ADDIS ABABA UNIVERSITY
FACULTY OF BUSINESS AND ECONOMICS
MBA PROGRAM

PROJECT FEASIBILTY STUDY ON INSTALLING LAUNDRY/WASHING MACHINE SERVICE IN THE MAIN CAMPUS OF ADDIS ABABA UNIVERSITY

A PROJECT WORK SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER'S OF BUSINESS ADMINISTRATION

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Declaration

I hereby declare that the project entitled “Feasibility Study on Installing Laundry/Washing Machine Service in The Main Campus of Addis Ababa University” is my original work and has not been presented (or submitted) by anybody for any degree or diploma in any other university and all materials used for the project have been duly acknowledged.

Name	Signature	Date and Place

Statement of Approval

This is to certify that Zelalem Abebe Segahu has completed his project work entitled “Feasibility Study on Installing Laundry/Washing Machine Service in The Main Campus of Addis Ababa University” successfully in partial fulfillment of the requirements of the award of Degree of Masters of Business Administration. In my view, the work is original effort of the candidate and all materials used for the project work have been duly acknowledged.

Zewdie Shibrie (PhD) Signature Date

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Table of Contents

List of Tables

List of Figures

List of Appendices

ABSTRACT

Laundry/washing machine facility is one of the service areas that students and other university community members would like to get nearby their campuses. Despite its old age and the high number of its community, Addis Ababa University has not yet availed laundry/washing machine service to its community members. Laundry/washing machine service is specially required by the student population of the University who is currently facing various problems in connection with washing of clothes. The students have to spend considerable time to wash their clothes; have to wait for some time to get free washing compartments; have to wash within shabby compartments and dirty surrounding; and finally end up with unsatisfactory wash quality.

This study investigates the economic and technical feasibility of installing a laundry/washing machine service in the main campus of Addis Ababa University.

The project aims at solving the current problem that students face in washing their clothes which is crowded, time taking, tiresome, and inefficient. In addition, the project will generate additional revenue to the University itself or to the credit association of the university whoever is pursing in the investment activity.

The project is located inside the main campus of the university. The university officers have already appreciated the magnitude of the problem and are optimistic that the project will get the required assistance from all stakeholders. The rationale for the project location is that the project should be located proximately to the customers, who are the residing students of the main campus in this case. Regarding the site, the Physical Plant Development Office of the University has identified the open space near the foreign students residence block (near Block 505 in the site map) as a suitable site.

The project is generally environmentally friendly and proper sewerage system will also be constructed to remove all waste produced in the business.

The market survey conducted in connection with this project has revealed a number of important points. The students are eager to see a modern washing machine installed in their campus. Out of 5370 regular residing students of the main campus, 270 were randomly selected to participate in the survey. 70% of the participant students have expressed that the service is important to them and are ready to pay a reasonable amount for the service. As most students have stressed their concern on the affordability of the service due care has been given to set a price which is fair and affordable to most of them. From a field survey of the price that janitors charge students and from the questionnaires distributed, a price of Birr 2.00 per kilogram seems affordable to the students and also acceptable to the investor. The total annual demand determined through the market survey is about 294179 kilograms of clothes. At the proposed price of Birr 2.00 per kilogram the total sales for the business for the first year of operation is about Birr 588,358.68.

The project does not process physical raw materials to physical outputs. However, it has to hold some amount of detergent that will be sold to the customers at cost. In addition, the project requires reliable electric power and water supply to perform effectively which all are available locally.

The washing machine service facility incorporates the installation of coin operated washers and driers. The machines selected are supplied by OMEDAD Plc. The company has well-organized technical shop and required technical personnel for installation and maintenance activities. The project requires nine (9) washing machines and three (3) dryer machines. The total cost of these washing and drying machines is Birr 998,000.00. The project also requires auxiliary equipment such as scale, fire extinguishers, and furniture which are estimated to cost about Birr 14,235.00.

The machines will be housed in a building made of hollow cement blocks which is ideal for laundry operations. The project requires a building lying in an area 92.9m^2. The estimated cost of the building at the current construction rate is 116,125.

Regarding organization and management, the assumption under this feasibility study is that the management structure and control aspects of the project will be aligned with the current structure of the recommended investors i.e. Addis Ababa University or The Credit Association of the University. However, a specific structure for this division is also developed. The division will be headed by a laundry service head and shall supervise all activities of the laundry/washing service facility. With respect to manpower, the project is not as such labor intensive. However, to safeguard mishandling and misuse of the machines and to provide efficient service, about seven employees are required in the project.

The total investment required in this project is Birr 1,155,860.00. This includes, among other things, the cost for building and civil works, machinery and equipment, feasibility study costs and working capital. The project is assumed to be financed with 100% equity contribution.

The investment appraisal criteria used in this project are Net Present Value, Internal Rate of Return and Payback Period. The net present value of the project is positive (Birr 2,207,108.19), the internal rate of return is 39%, and the payback period is about 3 years. By all this measures the project is acceptable. In addition, a sensitivity analysis has been conducted by introducing a reduction in the price of the service and an increase in the costs of the major inputs. The project still stands acceptable in all of the above three criteria.

Finally, the project requires the commitment of some resources for proper implementation. The university management has to look at the proposal and give consent on the implementation of the project. In addition, procuring the machines and equipment, installing the machines, constructing

the building and other civil works, and many other activities require some time. The total estimated time for implementing the project is about 23 weeks. Financially, the implementation phase is estimated to cost about Birr 6,000.00.

CHAPTER 1. INTRODUCTION

1.1 Historical Background

Addis Ababa University (AAU) is one of the largest higher learning institutions in Africa that was established at the end of the 1940s. Formerly known as Haile Selassie I University, AAU was established by Ministry of Education in 1949 as a Trinity College with seventy one (71) students and nine (9) academic staff. It was granted a charter in July 1950 as an autonomous higher learning institution under a different name of the University College of Addis Ababa (UCAA). This makes AAU one of the oldest modern African university.

The Ethiopian government created several institutions since UCAA was established in 1950s. These include a College of Agriculture in Alemaya, Harar, College of Building Technology in Addis Ababa, and College of Medical Science at Gondar. In 1961, the different institutions of higher learning came under a central administration to form what is to become the AAU. It should be noted that many of the institutions in the country that have now become separate institutions, were part of AAU at one time.

The number of students enrolled in the university has increased from year to year currently reaching at 47640 students in all progarmmes.[1] Table 1.1 shows the number of students enrolled every year in Addis Ababa University during the last five years. The table shows that the student population is increasing every year at a high rate. The increase is expected to continue for some time in the future as the government has given due attention to the expansion of higher education from which Addis Ababa University will take its own share.

[1] www.aau.edu.et
www.ethioworld.com

Table 1.1. Enrollment of Students in AAU

Program	2002/03	2003/04	2004/05	2005/06	2006/07
Regular	10961	15364	17101	20422	20878
Extension	10908	16803	17255	17447	21060
Graduate	1506	2288	3114	5704	5703
Summer	3110	N/A*	3322	2961	N/A
Total	26685	34455	40792	46534	47641

Source: Addis Ababa University Registrar Office

** N/A: Data Not Available*

The distribution of regular students categorized as resident and non-resident students in the various campuses of the university is shown below. The main campus which is the subject of this study has the highest number of both resident and non resident students.

Table 1.2. Regular Students in AAU by Campus and Dormitory Service

Campus	Regular Resident	Regular Non-Resident	Total
Sidst Killo (Main)	5370	3574	8944
FBE Campus	950	695	1645
Arat Killo	2260*	N/A	
Technology (North)	850	1279	2129
Technology (south)	320	N/A	
Black Lion	540	1305	1625
St. Paul Nursing School	300		
Debre Zeit (Vet. School)	320	99	419
Commercial College	-	4455	4455
Yared Music & Arts School	-	235	235

Source: AAU Dean of Students & Registrar office

** Figure includes Pre-Engineering Students*

1.2 Student Services

The university community in general and students in particular require the arrangement of various services in university campuses. Library services, Dormitory service, Laundry/washing machine service and Cafeteria service are some of the most important group of services that students would like to get from their universities, among others.

In the case of Addis Ababa University, on-campus students have access to most of the above-mentioned services except the laundry/washing machine service. Despite its old age and the increasing number of students enrolled in the university every year, the arrangement of laundry/ washing machine services which is common in most other universities abroad is not yet available to the university community, particularly to the students of Addis Ababa University.

1.3 Statement of the Problem

Students must devote a considerable proportion of their time to attend classes and other extra curricular activities. However, there are also some activities which must be performed by students and hence which compete for their study time directly or indirectly. Cleaning dormitories, washing clothes, Leisure times etc are among the other major items that take a share from the total active time of the students.

