

**PROFILE ON HIGHER EDUCATION AT SECOND  
DEGREE AND ABOVE LEVEL**

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## **I. SUMMARY**

This profile envisages the establishment of an institution that provides higher education at second degree and above level with a capacity of enrolling 600 students per annum.

The present (2018) demand for the proposed institution is estimated at 10,922 students per annum. The demand is expected to reach at 79,637 students by the year 2017.

The total investment requirement is estimated at about Birr 21.95 million, out of which Birr 5 million is required for teaching equipment. The institution will create employment opportunities for 74 persons.

The project is financially viable with an internal rate of return (IRR) of 16.66% and a net present value (NPV) of Birr 9.39 million, discounted at 8.5%.

## **II. SERVICE DESCRIPTION & APPLICATION**

Higher education is provided by universities, university colleges and specialized institutions. They are under the responsibility of the Ministry of Education. Junior colleges and colleges offering diploma program are also under regional governments and private providers.

The first stage of university level education leads to the Bachelor's Degree after three to four years' study. Examinations are organized at the end of each semester. In Medicine and Veterinary Medicine, the professional qualification of Doctor is conferred after five years' study.

University level second stage, Master's Degree; Specialization, leads to a Master's Degree after a minimum of two years' further study. In Medicine and Veterinary Medicine the specialization degree is obtained after a minimum of three years' further study beyond the MD and DVM degrees.

University level third stage, Doctor of Philosophy, is conferred after some three years' study beyond the Master's degree.

In this profile study, higher education (on university level) of Computer Science on Master's Degree and specialization are considered.

### **III. MARKET STUDY AND SERVICE CAPACITY**

#### **A. MARKET STUDY**

##### **1. Service Supply and Demand**

Higher Education is a period of advanced study. It denotes a stage of education that succeeds secondary education, or follows further or tertiary education. It is defined, therefore, in terms of academic level. Higher learning institutions offer course at undergraduate (Bachelor's degree) and postgraduate level (Master's and Doctoral degrees), but they also include higher technical and professional qualifications, such as the higher diploma (such as 10+1, 10+2. and 10+3).

This is a training, or specialization program offered under the schools of graduate studies to students who already have their first degree. Completion of this Program is certified by awarding either a Masters Degree, Certificate in Medicine, and Ph.D. degree in very institutions.

This project idea envisages the establishment of an institution that specializes in provision of advanced study at postgraduate level (Master's and Doctoral degrees). Currently, most/all of the private higher education institution in the country offer courses at undergraduate level and higher technical and professional qualifications, such as the higher diploma (such as 10+1, 10+2. and 10+3) and the capacity of the public higher education institutions that offer post graduate courses is limited. Therefore, an institution, which is specialized in postgraduate studies, will have a large market potential.

Currently government is the major post graduate program provider in the country. Though there are no available data, the role of private higher learning institution in providing education at this level is extremely limited. On the other hand, enrollment in post graduate

programme in government institution in the country is steadily increasing in the past five years<sup>1</sup>.

As can be referred from Table 3.1, the number of enrollment increased from 1,446 in 2001/02 to 7,024 in 2005/06. This is an increase by about 386%. The average annual growth rate has been 49.4%.

**Table 3.1**  
**TRENDS OF ENROLLMENT INTO GOVERNMENT POST GRADUATE**  
**PROGRAM FROM 2001/02 – 2005/06 IN ETHIOPIA**

| <b>Year</b> | <b>Postgraduate<br/>Masters<br/>Degree</b> | <b>Postgraduate<br/>Ph.D</b> | <b>Total</b> | <b>Annual<br/>Growth Rate<br/>in %</b> |
|-------------|--|------------------------------|--------------|--|
| 2001/02     | 1,446                                      | 0                            | 1,446        | -                                      |
| 2002/03     | 2,050                                      | 34                           | 2,084        | 44.1                                   |
| 2003/04     | 2,704                                      | 28                           | 2,732        | 31.1                                   |
| 2004/05     | 3,884                                      | 50                           | 3,934        | 44.0                                   |
| 2005/06     | 6,957                                      | 67                           | 7,024        | 78.5                                   |

*Source: Ministry of Education, Annual Statistical Abstract, 2007*

## **2. Projected Demand**

It is expected that the demand for post graduate program continues to increase for the coming ten years. The basic reasons for the demand to increase are the following, among others:

- The continued need in business, agriculture and industry for specialization and specialized skills.
- The competitiveness of the labor market.
- The planned expansion of higher learning institution by the government that requires an increasing number of teaching staff.

