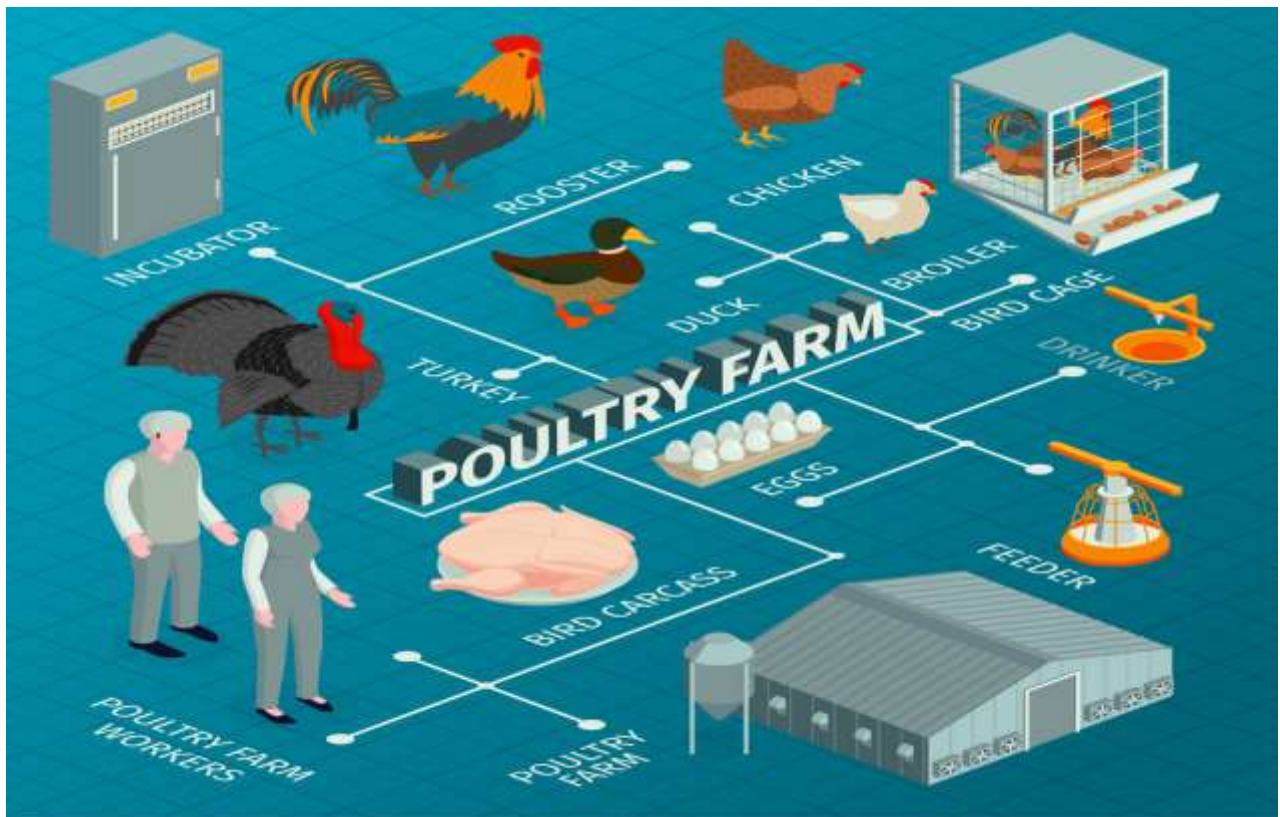


PROJECT PROFILE ON POULTRY FARM



PROJECT PROFILE ON POULTRY FARM



NOVEMBER 26, 2022

ADDIS ABEBA CITY ADMINISTRATION INVESTMENT COMMISSION

PROJECT PROFILE ON POULTRY FARM

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PROJECT PROFILE ON POULTRY FARM

I. Executive summary

This project profile is prepared to assess the viability of running poultry farm, 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 Poultry farm 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 Poultry farm industry. According to the latest data sourced from Ethiopian investment commission there are 371 registered companies to invest on poultry farming. However out of them only 23 of them are on operational stage while others are on implementation and pre-implementation stage.

The location of the project 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 project at full capacity operation will supply 12,000 cocks' meat, 10,600 pullets, 36,780 laying hens, 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 202 million. Out of the total investment capital, the owners will cover Birr 60.65 million (30 %) while the remaining balances amounting to Birr 141.53 million (70 %) will be secured from bank in the form of term loan.

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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 12.89 Million in the first year to Birr 22.70 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 231.71 million. 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 103.39 million Birr at 17%D.F. and the benefit-cost ratio of 1.16 at 17% D.F.

Therefore, from the aforementioned overall market technical and financial analysis we can conclude that the Poultry farm business is a viable and worthwhile.

PROJECT PROFILE ON POULTRY FARM

1. Background information

1.1. Introduction

This document was undertaken to show poultry farming 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.

Presently, in spite of high demand and its crucial importance, poultry farming products are in short supply and also significant amounts are imported from abroad. This causes freight transportation costs from the supplier to the Djibouti Port to the users to be high and in some cases inefficient and unreliable.

The provision of adequate poultry farming is fundamental importance to Ethiopia's present and future demand. In Ethiopia, the demand for poultry farming products 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 poultry farming production is crucial in a country like Ethiopia.

1.2. Product description

Poultry farming is the process of raising domesticated birds such as chickens, ducks, turkeys and geese for the purpose of farming meat or eggs for food. Poultry farming is the form of animal husbandry which raises domesticated birds such as chickens, ducks, turkeys and geese to produce meat or eggs for food. Poultry – mostly chickens – are farmed in great numbers. More than 60 billion chickens are killed for consumption annually. Chickens raised for eggs are known as layers, while chickens raised for meat are called broilers.