The time allotted by students to wash their clothes is assumed to be significant. The students were asked if washing of clothes takes some of their time. Out of the 270 students surveyed 254 i.e. 94% replied that washing of clothes takes some of their time.

Currently the on-campus students of Addis Ababa University wash their clothes manually in the separate washing compartments. The facility however is time taking, tiresome and ineffective in removing dirt from the clothes. The introduction of a washing machine may help to tackle these challenges.

The laundry/washing machine system that is being proposed is a modern system which saves among other things the energy and time of students. Modern day laundry machines have an automatic washer and automatic dryer and are suitable for clothes made from easy care fabrics which are dressed by most students these days. The students would provide their own detergents and are expected to pay for the service based on the weights of the clothes to be washed and/or dried.

1.4 Objective of the Study

The main objective of this study is to assess/determine the economic feasibility of installing laundry/washing machine service facility in the main campus of Addis Ababa University. The main campus is selected for the study since it has the highest number of student population. The study has performed both the technical and financial feasibility aspects of the project.

This study will help to answer the following basic questions in connection with this project

1. What is the market potential for a laundry/washing machine service business in the main Campus of Addis Ababa University?
2. What are the Resource (Material), Technological, and Manpower requirements of the project?
3. What is the project capacity required to meet demand satisfactorily?
4. What is the initial investment required for the project and how does the business perform financially?
5. What will be the impact of changes on the performance of the project i.e. how will the project perform if it is forced to reduce its price and at the same time if the major cost items increase?

1.5 Significance of the Study

The study has a number of macro and micro benefits that are expected to accrue.

i) The mission of Addis Ababa University like all other universities is to promote education and research activities in the nation. Students are active players in this effort and have to spend a considerable part of their time to their curricular activities. The project is believed to minimize the time and energy that students devote to wash their clothes. This in turn might increase the time and energy that they allocate for their academic causes.

ii) The waste produced through the current facility around the dormitories of students will be minimized and the environment around the residence buildings will be clean

iii) Wastage of resources specially wastage of water will be significantly reduced

iv) The project, if successful, can also generate additional revenue to the University through the fees that the users pay for the service.

v) Finally, the students will have clean clothes and better looks, which indirectly helps to create a healthy and confident academic society.

1.6 Limitation of the Study

The majority of students have little idea about affordable laundry/washing machine services that are available in most universities abroad and may find some difficulties in comparing the current facility with the proposed facility under study. Even worse, the students may confuse this with

the dry cleaning business that is common in town and may presume that the project is no good for the majority of the students. One has, therefore, to do a good marketing or selling job.

1.7 Methodology

1.7.1 Data Sources

The data utilized in the study was gathered from various sources. The primary data was gathered mainly from the regular resident students of the main campus of Addis Ababa University and various officials of companies. The secondary data sources include the registrar office and the dean of students of Addis Ababa University, various web sites of laundry machine manufactures and articles on coin operated laundry business from the Internet.

1.7.2 Data Collection Methodology

The data used for the study is mainly primary data. The data required in the study was collected through informal observations, unstructured interviews, and questionnaires. Although the student population is relatively homogeneous, the questionnaires were distributed to about 5% of the regular resident students i.e. 270 students, to make the predictions more accurate and reflective of the actual situation. In addition, some secondary data sources were also used to get relevant information in the areas of student population and the like.

1.7.3 Data Analysis

The data gathered through the above mentioned methods were analyzed using various techniques. Statistical tools such as averages and extrapolation were used to predict average demand, average frequency of washing, capacity of machines and the like. Financial analysis and evaluation models namely Net Present Value (NPV), Internal Rate of Return (IRR) and Payback Period were employed to evaluate the project.

1.8 Organization of the Study

The report is organized using the standard recommended by United Nations Industrial Development Organization (UNIDO) for feasibility studies as follows

Chapter 1	Introduction
Chapter 2	Market Analysis
Chapter 3	Engineering and Technology
Chapter 4	Raw Materials and Supplies
Chapter 5	Location, Site and Environment
Chapter 6	Organization and Overheads
Chapter 7	Human Resource
Chapter 8	Implementation Planning and Budgeting
Chapter 9	Financial Analysis
Chapter 10	Conclusion and Recommendations

CHAPTER 2. MARKET ANALYSIS

2.1. The Business Climate

The arrangement of laundry/ washing machine Service is one of the student service areas that foreign colleges and universities give priority to attract students to their institutions.

In our country the service has not so far received the attention of the management of the various universities. Although the university management does not totally undermine the importance of the facility, it however, has the opinion that there are other more critical services that must be availed to the students with the limited budget.

The student population on the other hand is showing an increase every year. In the 2004/2005 academic year, the total number of regular students in all higher institutions of the nation reached to 91655[2]. The recent report that The Ministry of Education presented to the FDRE[3] Parliament has disclosed that the regular student population in the country has grown to 130 000 in 2006/2007.

In the case of Addis Ababa University, the total number of regular students enrolled in 2006/2007 is about 17101, which is about 13.15% of the country's total higher institution enrollment.

The increase in the number of student population demands the arrangement of efficient services to the students one of which is the arrangement of a laundry/washing machine service facility. The current manual washing facilities are assumed to be inefficient & ineffective in accommodating the needs of students in this area. This issue is verified by surveying the current facilities in the main campus of Addis Ababa University.

[2] Ethiopian Statistical Agency 2004/05 Report page 241-260
[3] Federal Democratic Republic of Ethiopia

The project when implemented will be an entirely new service to the students. Currently, there are no private businesses within the environs of the main campus which give such kind of service.

The project will not require any special raw material. The main operating cost components will be the water & electric power consumed. The government sets the prices of these important cost items and no sudden significant rate fluctuation that affects the operation of the business is expected.

2.2. The Market Area.

The proposed business mainly targets the on-campus students of the main campus of Addis Ababa University. The business should therefore be located with in the premises of the main campus or in some other convenient place with in the vicinity of the main campus.

The main campus of Addis Ababa University is the biggest of all the campuses of the university in terms of student population. There are about 5300 students who get dormitory services in the main campus and who are expected to be potential customers of the business. In addition to the student customers, some of the administrative and academic staff of the university might be the users of the services of the facility.

2.3 Major Themes Arising from the Market Survey

A vast amount of detailed information was collected through questionnaires to facilitate the study. While all the data collected through the survey are essential, the following are some of the most important themes that emerge from the study.

1. Importance of installing a washing machine service
2. Willingness to pay
3. Satisfaction on current facility and continuity of service of the new facility.

2.3.1. Importance of Installing a Washing Machine Service

The students surveyed through the questionnaire expressed broad views concerning the installation of a laundry/washing machine service in the main campus of Addis Ababa University.

Out of a total number of 270 students, 210 i.e. 78% polled for the installation of this service in the University. Their reasons include

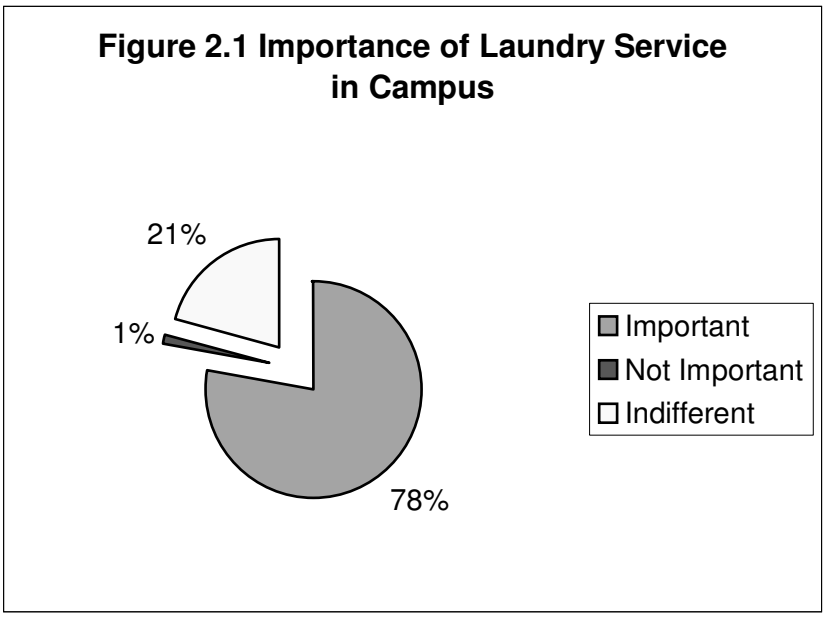
1. Students would have more time for academic activities
2. Students would be able to wear their clothes for longer time with out changing shape & color
3. The students' clothes will be clean & hence will give them better looks.