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<sup>1</sup> It should be noted that the analysis is done at national level for the reason that higher education is not geographic area specific. The higher education located in Addis Ababa provides education to students coming from all over the country.

- Expansion of private colleges and universities that require an increasing number of teaching staff.
- The envisaged high economic growth of the country.

Accordingly a projection for the coming ten years is done using the past five trends. However to be more accurate it is assumed that demand for the coming ten years will grow by 50% of the past five years average annual growth rate. In other words the projected annual growth rate of enrollment for the coming ten years is assumed to be 24.7%.

Higher education at postgraduate level in the country is a recent phenomenon. It has been restricted in few institutions and very selected fields. There has been high suppressed demand from undergraduate degree program completers. It is believed that with the launch of the postgraduate programs in many students line to enroll into the program. Accordingly it is difficult to assume the past five-year growth is a natural growth.

**Table 3.2**

**DEMAND PROJECTION FOR POST GRADUATE PROGRAM FOR THE  
COMING 10 YEARS BY PROGRAM LEVEL**

| <b>Year</b>        | <b>Postgraduate<br/>Masters<br/>Degree</b> | <b>Postgraduate<br/>Ph.D</b> | <b>Total</b> |
|--------------------|--|------------------------------|--------------|
| 2005/06(actual     | 6,957                                      | 67                           | 7,024        |
| 2006/07(estimated) | 8,675                                      | 84                           | 8,759        |
| 2007/08            | 10,818                                     | 104                          | 10,922       |
| 2008/09            | 13,490                                     | 130                          | 13,620       |
| 2009/10            | 16,822                                     | 162                          | 16,984       |
| 2010/11            | 20,978                                     | 202                          | 21,180       |
| 2011/12            | 26,159                                     | 252                          | 26,411       |
| 2012/13            | 32,620                                     | 314                          | 32,934       |
| 2013/14            | 40,677                                     | 392                          | 41,069       |
| 2014/15            | 50,725                                     | 489                          | 51,213       |
| 2015/16            | 63,254                                     | 609                          | 63,863       |
| 2016/17            | 78,877                                     | 760                          | 79,637       |

As can be seen from the Table 3.2, the demand for post graduate programme in the country will reach about 80 thousand by the year 2016/17.

### **3. Service Fee Structure**

Though it is difficult to come up with a comprehensive list of fee for distance education provided by the various institutions offering distance education in the country, an attempt is made to list the fee charged by the major institutions. The following are the two major government and private institutions providing education at second-degree level on regular basis and the fee they are charging.

- Addis Ababa University charges Birr 500 per credit hour for a regular masters program.
- Unity University College charges limp sum of Birr 15,000 to complete a two years masters program.

## **B. CAPACITY AND SERVICE PROGRAMME**

### **1. Capacity**

Taking in to account the market study on existing condition of higher education, at second degree level and above, related with the number of enrolment, economic scale of service provisions, the envisaged higher education at second degree level and above is intended to have a capacity of accepting 600 students on Master's Degree level. The services will be given on Regular basis.

### **2. Service Programme**

The project requires some years to penetrate into the market and capture a significant share. It will start providing services at 75% and 90% of its rated capacity in the first and second year of service provision, respectively. Full service provision shall be attained in the third year and then after. The proposed service provision program is shown in Table 3.3.

**Table 3.3**  
**SERVICE PROVISION PROGRAMME**

| <b>Sr.<br/>No.</b> | <b>Service</b>                                  | <b>Service Year</b> |             |                    |
|--------------------|---|---------------------|-------------|--------------------|
|                    |   | <b>2009</b>         | <b>2010</b> | <b>20011- 2015</b> |
| 1                  | Enrolment of Master's<br>Degree level in number | 450                 | 540         | 600                |
|                    | Capacity utilization Rate<br>(%)                | <b>75</b>           | <b>90</b>   | <b>100</b>         |

#### **IV. MATERIALS AND UTILITIES**

##### **A. MATERIALS**

The main materials and inputs required for the provision of higher education on second degree level is given on Table 4.1. The cost of these and other related materials are estimated to be of Birr 3,100,000.00, out of which Birr 3,100,000.00 is required in foreign currency while the center reaches at its full capacity.



