed work in low skill and low paying jobs as shop salespersons, petty and 'gullit' traders, sales workers in small shops, domestic helpers or doorkeepers and restaurant service workers.

Analysis of the economic structure of Addis Ababa reveals that the services sectors (63%) dominates with industry (36%) in second place indicating that these sectors account for almost all of the Addis Ababa's GDP (The State of Addis Ababa, 2017).

Addis Ababa has a great share in the economy of the country due to its attractiveness to businesses, companies, individuals and foreign direct investment. Overall primacy index of the city is 24.8 based on urban employment and unemployment survey (CSA 2015). According to the State of Addis Ababa 2017 report, the simultaneous high rates of economic growth and urbanization in Addis Ababa indicates a likely further rising dominance of the city in Ethiopia's economy as well as growing agglomeration of economic activities in and around the city.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

1.4. Why is it beneficial to invest in Addis Ababa?

Addis Ababa is the largest and most economically significant city in the country. Ethiopia's urban population share is only 17 percent (as of 2012, World Bank 2015). The city is the only urban area in Ethiopia capable of delivering scale economies in terms of concentrated demand, specialization, diversity and depth of skills, innovation, and technology transfers. Thus, investors will be benefited in getting capable human power from the market.

The capital is the country's main industrial hub. The city dominates industrial capacity in almost all the branches of light manufacturing that Ethiopia prioritizes. As a result Addis Ababa completely dominates production in various subsectors. This can be taken as the political and social stability of the city.

Overall, the city has a beautiful environment, favorable location, and strong industrial base. Its advantage as an economic powerhouse of the country and human resource center are the most attractive features for local and overseas investors.

Moreover, investors will be getting a comprehensive set of incentives for priority sectors. These include:

- Customs duty free privilege on capital goods and construction materials, and on spare parts whose value is not greater than 15% of the imported capital goods' total value.
- Investors have the right to redeem a refund of customs duty paid on inputs (raw materials and components) when buying capital goods or construction materials from local manufacturing industries.
- Income tax exemption of up to 6 years for manufacturing and agro-processing, and up to 9 years for agricultural investment.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

- Additional 2-4 years income tax exemption for exporting investors located within industrial parks and 10-15 years exemption for industrial park developers.
- Loss Carry forward for half of the tax holiday period. Several export incentives, including Duty Draw-Back, Voucher, Bonded Factory, and Manufacturing Warehouse, and Export Credit Guarantee schemes.

1.4.1. The city benefit from the investment

The city will be benefited from investment. These are discussed below.

- Employment opportunity

Investment is expected to provide direct and indirect employment. These range from unskilled casual workers, semi-skilled and skilled employees.

- Improving growth of the economy

Through the use of locally available materials and exporting products, the investment contributes towards growth of the economy by contributing to the growth of domestic product. These eventually attract taxes including VAT which will be payable to the government hence increasing government revenue while the cost of local materials will be payable directly to the producers. In addition, domestic products save foreign exchange and exports also bring money to the country.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

1.5. Current Freight Transport business in Ethiopia

As it was stated in the above discussion the transport sector is yet protected for Ethiopian investors. But recent practices and the national logistics strategy clearly put to liberate the sector for foreign investors also. Especially the intervention of a private multimodal agent with possibly in different business relationship modalities and the government work to allow the inland dry port service in line with the multimodal operation may have a great contribution towards making the freight transport sector more efficient through creating a competitive business environment.

Currently the cross border freight transport operation with multimodal agreement is monopolized by the governmental organization, ESLSE. All enterprises engaged on the cross border freight transport are dealing with the sol multimodal agent as far as the movements are under multimodal agreement for destinations to the dry port facilities or bonded warehouses. This is not the same in case of uni modal agreement.

Currently there are 12,766 number of truck with average carrying capacity of 40 tons and around 57% of them are more than 10 years' life time. The country imported goods amount to be reached more than 16 million tons and it's believed to go beyond it in the year afterward. The current operational measurement indicators of the freight transport like the average turn round and annual distance coverage are 2.5 and 50,000KM consecutively as per the UNDP report. To satisfy the current market requirement of trucks with the current import amount is estimated to be more than 14,000 trucks. This number is subjected for change as the freight amount increases and the more the life time of trucks in the industry increases the less the possibility to stay in the operation as it affects the competitiveness and availability rate of the

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

trucks for service. These facts enforce the need for injection of new trucks to the industry with the current state of the art technology.

1.6. Status of The freight transport industry in Ethiopia

In order to streamline incoming and outgoing logistics, it has been planned to increase the performance of the Demijur Law time standards (at Weight checkpoints, customs checkpoints, loading and unloading stations) to 100% and was able to reach 92.75%. It is planned to transport 19.49 million tons of goods and 16.1 million tons (82.6%) has been transported. The average annual coverage of a truck was targeted to reach 121,250 km and has reached 61,400 km (50.6%).

One Stop Boarder Post: It is one cross-border transit transport service point that renders efficient service for various institutions. This station is a facility to be built under an agreement between countries to reduce the time spent on inspections and related transit costs to facilitate cross-border traffic. The facility, which is being negotiated with neighboring countries to facilitate efficient transit services for landlocked Ethiopia, is currently being built between Ethiopia and Kenya at Moyale, between Ethiopia and Djibouti at Dewale. Ethiopia's transit gates at Metema with Sudan, at Rade with South Sudan, and with Eritrea as well as Somaliland in a place to be decided in the future will be studied and implemented according to the amount of traffic in the next ten-year projection.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

2. Market study, capacity and service programs

2.1. Market Study

2.1.1. Present demand and supply

The national freight transport demand in the current situation is more or less monopolized by the Ethiopian enterprises as it is not yet opened for foreign companies or investors from abroad with none Ethiopian citizenship. This fact could be changed in few years ahead as the national road map shows it will be opened for global economic operators progressively from neighboring countries.

The operational status of the freight transport industry in present years shows that about 95% of the total cargo in our country is transported by road freight service. The operation is under taken with the number of trucks having a capacity of less than 10 quintals has increased from 30,827 in 20015/16 to 55,797 in 2019/20 and has grown by an average of 16% annually. The number of trucks with a capacity of more than 10 quintals has increased from 95,644 in 20015/16 to 146,263 in 2019/20, with an average annual growth rate of 10.5%.

Freight transport operators (service organizations and associations) are organized as domestic and cross-border service providers. Accordingly, 120 domestic, cross-border 105 and 59 special freight carriers operating in both categories are operating in the sector. Of these, 155 are unions (55%) and 129 (45%) are share companies and privately owned. A total of 2,482 domestic and 12,766 cross-border vehicles are in operation. In terms of service life, on average, 44.6% of vehicles are under 10 years old and 56.4% are over 10 years old. It means that, $12,766 \times 0.564$ that equals 7,200 are almost

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

exhausting their competitive service delivery lifetime especially for cross boarder freight transport. In other word it becomes clear that only the remaining 5,566 are expected to be active at least for the next reasonable years.

These numbers of the trucks have also another constraint regarding their loading capacity with 40 tons. The country' s ministerial office of transport is designing different support packages to upgrade the loading capacities of the truck entering to the industry.