On the other hand only four students i.e. 1% who polled on the importance of the service expressed that the service is not necessary to the students. The reasons that these respondents emphasized include

1. The service may create Status difference between those students who use the facility and others who use the current manual system due to economic reasons.
2. The installation of the service may cut the extra income that the janitors in the residence blocks earn by washing the clothes of the students.
3. Other services such as additional residence blocks are much more important to them than a washing machine service which is not basic currently.

About 56 students i.e. 21% were not able to say something on the importance of the service for various reasons such as unfamiliarity to the nature of the service itself.

The following diagram shows the proportion of students who polled for and against the installation of a laundry service in their campus.



Source: Market Survey, 2007

In general, there was a majority agreement that the laundry washing machine service is important for their academic causes & personal reasons as well.

2.3.2. Willingness to Pay

In the survey, the students were asked to express how much they could afford to pay for the washing service.

Out of the total number of students who are willing to be users of the service the majority of them i.e. 60% agree that they have to pay a certain amount for the service and have expressed amounts ranging from Birr 2 to Birr 15 at a time as reasonable and affordable charge. About 63 students i.e. 30% have responded that they would be users of the service although they could not fix a price which they consider affordable.

The remaining 21 students i.e. 10% of the students responded that they could not afford to pay any penny although they consider the service important.

The following table shows a summary of the responses of the students on this issue

Table 2.1. Students Willingness and Ability to Pay for Service

Group	Number	Proportion out of users	Proportion out of total
Want to be user and pay Birr 2 or more for the service	126	0.60	0.47
Want to be user but cannot say on price	63	0.30	0.23
Want to be user but cannot afford	21	0.10	0.08
Do not want to be user	60		0.22
Total	270	1.00	1.00

Source: Market Survey, 2007

The students were further asked to express the amount they currently pay to other service providers such as janitors for getting their clothes washed, if they are using such arrangements. About 50% of the students hire janitors to wash their clothes and pay fees ranging from Birr 0.35 to T-shirts to 1.00 Birr to jeans trousers.

It may therefore be argued that 50% of the students have readily available money to expend on the service if it is available at an affordable price.

2.3.3. Satisfaction on Current Manual Facility & Continuity of the Proposed Service

This is another important point addressed by the students. The students were requested to give their comments on the performance & convenience of the current facility.

The responses of the students on this issue is summarized in the following table

Table 2.2. Current Manual Facility Rating

Convenience Rating	Number of Students	Proportion
Very Good	10	0.037
Good	40	0.148
Fair	40	0.148
Poor	105	0.389
Very Poor	75	0.278

Source: Sample Survey, 2007

In general, a good majority of students have answered that the current facility is poor or very poor. They have strengthened this point by giving an additional comment that the current washing facility is causing severe hygienic problem to the students.

The other point which the respondent students emphasized in connection with the proposed business is that the machines might be misused & hence breakdown at any time damaging their clothes and at same time losing the continuity of a convenient service.

2.4 Demand Analysis

The demand for the services of the project comes from the student population of the main campus, the administrative/support staff of the university, and the academic staff of the University.

The student population residing in the main campus of the University number about 5300. The survey result obtained from a random sample of 270 students indicates that about 78% are willing to be users of the service if there is one in the University. Out of this total number who

polled to be users about 189 students i.e. 70% of the total student population are ready to expend some money for the service.

The total demand can therefore be expressed by the total weight of the clothes in kilograms that these students will deliver to the laundry/washing service facility for washing during any given time such as day, month or year. This total demand of the laundry/washing service facility is affected by a number of factors including the following

1) The number of times that a student washes his/her clothes
2) The weight of the clothes that a student washes at a time
3) The quality of the service and the efficiency of the service
4) The price charged

The weight of clothes that the customers deliver for washing may greatly vary depending on the type of fabrics and texture. There are no as such standard weights universally accepted for clothes. However, industry experts and people who worked in the business for many years have tried to determine the average weight of clothes by type. The following is the average weight of selected clothes by type determined by these experts.

Table 2.3 Average Weights of Clothes

Description	Average Weight Per Unit (KG)
Trousers	0.35
Shirts	0.18
Sweaters	0.50
Jackets	0.75
Women's Dresses	0.35
Bed Sheets	0.35
Towels	1.00
Pajamas	0.45
Others (average)	0.35

Source: Small Business Development Resource, www.smeda.org.pk

The total expected demand of the project determined by considering the first two factors is shown in the following table

Table 2.4 Expected Demand

A	Total Number of On-campus Students	5370
B	Expected Number of user Students (70%)	3759
C	Average Weight of Clothes Per Student in Kilograms[4]	3.01
D	Average Frequency in a Month[5]	2.60
E	Total Demand Expected in a Month In kilograms (B x C x D)	29417.90
F	Total Demand in a Year assuming 300 days work[6] in kilograms (E x 10 Months).	294179.00

Source: Market Survey, 2007

The effect of the last two factors in the total demand for the services of the facility is also significant. The quality of the washes and the time that the students save are factors that would positively contribute to the demand of this business. On the other hand, price of the service could be a major factor that reduces the number of students who use the facility.

The financial capacity of students is limited and a price which is affordable to most students must be determined. This issue was given due attention and students were asked to express the amount

[4] Data obtained by multiplying the possession of each student with the average weight of each type of cloth and then dividing the total to number of students

[5] Students have different habits of washing their clothes. Some wash every week others wash every four weeks, etc. The response of the students is aggregated and divided to the total number of students

[6] Total demand for one full academic year of 10 Months with 30 days each

which they can afford to pay for the service every time they wash their clothes. The students have stated various figures ranging from zero (0) to Birr fifteen (15.00). A significant proportion of the surveyed students i.e. about 60% have indicated that they can afford a price around Birr 4.00 for a single wash of their clothes.

The demand for the service is expected to increase every year for various reasons

1. More students will be aware of the benefits of the service and will become users
2. Student enrollment increases every year and hence the demand for the service

2.5 Supply and Competitor Analysis

The proposed business is expected to fill the already existing gap in the main campus of Addis Ababa University. Currently, there is no service provider which is going to compete with the proposed business.

However, there is still the option of using the current manual facility. There are various reasons for this

1. Price may be unaffordable
2. Machinery Breakdowns

In addition, other business people may start the same kind of business in the surrounding of the main campus and direct competition may come. The business has therefore to be efficient and attractive in all dimensions i.e. time, cost, quality, and price to win the competition that may come later.

2.6. Marketing Strategy.

The proposed business is an entirely new service to the student community of Addis Ababa University. The investor has therefore to do a good marketing job to convince students to be

users of the service. A combination of the following marketing strategies should be used to attract more customers to the service.

2.6.1 Pricing Strategy

The service is going to be marketed to a student population whose financial capacity & purchasing power is limited. The price to be charged must therefore be affordable.

The price may initially be set at a level which covers operating costs plus some margin for the investor. A field survey was conducted to learn as to how much the janitors, who give manual wash services to students, charge their customers. The charge varies depending on the number of customers that a janitor has, the intimacy of the student and the janitor, the type of clothe and the like. The following are the average charges obtained from the survey

Table 2.5 Price Charged by Janitors for Selected Clothes

Type of Garment	Charge/Unit in Birr
Jeans Trousers	1.00
Sweaters	0.75
T-Shirts	0.40
Jackets	1.00
Bed sheets	1.00

Source: Market Survey, 2007

The estimated annual variable operating and administrative cost of the project for the first year is about Birr 362,794.00[7]. The operation plan of the project shows that it will have total sales of 294179.00 kilograms of clothes in a year. The unit operating cost for the project will therefore be Birr 1.23 per kilogram. A price that covers this cost, plus a reasonable margin for the business shall be fixed. Assuming that the prices that the janitors currently charge (about Birr 2.15 per

[7] Variable Costs Birr 362,794.00, Fixed Costs Birr 39,744, and Depreciation Costs Birr 112,203.00

kilogram[8]) are good indicators of the market price, a price of Birr 1.75 for washing and 0.25 for drying is taken as fair price for the services to be rendered.

2.6.2. Promotion

The investor must initially promote the product using brochures & flyers which are effective to reach the target market. The purpose is to make the students aware about the availability and benefits of the service. A continued promotional campaign using brochures may not be required since the information will be disseminated through word-of-mouth after awhile. However, the project may still continue to use flyers to inform the student community about the care to the facility and the requirements to be customers to the facility. With regard to the promotional aspect, since the market is concentrated, word-of- mouth promotions are much more effective and efficient than other forms of advertisements.