**Table 4.1**

**RAW MATERIALS AND CONSUMABLES REQUIREMENT AT FULL  
CAPACITY AND ESTIMATED COST**

| Sr. No. | Materials  | Unit of Measure | Cost ('000 Birr) |                 |                  |
|---------|--|-----------------|------------------|-----------------|------------------|
|         |  |                 | FC               | LC              | TC               |
| 1       | CURRICULUM:<br><ul style="list-style-type: none"> <li>• Responsive to individual and social need</li> <li>• Comprehensive coverage</li> <li>• Adaptable to changing</li> </ul>   | Package         | 2,000.0          | 1,000.00        | 3,000.000        |
| 2       | EDUCATIONAL MATERIALS:<br><ul style="list-style-type: none"> <li>• On-line library e-books and other useful information</li> <li>• Quantitatively adequate</li> <li>• User friendly, easily exploitable and challenging to both instructors and learners</li> <li>• A judicious mix of print-audio-oral materials</li> <li>• Closely related to the goals of the curriculum</li> </ul> | Lump sum        | 1,100.00         |                 | 1,100.00         |
| 3       | Cleaning materials   | Lump sum        |                  | 100             | 100              |
| 4       | Stationery materials   | Lump sum        |                  | 200             | 200              |
| 5       | Other miscellaneous items  |                 |                  | 100             | 100              |
|         | <b>Grand Total</b>   |                 | <b>3,100.00</b>  | <b>1,400.00</b> | <b>4, 500.00</b> |

**B. UTILITIES**

The major utilities required by the center are electricity, fuel oil and water. The estimated annual requirement at full capacity and the corresponding cost is given in Table 4.2.

**Table 4.2**

**ANNUAL UTILITIES REQUIREMENT AND ESTIMATED COST**

| Sr. No. | Description                          | Unit of Measure | Qty.   | Unit price (Birr) | Cost ('000 Birr) |
|---------|--------------------------------------|-----------------|--------|-------------------|------------------|
| 1       | Electricity                          | kWh             | 60,000 | 0.4736            | 28.416           |
| 2       | Fuel oil (stand by diesel generator) | lt              | 1000   | 6.90              | 6.90             |
| 3       | Water                                | m <sup>3</sup>  | 10,000 | 3.25              | 32.5             |
|         | <b>Total</b>                         |                 |        |                   | <b>67.816</b>    |

## **V. TECHNOLOGY AND ENGINEERING**

### **A. TECHNOLOGY**

#### **1. Service Process**

The University Senate awards credentials, which are recognized by the country. The Ministry of Education is mandated to accredit private and public higher education institutions accordingly, whether they fulfill the required standards.

With the rapid advances in science and technology during the last few decades, computers and computing systems have risen to be the key technology supporting and expanding almost every area of life, from education and research, to commerce and entertainment. With the growth of networking systems such as the global Internet system connecting millions of people engaged in business, education, and research computing has become one of the most powerful aspects of progress in human life.

To be successful in this dynamic and expanding area one must have a strong basis in their own creativity, and a good knowledge of the most advanced and up to date areas of Computing technology and Computer Science. The Master's program in Computing at the envisaged university provides just this, a combination of the most important and powerful theoretical basis of all areas of computing, and their applications in the most advanced areas of current technology and professional areas.

With such a broad range of applications, a computer scientist or computer professional must be firmly grounded in the knowledge of how these systems are organized, and in the principles which are used to create and apply computing to the many different application areas that one will encounter in a professional computing profession. In addition one must cultivate increasingly clear thinking and logic, balance in personal life, and the ability to think and communicate clearly and coherently with others. The Computer Science programs prepare graduates for success in this field by providing comprehensive knowledge of the discipline, while culturing all of these vital and precious qualities of personal and professional success.