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Broiler or sometimes broiler-fryer is also used sometimes to refer specifically to younger chickens under 2.0 kilograms, as compared with the larger roasters.

Broilers or Broiler chickens are birds that are reared solely for the purpose of meat production. Their genes make them grow faster than native chickens and layers. Within few weeks, broilers can grow to attain heavy weights that can cause their vents to protrude out or make them crippled and unable to walk as a result of their excessive weight gain. Broilers' feeds are made to have excess energy to enable them gain weight.

Layers are birds reared for the purpose of egg production. They have genes that make them lay eggs often (I said often and not daily as some people may make you think as if every chicken must lay egg every day. It is not realistic). Layers tend not to gain weight and their feeds composition is made in such a way that it helps them lay eggs without much weight.

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 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.

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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.

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.

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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.

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- 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.

2. Marketing study

2.1. Market analysis summary

The current drive and emphasis by the government on the diversification of the industrial base away from the other sector presents an opportunity for production industry to a valuable contribution towards achieving goal. Having undertaken a thorough and comprehensive research of the market we realized that there was a vast opportunity for domestic products. Aware of the fact operating in such a market is largely dependent on good networking, the promoter intends to establish networks and strategic relationships with various wholesalers and retailers to ensure a steady stream of orders. In so doing the owner intend to ensure that the products they produce are of extremely high quality and fully serve the customers purpose.

2.2. The Supply of poultry products (Egg and meat)

2.2.1. Local Supply and current status

In Ethiopia there are large scales, medium and household level poultry farming business. Based on the data obtained from CSA, most of the poultry are lying hens (36.78%), followed by chicks (30.36%), pullets are estimated to be about 5.22 million in the country, cocks and cockerels are 5.9 million and 2.63 million respectively. However, estimated number of poultry by type and breed, shown in table 1.

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Table 1 Estimated number of poultry by type and breed, in Ethiopia

Types of poultry	All		Indigenous		Exotic		Hybrid	
	Number	%	Number	%	Number	%	Number	%
All poultry	48,955,675	100	40,001,033	81.71	3,637,250	7.43	5,317,392	10.86
Cocks	5,909,081	12.07	4,948,093	10.11	327,559	0.67	633,429	1.29
Cockerels	2,628,359	5.37	2,098,297	4.29	191,899	0.39	338,162	0.69
Pullets	5,228,359	10.68	4,007,891	8.19	518,165	1.06	702,924	1.44
Non laying hens	2,323,074	4.75	1,909,522	3.90	163,924	0.33	249,627	0.51
Chicks	14,862,312	30.36	13,626,574	27.83	429,100	0.88	806,638	1.65
Laying hens	18,003,870	36.78	13,410,657	27.39	2,006,602	4.10	2,586,610	5.28

Sources: - CSA, 2019/20

Table 2 Egg production , quantity produced and frequency

Egg production	Indigenous	Hybrid	Exotic	Grand Total
Average number of egg-lying period/ year	5	10	-	
Average length of a period (in days)	23	62	143	
Average number of eggs/hen/ period	13	51	120	
Total egg production (number)	110,569,380	176,443,288	29,808,501	316,821,169

Sources: - CSA,2019/20

Table 3 Total number of poultry slaughters per year

	Total number of poultry sales	Total number of slaughters	Total number of death	Offerings
National level, poultry sales and slaughters	13,241,454	12,894,275	34,706,683	387,071

Sources: - CSA,2019/20

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Table 4 local supply of egg forecasted

Year	Number of poultry	Indigenous 81.71%	Laying hens 33%	Number of egg in pcs	Egg in kg	Exotic 7.43%	Laying hens	Number of egg in pcs	Egg in kg	Hybrid 10.86%	Laying hens	Number of egg in pcs	Egg in kg
		A	B	C	D	E	F	G	H	I	J	K	L
2021	48,955,675	40,001,682	13,200,555	712,169,945	313,354,776	3,637,407	270,259	137,832,263	60,646,196	5,316,586	280,716	33,685,889	14,821,791
2022	52,627,351	43,001,809	11,778,195	765,582,707	336,856,391	3,910,212	290,529	148,169,663	65,194,652	5,715,330	301,769	36,212,331	15,933,426
2023	56,574,402	46,226,944	12,661,560	823,001,398	362,120,615	4,203,478	312,318	159,282,392	70,084,252	6,143,980	324,402	38,928,257	17,128,433
2024	60,817,482	49,693,965	13,611,177	884,726,506	389,279,663	4,518,739	335,742	171,228,577	75,340,574	6,604,779	348,732	41,847,880	18,413,067
2025	65,378,793	53,421,012	14,632,015	951,080,987	418,475,634	4,857,644	360,923	184,070,704	80,991,110	7,100,137	374,887	44,986,468	19,794,046
2026	70,282,203	57,427,588	15,729,416	1,022,412,063	449,861,308	5,221,968	387,992	197,876,033	87,065,455	7,632,647	403,004	48,360,451	21,278,599
2027	75,553,368	61,734,657	16,909,123	1,099,092,966	483,600,905	5,613,615	417,092	212,716,713	93,595,354	8,205,096	433,229	51,987,488	22,874,495
2028	81,219,871	66,364,757	18,177,307	1,181,524,951	519,870,979	6,034,636	448,373	228,670,462	100,615,003	8,820,478	465,721	55,886,549	24,590,081
2029	87,311,361	71,342,113	19,540,605	1,270,139,309	558,861,296	6,487,234	482,001	245,820,758	108,161,134	9,482,014	500,650	60,078,041	26,434,338
2030	93,859,713	76,692,771	21,006,150	1,365,399,748	600,775,889	6,973,777	518,152	264,257,332	116,273,226	10,193,165	538,199	64,583,893	28,416,913
2031	100,899,191	82,444,729	22,581,611	1,467,804,733	645,834,082	7,496,810	557,013	284,076,621	124,993,713	10,957,652	578,564	69,427,683	30,548,181
2032	108,466,631	88,628,084	24,275,232	1,577,890,093	694,271,641	8,059,071	598,789	305,382,377	134,368,246	11,779,476	621,956	74,634,760	32,839,294