2.6.3. Place

The service shall be located in a convenient and safe place to all users of the service. In addition sufficient waiting room with reading facilities must be arranged so that students who want to stay there until their clothes are washed can read.

2.6.4. Process

Process refers to the manner in which the services are delivered to the customers.

In the proposed project, the process shall be designed in an efficient and convenient manner so that the student turnout for the service will be high.

The payment procedure, order procedure, and delivery manner of washed clothes will have a significant impact on the overall success of the project. In addition, the business must also assign

[8] If a student, for example, uses the services of the janitors and gets washed one trouser, one T-shirt, and one sweater the average weight is about 1.03 kilograms and he/she pays about Birr 2.15 to the service providers

trained employees who will sort clothes delivered for washing according to their color and fabric texture. The employees will also watch unattended machines for potential theft of clothing. All these would assist the business to win the confidence of its customers more quickly.

2.7. Marketing Costs.

As mentioned previously under section 2.6.2, the business has to perform some marketing activities in the areas of promotion & advertisement to convince students to be customers.

The costs involved in this connection will be the printing costs of brochures/flyers that will be distributed to the students to inform about the service. These marketing costs are planned to be incurred uniformly throughout the project life on yearly basis.

The total marketing cost expected in the first year is therefore as follows.

Table 2.6. Expected Marketing Cost

Total number of flyers/brochures required	Pieces	10000
Printing cost for colored flyers per unit	Birr	0.12
Total Marketing Costs	Birr	1,200.00

Source: Market Survey, 2007

2.8. Sales Projection.

The total expected sales of the project is determined by considering the current expected demand, a reasonable growth of demand every year and the capacity of the machines to be installed and the price per kilogram for the service.

Table 2.7 Sales Projections for First Year

A	Expected demand in a year (Refer section 2.4)	Kg.	294179.00
B	Projected capacity of 9 washers (Refer section 5.3.1)	Kg.	432000.00
C	Price per kilogram (Refer section 2.6.1)	Birr	2.00
D	Total sales for first year (A x C)	Birr	588,358.68

Source: Market, and Engineering & Technology Studies, 2007

Considering the increase in student population every year, which is about 15%, and the additional customers that will be attracted to the service form existing non-users, a reasonable sales growth of 10% is assumed.

The total annual expected sales of the project for the coming five years is therefore as shown below

Table 2.8 Sales Projections for Five Years

Year	**Total Weight in Kg.**	**Price/Kg.**	**Total Sales (Birr)**
2007/08	294179.00	2.00	588,358.68
2008/09	323596.90	2.00	647,193.80
2009/10	355956.59	2.00	711,913.18
2010/11	391552.25	2.00	783,104.50
2011/12	430707.47	2.00	861,414.94

Source: Market Study, 2007

CHAPTER 3- RAW MATERIALS AND SUPPLIES

The proposed business does not involve the transformation of physical raw materials to physical outputs. Accordingly, there are no specific raw materials that must be identified and held for further processing. However, the project still needs some supplies in order to deliver its much needed services to the student community.

The supply items that the project requires include detergents, electricity, water and telephone.

3.1. Detergents

In coin operated laundry business the users normally come with their own detergents of an approved type. However, the laundry shop may also hold various sizes of detergents for sale to those customers who do not go with their own detergents.

In the case of the Addis Ababa University laundry/washing machine service project, detergents of different size shall be held in stock for sale to students as per their requirements. The detergents must however be sold to the students at cost.

Industry reports show that on average one wash cycle for 20 kilograms of clothes consumes five medium size (200grams[9]) powder soap which costs around E Br 2.50.

The operational plan of the laundry facility shows that a machine will work about 8 cycles in a given day. The total powder soap that will be used by one machine in a day will therefore be forty (40) medium sized packets.

The laundry/washing service facility may hold stocks of powder soap just enough for one month. The total powder soap requirement given the current capacity will therefore be 40 packets x 30 days x 2.5 per packet x 9 machines, which is about Birr 27,000.00 worth of detergents for nine (9) washing machines.

[9] Coin-Operated Laundry Association of America, www.claa.org

3.2. Electricity Supply

The washing & dryer machines to be installed are electric power driven. The rate of electric power consumption of washing and drying machines may slightly vary from one to an other machine.

The machines which are supplied by OMEDAD PIC & which are selected as the only heavy-duty commercial/industrial coin machines in the country have a consumption rate of 12.5 KWH

The machines require a 230/30/50-60 electrical system which is available and supplied by the Ethiopian Electric Power Corporation. The corporation charges Birr 9,000.00 for installing kilowatt-hour meters.

The operation program (see section 5.3.1) of this project indicates that the machines will operate for 8 hours in a day.

The total energy consumed by the washing and dryer machines will be 12.5 times the total number of hours of operation, which is shown below.

Table 3.1 Electricity Consumption of the Project

Electricity consumption of one machine	KWH	12.5
Number of hours that a machine operates in a day	Hours	8
Total Number of Machines Washers Dryers	Units	 9 3
Total Electricity consumed per day	KW	1200
Total Electricity consumption per year	KW	360000

Source: Engineering & Technology Study, 2007

At the current rate of the Ethiopian Electric Power Corporation the total expense for this category will be 360000 x 0.69[10] Birr, which is Birr 248,400.00 per year

3.3. Water Supply

The washing machines have to be connected to a continuous pipe water system. The machines will automatically regulate the flow and disposal of the water.

The water consumption rate of the selected machines is 200 litres at rated capacity for one standard load of 20 kilograms of clothes.

The water supplier is the Addis Ababa City Water and Sewerage Authority (AAWSA) and initially charges Birr 5,000.00 for water meters and related accessories.

The total estimated annual expense for water is determined as follows.

Table 3.2 Water Consumption of the Project

A	Water consumption for one full load per machine (Refer section 5.1.2)	Litres	200
B	Number of cycles /loads that a machine operates/day	Cycle	8
C	Number of cycles/ standard full loads in a year by one machine [11]	Cycle	2400
D	Total number of machines (Refer section 5.3.1)	Pieces	9
E	Total consumption in a year (A x C x D)	Litres	4320000
F	Rate per litre charged by AAWSA	Birr	0.0035
G	Total Expense in a year (E x F)	Birr	15,120.00

Source: Engineering & Technology Study, 2007

[10] Tariff charged by Ethiopian Electric Power Corporation for Business Customers
[11] Number of Cycles in a day multiplied by total number of operation days (300 days)

3.4. Telephone Facility

Two fixed telephone lines are required in the laundry room to facilitate the delivery of the service.

The telephone lines are to be obtained from the Ethiopian Telecommunication Corporation. The Corporation charges a one time subscription fee of Birr 300.00 per line. The total one time subscription fee for two lines will therefore be Birr 600.00

The monthly expense for telephone is estimated to be 150 per month, which makes the annual expense as Birr 1,800.00.

CHAPTER 4- LOCATION, SITE AND ENVIRONMENT

4.1. Location and Site

Proximity to customers is one of the main factors which influence the choice of location for a project.

The proposed project focuses on solving the problems of students residing in the main campus of Addis Ababa University. The project could therefore be located either within the premises of the University or in the surrounding areas of the university campus.

The students who are going to be the important customers of the project should have an easy access to the service.

The selection of a particular site also considers the convenience of the laundry shop to the students. The project aims to attract as many students as possible to the service. This goal of the project would best be achieved if the laundry/washing machine service facility is installed in a convenient site within the premises of the University.

The physical plant development office of the University has recommended the open space near the residence block of foreign students (Block 505 in the site plan) as a suitable site for the project. This spot recommended by the officers of the physical plant development office of the University is shown in the site plan of the main campus shown in appendix 3.

Another alternative site that might be considered is the space around “Debab Park”. This however requires a separate negotiation with the city administration and might require a huge initial capital for buildings & other infrastructure.

I have observed from my discussion with some officers of the University that they consider the project as important and are optimistic that the University Administration would render all the

required cooperation. I have, therefore, selected the spot recommended by the physical plant development office of the University as the site of the project.

4.2. Environment

The project is an environmentally safe project. The machines are operated by electric power and do not produce any toxic waste that would pollute the surrounding environment. The soap and wastewater will be automatically dispended to a proper sewerage system.

In addition, the installation of the service in the University would positively contribute in the reduction of waste & pollution around the dormitories of students. The compartments currently used by students are polluted by wastewater flowing out of the washing facilities. This situation would significantly improve when a substantial number of students move to using the laundry/washing machine facility.

CHAPTER 5 - ENGINEERING AND TECHNOLOGY

This part of the feasibility study covers items which take a substantial amount of total investment to be made in the project.