## **2. Specialization**

This programme specializes in the areas of software systems and software development, and also includes the core areas of Computer Science, Operating Systems, Networking, Database, and several other important application areas. A series of courses in modern software systems and development includes the current principles and practices of modern programming, Software Engineering. Several courses in Distributed Software and Software Systems and Architecture then expand this scope to enterprise and Internet based systems.

- **M.Sc. Programme Courses**

**Standard Core Courses:**

- Modern Programming Practices
- Database Management Systems
- Software Engineering
- Computer Communication Networks
- Operating Systems
- Advanced Programming Languages
- Science of Creative Intelligence

**Other M.SC. Courses:**

- Fundamentals of Algorithms
- Compiler Construction
- Artificial Intelligence
- Distributed Computing
- Advanced Computer Architecture
- Forest Academy

Due to the nature of the course required to be delivered and the level of higher education, the envisaged university may get in to a joint venture investment with accredited university abroad, engaged in similar activities.

**Admission to university-level studies:**

Name of higher education (of the first degree) credential is required.

Minimum score/requirements are Passes in 4 subjects at C-level

Other admission requirements are special privileges for female students.

**Foreign students' admission:**

A person enrolled at an institution of higher education in a country of which he/she is not permanently resident is considered as a foreign student.

Foreign students must provide the first degree required by the institution concerned where foreign qualifications are recognized as equivalent to the Ethiopian higher education institutes.

All students must cover their living expenses by their own means outside the envisaged university campus.

The education service is given only on regular basis which is to be held in morning and afternoon (8:30 AM-12:30 PM and 01:30PM -5:30PM) from Monday to Saturday

Each course will have lab sessions together with class room instruction and individual and group exercises. Senior project work is given in group or individually, as a final graduating project, based on the interest of prospective graduate.

Main grading systems applied are as follows:

Full Description: It is A-F. The highest on scale is "A" and the lowest is "F". The pass/fail level for undergraduates is "C", and for postgraduates is "B".

Highest on scale: "A"

Pass/fail level: "C" (for undergraduates), "B" (for postgraduates)

Lowest on scale: "F"

The provision of such service doesn't have any adverse impact on environment.

**B. ENGINEERING****1. Machinery and Equipment**

The list of machinery, equipment and other facilities required for provision of Computer Science higher education service on Master's Degree level is estimated to be Birr 5,000,000.00 out of which Birr 1,000,000.00 is in foreign currency (Table 5.1.)

**Table 5.1****MACHINERY, EQUIPMENT & OTHER FACILITIES REQUIREMENT AND COST**

| <b>Sr. No.</b> | <b>Description</b>   | <b>UOM</b> | <b>Qty.</b> | <b>Cost ('000 Birr)</b> |
|----------------|--|------------|-------------|-------------------------|
| 1              | Broadband internet line and<br>(Supply & Network Installation) | Unit       | 3           | 685.00                  |
| 2              | Desk top computers networked<br>(Supply & Installation)        | Set        | 200         | 2,000.00                |
| 3              | Lap top computers  | Set        | 50          | 1000.00                 |
| 4              | Scanner  | Pcs        | 3           | 45.00                   |
| 5              | Digital camera   | Pcs        | 1           | 10.00                   |
| 6              | Video camera   | Set        | 1           | 15.00                   |
| 7              | DVD player   | Set        | 1           | 5.00                    |
| 8              | Photo copy machine   | Pcs        | 1           | 100.00                  |
| 9              | Duplicating machine  | Pcs        | 1           | 45.00                   |
| 10             | Generator set 11 KW (Supply &<br>.....<br>Installation)        | Set        | 1           | 20.00                   |
| 11             | Printer  | Set        | 50          | 600.00                  |
| 12             | Fax machine  | Set        | 5           | 75.00                   |
| 13             | Satellite TV-set (Supply &<br>Installation)                    | Set        | 10          | 50.00                   |
| 14             | Cafeteria facilities   | Set        | 1           | 100.00                  |
| 15             | Lawn moan  | Set        | 1           | 50.00                   |
| 16             | Other miscellaneous items                                      |            | Lump sum    | 200.00                  |
|                | <b>Total</b>   |            |             | <b>5,000.00</b>         |