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Table 5 local supple of poultry meat forecasted

Year	Number of poultry	Indigenous 81.71%	Cocks	Non laying hens	Total meat in kg	Exotic 7.43%	Cocks	Non laying hens	Total meat in kg	Hybrid 10.86%	Cocks	Non laying hens	Total meat in kg
		A	B	C	D	E	F	G	H	I	J	K	L
2021	48,955,675	40,001,682	4,000,168	1,560,066	5,560,234	3,637,407	24,371	12,003	36,374	5,316,586	65,394	26,583	91,977
2022	52,627,351	43,001,809	4,300,181	1,677,071	5,977,251	3,910,212	26,198	12,904	39,102	5,715,330	70,299	28,577	98,875
2023	56,574,402	46,226,944	4,622,694	1,802,851	6,425,545	4,203,478	28,163	13,871	42,035	6,143,980	75,571	30,720	106,291
2024	60,817,482	49,693,965	4,969,397	1,938,065	6,907,461	4,518,739	30,276	14,912	45,187	6,604,779	81,239	33,024	114,263
2025	65,378,793	53,421,012	5,342,101	2,083,419	7,425,521	4,857,644	32,546	16,030	48,576	7,100,137	87,332	35,501	122,832
2026	70,282,203	57,427,588	5,742,759	2,239,676	7,982,435	5,221,968	34,987	17,232	52,220	7,632,647	93,882	38,163	132,045
2027	75,553,368	61,734,657	6,173,466	2,407,652	8,581,117	5,613,615	37,611	18,525	56,136	8,205,096	100,923	41,025	141,948
2028	81,219,871	66,364,757	6,636,476	2,588,226	9,224,701	6,034,636	40,432	19,914	60,346	8,820,478	108,492	44,102	152,594
2029	87,311,361	71,342,113	7,134,211	2,782,342	9,916,554	6,487,234	43,464	21,408	64,872	9,482,014	116,629	47,410	164,039
2030	93,859,713	76,692,771	7,669,277	2,991,018	10,660,295	6,973,777	46,724	23,013	69,738	10,193,165	125,376	50,966	176,342
2031	100,899,191	82,444,729	8,244,473	3,215,344	11,459,817	7,496,810	50,229	24,739	74,968	10,957,652	134,779	54,788	189,567
2032	108,466,631	88,628,084	8,862,808	3,456,495	12,319,304	8,059,071	53,996	26,595	80,591	11,779,476	144,888	38,872	183,760

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2.2.2. Import

The supply of poultry products has been met both through import and domestic production. Although there is no apparent trend in the growth of imported poultry.

Table 6 Volume of imported poultry egg from 2012 to 2021 in kg

Year	Gross weight (in Kg)	Net weight (in Kg)	CIF value in (ETB)	CIF value in USD	Total TAX in ETB	Total Tax USD
2012	1,508	1,508	621,008	34,760	106,827	5,979
2013	7,237	7,235	966,528	51,411	39,371	2,094
2014	616	616	444,764	22,080	72,821	3,615
2015	668	611	259,027	12,464	63,421	3,052
2016	1,723	1,715	866,625	40,124	282,396	13,075
2017	12,876	12,798	1,984,995	81,967	418,735	17,291
2018	6,922	6,554	2,628,213	94,984	489,022	17,673
2019	0	0	0	0	0	0
2020	0	0	0	0	0	0
2021	0	0	0	0	0	0

Source: ERCA and compiled by consultant

As it has been shown in table 6 import of poultry which was 1,508 kg at the beginning of the period (2012) has increased to decrease to nil by the end of, 2021. A closer observation at the data set reveals that imported poultry egg over the study period has shown varying patterns. Based on the data obtained from Ethiopia customs Authority, the annual average volume of imported poultry is 4,433 kg from 2012 through 2021.

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Table 7 Volume of imported chicken meat from 2012 to 2021 in kg

Year	Gross weight (in Kg)	Net weight (in Kg)	CIF value in (ETB)	CIF value in USD	Total TAX in ETB	Total Tax USD
2012	5,721	5,537	519,164	29,059	350,176	19,601
2013	3,291	3,291	406,623	21,629	274,267	14,589
2014	2,141	2,137	220,421	10,942	148,674	7,381
2015	62,919	53,340	2,060,665	99,156	1,338,534	64,408
2016	390	347	76,320	3,534	475	22
2017	26,925	26,897	1,457,527	60,186	634,400	26,197
2018	0	0	0	0	0	0
2019	0	0	0	0	0	0
2020	18,907	18,742	340,843	9,752	231,142	6,613
2021	5,578	5,510	1,192,747	26,912	845,525	19,078

Source: ERCA and compiled by consultant

As it has been shown in table 7 import of poultry meat which was 5,537 kg at the beginning of the period (2012) has decreased to 5,510 kg by the end of, 2021. A closer observation at the data set reveals that imported chicken meat over the study period has shown varying patterns. Based on the data obtained from Ethiopia customs Authority, the annual average volume of imported chicken meat is 12,867 kg from 2012 through 2021.