The annual average distance coverage of a truck is reached on 61,400km. To determine the related average, turn round from Addis Ababa to Djibouti comprising of both the inward and outward trip:

Considering the 2022/23 total cargo to be expected that amounts 17.1 million ton or 171,000,000 quintal. The load factor in our situation is considered to be 70%. The average round trip as per the UNDP study is 2.5. Therefore,

- I. Annual freight load expected to be handled (17,100,000ton) ÷ loading capacity of a truck (40ton) which results 427,500 round trip in the year
- II. The stated annual round trip (427,500) ÷ 12 months equals to 35,625 round per month
- III. The monthly round trip (35,625) ÷ to average monthly round trip (2.5) equals 14,250 trucks with 100% load factor.
- IV. The monthly truck requirement that is 14,250 is assumed to operate with 70% load factor. It is in other words mean 30% of the movement is without load. Therefore the truck requirement with 70% load

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

factor is estimated as= 14,250 trucks* 1.3 that equals to 18,525 trucks with the assumption of maintaining the average round trip at 2.5.

- V. Current available trucks with less than 10 years service time having a 40 ton loading capacity are determined as 5,566.

Therefore, to determine the supply demand gap, assuming the average round trip operation is improved to 2.8, then the required amount of trucks is $35,625 \div 2.8 * 1.3$ that equals 16,540 trucks. This indicates that the market is at 22.8% deficit to fill the market gap. This is to say that the industry requires an additional injection of 3774 trucks with the stated loading capacity. This figure might be changed if we consider the 57% over 10 years service time of trucks currently in the industry.

2.1.2. Projected demand

Table 1 The projected freight load amount up to 2030.

No	Total projected load (import-export)	Portion coverage by freight vehicles	Budget Years										
			19/20	20 /21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	2030
1	From 17.7 million tone to 30.41 million ton	in million tons	16.1	16.3	16.2		17.4	19.1	18.5	19.7	20.9	22.1	23.3

Source: FDRE- Transport sector ten-year plan (2020-2030)

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

Based on the projection of the freight load the corresponding truck requirement is computed and shown in the next table.

Table 2 Future truck demand in the industry

year	expected cargo to be transported by vehicle/ton	Vehicle Loading capacity/ton	Months	Expected Average round trip performance/month	Performance factor in Load factor	Future Trucks need in the industry
2023/24	17400000	40	12	2.8	1.3	16830
2024/25	19100000	40	12	2.8	1.3	18474
2025/26	18500000	40	12	2.8	1.3	17894
2026/27	19700000	40	12	2.8	1.3	19055
2027/28	20900000	40	12	2.8	1.3	20900
2028/29	22100000	40	12	2.8	1.3	21376
2029/30	23300000	40	12	2.8	1.3	22537

** Truck requirements determination = total load to be covered by vehicles ÷ loading capacity ÷ number of months ÷ expected average round trip performance * idle load factor

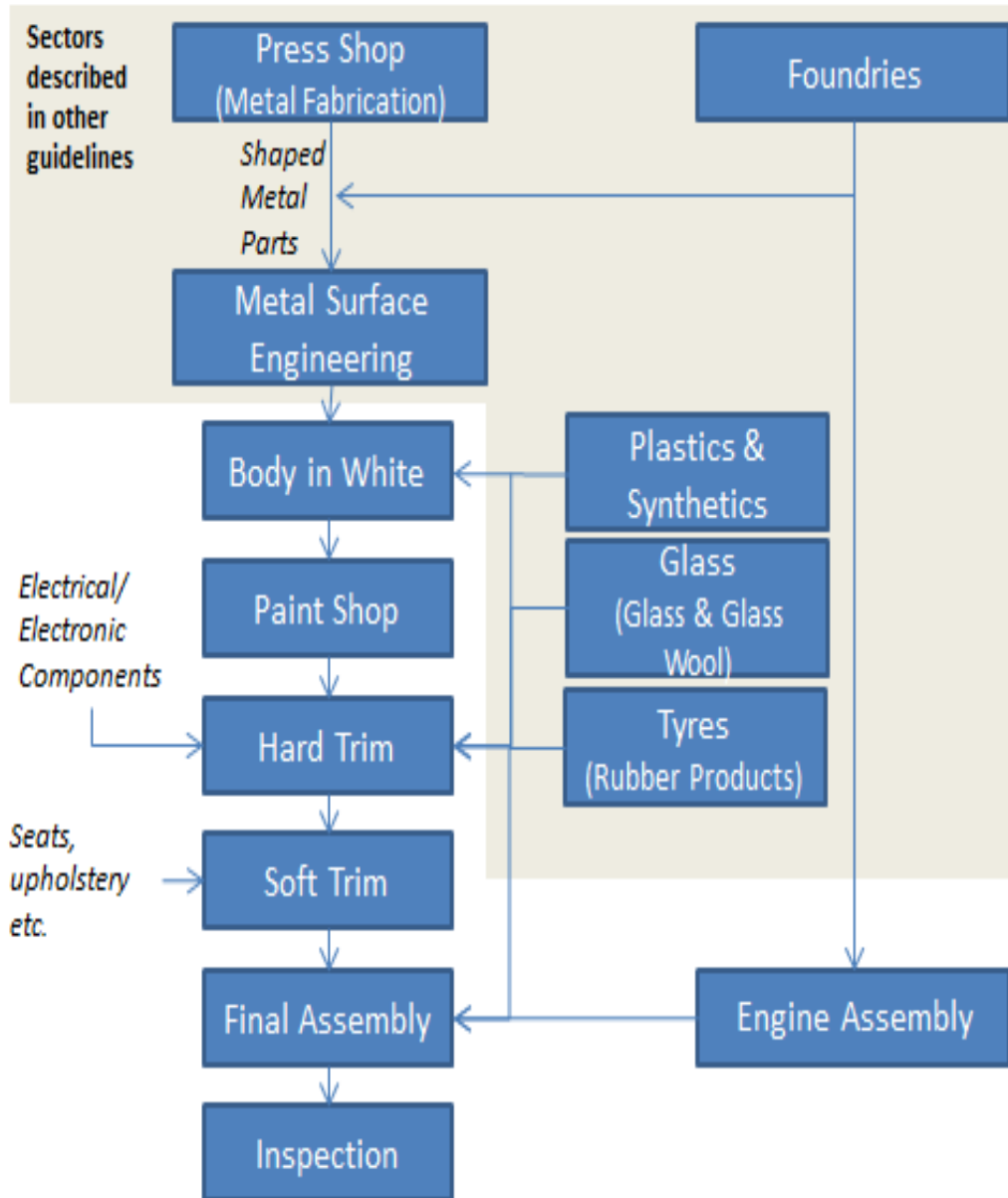
Based on the data computed above the industry requirement of freight transport trucks need shows increment and the gap between the current supply and future demand has a big margin for new investment.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

3. Technology and engineering

3.1. Technology

3.1.1. Vehicles manufacturing process



PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

The manufacture of motor vehicles involves the manufacture and assembly of the final product from a number of metallic, plastic and electrical components. A wide range of processes are involved including metal cutting, pressing, polishing, grinding, welding, plating, & painting.