## 2. Land, Building and Civil Works

The envisaged higher education at degree level service requires a total plot of land of 3,200 m<sup>2</sup> area, out of which 2000 m<sup>2</sup> area is the indoor built -up area, which is the building (class rooms (500 m<sup>2</sup>), library (400 m<sup>2</sup>), assembly hall (400 m<sup>2</sup>), administration offices( 150 m<sup>2</sup>), reception(50m<sup>2</sup>), toilet (50 m<sup>2</sup>), computer lab (80m<sup>2</sup>), lounges(200 m<sup>2</sup>),duplication and documentation (130 m<sup>2</sup>) . The remaining 1200 m<sup>2</sup> area is the out door built -up area which includes the student cafeteria (250 m<sup>2</sup>), parking lot (300 m<sup>2</sup>), walk ways (200 m<sup>2</sup>), garden (300m<sup>2</sup>), generator house (25 m<sup>2</sup>), guard room (25 m<sup>2</sup>), etc.

Assuming an indoor construction rate of Birr 2,500 per m<sup>2</sup> and Birr 1,500 per m<sup>2</sup> for the outdoor building and civil works, the total cost of construction is estimated Birr 5,000,000 and Birr 1,800,000, respectively.

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

In Addis Ababa, the city's Land Administration And Development Authority is directly responsible in dealing with matters concerning land. Accordingly, the initial land lease rate in Addis Ababa set by the Authority based on the location of land is as shown in Table 5.2.

**Table 5.2****INITIAL LAND LEASE RATE IN ADDIS ABABA**

| <b>Sr. No</b> | <b>Location of the land</b>   | <b>Land Grade</b> | <b>Initial Price in m<sup>2</sup></b> |
|---------------|-------------------------------|-------------------|---------------------------------------|
| 1             | Central Business zones        | 1                 | 1167.3                                |
|               |                               | 2                 | 1062.9                                |
|               |                               | 3                 | 916.2                                 |
|               |                               | 4                 | 751.5                                 |
|               |                               | 5                 | 619.2                                 |
| 2             | Places that are Under Transit | 1                 | 716.4                                 |
|               |                               | 2                 | 647.1                                 |
|               |                               | 3                 | 559.8                                 |
|               |                               | 4                 | 472.5                                 |
|               |                               | 5                 | 384.3                                 |
| 3             | Expansion Zones               | 1                 | 245.7                                 |
|               |                               | 2                 | 207                                   |
|               |                               | 3                 | 150.3                                 |
|               |                               | 4                 | 132.3                                 |

*Source: Addis Ababa City Land Administration Authority.*

As can be seen from Table 5.2, the initial land lease rate ranges from Birr 1,167.3 to 132.3 per m<sup>2</sup>.

Currently, most of the educational facilities in Addis Ababa are located on the central business zones of the city. Therefore, places under transit and expansion zones are recommended as the best locations for the project. Accordingly, the average of the highest land lease rates in places under transit and expansion zones which is Birr 481.05 m<sup>2</sup> is adopted.

The Federal Legislation on the Lease Holding of Urban Land legislation has also set the maximum on lease period and the payment of lease prices (see Table 5.3 and Table 5.4).

**Table 5.3**  
**LEASE PERIOD**

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

**Table 5.4**  
**LEASE PAYMENT PERIOD**

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

Moreover, advance payment of lease based on the type of investment ranges from 5% to 10%. For those that pay the entire amount of the lease will receive 0.5% discount from the total lease value and those that pay in installments will be charged interest based on the prevailing interest rate of banks. Moreover, based on the type of investment, two to seven years grace period shall also be provided. The lease price is payable after the grace period annually.

Regarding, the terms and conditions of land lease the Addis Ababa City Government have adopted Article 6 of the Federal Legislation with very minimal changes. Therefore, for the purpose of this project profile since the project is engaged in social service , 99 years lease period, 50 years lease payment completion period, 5% down payment and seven years grace period is used.



Accordingly, the land lease cost of the project, at rate of Birr 481.05 per m<sup>2</sup> for 99 years of holding is estimated at Birr 152.40 million. Assuming 5% of the total cost ( Birr 7.61 million ) will be paid in advance as down payment and the remaining Birr 144.78 million will be paid in equal installments with in 50 years, the annual lease payment is estimated at Birr 2,895,536.