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2.2.2.1. Forecasted future import of poultry

Table 8 Future forecast of import of Poultry farm by trend adjusted exponential smoothing method

Year	Imported bird egg 2012 to 2021 in kg.	Trend Adjusted exponential smoothing method	Imported poultry meat 2012 to 2021 in kg.	Trend Adjusted exponential smoothing method
2012	1,508		5,537	
2013	7,235		3,291	
2014	616		2,137	
2015	611		53,340	
2016	1,715		347	
2017	12,798		26,897	
2018	6,554		0	
2019	0		0	
2020	0		18,742	
2021	0		5,510	
2022		6,554		5,510
2023		7,275		5,507
2024		7,996		5,505
2025		8,717		5,502
2026		9,437		5,499
2027		10,158		5,497
2028		10,879		5,494
2029		11,600		5,491
2030		12,321		5,488
2031		13,042		5,486
2032		13,763		5,483

2.2.2.2. Poultry Demand Projection

The demand for poultry can be influenced by a number of factors. The demand for poultry is a function of population, price of feed, price of substitutes, and other exogenous factors. The size of population and its growth rate, disposable income prices and culture are few among many variables. From production point of view, poultry farming is raising of birds domestically or commercially,

PROJECT PROFILE ON POULTRY FARM

primarily for meat and eggs. for the purpose of this study, attempts have been made to forecast the likely future demand for poultry on the basis of the following assumptions:

- i. Local supply of poultry (egg and meat) assumed to be increased by 7.50% every year
- ii. According to factsheet Ethiopia, the Ethiopian poultry sector grows 6 to 10 % per year.
- iii. Per capital consumption of egg is assumed to be 1.5kg
- iv. Per capital consumption of chicken meat is 1kg
- v. According to CSA, agricultural sample survey 2020/2021, Number of poultry in 2022 is 48,955,675.

Therefore, in order to estimate the demand for animal feed, the consumption approach is considered.

Table 9 Projected Demand for poultry farm products Ethiopia

Year	Number of population	Potential Demand of egg in kg	Potential Demand of chicken meat in kg
2022	120,202,679	180,304,019	120,202,679
2023	123,207,746	184,811,619	123,207,746
2024	126,287,940	189,431,910	126,287,940
2025	129,445,138	194,167,707	129,445,138
2026	132,681,267	199,021,901	132,681,267
2027	135,998,298	203,997,447	135,998,298
2028	139,398,256	209,097,384	139,398,256
2029	142,883,212	214,324,818	142,883,212
2030	146,455,292	219,682,938	146,455,292
2031	150,116,675	225,175,013	150,116,675
2032	153,869,592	230,804,388	153,869,592

As it is indicated above the potential demand for egg in 2032 is 230 million and for chicken meat is 153 million.

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3.1.2. Production Capacity and Production Program

3.1.2.1. Plant capacity

The project at full capacity operation will supply 12,000 cocks' meat, 10,600 pullets, 36,780 laying hens, per year based on 260 working days and their shifts of 24 hours per day. The production capacity is based on projected demand and realistic market share that could be captured. The production commences three shift and 260 working days a year. The production program does not include Sundays and national and public holidays. It was also considered that the plant would conduct annual maintenance on May when the supply of raw materials are low.

3.1.2.2. 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 fourth year of its commencement.

Table 10 Production program

	Period			Start-up			Full Capacity
	Capacity utilization			70%	80%	90%	100%
	Project year			1	2	3	4
	Materials input for poultry farm	Unit of measure	Quantity at full Capacity				
1	Poultry	Number	100,000	70,000	80,000	90,000	100,000
	Cocks		12,000	8,400	9,600	10,800	12,000
	Cockerels		5,400	3,780	4,320	4,860	5,400
	Pullets		10,600	7,420	8,480	9,540	10,600
	Non-laying hens		5,220	3,654	4,176	4,698	5,220
	Chicks		30,000	21,000	24,000	27,000	30,000
	Laying hens		36,780	25,746	29,424	33,102	36,780

3.1.3. 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 poultry farming. Potential environmental and social impacts due to the production of poultry farming products 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. Social responsibility cost estimated to be 1% of fixed investment costs.

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 11. A total area ready for the processing plant is 10,000m² out of which 5,898m² is to be covered by building while uncovered area of 4,102 m² is left open for parking, 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 1,800.00 Birr per m² to 25,000 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 120.96 million. Therefore, the total cost of land lease and construction of buildings and civil works is estimated at Birr 159.81 million.

The proposed plant layout comprises the following buildings and structures.