The vehicle industry produces many parts itself (e.g. by subsidiaries), while other parts are purchased. Engines are cast from aluminum or iron, and further processed in engine plants. Vehicle bodies are generally formed out of sheet steel, although there is a trend toward more plastic, reinforced fiberglass and aluminum parts in vehicle bodies.

There are close linkages with other metal industry sectors, particularly Foundries, Metal Surface Engineering, and Metal Fabrication, as well as to the manufacture of plastic products, glass and textiles.

3.1.2. Environmental and social impact assessment of the project

Typically, any developmental projects also trigger a set of environmental and social impacts. These environmental and social due to development projects occur in different forms. An Environmental and Social Impact Assessment (ESIA) has to be carried out to study the potential environmental and social impacts due to the Motor vehicles assembly project. Potential environmental and social impacts due to the production of motor vehicles on attributes like air quality, noise, water quality, soil, flora, socio-economic, etc. have to be assessed as part of the ESIA study. Appropriate mitigation measures to help minimize/avoid impacts from the development have to be recommended in the study. The measures include avoidance measures, mitigation measures and environmental enhancement measures. For the purpose of including environmental costs, the costs of wastewater treatment plant and solid waste incineration systems are included in the cost of machinery and equipment.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

3.1.3. Production Capacity and Production Program

3.1.3.1. Plant capacity

The annual production capacity of the plant in full capacity is 300 transport truck. The production capacity is based on projected demand and realistic market share that could be captured. The production commences two shift and 260 working days a year. The production program does not include Sundays and national and public holidays.

3.1.3.2. Production program

. The plant initially produces 70 % of its annual rated capacity bound to initial operating problems such as machine set up and marketing. The production capacity will increase by 10 % and attain its full capacity by the third year of its commencement.

Table 3 Production program in quantity for the next five years

	Period			Start-up			Full Capacity	
	Capacity utilization			70%	80%	90%	100%	100%
	Project year			1	2	3	4	5
Product type	Unit of measurement	At full capacity						
1	Pcs	300	210	240	270	300	300	
	Sub Total		210	240	270	300	300	

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

3.2. Engineering

3.2.1. Land, buildings and civil works

The required area (m²) and construction cost for the production facilities essential for the successful operation of the processing plant is shown in Table 4. A total area ready for the processing plant is 10,000 m² out of which 5,891m² is to be covered by building while uncovered area of 4,109m² is left storage of waste materials and future expansions. In order to estimate the land lease cost of the project profiles it is assumed that all the project will be located in different land level from level 1/1 to level 4/3, their current market lease price is from 39,073.31 birr per M² to 2,800.71 birr per M² respectively. Therefore, for the profile a land lease rate of birr 3,885 per M² have been taken, which is between the ranges.

The cost of construction of building should be appropriate to the size and expected profitability of business, costs of building generally differs by the type of construction materials used, the type of foundation, wall height and location. The current building cost for simple storage and processing room is from 10,000.00 Birr per m² to 25,000.00 Birr per m². The total construction cost of buildings and civil works, at a rate of Birr 20,000 per m² is estimated at Birr 98.43 million. Therefore, the total cost of land lease and construction of buildings and civil works is estimated at Birr 137.28 million.

The proposed plant layout comprises the following buildings and structures.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

Table 4 Building costs

S/No	Descriptions	Total area	Estimated cost per square meter (in Birr)	Total estimated cost (in Birr)
1	Raw materials store	1,500M ²	20,000.00	30,000,000.00
3	Raw materials preparation room	1,000M ²	20,000.00	20,000,000.00
4	production room	1,000M ²	20,000.00	20,000,000.00
6	Main product store	500 M ²	20,000.00	10,000,000.00
7	packing materials store	300 M ²	20,000.00	6,000,000.00
8	Office and toilet	200M ²	20,000.00	4,000,000.00
9	Canteen	160M ²	20,000.00	3,200,000.00
10	Guard house	6M ²	20,000.00	120,000.00
11	parking	600M ²	5,000	3,000,000.00
12	Green area	625M ²	500	312,500.00
13	Fence	1,200M	600*2*1,500	1,800,000.00
	TOTAL	5,891 M²		98,432,500.00

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

Table 5 Land lease period in Addis Abeba

Sector of development activity	Period of lease	Down payment
Education, health, culture and sports	90	10%
Industry (manufacturing)	70	10%
commerce	60	10%
For urban agriculture	15	10%
For others	60	10%

Sources: - city government of Addis Abeba land development and management bureau

Table 6 Land lease floor price in Addis Abeba

S/No	Land level	Current land lease floor price per M ²	Current lease price per M ² (Market price)
1	1/1	2,213.25	39,073.31
2	1/2	2,165.47	36,825.73
3	1/3	1,900.19	34,578.15
4	¼	1,552.93	31,119.21
5	1/5	1,531.91	29,096.45
6	2/1	1327.39	27,073.71
7	2/2	1,221.18	25,050.96
8	2/3	1,191.17	23,028.21
9	2/4	1,074.39	21,005.46
10	2/5	1,027.84	18,982.71
11	3/1	994.71	16,959.96
12	3/2	960.21	14,937.21
13	3/3	927.84	12,914.46
14	¾	904.77	10,891.71
15	3/5	873.74	8,868.96
16	4/1	814.06	6,846.21
17	4/2	786.45	4,823.46
18	4/3	748.80	2,800.71

Sources: - city government of Addis Abeba land development and management bureau

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

3.2.2. Machinery and equipment

The main plant and machinery consists, arc welding, shear machine, bending machine and etc.

Lists of CARGO TRUCK ASSEMBLY (Model SINOTRUK HOWO 371HP)

Table 7 Lists of machineries required for *CARGO TRUCK ASSEMBLY (Model SINOTRUK HOWO 371HP)*

S/No	Equipment Name	Quantity	Unit price	Total Amount
1	Arc Welding Transformer 3 Phase, Oil Cooled	3	150,000.00	450,000.00
2	Portable Spot Welding Gunnies	3	100,000.00	300,000.00
3	D.E. Bench Grinder 8" wheel dia.	2	25,000.00	50,000.00
4	Electric Heavy Duty Portable Shear Machine	3	20,000.00	60,000.00
5	Universal Sheet worker with AC/440/3/50 Electric Motor and Starter.	2	50,000.00	100,000.00
6	Universal Hand Shearing Machine	2	25,000.00	50,000.00
7	Bending Machine hand operated heavy duty general bending rollers	2	250,000.00	500,000.00
8	Air Compressor 5 HP double cylinder	2	65,000.00	130,000.00
9	Pneumatic riveting hammer	5	20,000.00	100,000.00
10	Pneumatic Chipping Hammer	5	15,000.00	75,000.00
11	Pneumatic Portable Shear	5	35,000.00	175,000.00
12	Pneumatic portable air saw	5	15,000.00	75,000.00
13	Pneumatic Portable Drills	5	50,000.00	250,000.00
14	Hydraulic Pipe Bender	2	65,000.00	130,000.00
15	Spray Gun	3	15,000.00	45,000.00
16	Handling equipment	LS	250,000.00	250,000.00
17	Hand Tools	LS	250,000.00	250,000.00
18	Miscellaneous equipment	LS	250,000.00	1,500,000.00
	Sub total			4,490,000.00
	Contingency 25%			1,122,500.00
	Grand total			5,612,500.00

3.2.3. Lists of machinery suppliers



GTE B.V.