## **VI. MANPOWER AND TRAINING REQUIREMENT**

### **A. MANPOWER REQUIREMENT**

The total manpower requirement, including skilled and unskilled labor is 74 persons. The corresponding total labor cost, including fringe benefits, is estimate at Birr 1,601,500. Table 6.1 shows the list of manpower required and the estimated annual labor costs.

**Table 6.1****MANPOWER REQUIREMENT & LABROUR COST**

| Sr. No. | Job Position                        | Req. No.  | Salary (Birr)  |                  |
|---------|-------------------------------------|-----------|----------------|------------------|
|         |                                     |           | Monthly        | Annual           |
| 1       | Director                            | 1         | 6,000          | 72,000           |
| 2       | Senior Secretary                    | 1         | 1,000          | 12,000           |
| 3       | Student dean                        | 1         | 3,500          | 42,000           |
| 4       | Planning & Evaluation Officer       | 1         | 2,000          | 24,000           |
| 5       | Public & External Relations Officer | 1         | 2,000          | 24,000           |
| 6       | Instructor                          | 5         | 50,000         | 600,000          |
| 7       | Registrar                           | 1         | 1,900          | 22,800           |
| 8       | Student Record Officer              | 1         | 1,600          | 19,200           |
| 9       | Head, finance & administration      | 1         | 3,000          | 36,000           |
| 10      | Computer Administrator              | 1         | 2,500          | 30,000           |
| 11      | Documentation attendant             | 3         | 2,400          | 28,800           |
| 12      | House Keeping Supervisor            | 1         | 1,400          | 16,800           |
| 13      | Financial clerk                     | 2         | 1,800          | 21,600           |
| 14      | Head, security guard                | 1         | 1,350          | 16,200           |
| 15      | Computer Lab Assistant              | 5         | 4,000          | 48,000           |
| 16      | Librarian                           | 3         | 2,400          | 28,800           |
| 17      | Carpenter                           | 2         | 1,400          | 16,800           |
| 18      | Plumber                             | 2         | 1,400          | 16,800           |
| 19      | Electrician                         | 2         | 1,400          | 16,800           |
| 20      | Cleaner                             | 20        | 12,000         | 144,000          |
| 21      | Guard                               | 15        | 10,300         | 123,600          |
| 22      | Gardener                            | 2         | 1,200          | 14,400           |
| 23      | Secretary                           | 3         | 2,400          | 28,800           |
| 24      | Driver                              | 1         | 750            | 9,000            |
| 25      | Casher                              | 2         | 1,500          | 18,000           |
|         | <b>Total</b>                        | <b>74</b> | <b>106,700</b> | <b>1,280,400</b> |
|         | <b>Workers benefit (25% of BS)</b>  | <b>-</b>  | <b>26,675</b>  | <b>321,100</b>   |
|         | <b>Grand Total</b>                  | <b>74</b> | <b>133,375</b> | <b>1,601,500</b> |

## **B. TRAINING REQUIREMENT**

Laboratory assistants and technician need to get local tailor made training and the cost of training is estimated at Birr 40,000.

## **VII. FINANCIAL ANALYSIS**

The financial analysis of the higher education at second degree and above level project is based on the data presented in the previous chapters and the following assumptions:-

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

## **A. TOTAL INITIAL INVESTMENT COST**

The total investment cost of the project including working capital is estimated at Birr 21.95 million, of which 5% is required in foreign currency. The major breakdown of the total initial investment cost is shown in Table 7.1.

**Table 7.1**  
**INITIAL INVESTMENT COST**

| <b>Sr. No.</b> | <b>Cost Items</b>              | <b>Local Cost</b> | <b>Foreign Cost</b> | <b>Total Cost</b> |
|----------------|--------------------------------|-------------------|---------------------|-------------------|
| 1              | Land lease value               | 7,610.00          | -                   | 7,610.00          |
| 2              | Building and Civil Work        | 6,800.00          | -                   | 6,800.00          |
| 3              | Teaching equipment             | 4,000.00          | 1,000.00            | 5,000.00          |
| 4              | Office Furniture and Equipment | 100.00            | -                   | 100.00            |
| 5              | Vehicle                        | 450.00            | -                   | 450.00            |
| 6              | Pre-production Expenditure*    | 1,496.54          | -                   | 1,496.54          |
| 7              | Working Capital                | 496.31            | -                   | 496.31            |
|                | <b>Total Investment cost</b>   | <b>20,952.85</b>  | <b>1,000.00</b>     | <b>21,952.85</b>  |