PROJECT PROFILE ON POULTRY FARM

Table 11 Building costs

N°	Description	Unit	Qty	Unit cost	Total cost
1	Room for Laying stock with egg receiving room	M ²	1,000	20,000	20,000,000.00
2	Room for Laying stock with egg receiving room	M ²	1,000	20,000	20,000,000.00
3	Broilers room (flock density 8/m ²)	M ²	1000	20,000	20,000,000.00
4	Chicks room (6 – 8weeks of age) (flock density 12/m ²)	M ²	500	20,000	10,000,000.00
5	Growers room (9 – 12weeks of age) (flock density 10/m ²)	M ²	500	20,000	10,000,000.00
6	Egg storing room with conditioning facility	M ²	500	20,000	10,000,000.00
7	Hatching room (incubator room)	M ²	300	20,000	6,000,000.00
8	Office building	M ²	200	20,000	4,000,000.00
10	Feed store	M ²	500	20,000	10,000,000.00
11	Isolation room	M ²	300	20,000	6,000,000.00
12	Compound fencing	LS		3,000,000	3,000,000.00
13	Guard house	M ²	6	20,000	120,000.00
14	Toilet and shower	M ²	20	20,000	400,000.00
15	Common Septic tank	M ³	72	20,000	1,440,000.00
	Total		5,898		120,960,000.00

PROJECT PROFILE ON POULTRY FARM

Table 12 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 13 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

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3.2.2. Machinery and equipment

The main plant and machinery consists incubator, Debeaking machine, mixer,

. Major part of the machinery will be imported.

Table 14 Lists of Equipment Requirements for poultry farming

No	Description	Unit	Qty	Unit cost In birr	Total cost in birr
1	Incubator (capacity 2000)	N ^o	1	1,500,000	1,500,000
2	Incubator (capacity 5,000 -7000eggs)	N ^o	1	2,000,000	2,000,000
3	Incubator (capacity 10,000 eggs)	N ^o	1	3,000,000	3,000,000
4	Layers & broilers feeding troughs	N ^o	300	1,500	450,000.00
5	Layers & broilers watering troughs	N ^o	300	1,000	300,000.00
6	Growers feeding troughs	N ^o	100	1,500	150,000.00
7	Growers watering troughs	N ^o	100	1,000	100,000
8	Feed weighing balance	N ^o	5	25,000	125,000.00
9	Hoover (brooder)	N ^o	10	15,000	150,000.00
10	Debeaking tool	N ^o	5	15,000	45,000.00
11	Egg laying nest (each box has 50 seats)	N ^o	100	15,000	1,500,000
12	Egg holding boxes	N ^o	1,000	150	150,000.00
13	Feed mixer	N ^o	2	150,000	300,000.00
14	Standby generator	N ^o	1	2,500,000	2,500,000.00
	Total				12,270,000.00

3.2.2.1. Lists of machinery suppliers

ALIBABA

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PROJECT PROFILE ON POULTRY FARM

4. Poultry farm 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 15 Annual manpower costs

N ^o	Vacancy	Amount	Monthly salary	Total yearly salary
1	General manager	1	40,000	480,000.00
2	Technical manager (Animal p/n expert)	1	30,000	360,000.00
3	Veterinarian	1	20,000	240,000.00
4	Accountant	1	11,500	138,000.00
5	Cashier, & purchaser	1	8,000	96,000.00
6	Product seller	1	17,000	204,000.00
7	Store keeper	1	7,000	84,000.00
8	Record keeper	1	8,000	96,000.00
9	Chick attendant	8	9,000	864,000.00
10	Growers attendant	6	9,000	648,000.00
11	Layers attendant	12	9,000	1,296,000.00
12	Broilers attendant	5	8,000	480,000.00
13	Guards	4	4,000	192,000.00
14	Feed mixers	3	5,000	180,000.00
15	Driver	2	10,000	240,000.00
Total		46		5,598,000.00

5. Financial Analysis

5.1. General

The financial analysis evaluation, under consideration has been carried out for poultry farm cost estimates of the envisaged factory 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, labor, 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, and 10 years' equal installments.
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 POULTRY FARM

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.

5.2. Initial Fixed investment costs

Table 16 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	5,898	lump sum	120,960,000.00	
	Sub total				159,810,000.00	
3	Machineries	set	2	Lump sum	12,270,000.00	
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				24,770,000.00	
	Fixed capital investment costs				184,580,000.00	
8	pre-operational expenses				2,000,000.00	
	Working capital				15,606,000	
	TOTAL INVESTMENT COSTS				202,186,000.00	

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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.

As stated earlier even though 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, for purchase of truck and vehicles, for working capital and for purchase of office furniture and pre operation expense which are 0 will be covered through bank loans that will have to be repaid back within 10 years, during which time interest will be paid on the loan. The remaining balance that of the total investment costs will be expected to be covered by equity contribution of the project promoter.

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5.5. Production costs

As it is depicted in Annex Table 22 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 chicken, feed and medicine 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 84 million per annum.

Table 17 Raw materials input plan in Birr

	Period				Start-up			Full Capacity
	Capacity utilization				70%	80%	90%	100%
	Project year				1	2	3	4
	Materials input for poultry farm	Unit of measure	Quantity at full Capacity	Unit price				
1	Poultry	Number	100,000					
	Cocks		12,000	300	2,520	2,880	3,240	3,600
	Cockerels		5,400	250	945	1,080	1,215	1,350
	Pullets		10,600	250	1,855	2,120	2,385	2,650
	Non-laying hens		5,220	300	1,096	1,253	1,409	1,566
	Chicks		30,000	10	210	240	270	300
	Laying hens		36,780	350	9,011	10,298	11,586	12,873
8	Feed	Quintals	18,250	3,000	38,325	43,800	49,275	54,750
9	Medicine	Kg	10,000	500	3,500	4,000	4,500	5,000
10	Packing materials	LS	2,000,00		1,400	1,600	1,800	2,000
	Total				58,862	67,271	75,680	84,089

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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 4.66million.