Phone: +31 (0)77-397 13 05

E-mail: info@gte-engineering.nl

ALIBABA

Hangzhou (Yuhang District)

969 West Wen Yi Road Yu Hang District, Hangzhou 311121

Zhejiang Province, China Tel: (+86) 571-8502-2088 Fax

(Mainland China): (+86) 571-8656-1717 Fax (Hong Kong,

Macao and Taiwan regions of China and Overseas): (+86) 571-

8376-8429

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

4. Motor vehicles assembly organizational structure

The selection of structure of the envisaged project is made based on the existing structure of manufacturing plants operating in the country, the capacity, complexity and technology mix of the plant. Organizational structure principles such as specialization, coordination, and departmentalization are also considered for design of structure that best suits the envisaged project

4.1. Manpower Requirement and Estimated Annual manpower costs

Table 8 Annual manpower costs

S/No	Description	Number of persons	Salary in birr	
			monthly	annually
1	General manager	1	35,000.00	420,000.00
2	Executive secretary	1	10,000.00	120,000.00
5	Manager- admin. and finance	1	25,000.00	300,000.00
7	Accountant	1	20,000.00	240,000.00
10	Cashier	1	7,500.00	90,000.00
13	Guards	5	3,500.00	210,000.00
14	Messenger and cleaner	1	3,500.00	42,000.00
15	Driver ii	3	7,500.00	360,000.00
16	Production and technical head	1	30,000.00	360,000.00
18	Chief quality controller	3	15,000.00	540,000.00
23	Senior mechanics	3	12,000.00	432,000.00
25	Senior electrician	3	12,000.00	432,000.00
26	Shift electrician	3	10,000.00	360,000.00
27	Shift mechanic	3	10,000.00	360,000.00
28	Store keeper	1	10,000.00	120,000.00
29	Manager- commercial	1	20,000.00	240,000.00
30	Purchaser	1	10,000.00	120,000.00
31	Sales- manager	1	15,000.00	180,000.00
32	Sales clerk	1	7,500.00	90,000.00
	Total	35	263,500.00	5,016,000.00

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

5. Financial Analysis

5.1. General

The financial analysis evaluation of Motor vehicles assembly project, are mainly consisted of capital investment as well as operating and maintenance costs. The capital investment costs include fixed investment costs (initial fixed investment and replacement costs) and working capital, while operating and maintenance costs comprise current expenses related to material inputs, manpower cost, utility, repair and maintenance costs, spare parts, Overheads, Sales and distribution, interest and depreciation expenses.

The financial analysis and evaluation has been conducted taking assumptions:

1. It is assumed that about 70% of the total capital investment costs including the working capital requirement could be covered through development bank loans of short and long-term credits. The remaining balance 30% will be covered by equity capital contribution of the project owner.
2. Even though the project might secure loans under different term and conditions as well as from different financial sources, for the purpose of calculation of debt service scheduling, the current development bank of Ethiopia credit terms and conditions have been used. Consequently. It is assumed that the project will secure loan facility on the basis of 11.5 % annual interest rate.
3. Even though the estimated project production life is more 10 years, the financial analysis has been undertaken for a period interval covering the first 10 years only, during which time

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

most of the capital assets are assumed to be depreciated, debts recovered and pay-back period accomplished.

4. It is assumed that the project will be start up production activity at 70 % capacity. During years 2 & year 3 the projects is anticipated to gradually increase capacity utilization to reach 100% in year 4. Therefore, starting from year 4 the project will be operational at full capacity.
5. For the project under reference promotional, sales and distribution expenses have been estimated at 3% of the sales revenue.
6. Maintenance and spare parts costs are 1.5% of the fixed investment costs.
7. Furniture and fixture costs assumed to be 500,000.00

5.2. Initial Fixed investment costs

Table 9 Initial Fixed investment costs

S/No	Fixed investment type	Unit of measurement	Quantity	Unit price	Total Amount	Remarks
1	Land	Square meter	10,000	3,885 birr/M ²	38,850,000.00	The period of land lease will be 70 years and 10% of the total lease amount will be paid in the first year
2	Buildings and civil works	Square meter	5,100	lump sum	98,432,500.00	
	Sub total				137,282,500.00	
3	Machineries	set	2	Lump sum	5,612,500.00	
4	Transformer	set	1	Lump sum	2,000,000.00	
5	Weighbridge	Set	1	Lump sum	4,000,000.00	
6	Truck and vehicles	Pcs	2	Lump sum	6,000,000.00	
7	Furniture and fixture	Pcs			500,000.00	
	SUB TOTAL				18,112,500.00	
	Fixed capital investment costs				155,395,000.00	
8	pre-operational expenses				2,000,000.00	
	Working capital				173,645,000.00	
	TOTAL INVESTMENT COSTS				331,040,000.00	

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

5.3. Working capital

Working capital is the financial means required for smooth operation and maintenance of a project mathematically, it is a difference between current assets and current liabilities. In the particular case of the project under consideration, the current assets comprise receivables, inventories (local and imported material inputs, spare parts, work in progress, and products ready for delivery) and cash in hand, while current liabilities comprise accounts payable to creditors.

5.4. Project Financing

Fixed capital investment costs and working capital requirements are assumed to be financed by equity capital of the owner and through loans of short and long-term credits.

The company obtains loans under different terms and condition as well as from different sources, for the purpose of calculation of debt service scheduling the current development bank of Ethiopia credit terms and conditions have been used. Accordingly, it is assumed that the company will be able to obtain loan 70% of the total investment costs for construction of different buildings for purchase of machineries. The remaining balance that of the total investment costs will be expected to be covered by equity contribution of the project promoter.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

5.5. Production costs

As it is depicted in Annex Table 15 major categories of the total production costs are assembled into the following cost elements.

5.5.1. Material inputs

In the project under study the basic material inputs are steel sheet metal, RHS, Angle iron and etc. Therefore, the current prevailing local and international market prices have been used for estimation of material inputs costs. At full capacity operation the material inputs costs are estimated at Birr 1.67 billion per annum.