The technology to be used, the building and other civil works requirements, and the capacity and operations programmes of the project are included under this report

5.1 Technology Selection

The proposed project aims at substituting the current manual wash facility available in the university with a modern laundry/ washing machine service.

The project therefore requires a line of washing machines and dryers and other auxiliary equipment.

I have conducted a field survey of available washing and drier machines and have found those imported by OMEDAD PIC appropriate for the project.

The justifications for the selection of these machines are

1. The machines to be installed must operate for long hours with out breakdown & failure. Coin operated machines manufactured for commercial/industrial use are suitable for this purpose than machines manufactured for home use. The following companies were contacted to provide their offers for heavy-duty washing machines.

    Addis Fana Sc
    BT Red PLC
    Glorious PLC
    Ethiopian Electronics Plc
    OMEDAD PLC

The company that has the required items in stock is OMEDAD Plc. only. I have however compared the prices of similar machines in the Internet and found the offer of OMEDAD to be fair and competitive.

2. The utility (water & electricity) consumption of the washing machines reduces as the load of clothes that a machine can take increases. This would in turn help the operators of the laundry/washing machine service facility to reduce the price per kilogram charged to customers. The machines to be installed should as much as possible be heavy-duty machines with high load capacity. Currently OMEDAD has machines that take 20 kilograms for washing and 15 kilograms for drying. Considering the total weight of clothes that a student may have, the operator must encourage the students to come in groups so that the total weight of clothes in one load will be equal to the standard recommended by the manufacturer.

   The manufacturer recommends a load of at least 80% of rated capacity for proper performance & use of the machines for long time.

3. Omedad PLC gives one year warranty for the machines and has also adequate supply of necessary spare parts. The company also has trained technical staff & well-organized workshop to handle installation & maintenance of the machines.

4. The company also pledges to give adequate training free of charge to workers of the laundry service facility so that they can operate the machines safely

5.1.2. Descriptions of the Machines

The machines to be installed are the following

Supplier	OMEDAD Plc.
Brand	Grandimpianti (Italy)
Nature	Heavy duty coin operated machines
Capacity	
Washers	20 Kilograms
Dryers	15 Kilograms
Electricity Consumption	12.5 KWH
Water Consumption	200 Litres per load (cycle)
Water Inlet	Pressure
Warranty	1 Year
Coins Supplied	15 per machine
Installation	Free of charge
Price for one machine	
Washers	Birr 94,000.00
Dryers	Birr 46,000.00

Source: Market Survey & Operating Manual of Various Washing Machines, 2007

Figure 5.1. Coin-Operated Washing and Drying Machines Proposed for the Project Based on Capacity, Technical Support, and Availability of Machines in The Market.

5.1.3. Auxiliary Equipment

The project also requires auxiliary tools and equipment. The following is the list of auxiliary equipment required in the project.

Table 5.1 List of Auxiliary Equipment

Description	Number	Cost/unit	Total
Fire Extinguishers	2	650.00	1,300.00
Scale	1	35.00	35.00
Fan	3	250.00	750.00
Trolley	3	100.00	300.00

Source: Engineering & Technology Study, 2007

5.1.4 Office Furniture and Equipment

Furniture and equipment are also required in the laundry/washing service room for proper delivery of the service. The following items are initially required.

Table 6.2 List of Office Furniture & Equipment

Description	Number	Cost/unit	Total
Table (Office)	3	500.00	1,500.00
Chair (Office)	3	300.00	900.00
Folding Table	2	700.00	1,400.00
Guest Chairs	10	100.00	1,000.00
Computer with Printer	1	5,000.00	5,000.00
Miscellaneous		500.00	500.00

Source: Engineering & Technology Study, 2007

5.2. Building and Civil Works

The laundry/washing machines must be permanently installed in a flat-cemented area. The building must be ventilated & room temperature must be kept between 10^0c and 40^0c. Building constructed with hollow cement block (HCB) is ideal for the project. The eclectic power & water supply system shall also be performed simultaneously as per standards. The machinery will be arranged in such away that there is enough space for equipment, for working, for passage & equipment servicing, and for adequate ventilation. The average space requirement of the building used for such service is about 92.9[12] square meters (M^2).

At the current construction cost rate of Birr 1250[13] per square meter, the total amount required for building & other civil works of the project will be about Birr 116,125.00.

[12] Recommended by The Technicians of OMEDAD Plc.
[13] Ethiopian Contractors Association

5.3. Capacity and Operation Process

5.3.1. Capacity

The project aims at giving efficient laundry/washing machine service to the community of Addis Ababa University. It must therefore have the required capacity to satisfy the huge potential demand. The manufacturer and the local distributors of the machines advise that the machines should be operated for not more than 8-10 hours in a day. Hence, this study assumes that the laundry facility will operate a normal working day of 8 hours. The proposed capacity of the project is as shown below

Table 5.3. Project Capacity

Working hours per shift	8 hours
Number of shifts in a day	1 shift
Working days per annum	300 days
Weight of clothes washed & dried per load	20 Kilograms
Hours required per load	45 minutes
Cleaning time between processes	15 minutes
Total hour used per load	1.00 hour
Number of loads per shift in one machine	8 loads
Maximum weight of clothes washed & dried/day	8 x 20 =160 Kgs
Total demand expected per day in kilograms[14]	1396.20
Number of washing machines required to meet demand [15]	9 units
Total weight of clothes washed & dried in a year on 9 machines	160 x 9 x 300 = 432000 Kgs.

Source: Market, and Engineering & Technology Studies, 2007

[14] Total number of students multiplied by average frequency multiplied by average weight of clothes washed by a student divided by number of days in a month (30) i.e. (5370 x 3.01 x 2.6) /30

[15] Daily demand divided by daily full load wash capacity of one machine (160 kgs) rounded to the next whole number

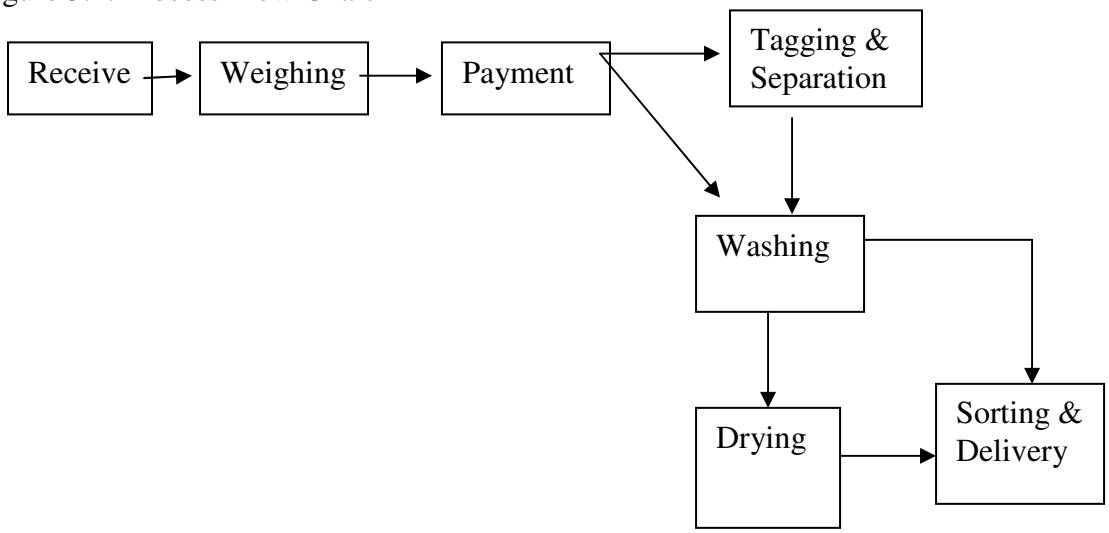
Regarding the number of dryers required in the facility, industry reports show that one dryer can handle two wash loads and at the same time takes only one third of the time that a washer takes for one load. A professional advise obtained from OMEDAD plc also stresses this point and recommended the installation of three 15-kilogram dryers to handle the wash loads of the nine washing machines.

5.3.2. Operation/Washing Process

The washing service involves a sequence of flow of separate activities. In the washing process, powder soap is added to the machine and the machine rotates clothes in a manner similar to domestic washing machine to remove dirt, oil and stains. Once clean, the clothes are then transferred to a dryer.

The following chart shows the whole processes involved in laundry/washing machine service.