Table 18 Utilities of the factory'000''Birr

Utility'000''Birr		Start-up			Full Capacity
		70 %	80 %	90 %	
Capacity utilization		1	2	3	4
Project year		1	2	3	4
Item description	Unit of measurement				
Fuel					
Gasoline for service vehicle	100km*260days*37Birr/LIT*8km/Li	84.18	96.20	108.1	120.25
Gasoline for transport truck	(200km*300days*37Birr/LIT*5km/Li)	932	1,066	1,199	1,332
Sub-Total		1016	1162	1307	1452
Change of oil and lubricant	10% of the fuel consumption	102	116	131	145
Sub-Total		1,118	1,278	1,438	1,597
Electricity	260days*24 hrs*600kwh* 0.69Birr/kwh	1,808	2,066	2,325	2,583
Sub- Total		1,808	2,066	2,325	2,583
Water	365days*100m ³ /day*10 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* 500Birr/month/line+18Birr/line/month	31.08	31.08	31.08	31.08
Mobile	5 lines*500 Birr/month/line	30.00	30.00	30.00	30.00
Fax	2line*1,000Birr/month + 17 Birr/line/month	24.40	24.40	24.40	24.40
Internet	2,500 Birr/month	30.00	30.00	30.00	30.00
Sub-Total		115.48	115.48	115.48	115.48
TOTAL		<u>3,297.00</u>	<u>3,752.00</u>	<u>4,207.00</u>	<u>4,661.00</u>

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5.5.3. Repair and maintenance

In the expenses under this title have been considered cost estimates required for annual repair and maintenance works including spare parts expenses. These costs include the annual repair expenses of structures and civil works as well as repair and maintenance expenses of machinery and equipment including accessory and general service facilities. The repair and maintenance and spare parts costs have been assumed to be (1.5% of fixed costs and spare part costs).

5.5.4. Salaries and wages

The costs of salaries have been calculated in accordance with the manning list proposed under the “organization and Management” section of this study. In the estimation of salaries and wages, the official minimum wage has been taken in to account. At full capacity operation the costs of salaries and wages will amount to Birr 5.98Million.

5.5.5. 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.

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Table 19 Overhead costs

Direct Overhead”000”Birr		Year 1	Year 2	Year 3	Year 4
Annual land lease Payment		5,550.00	5,550.00	5,550.00	5,550.00
Insurance					
Building and Civil works	0.10%	121	121	121	121
Machinery and Equipment	0.20%	25	25	25	25
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	78.40	78.40	78.40	78.40
Cleaning and sanitation	An estimate of 300 Birr/day	78.00	78.00	78.00	78.00
Sub Total		5,962	5,962	5,962	5,962
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		6,309.32	6,309.32	6,309.32	6,309.32

5.5.6. 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.

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5.5.7. Depreciation

Depreciation charges should be taken in to account as part of the total production costs in order to calculate the total production costs, the net working capital and the gross or net-profit. For the given project under reference, the fixed assets and the pre-production capital expenditures have been depreciated and amortized respectively on “a straight line” depreciation method basis using the following rates of the original acquisition costs of the assets:

The rationale uses for the estimation of the depreciation and the amortization rates is based on the expected service life of the assets and repayment capacity of the project under consideration. Based on the above charging rates and consideration of the above facts, the total annual depreciation cost at full capacity operation have been estimated at Birr 29.08 million.

Table 20 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	120,960,000.00	5% of original value	6,048	6,048	6,048	6,048
Machinery and equipment	12,270,000.00	15 % of original value	1,841	1,841	1,841	1,841
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			10,289	10,289	10,289	10,289

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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 = 608,400,000 Birr

Unit selling price = 35 Birr/kg

$$\text{BEP (sales)} = \frac{\text{Annual sales} \times \text{Annual fixed costs}}{\text{Annual sales} - \text{Annual variables costs}} = \frac{100,674,000 \times 32,271,000}{100,674,000 - 65,935,000}$$

BEP (Sales) = 93,521,709 Birr

$$\begin{aligned} \text{B. BEP percentage} &= \frac{\text{Annual fixed costs} \times 100\%}{\text{Annual sales} - \text{Annual variables costs}} \\ &= \frac{32,271,000 \times 100\%}{100,674,000 - 65,935,000} \\ &= 93\% \end{aligned}$$

5.6.2. Return on investment

Return on investment = Net profit / Total capital requirement

$$= 10,284,000 / 202,186,000$$

$$= 5\%$$

PROJECT PROFILE ON POULTRY FARM

The return on owners' investment (ROOI)

= Annual net profit /owners' investment

= 10,284,000/60,655,800

= 17%

5.7. Project costs

Project capital investment costs are the sum of fixed capital investment (fixed investment plus pre-production capital expenses) and net working capital at full capacity, with fixed capital constituting the resources required for constructions and civil works, importation and installation of production machinery (incubators) and equipment and general service facilities, whereas, the working capital corresponding to the resources needed for operation of the project totally and partially.

As it has been revealed in Annex Table 22 the total annual operating costs excluding depreciation and interest are estimated to range from 77 million Birr in year 1 to 104 million Birr in year 4 and then after remain constant for the rest of the project life.

The total annual production costs including depreciation and interest increase from 104 million Birr in year 1 to 127 million Birr in year 4 then starts declining until it reaches 113 million Birr in year 10.

5.8. Project benefits

For financial analysis and evaluation of the given project, the current material input price, and packing materials buying price and final packed poultry farm 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 four

PROJECT PROFILE ON POULTRY FARM

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.