5.5.2. Utilities

In estimating costs of utility expenses for operation and maintenance of the project, Costs of fuel, oil and lubricant, electricity and water consumptions have been taken in to consideration, the rates of which have been estimated on the basis of the proposed capacity utilization program of the project and at the current official charging rates. At full capacity operation the project will have the following utility expense per annum which amounts to Birr 5.08 million.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

Table 10 Utilities of the factory'000''Birr

Utility''000''Birr		Start-up			Full Capacity
		70 %	80 %	90 %	100 %
Capacity utilization		1	2	3	4
Project year					
Item description	Unit of measurement				
Fuel					
Gasoline for service vehicle	50km*260days*37Birr/LIT*8km/Li	42.09	48.10	54.11	60.13
Gasoline for transport truck	(200km*300days*37Birr/LIT*5km/Li)*3	311	355	400	444
Sub-Total		353.09	403.10	454.11	504.13
Change of oil and lubricant	10% of the fuel consumption	35.30	40.30	45.40	50.40
Sub-Total		388.40	443.40	499.51	554.53
Electricity	260days*24 hrs.*650kwh* 0.4736Birr/kwh	2,839	3,245	3,650	4,056
Sub- Total		2,839	3,245	3,650	4,056
Water	365days*100m ³ /day*15 Birr/m ³	255.50	292.00	328.50	365.00
Sub -Total		255.50	292.00	328.50	365.00
Telecommunication					
Telephone	5 lines* 1,500Birr/month/line+18Birr/line/month	31.08	31.08	31.08	31.08
Mobile	5 lines*1,500 Birr/month/line	30.00	30.00	30.00	30.00
Fax	2line*1,000Birr/month + 17 Birr/line/month	12.40	12.40	12.40	12.40
Internet	2,500 Birr/month	30.00	30.00	30.00	30.00
Sub-Total		103.48	103.48	103.48	103.48
TOTAL		3,586.40	4,083.88	4,581.50	5,079.01

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

5.5.3. Over heads

In the expenses under this title have been included land and building taxes, buildings, vehicles as well as machinery and equipment insurance, vehicles annual inspection; postage, telephone and e. mail, stationery and office supplies; printing and copying; audit fee; cash indemnity etc. The overhead costs and divided in to direct overheads and administration overheads.

Table 11 Overhead costs

Direct Overhead”000”Birr		Year 1	Year 2	Year 3	Year 4
Annual land lease Payment		5,550	5,550	5,550	5,550
Insurance					
Building and Civil works	0.10%	112.23	112.23	112.23	112.23
Machinery and Equipment	0.20%	156.00	156.00	156.00	156.00
Motor vehicle and Truck	1%	60.00	60.00	60.00	60.00
Vehicles annual inspection and registration	25,000 Birr per annum per vehicle	50.00	50.00	50.00	50.00
Work cloth	Two times per annum per workers at 800 Birr	56.00	56.00	56.00	56.00
Cleaning and sanitation	An estimate of 300 Birr/day	78.00	78.00	78.00	78.00
Sub Total		6,062	6,062	6,062	6,062
Administration Overhead “000’ Birr					
Audit fee	40,000 Birr per annum	40.00	40.00	40.00	40.00
Office cleaning and sanitation	2,000 Birr per month	24.00	24.00	24.00	24.00
Stationery and office supplies	2,000 Birr per month	20.00	20.00	20.00	20.00
Printing and Copy	2,000 Birr per month	24.00	24.00	24.00	24.00
Sub Total		108.00	108.00	108.00	108.00
GRAND TOTAL		6,170	6,170	6,170	6,170

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

5.5.4. Financial costs

As it has been outlined earlier under” project Financing” the current Development Bank of Ethiopia credit terms and conditions for newly establishing projects have been used to compute the financial costs, estimated to be incurred in connection with that of the total investment costs assumed to be covered through loan financing. The amount of the loan capital to be obtained and the financial costs to be incurred thereof have been determined depending on the amount of fixed investment cost and pre-production expenses.

5.5.5. Depreciation

Table 12 Depreciation in Birr"000"

Period			Start-up			
			70 %	80 %	90 %	100 %
Capacity utilization			70 %	80 %	90 %	100 %
Project year			1	2	3	4
Item description	Original Value					
Structure and civil works	98,432,500.00	5% of original value	4,922.00	4,922.00	4,922.00	4,922.00
Machinery and equipment	5,612,500.00	15 % of original value	842	842	842	842
Transformer	2,000,000.00	15 % of original value	300.00	300.00	300.00	300.00
Motor vehicles and trucks	6,000,000.00	15 % of original value	900.00	900.00	900.00	900.00
Weighbridge	4,000,000.00	15 % of original value	600.00	600.00	600.00	600.00
Office equipment and furniture	500,000.00	20% of original value	100.00	100.00	100.00	100.00
Pre-operation expense	2,000,000.00	25% of original value	500.00	500.00	500.00	500.00
Total			8,164	8,164	8,164	8,164

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

5.6. Break Even point and ROI

5.6.1. Break Even point (BEP)

Three kinds of break-even point

A. BEP Sales Revenue(BR)

B. BEP production (Volume)

C. BEP Percentage (%)

A. Break-even point(BEP) Sales

To determine BEP Annual Sales, multiply annual sales found in income statement by the annual fixed cost, and divided by Annual sales less Annual variable cost.

$$\text{BEP (sales)} = \frac{\text{Annual sales} \times \text{Annual fixed costs}}{\text{Annual sales} - \text{Annual variables costs}}$$

Annual sales = 1,575,000,000Birr

Unit selling price = 7,500,000 Birr/pcs

$$\text{BEP (sales)} = \frac{\text{Annual sales} \times \text{Annual fixed costs}}{\text{Annual sales} - \text{Annual variables costs}} = \frac{1,575,000,000 \times 45,999,000}{1,575,000,000 - 1,222,794,000}$$

BEP (Sales) = 205,699,008 Birr

B. BEP production

To determine BEP production volume, divided BEP sales by the unit selling price (USP)

BEP production = 205,699,008/7,500,000= 27.42

$$\text{c. BEP percentage} = \frac{\text{Annual fixed costs} \times 100\%}{\text{Annual sales} - \text{Annual variables costs}}$$

$$= \frac{45,999,000 \times 100\%}{1,575,000,000 - 1,222,794,000}$$

= 13%

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

5.6.2. Return on investment

Return on investment = Net profit /Total capital requirement

$$= 301,223,000/331,040,000$$

$$= 90.00\%$$

The return on owners' investment (ROOI)

= Annual net profit /owners' investment

$$= 301,223,000/99,312,000$$

$$= 303\%$$

5.7. Project benefits

For financial analysis and evaluation of the given project, the current raw materials price, and final product price at the project gate has been taken as a basis.

As it has been stated earlier the project is envisaged to reach full capacity operation two years after commencement of production activities which are assumed to begin with 70% of the estimated total capacity.

At full capacity operation the project is envisaged to have the following revenue components.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

Table 13 Source of revenue in Birr"000"

	Period			Start-up			Full Capacity	
	Capacity utilization			70%	80%	90%	100%	100%
	Project year			1	2	3	4	5
	Product type	Quantity at full capacity	Unit price					
1	Three axles dry cargo drawbar trailer	300 pcs/year	7,500	1,575,000	1,800,000	2,025,000	2,250,000	2,250,000
	Total			1,575,000	1,800,000	2,025,000	2,250,000	2,250,000

Thus, according to the computation in Annex Table 17 and Annex Table 19, the net income and cash flow statements analysis revealed that at full capacity operation the project will generate a total income (gross revenue) amounting to 2.25 billion Birr per annum. The corresponding Annex Table 17 of “Net Income Statement” shows a steady growth of gross profit starting from 306 million Birr in year 1 reaching the peak of 484 million Birr in year 10. In its 10 years of manufacturing activities, the project is expected to generate a total net profit of 2.85 billion Birr and contribute 1.53 billion Birr to the government treasury in form of 35% income tax.