\* *N.B Pre-production expenditure includes interest during construction ( Birr 1.35 million) , training ( Birr 40 thousand) and Birr 100 thousand costs of registration, licensing and formation of the company including legal fees, commissioning expenses, etc.*

## **B. OPERATING COST**

The annual operating cost at full capacity operation is estimated at Birr 8.58 million (see Table 7.2 ). The material and input cost accounts for 52.39 per cent of the operation cost. The other major components of the operation cost are depreciation, financial cost and direct labour which account for 12.77 %, 12.51% and 8.94% respectively. The remaining 13.39 % is the share of utility, repair and maintenance, labour overhead and administration cost.

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

| <b>Items</b>                 | <b>Cost</b>     | <b>%</b>     |
|------------------------------|-----------------|--------------|
| Material and Inputs          | 4,500.00        | 52.39        |
| Utilities                    | 67.82           | 0.79         |
| Maintenance and repair       | 250.00          | 2.91         |
| Labour direct                | 768.24          | 8.94         |
| Labour overheads             | 320.10          | 3.73         |
| Administration Costs         | 512.16          | 5.96         |
| Land Lease Cost              | -               | -            |
| <b>Total Operating Costs</b> | <b>6,418.32</b> | <b>74.72</b> |
| Depreciation                 | 1,096.83        | 12.77        |
| Cost of Finance              | 1,074.26        | 12.51        |
| <b>Total Production Cost</b> | <b>8,589.41</b> | <b>100</b>   |

**C. FINANCIAL EVALUATION****1. Profitability**

Based on the projected profit and loss statement, the project will generate a profit through out its operation life. Annual net profit after tax will grow from Birr 1.15 million to Birr 2.38 million during the life of the project. Moreover, at the end of the project life the accumulated cash flow amounts to Birr 23.45 million.

**2. Ratios**

In financial analysis financial ratios and efficiency ratios are used as an index or yard stick for evaluating the financial position of a firm. It is also an indicator for the strength and weakness of the firm or a project. Using the year-end balance sheet figures and other relevant data, the most important ratios such as return on sales which is computed by dividing net income by revenue, return on assets ( operating income divided by assets), return on equity ( net profit divided by equity) and return on total investment ( net profit plus interest divided by total investment) has been carried out over the period of the project life and all the results are found to be satisfactory.

### 3. Break-even Analysis

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

$$\text{BE} = \frac{\text{Fixed Cost}}{\text{Sales} - \text{Variable Cost}} = 19 \%$$

### 4. Payback Period

The pay back period, also called pay – off period is defined as the period required to recover the original investment outlay through the accumulated net cash flows earned by the project. Accordingly, based on the projected cash flow it is estimated that the project's initial investment will be fully recovered within 6 years.

### 5. Internal Rate of Return

The internal rate of return (IRR) is the annualized effective compounded return rate that can be earned on the invested capital, i.e., the yield on the investment. Put another way, the internal rate of return for an investment is the discount rate that makes the net present value of the investment's income stream total to zero. It is an indicator of the efficiency or quality of an investment. A project is a good investment proposition if its IRR is greater than the rate of return that could be earned by alternate investments or putting the money in a bank account. Accordingly, the IRR of this project is computed to be 16.66 % indicating the viability of the project.

### 6. Net Present Value

Net present value (NPV) is defined as the total present ( discounted) value of a time series of cash flows. NPV aggregates cash flows that occur during different periods of time during the life of a project in to a common measuring unit i.e. present value. It is a standard method for using the time value of money to appraise long-term projects. NPV is an

indicator of how much value an investment or project adds to the capital invested. In principle a project is accepted if the NPV is non-negative.

Accordingly, the net present value of the project at 8.5% discount rate is found to be Birr 9.39 million which is acceptable.

#### **D. ECONOMIC BENEFITS**

The project can create employment for 74 persons. The project will generate Birr 8.07 million in terms of tax revenue. The project will contribute to the expansion of education which is vital for development of the country.