Table 21 Source of revenue in Birr"000"

	Period		Start-up			Full Capacity	
			70%	80%	90%	100%	100%
	Capacity utilization						
	Project year		1	2	3	4	5
	Product type	At full capacity					
1	Cocks meat	12,000	16,800	19,200	21,600	24,000	24,000
2	Cockerels	5,400	5,670	6,480	7,290	8,100	8,100
3	Pullets	10,600	11,130	12,720	14,310	15,900	15,900
4	Non-laying hens	5,220	7,308	8,352	9,396	10,440	10,440
5	Chicks	30,000	10,500	12,000	13,500	15,000	15,000
6	Laying hens	36,780	64,365	73,560	82,755	91,950	91,950
7	Manure	730,000 kg	5,110	5,840	6,570	7,300	7,300
	Total		120,883	138,152	155,421	172,690	172,690

Thus, according to the computation in Annex Table 24 and Annex Table 26, 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 143.82 million Birr per annum. The corresponding Annex Table 24 of "Net Income Statement" shows a steady growth of gross profit starting from -3.4 million Birr in year 1 reaching the peak of 30.60 million Birr in year 10. In its 10 years of manufacturing activities, the project is expected to generate a total net profit of 109 million Birr and contribute 59 million Birr to the government treasury in form of 35% income tax.

PROJECT PROFILE ON POULTRY FARM

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 26 of “Cash Flow Statement” shows the positive cumulative cash balance of Birr 604 million and the project will not face any cash shortage throughout its production life.

The computation of the pay-back period as depicted in Annex table 31 indicates that the project will be able to reimburse itself from its net cash-income within eleven years after commencement of production activities, the period which is considered to be very good for the project of this nature.

In Annex Table 32 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 103.39 million Birr at 17%D.F. and the benefit-cost ratio of 1.16 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.

The project under study when implemented will have BEP at about 93% operation of the estimated full capacity. In addition to this, finally, summary of financial efficiency tests have been conducted in Annex table 30, 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 business.

ANNEXES

PROJECT PROFILE ON POULTRY FARM

ANNEX II

CALCULATION OF ANNUAL PRODUCTION COSTS

Table 22 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	58,862	67,271	75,680	84,089	84,089	84,089	84,089	84,089	84,089	84,089
II. Labor	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598
III. Utility	3,297	3,752	4,207	4,661	4,661	4,661	4,661	4,661	4,661	4,661
IV. Repair and Maintenance and spare parts (1.5 % of fixed costs)	2,769	2,769	2,769	2,769	2,769	2,769	2,769	2,769	2,769	2,769
VI Direct overheads	5,962	5,962	5,962	5,962	5,962	5,962	5,962	5,962	5,962	5,962
A. Direct Production costs	76,488	85,352	94,216	103,079	103,079	103,079	103,079	103,079	103,079	103,079
VII. Administration over head	108	108	108	108	108	108	108	108	108	108
VIII. Marketing and Promotional expense 3 % of sales revenue	1,007	1,151	1,294	1,438	1,438	1,438	1,438	1,438	1,438	1,438
B. Operating costs	77,603	86,611	95,618	104,625	104,625	104,625	104,625	104,625	104,625	104,625
Interest	16,276	15,325	14,266	13,085	11,768	10,300	8,662	6,836	4,800	2,530
Depreciation	10,289	10,289	10,289	10,289	9,789	9,689	8,477	6,048	6,048	6,048
C. Total production costs	104,168	112,225	120,173	127,999	126,182	124,614	121,764	117,509	115,473	113,203

PROJECT PROFILE ON POULTRY FARM

ANNEX IV CALCULATION OF WORKING CAPITAL REQUIREMENTS

- I. Minimum requirement of current assets and liabilities
- A. Accounts receivable: 30 days at total production costs minus depreciation and interest
 - B. Inventory
 - 1. Material inputs: 30days
 - 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 : 90 days
 - D. Accounts payable 52 days for material inputs and utilities

ii. Working capital requirement

Table 23 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	7,760	8,661	9,562	10,463	10,463	10,463	10,463	10,463	10,463	10,463
B. Inventory												
1. Material inputs	26	10	5,886	6,727	7,568	8,409	8,409	8,409	8,409	8,409	8,409	8,409
2. Spare parts	90	4	692	692	692	692	692	692	692	692	692	692
3. Work under process	2	130	588	657	725	793	793	793	793	793	793	793
4. Product ready for delivery	8	32.5	2,461	2,734	3,007	3,280	3,280	3,280	3,280	3,280	3,280	3,280
C. Cash on hand			4,434	4,547	4,661	4,775	4,775	4,775	4,775	4,775	4,775	4,775
D. Current assets			21,822	24,018	26,215	28,411	28,411	28,411	28,411	28,411	28,411	28,411
II. Current liabilities												
A. A/p	26	10	6,216	7,102	7,989	8,875	8,875	8,875	8,875	8,875	8,875	8,875
III. Working capital												
A. Net working capital			15,606	16,916	18,226	19,536	19,536	19,536	19,536	19,536	19,536	19,536
B. Increasing in working capital			15,606	1,310	1,310	1,310	0	0	0	0	0	0

PROJECT PROFILE ON POULTRY FARM

ANNEX VI

PROJECTED NET INCOME STATEMENT

Table 24 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	120,883	138,152	155,421	172,690	172,690	172,690	172,690	172,690	172,690	172,690
Less total production costs	104,168	112,225	120,173	127,999	126,182	124,614	121,764	117,509	115,473	113,203
Gross profit	16,715	25,927	35,248	44,691	46,508	48,076	50,926	55,181	57,217	59,487
Tax	5,850	9,074	12,337	15,642	16,278	16,827	17,824	19,313	20,026	20,820
Net profit	10,865	16,853	22,911	29,049	30,230	31,249	33,102	35,868	37,191	38,667
Accumulated undistributed profit	10,865	27,717	50,629	79,678	109,908	141,157	174,259	210,127	247,318	285,984