According to the current investment Law, machinery and equipment are anticipated to be imported duty- free. The liquidity position of the project is very strong. The corresponding Annex Table 19 of “Cash Flow Statement” shows the positive cumulative cash balance of Birr 2.688 billion and the project will not face any cash shortage throughout its production life.

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

The computation of the pay-back period as depicted in Annex table 24 indicates that the project will be able to reimburse itself from its net cash-income within two years after commencement of production activities, the period which is considered to be very good for the project of this nature.

In Annex Table 25 of the Benefit-cost ratio and Net present value (NPV) have been calculated at 17% discount factor (D.F) for 10 years of the project activity. Accordingly, the project has NPV of 1.73 billion Birr at 17%D.F. and the benefit-cost ratio of 1.22 at 17% D.F. These results are most appreciable, especially, when related to the external capital borrowing interest rate which ranges from 8.50% to 18.5 % for newly establishing projects.

Break-even point (BEP) have been undertaken the project under study when implemented will have BEP at about 13% operation of the estimated full capacity

In addition to this, finally, summary of financial efficiency tests have been conducted in Annex table 23, Accordingly, all efficiency ratios indicated positive trends and consequently, it can be inferred that the project can operate in the frame work of free market mechanism on commercially and financially viable basis and is remunerative.

ANNEXES

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

Table 14 Materials input for CARGO TRUCK ASSEMBLY (Model SINOTRUK HOWO 371 HP)

A. Material input for CARGO TRUCK ASSEMBLY (Model SINOTRUK HOWO 371HP)

Semi -Knocked Down (SKD) Truck Parts

S/N	ITEM	DESCRIPTION	UOM	QTY	UNIT PRICE (ETB/Unit)	AMOUNT (ETB)
1	Chassis, Cabin, Wheel, Harness & all Complete Parts	6x4 Truck	Set	1.00	3,415,300.00	3,415,300.00
Subtotal						3,415,300

Consumables

S/N	ITEM	DESCRIPTION	UOM	QTY	UNIT PRICE (ETB/Unit)	AMOUNT (ETB)
1	Engine Oil		Lit	25	285.00	7,125.00
12	Grease		Kg	2	300.00	600.00
13	Fuel Diesel		Lit	100	35.00	3,500.00
Subtotal						11,225

B. Labour Cost

S/n	Labour type	Skilled Man hr.	S/Skilled Man hr.	Skilled Rate(Birr/hr.)	S/Skilled Rate(Birr/hr.)	AMOUNT (ETB)
1	Mechanics	64	32	60	35	4,960.00
2	Electrician	16		60	35	960.00
3	Helpers		128	60	35	4,480.00
Subtotal						10,400

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

D. COST SUMMARY AND PRICING

SN	COST ELEMENT		AMOUNT (ETB)
A	Material Cost		3,415,300.00
B	Machine Cost		
C	Labour Cost		10,400.00
D	O.H. Cost	3% of (A+B+C)	102,771.00
E	Total assembly Cost	A+B+C+D	3,528,471.00
F	Margine	20% of E	705,694.20
G	PRICE	E+F	4,234,165.20
H	VAT	15% of G	635,124.78
I	GRAND TOTAL	G+H	4,869,289.98

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

Product description: TRUCK MOUNTED DRY **CARGO BODY** (QTY=01)

A. Material

Steels

S/N	ITEM	DESCRIPTION	UOM	QTY	UNIT PRICE (ETB/Unit)	AMOUNT (ETB)
1	Steel sheet metal	2000x1000x8mm	Pcs	0.50	16,328.00	8,164.00
2	Steel sheet metal	3000x1500x6mm	Pcs	1.00	27,553.50	27,553.50
3	Steel sheet metal	2000x1000x6mm	Pcs	2.00	12,246.00	24,492.00
4	Steel sheet metal	3000x1500x4mm	Pcs	6.00	18,369.00	110,214.00
5	Steel sheet metal	3000x1500x3mm	Pcs	2.00	13,776.75	27,553.50
6	Steel sheet metal	2500x1250x2mm	Pcs	11.00	6,378.13	70,159.38
7	Steel Chequered plate	3000x1250x3mm	Pcs	5.00	15,154.43	75,772.13
8	U-channel	40x20x5mm	Pcs	0.50	2,324.70	1,162.35
9	Flat Iron	40x8mm	Pcs	2.00	2,033.10	4,066.20
10	RHS	80x40x2mm	Pcs	10.00	2,847.00	28,470.00
11	RHS	30x30x2mm	Pcs	1.00	1,388.40	1,388.40
12	Round bar	Ø20mm	Pcs	0.60	1,926.60	1,155.96
Subtotal						380,151

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

Consumables

S/N	ITEM	DESCRIPTION	UOM	QTY	UNIT PRICE (ETB/Unit)	AMOUNT (ETB)
1	Oxygen		M3	12.46	56.28	701.25
2	Acetylene		Kg	2.50	551.34	1,378.35
3	Carbondioxide		Kg	96.0	56.75	5,448.00
4	Welding wire	dia.=1.2	Roll	2.0	2,600.00	5,200.00
5	Welding electrode	Ø3.2x350mm	pkt	5.0	565.22	2,826.10
6	Welding electrode	Ø2.5x300mm	pkt	3.0	240.00	720.00
7	Cutting disc	Ø230x3.2x22mm	Pcs.	11	53.45	587.98
8	Grinding disc	Ø230x6.5x22mm	Pcs.	4	89.50	358.00
9	Sand paper	#p60, 120, 220, 320	pcs	10	50.00	500.00
10	Thinner		liter	28	100.00	2,800.00
11	Stucco per metal		Kg	2	450.00	900.00
12	Antirust paint		Gln	3	600.00	1,800.00
13	Paint,Synthetic		Gln	5	1,300.00	6,500.00
Subtotal						29,720

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

Commercial Items

S/N	ITEM	DESCRIPTION	UOM	QTY	UNIT PRICE (ETB/Unit)	AMOUNT (ETB)
1	Winch		Pcs	6	1100.00	6,600.00
2	Container lock		Pcs	4	1470.00	5,880.00
3	Big hook		Pcs	7	89.40	625.80
4	Small hook		Pcs	12	52.10	625.20
5	Latch(left & right)		Pcs	14	461.80	6,465.20
6	Latch catch		Pcs	14	71.50	1,001.00
7	Pin for steel hinge		Pcs	22	134.00	2,948.00
8	Steel hinge		Pcs	22	312.80	6,881.60
9	Door Hinges		Pcs	2	45.00	90.00
10	Bolt with Self lock nut	M16X200	Set	12	230.00	2,760.00
11	Bolt with Self lock nut	M14X50	Set	19	100.00	1,900.00
12	Bolt with nut	M10X30	Pcs	16	17	272.00
13	Bolt with Nut	M8X25	Pcs	20	19.00	380.00
14	U-Bol with Nut	M16x600	pcs	4	650	2,600.00
15	Aluminium water tank	40lit.	Pcs	1	2000	2,000.00
16	Flap	Rubber	Pcs	2	500	1,000.00
Subtotal						42,029