Figure 5.1. Process Flow Chart

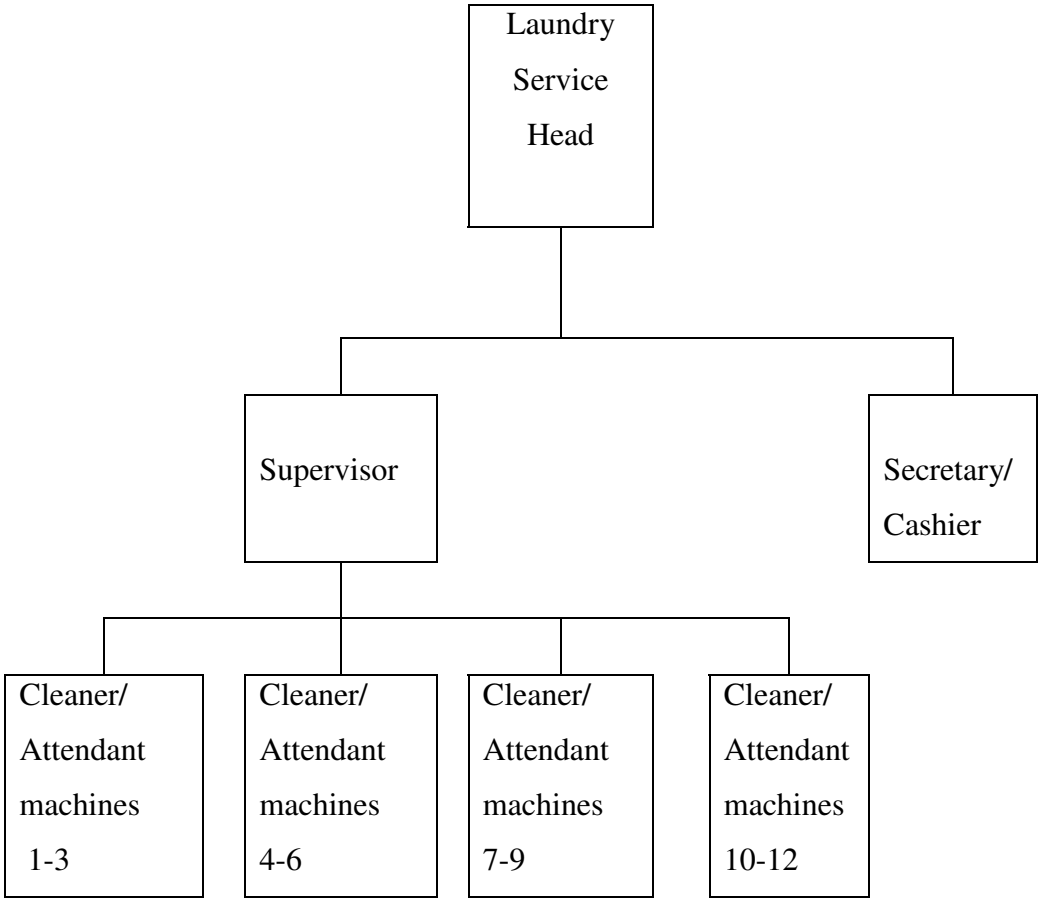


a) Receive- The laundry shop receives the clothes of the students
b) Weighing- The weights of the clothes of the customers are measured to determine what the customer should pay.
c) Payment- The customer pays the amount determined and presents the receipt to the attendants.
d) Tagging- the clothes of each customer are tagged with a specific number to facilitate identification & delivery after washed and dried. The clothes will also be separated as per color & fabric texture to avoid damages.
e) Washing- The clothes will then be washed using powder soap
f) Drying- The washed clothes will be manually transferred to a dryer machine.
g) Sorting & Delivery- The clothes are sorted as per the tag number previously assigned and then delivered to the customer.

CHAPTER 6- ORGANIZATION AND OVERHEADS

The final organizational structure of the proposed project depends on the management style and control techniques of the investor in the business. Assuming that the Addis Ababa University administration is interested to run the project incorporating it under its organizational setup, a structure for this particular division is recommended as follows.

Figure 6.1 Proposed Organizational Chart



The overheads of the laundry/washing machine service facility include insurance charges, depreciation expense amortization expense and repair and maintenance charges.

The estimated overhead expenses for this project are

- Amortization - Birr 3,500.00
- Depreciation - Birr 108,703.00
- Insurance - (0.2 % on Property Value)
- Repair & Maintenance - (1% of fixed investment cost)

CHAPTER 7- HUMAN RESOURCES

The Coin- operated laundry business is usually run as a self service business in most countries abroad and no manpower might be required. However, in our case, the project is planned to be staffed with key essential personnel to ensure proper handling of the machines, protect theft of clothes and misuse of facility, and to provide efficient continued service.

The proposed manpower requirement of the project is as follows

Table 7.1. Manpower & Salary Schedule

Position	**Number**	**Monthly Salary**	**Annual Salary**
Laundry Service Head	1	650.00	7,800.00
Shift Supervisor	1	450.00	5,400.00
Secretary/Cashier	1	450.00	5,400.00
Cleaner/Attendant	4	300.00	3,600.00
Total	**7**	**1,850.00**	**22,200.00**

Source: Market/Field Survey on Laundry Staffing, 2007

CHAPTER 8- IMPLEMENTATION PLANNING AND BUDGETING

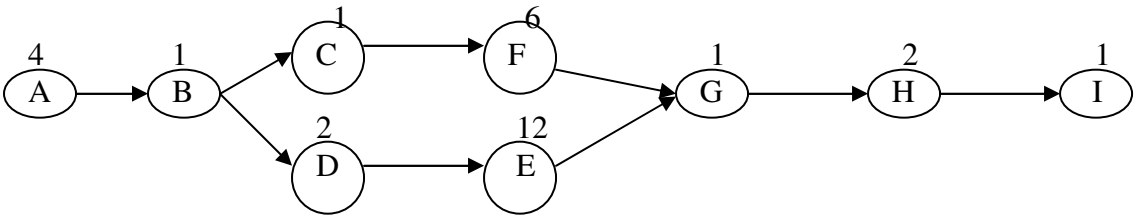
Implementation of the project requires the commitment of financial and time resources. The major activities of the project which involve a clearly identifiable finance & time resource are listed below. The time schedule is determined by being optimistic on the various conditions affecting implementation. In addition, the figures are estimated figures and variations may arise during actual implementation.

Table 8.1 Activity Breakdowns for Implementation

Major Activity	Preceding Activities	Required time in weeks
A-Approval of Project by University Management	-	4 weeks
B-Appointment of Project Implementation Team	A	1 week
C-Completion of Legal Procedures	B	1 week
D-Acquisition of Land	B	2 weeks
E-Construction of Civil Works	D	12 weeks
F-Purchase of Machinery	C	6 weeks
G-Installation of Machinery	E, F	1 week
H-Recruitment of Employees	G	2 week
I-Commissioning of the Machinery	H	1 week

Source: Engineering and Human Resources Studies, 2007

The activities of the project using a network model are presented as follows



The above network shows that implementation will take about 23 weeks.

Regarding the financial budget requirements of the implementation phase, the major cost items included are

- Architects & survey fee	Birr 5,000.00
- Stationary	500.00
- Other documentation expense	1,000.00
Total	Birr 6,000.00

CHAPTER 9- FINANCIAL ANALYSIS AND INVESTMENT APPRAISAL

This chapter of the feasibility study will focus on summarizing and evaluating the financial aspects of the project. The evaluations in this chapter will help the potential investors of the project to make objective investment decisions.

9.1 Analysis of Cost Estimates

The major cost items involved in this project are described in the topics from chapter one to nine of this feasibility study report. The summary of these items is presented below for easy reference and visualization of the situation.

9.1.1 Fixed Investment Cost

The fixed investment of the project includes the following items

Table 9.1 Fixed Investment Cost Schedule

Description	Amount In Birr
Building & Civil Works	116,125
Machinery Equipment	998,000.00
Auxiliary Equipment	2,835.00
Office Furniture	6,400.00
Computer & Accessories	5,000.00
Total	1,128,360.00

Source: Engineering & Technology Study, 2007

9.1.2 Pre-Operation Expenditures

This group includes all items that are incurred prior to commercial operation of the project. The items included in this cost category are the following

Table 9.2 Pre-Operation Expenditure Schedule

Description	Amount In Birr
Feasibility Study Cost	11,000.00
Architects & Survey Fee	5,000.00
Other Project planning costs	1,500.00
Total	17,500.00

Source: Result of The Project Proposal and Implementation Studies of The Project, 2007

9.1.3 Fixed Assets

The fixed assets of the project will be the sum of fixed investment costs and pre-operation expenditures described above

Table 9.3. Fixed Asset Schedule

Description	Amount In Birr
Fixed Investment Costs	1,128,360.00
Pre-Operation Expenditures	17,500.00
Total	1,145,860.00

Source: Engineering & Technology, Implementation Study, and Feasibility Study Costs, 2007

9.1.4 Inventory

The only inventory item the project requires to hold in stock is some amount of detergent that will be sold to customers at cost. The total amount of detergent required as

determined in the operation plan of the project is Birr 27,000.00, which is just enough for one month when the project operates at full capacity.