PROJECT PROFILE ON POULTRY FARM

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

Table 25 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	141,530									
2. Outstanding balance at end of year										
a. First year loan	141,530	133,268	124,056	113,784	102,331	89,561	75,323	59,447	41,745	22,007
Total										
A. Debt service										
1. First year Loan										
a. Interest	16,276	15,325	14,266	13,085	11,768	10,300	8,662	6,836	4,800	2,530
b. Repayment of principal	8,262	9,212	10,272	11,453	12,770	14,238	15,876	17,702	19,737	22,007

PROJECT PROFILE ON POULTRY FARM

ANNEX VIII CASH-FLOW STATEMENT FOR FINANCIAL PLANING

Table 26 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	329,285	140,348	157,618	174,886	172,690	172,690	172,690	172,690	172,690	172,690
1. Financial resource (total)	208,402	2,196	2,197	2,196						
2. Sales revenue	120,883	138,152	155,421	172,690	172,690	172,690	172,690	172,690	172,690	172,690
B. Cash – outflow	316,393	122,418	134,690	147,001	145,441	145,990	146,987	148,476	149,188	149,982
1. Total assets schedule including replacement	208,402	2,196	2,197	2,196						
2. Operating costs	77,603	86,611	95,618	104,625	104,625	104,625	104,625	104,625	104,625	104,625
3. Debt service (total)										
a. Interest	16,276	15,325	14,266	13,085	11,768	10,300	8,662	6,836	4,800	2,530
b. Repayment	8,262	9,212	10,272	11,453	12,770	14,238	15,876	17,702	19,737	22,007
4. Tax	5,850	9,074	12,337	15,642	16,278	16,827	17,824	19,313	20,026	20,820
C. Surplus (Deficit)	12,892	17,930	22,928	27,885	27,249	26,700	25,703	24,214	23,502	22,708
D. Cumulative cash balance	12,892	30,822	53,750	81,635	108,884	135,584	161,287	185,501	209,003	231,711

PROJECT PROFILE ON POULTRY FARM

ANNEX XII TOTAL INVESTMENT COSTS

Table 27 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	184,580											
b. Replacement												
2. Pre-operational capital expenditure	2,000											
3. Working capital increase	15,606	1,310	1,310	1,310								
Total investment costs	202,186	1,310	1,310	1,310								

ANNEX XIII TOTAL ASSETS

Table 28 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	184,580												
❖ Cost of land													
d. Replacement													
2. Pre-operational capital expenditure	2,000												
3. Current assets increase	21,822	2,196	2,197	2,196									
Total assets	208,402	2,196	2,197	2,196									

PROJECT PROFILE ON POULTRY FARM

ANNEX XIV SOURCES OF FINANCE

Table 29 Sources of finance

Period	Start up			Full capacity							
	1	2	3	4	5	6	7	8	9	10	Total
Project year											
Sources of finance											
1. Equity capital	60,656	1,310	1,310	1,310							
2. Loan capital	141,530										
3. Current liabilities	6,216	886	887	886							
Total finance	208,402	2,196	2,197	2,196							

ANNEX XI SUMMARY OF FINANCIAL EFFECIENCY TESTS

Table 30 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	14%	19%	23%	26%	27%	28%	29%	32%	33%	34%
2. Net profit : Revenue	9%	12%	15%	17%	18%	18%	19%	21%	22%	22%
3. Net profit : initial investment	5%	8%	11%	14%	15%	15%	16%	17%	18%	19%
4. Net profit : Equity	18%	27%	36%	45%	47%	48%	51%	56%	58%	60%
5. Gross profit : Initial investment	8%	13%	17%	22%	23%	23%	25%	27%	28%	29%
6. Operating costs : Revenue	64%	63%	62%	61%	61%	61%	61%	61%	61%	61%

PROJECT PROFILE ON POULTRY FARM

ANNEX XV CALCULATIONS OF PAYBACK PERIOD

Table 31 Calculation of payback period”000”

Year	Amount Paid Back			Total investment	End of year
	Net Profit	Depreciation	Total		
1	10,865	10,289	21,154	202,186	-181,032
2	16,853	10,289	27,142	1,310	-155,200
3	22,911	10,289	33,200	1,310	-123,310
4	29,049	10,289	39,338	1,310	-85,282
5	30,230	9,789	40,019		-45,263
6	31,249	9,689	40,938		-4,325
7	33,102	8,477	41,579		+37,254

PROJECT PROFILE ON POULTRY FARM

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

Table 32 Calculation of NPV at 17% D.F.”000”

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	120,883	0.854701	103,319	202,186	77,603	279,789	239,136
2	138,152	0.730514	100,922	1,310	86,611	87,921	64,228
3	155,421	0.624371	97,040	1,310	95,618	96,928	60,519
4	172,690	0.53365	92,156	1,310	104,625	105,935	56,532
5	172,690	0.456111	78,766		104,625	104,625	47,721
6	172,690	0.389839	67,321		104,625	104,625	40,787
7	172,690	0.333195	57,539		104,625	104,625	34,861
8	172,690	0.284782	49,179		104,625	104,625	29,795
9	172,690	0.243404	42,033		104,625	104,625	25,466
10	172,690	0.208037	35,926		104,625	104,625	21,766
Total			724,202				620,810

A. Benefit- cost ratio At 17% D.F. = 1.16

B. NPV At 17% D.F. = 103,392,000 Birr