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

B. Machine Cost

S/N	MACHINE TYPE	SPECIFICATION	QTY	DURATION (Hour)	RATE (ETB/Hr)	AMOUNT (ETB)
1	Shearing		1	13	126.70	1,647.10
2	Bending		1	7	325.85	2,280.95
3	Lathe		1	6	80.20	481.20
4	Radial drilling		1	3	59.08	177.24
5	MIg Welding		1	24	32.00	768.00
6	Arc Welding		1	24	10.00	240.00
7	Hand drilling		1	2	4.00	8.00
8	Angle Grinder		1	8	3.50	28.00
9	Compressor		1	20	12.50	250.00
Subtotal						5,880

C. Labour Cost

S/n	Labour type	Skilled Man hr.	S/Skilled Man hr.	Skilled Rate(Birr/hr)	S/Skilled Rate(Birr/hr)	AMOUNT (ETB)
1	Shearing operators	13	40	60	35	2,180.00
2	Bending Operators	5	8	60	35	580.00
3	M/c shop operators	9	9	60	35	855.00
4	Welding and assembling	64	32	60	35	4,960.00
5	Marking and rectification	8	8	60	35	760.00
6	Finishing works	8	8	60	35	760.00
7	Paint	20	24	60	35	2,040.00
Subtotal						12,135

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

D. COST SUMMARY AND PRICING

SN	COST ELEMENT		AMOUNT (ETB)
A	Material Cost		451,899.89
B	Machine Cost		5,880.49
C	Labour Cost		12,135.00
D	O.H. Cost	8% of (A+B+C)	37,593.23
E	Total fabrication Cost	A+B+C+D	507,508.61
F	Margin	20% of E	101,501.72
G	PRICE	E+F	609,010.33
H	VAT	15% of G	91,351.55
I	GRAND TOTAL	G+H	700,361.89

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

ANNEX II

CALCULATION OF ANNUAL PRODUCTION COSTS

Table 15 Annual total production costs''000''

Period	Start-up			Full capacity						
	70 %	80 %	90 %	100 %	100 %					
Project Year	1	2	3	4	5	6	7	8	9	10
Cost category										
I. Material inputs	1,169,627	1,336,717	1,503,806	1,670,896	1,670,896	1,670,896	1,670,896	1,670,896	1,670,896	1,670,896
II. Labor	5,016	5,016	5,016	5,016	5,016	5,016	5,016	5,016	5,016	5,016
III. Utility	3,586	4,084	4,582	5,079	5,079	5,079	5,079	5,079	5,079	5,079
IV. Repair and Maintenance and spare parts (1.5 % of fixed costs)	2,331	2,331	2,331	2,331	2,331	2,331	2,331	2,331	2,331	2,331
VI Direct overheads	6,062	6,062	6,062	6,062	6,062	6,062	6,062	6,062	6,062	6,062
A. Direct Production costs	1,186,622	1,354,210	1,521,797	1,689,384	1,689,384	1,689,384	1,689,384	1,689,384	1,689,384	1,689,384
VII. Administration over head	108	108	108	108	108	108	108	108	108	108
VIII. Marketing and Promotional expense 3 % of sales revenue	47,250	54,000	60,750	67,500	67,500	67,500	67,500	67,500	67,500	67,500
B. Operating costs	1,233,980	1,408,318	1,582,655	1,756,992	1,756,992	1,756,992	1,756,992	1,756,992	1,756,992	1,756,992
Interest	26,649	25,093	23,358	21,424	19,267	16,863	14,183	11,195	7,860	4,144
Depreciation	8,164	8,164	8,164	8,164	7,664	7,564	6,684	4,922	4,922	4,922
C. Total production costs	1,268,793	1,441,575	1,614,177	1,786,580	1,783,923	1,781,419	1,777,859	1,773,109	1,769,774	1,766,058

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

ANNEX IV CALCULATION OF WORKING CAPITAL REQUIREMENTS

- I. Minimum requirement of current assets and liabilities
- A. Accounts receivable: 26 days at total production costs minus depreciation and interest
- B. Inventory
1. Material inputs: 26 days
 2. Spare parts : 90 days
 3. Work under process: two days at direct costs
 4. Product ready for delivery: 8 days at direct costs plus administration overheads
- C. Cash on hand : 360 days
- D. Accounts payable 26 days for material inputs and utilities

ii. Working capital requirement

Table 16 Calculation of working capital

Cost category	Minimum Days of coverage	Coeff-icent of turnover	Project year									
			Start up			Full capacity						
			1	2	3	4	5	6	7	8	9	10
I. Current asset												
A. A/R	26	10	123,398	140,832	158,266	175,699	175,699	175,699	175,699	175,699	175,699	175,699
B. Inventory												
1. Material inputs	26	10	116,963	133,672	150,381	167,090	167,090	167,090	167,090	167,090	167,090	167,090
2. Spare parts	90	4	583	583	583	583	583	583	583	583	583	583
3. Work under process	2	130	9,128	10,417	11,706	12,995	12,995	12,995	12,995	12,995	12,995	12,995
4. Product ready for delivery	8	32.5	36,619	41,776	46,933	52,089	52,089	52,089	52,089	52,089	52,089	52,089
C. Cash on hand	360		4,276	4,400	4,525	4,649	4,649	4,649	4,649	4,649	4,649	4,649
D. Current assets			290,967	331,680	372,392	413,105	413,105	413,105	413,105	413,105	413,105	413,105
II. Current liabilities												
A. A/p	26	10	117,321	134,080	150,839	167,598	167,598	167,598	167,598	167,598	167,598	167,598
III. Working capital												
A. Net working capital			173,645	197,599	221,553	245,507	245,507	245,507	245,507	245,507	245,507	245,507
B. Increasing in working capital			173,645	23,954	23,954	23,954	0	0	0	0	0	0

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

ANNEX VI

PROJECTED NET INCOME STATEMENT

Table 17 Projected Net income statement "000"

Period	Start up			Full capacity						
	70 %	80 %	90 %	100 %						
Project year	1	2	3	4	5	6	7	8	9	10
Item description										
Product sales revenue	1,575,000	1,800,000	2,025,000	2,250,000	2,250,000	2,250,000	2,250,000	2,250,000	2,250,000	2,250,000
Less total production costs	1,268,793	1,441,575	1,614,177	1,786,580	1,783,923	1,781,419	1,777,859	1,773,109	1,769,774	1,766,058
Gross profit	306,207	358,425	410,823	463,420	466,077	468,581	472,141	476,891	480,226	483,942
Tax	107,172	125,449	143,788	162,197	163,127	164,003	165,249	166,912	168,079	169,380
Net profit	199,035	232,976	267,035	301,223	302,950	304,578	306,892	309,979	312,147	314,562
Accumulated undistributed profit	199,035	432,011	699,046	1,000,269	1,303,219	1,607,796	1,914,688	2,224,667	2,536,814	2,851,376