9.1.5 Accounts Receivable and Accounts Payable

The laundry/washing machine service facility provides service to customers who pay the prices determined as per the total weight of clothes in cash. Therefore there will not be any accounts receivable entry in the statements of the business. Regarding accounts payable, the business has to pay salaries and utilities at the end of every month. These cost items can be covered from the revenue of the business. However, the expenses for the first month are included in the working capital requirement of the project which has to be provided by the investor. The account payable amount when the project operates at full capacity will therefore be as follows

Table 9.4 Accounts Payable Schedule

Description	**Amount in Birr**
Wages	1,850.00
Water Charges	1,260.00
Electricity Charges	20,700.00
Telephone Expense	150.00

Source: Material Requirement Study, 2007

9.1.6 Net Working Capital

As mentioned above, the project does not require huge working capital to start its operation. However, sufficient funds which can cover the following cost items must be

available until the business is able to finance from its own revenue. This time is assumed to be the first month of operation.

The working capital requirement of the project is therefore for those items which must be paid during/or at the end of the first month of operation.

Table 9.5 Net Working Capital Schedule

Description	Amount In Birr
Detergents Cost	27,000.00
Office Supplies	1,000.00
Prepaid Insurance	2,260.00
Marketing Costs	1,200.00
Cash In hand (5% of total of other Working capital)	2,500.00
Payment For Salaries	(1,850.00)
Payment For Utilities	(22,110.00)
Net Working Capital Required	10,000.00

Source: Marketing, Material Requirement, and Engineering & Technology Studies, 2007

9.1.7 Total Investment Costs

The Total Investment cost of this project will be the sum of fixed assets and net working capital of the project. This cost item is a summary of all of the above individual cost items and is also termed as total project cost

Table 9.6 Total Investment Schedule

Description		Amount In Birr
Fixed Investment Costs	1,128,360.00	
Pre-Operation Expenditures	17,500.00	
Fixed Assets		1,145,860.00
Net Working capital		10,000.00
Total Project Cost		1,155,860.00

Source: Refer Tables 9.1 to 9.5

9.2 Production Costs

Production costs are those types of cost that are incurred by the business once it is in operation. Production costs are normally dived in to four major categories:[16]Factory Costs (Direct Operating Costs), Administrative Overheads, Depreciation Costs and Financial Costs.

The production costs of the current project are as follows

9.2.1 Direct Operating Costs

Direct operating costs include material (utilities) and labor costs required for the operation process of the business. The estimated direct operating costs of the project when it operates at full capacity are as follows

[16] UNIDO manual for feasibility Studies Pp. 268

Table 9.7 Direct Operating Cost Schedule

Electricity Costs	248,400.00
Water Costs	15,120.00
Telephone Costs	1,800.00
Labor	22,200.00
Total	287,520.00

Source: Marketing, and Engineering & Technology Studies, 2007

9.2.2 Administrative Overheads

The most important cost items included in administrative overheads are insurance charges, repair and maintenance costs and office supplies

Table 9.8 Administrative Overheads Cost Schedule

Insurance Charges	2,260.00
Repair & Maintenance	11,284.00
Office Supplies	1,000.00
Total	14,544.00

Source: Organization and Overheads Study, 2007

9.2.3 Financial Costs

The project is assumed to be financed with 100% equity contribution. There are many reasons for this assumption

1) The project aims at giving a basic service which most universities must avail to their students. The officers of Addis Ababa University have a positive attitude to the availability of this service and are willing to see the possibilities of financing the project

2) The Credit Union of the University staff which provides many services to the community at discounted prices may be interested to venture from its own funds.
3) Private business organizations or individuals may be interested in the business and may require some amount of loan from banks. However, since the site is selected to be within the premises of the main campus, it will be difficult for entities outside the university to operate a business within the university.

9.2.4 Depreciation Costs

The total project cost has to be depreciated or amortized as per applicable laws. The depreciation costs of the project are determined as per the following assumption

- Buildings & Civil Works will be depreciated over a 20-year period
- Machinery and Auxiliary Equipment are depreciated over a 10-year period
- Office Furniture and Equipment are depreciated over a 5-year period
- Computers are depreciated over a 4-year period
- Pre-Operation expenditures are amortized over a 10-year period

The total depreciation and amortization cost of the project is as follows.

Table 9.9 Depreciation Cost Schedule

Description	Total	Annual Depreciation
Building & Civil Works	116,125.00	5,806.25
Machinery & Accessories	998,000.00	99,800.00
Auxiliary Equipment	2,835.00	567.00
Office Furniture	6,400.00	1,280.00
Computers	5,000.00	1,250.00
Pre-Operation Expenditures	17,500.00	3,500.00

Source: Determined by applying the depreciation rules on various costs stated under section 9.1.1

9.2.5 Marketing Costs

The investor in the project has to do a proper marketing job in the first year of its operation. The cost will be incurred every year throughout the life of the project although not in a direct marketing sense. The rationale for this expenditure after the first year is that the materials will be used as teaching aids about the use of and care for the facility. The amount involved as determined under section 2.7.4 is Birr 1,200.00

9.3. Financial Statements

The basic financial statements of the project for the next five years i.e. Projected Income Statement, Projected Balance Sheet and Projected Cash Flow Statement are presented in the appendix. (Refer Appendix 2.1- 2.3 for the proforma financial statements of the project.)

9.4 Investment Appraisal

As far as the investor in a business is concerned, the investment criterion overruling all other project related business objectives is the financial feasibility of an investment project. This means that the financial return on total invested capital must be sufficiently high. Although sufficient returns are essential for a project to be approved, investments must be justified usually within a wider context, which for investors and financiers include any gains, whether net profits or non-cash benefits, resulting directly or indirectly from an investment. In the case of this project, since the financing plan is not sophisticated, the following appraisal methods are almost sufficient to guide the final decision of pursuing on the project or not.

9.4.1 Net Present Value (NPV).

The net present value of a project is the value obtained by discounting, at a constant interest rate and separately for each year, the differences of all annual cash outflows and inflows accruing through out the life of the project. The general rule is that projects with positive net present value are acceptable. The net present value of this particular project discounted at 7.5% is Birr 2,207,108.19 as shown in appendix 2.4. The figure for this project is positive which indicates that the project is worth investing.

9.4.2 Internal Rate of Return (IRR)

The internal rate of return is the discount rate at which the present value of cash inflows is equal to the present value of cash outflows. It is the discount rate at which the present value of the net receipts from the project is equal to the present value of the investment, and the net present value is zero at this point. The usual criterion is that an investment proposal may be accepted if the internal rate of return is greater than the cut-off rate (the cost of capital plus any margin for risk), which is the lowest acceptable interest rate for the invested capital. The cut-off rate applied in this project is 7.5% which is the interest rate paid by commercial banks for large sums of money in time deposits. Using this criterion the project under study is acceptable since it has an internal rate of return of 39%. (The information is shown under appendix 2.4)

9.4.3 Payback Period.

The payback period is the length of time that a business will take to recover the original investment outlay through the accumulated net cash flows. The payback period of this project is shown under appendix 2.4. The project takes less than three years to pay off all

the total outlay. The time required is so short which implies that the project is an acceptable investment.

9.5 Sensitivity Analysis.

The effect of changes in the most important variables namely changes in the price to be charged per kilogram of clothes washed and dried, and changes in the major cost items (cost of electricity and water) on net cash returns is shown under appendix 2.5. The purpose of this analysis is to see if the project is still worth investing if prices are revised down to accommodate more students and at the same time if the cost of the major inputs is increased by the providers of the service. This situation is analyzed based on the following assumptions.

1) Price is assumed to be reduced by 25% to be Birr 1.50 per kilogram
2) The charge per kilowatt-hour of electricity is assumed to be increased by 10% on various levels.
3) The charge on water is assumed to increase at 5% since we are already at the maximum charge recommended by the water and sewerage authority.
4) The effect of these changes is analyzed when the project operates at full capacity. The effect of such a major change has to be seen in light of long-term consequences of the changes, which in this case happens when the project operates at full capacity.

The investment decision criteria that are used to evaluate the project indicate that the project is still acceptable with changes in the variables that have huge financial impact. Refer appendix 2.5 for specific figures and values.