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

ANNEX VII DEBT SERVICE SCHEDULE AND COMPUTATION PAYMENT OF EQUAL ANNUAL INSTALLMENTS

Table 18 Debt services schedule and computation

Item description	Project year									
	1	2	3	4	5	6	7	8	9	10
A. Investment and working capital										
1. Investment										
2. Increment working capital										
Total										
B. Loan receipts and balances										
1. Loan receipts	231,728	218,200	208,117	186,299	167,547	146,639	123,326	97,332	68,348	36,033
2. Outstanding balance at end of year										
a. First year loan	231,728	218,200	208,117	186,299	167,547	146,639	123,326	97,332	68,348	36,033
Total										
A. Debt service										
1. First year Loan										
a. Interest	26,649	25,093	23,358	21,424	19,267	16,863	14,183	11,195	7,860	4,144
b. Repayment of principal	13,528	15,083	16,817	18,752	20,908	23,313	25,994	28,983	32,316	36,032

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

ANNEX VIII CASH-FLOW STATEMENT FOR FINANCIAL PLANING

Table 19 Projected Cash flow statement

Period	Start up			Full capacity						
	70%	80%	90%	100%						
Project year	1	2	3	4	5	6	7	8	9	10
Item description										
A. Cash - inflow	2,023,361	1,840,713	2,065,713	2,290,713	2,250,000	2,250,000	2,250,000	2,250,000	2,250,000	2,250,000
1. Financial resource (total)	448,361	40,713	40,713	40,713						
2. Sales revenue	1,575,000	1,800,000	2,025,000	2,250,000	2,250,000	2,250,000	2,250,000	2,250,000	2,250,000	2,250,000
B. Cash – outflow	1,829,690	1,614,656	1,807,331	2,000,078	1,960,294	1,961,171	1,962,418	1,964,082	1,965,247	1,966,548
1. Total assets schedule including replacement	448,361	40,713	40,713	40,713						
2. Operating costs	1,233,980	1,408,318	1,582,655	1,756,992	1,756,992	1,756,992	1,756,992	1,756,992	1,756,992	1,756,992
3. Debt service (total)										
a. Interest	26,649	25,093	23,358	21,424	19,267	16,863	14,183	11,195	7,860	4,144
b. Repayment	13,528	15,083	16,817	18,752	20,908	23,313	25,994	28,983	32,316	36,032
4. Tax	107,172	125,449	143,788	162,197	163,127	164,003	165,249	166,912	168,079	169,380
C. Surplus (Deficit)	193,671	226,057	258,382	290,635	289,706	288,829	287,582	285,918	284,753	283,452
D. Cumulative cash balance	193,671	419,728	678,110	968,745	1,258,451	1,547,280	1,834,862	2,120,780	2,405,533	2,688,985

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

ANNEX XII TOTAL INVESTMENT COSTS

Table 20 Total investment costs''000''

Period	Start up			Full capacity							
	1	2	3	4	5	6	7	8	9	10	11
Project year											
Investment Category											
1. Fixed investment costs											
a. Initial fixed investment costs	155,395										
b. Replacement											
2. Pre-operational capital expenditure	2,000										
3. Working capital increase	173,645	23,954	23,954	23,954							
Total investment costs	331,040	23,954	23,954	23,954							

ANNEX XIII TOTAL ASSETS

Table 21 Total Assets

Period	Start up			Full capacity								
	1	2	3	4	5	6	7	8	9	10	11	12
Project year												
Investment Category												
1. Fixed investment costs												
c. Initial fixed investment costs	155,395											
❖ Cost of land												
d. Replacement												
2. Pre-operational capital expenditure	2,000											
3. Current assets increase	290,967	40,713	40,712	40,713								
Total assets	448,362	40,713	40,712	40,713								

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

ANNEX XIV SOURCES OF FINANCE

Table 22 Sources of finance

Period	Start up			Full capacity							
	1	2	3	4	5	6	7	8	9	10	Total
Sources of finance											
1. Equity capital	99,312	23,954	23,954	23,954							
2. Loan capital	231,728										
3. Current liabilities	117,321	16,759	16,759	16,759							
Total finance	448,361	40,713	40,713	40,713							

ANNEX XI SUMMARY OF FINANCIAL EFFECIENCY TESTS

Table 23 Summary of financial efficiency tests

Project year	Project year									
	1	2	3	4	5	6	7	8	9	10
Capacity utilization	70%	80%	90%	100%						
Financial ratio in %										
1. Gross profit : Revenue	19%	20%	20%	21%	21%	21%	21%	21%	21%	22%
2. Net profit : Revenue	13%	13%	13%	13%	13%	14%	14%	14%	14%	14%
3. Net profit : initial investment	60%	68%	75%	82%	83%	83%	84%	85%	85%	86%
4. Net profit : Equity	200%	211%	219%	227%	228%	229%	231%	233%	235%	237%
5. Gross profit : Initial investment	92%	105%	116%	127%	128%	128%	129%	131%	131%	132%
6. Operating costs : Revenue	78%	78%	78%	78%	78%	78%	78%	78%	78%	78%

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

ANNEX XV CALCULATIONS OF PAYBACK PERIOD

Table 24 Calculation of payback period”000”

Year	Amount Paid Back			Total investment	End of year
	Net Profit	Depreciation	Total		
1	199,035	7,930	206,965	331,040	-124,075
2	232,976	7,930	240,906	23,954	+92,877

PROJECT PROFILE ON ASSEMBLY OF MOTOR VEHICLES

ANNEX XVI CALCULATIONS OF NET PRESENT VALUE AT 17% D.F.

Table 25 Calculation of NPV at 17% D.F.

Project year	Gross Revenue	1/(1+i) ⁿ At 17%	Present value at 17%	Project costs			
				Total investment	Operating costs	Total	Present value at 17%
1	1,575,000	0.854701	1,346,154	331,040	1,233,980	1,565,020	1,337,624
2	1,800,000	0.730514	1,314,925	23,954	1,408,318	1,432,272	1,046,295
3	2,025,000	0.624371	1,264,351	23,954	1,582,655	1,606,609	1,003,120
4	2,250,000	0.53365	1,200,713	23,954	1,756,992	1,780,946	950,402
5	2,250,000	0.456111	1,026,250		1,756,992	1,756,992	801,383
6	2,250,000	0.389839	877,138		1,756,992	1,756,992	684,944
7	2,250,000	0.333195	749,689		1,756,992	1,756,992	585,421
8	2,250,000	0.284782	640,760		1,756,992	1,756,992	500,360
9	2,250,000	0.243404	547,659		1,756,992	1,756,992	427,659
10	2,250,000	0.208037	468,083		1,756,992	1,756,992	365,519
Total			9,435,721				7,702,727

A. Benefit- cost ratio at 17% D.F. = 1.22

B. NPV at 17% D.F. = 1,732,994 Birr