CHAPTER 10- CONCLUSION AND RECOMMENDATIONS

10.1 Conclusion

The arrangement of laundry/washing machine services by universities is believed to contribute highly to the achievement of their mission. Addis Ababa University has not so far arranged this facility to the students and staff in any of its campuses. The absence of such facility has affected the students in particular since they have to allocate part of their active time to wash their clothes in the current manual facility which is time taking, tiresome, and inefficient. The majority of the students of the main campus have asserted the importance of the installation of laundry/washing machine facility by stating that the issue is now becoming a health concern in addition to the usual problems outlined previously. The student population of the university is growing every year increasing the pressure on the current system and aggravating the problems.

This feasibility study report has investigated the possibilities of installing a laundry/washing machine service facility in the main campus of the university. The study has assessed the marketing aspects, the technological aspects, the resource requirements, the organization and management aspects of the project, and the financial commitments and rewards of the project. The project has been evaluated in terms of the return that it generates to the investor, the present value of the future cash flows of the project expected throughout the project life and the number of years that the project takes to pay back all the initial investment made on the project. The project is found acceptable by all of the above evaluation criteria. The impact of changes on the project has also been assessed and the project is still feasible using the above appraisal methods.

10.2 Recommendations

Laundry/washing machine service is one of the services that students and other university community members would like to get nearby their campuses. This situation is particularly recognized by many universities abroad and it is rare to find universities without these facilities. In the case of our country, the management of the various universities consider these facilities as secondary and they give priorities to other areas such as expansion of additional residence blocks, class rooms, library facilities and the like. The importance of the above services cannot be doubted. Nevertheless, with the growing number of the university community, the need for laundry/washing machine service should also not be undermined. Addis Ababa University is not an exception for this. The problem in connection with washing of clothes is becoming more severe in Addis Ababa University with the increase in the number of students, and is now the time to start the facility on a business context. The objective of this study was to assess the feasibility of installing a laundry/washing machine service in the main campus of Addis Ababa University in business context and has been found that it is feasible to start such business.

The following points are recommended to the university management in connection with this project

1. The university management should consider the service as basic and must render all the required assistance for the implementation of the project
2. The university is specifically recommended to invest in the project since the revenue generated from the business helps the university to cover part of its expenses from its own sources

3. After implementation of the project, proper care and maintenance shall be given to the machines to ensure the continued availability of the service
4. The university management may discuss with the Credit Association of the University on ways of financing the initial investment.

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Appendices

Appendix 1. Assumptions

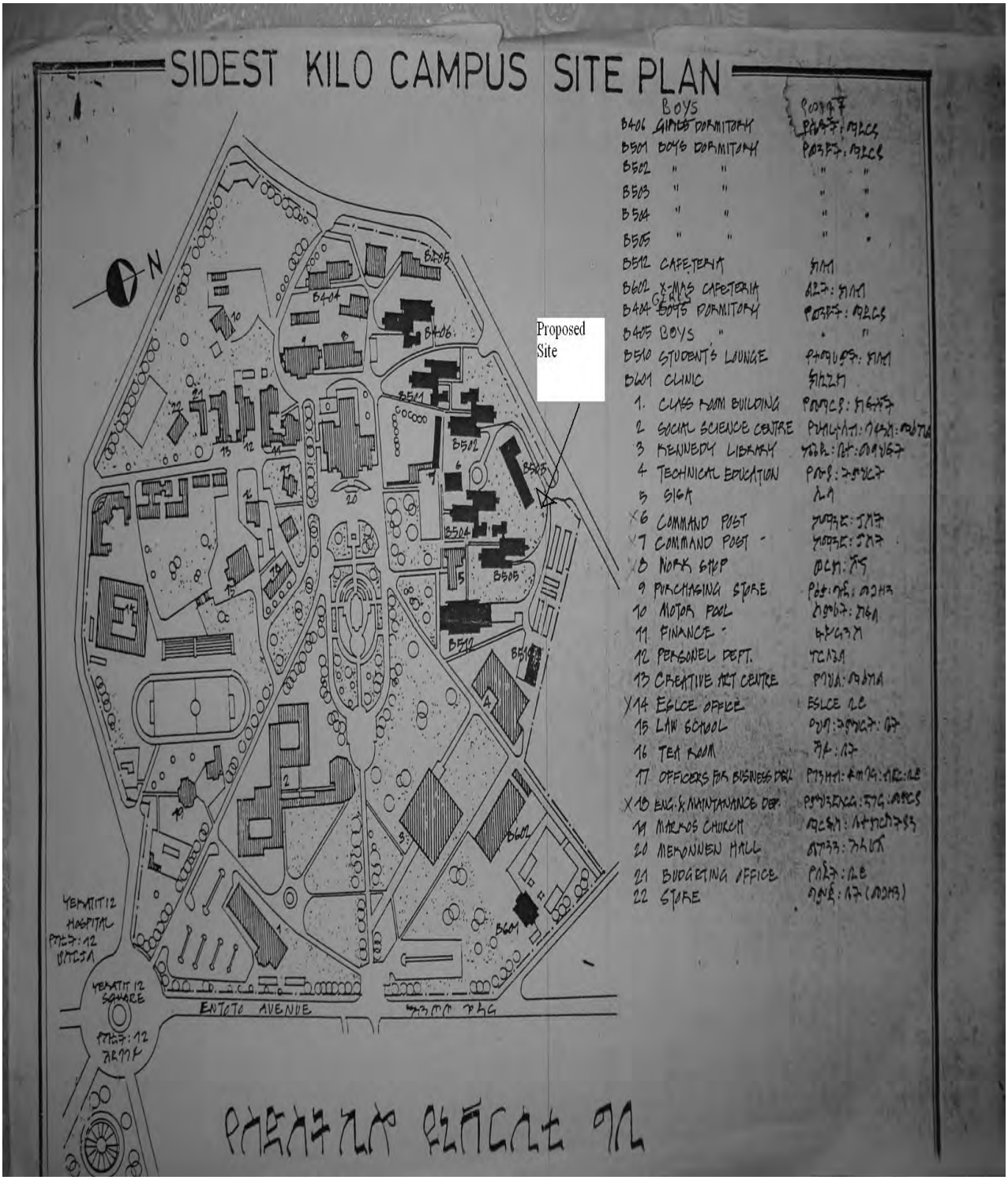
1.1 Operating Assumptions

- Days operational per year are assumed to be 300 i.e. 10 academic months of 30 days each
- The effect of revenue from staff of the university and summer students is assumed to be insignificant to affect decision of the project and is left out from the study
- Clothes delivered for washing are assumed to be dried using the services of the facility. However customers might be encouraged to sun dry some of their clothes. The reduction in revenue of this action is much less than the cost saved and hence has no effect on final decision of accepting or rejecting this project

1.2 Financial Assumptions

- The project is assumed to be financed by 100% equity contribution
- The expected life of the machinery and hence the project life is taken to be 10 years (Industry Norm)
- Tax provisions are left out since the facility will be installed to provide services to the student community. Business activities of the University are currently tax-exempt.
- Sales/ Revenue is expected to grow at a rate of 10% per year. Variable costs will also grow proportionately. Unit variable costs are assumed to remain stable.
- Land is assumed to be provided free by the University.
- The manner of profit appropriation and drawings are assumed to be decided by the management after evaluating the actual prevailing situation.

Appendix 3 Site Plan of the Main Campus



Appendix 4. Glossary of Key Terms

Coin Operated Machine	Machine which operates when coin of the approved type is inserted in it
Extrapolation	Estimate something unknown from facts that are already known or established (determine the values of a variable approximately from known values or measurements)
Feasibility	Satisfying the commercial, technical, financial, economic, and environmental prerequisites for an investment project
Internal Rate of Return	The discount rate that equates the present value of the project's cash inflows to the present value of the project's costs
Non-Resident Students	Students who do not get dormitory and other related services inside the premises of their universities
Net Present Value	The sum of all future cash flows of the project (both inflows and outflows) discounted at the project's cost of capital
On-campus Students	Students who live in dormitories provided by the university inside the premises of the university
Payback Period	The expected number of years that that a project takes to pay back the initial investment cost
Resident Students	Students who reside in dormitories provided by their university inside the premises of the university
Wash Cycle	The time taken by a machine to wash one wash load
Wash Load	The amount of clothes in kilograms that a machines can take at anyone time for washing

Appendix 5. Questionnaire

Addis Ababa University

Faculty of Business & Economics

MBA Program

This questionnaire is distributed to gather information to study the economic feasibility of installing laundry/washing machine service on your campus. The laundry/washing service machines will be modern and easy to use equipment having a fully automatic washer and automatic dryer of clothes. The user is expected to provide his/her own detergents and will also pay a reasonable fee for the services determined based on the weights (in kilograms) of the clothes to be washed and dried. You are kindly requested to complete this form with due care and diligence and return it back as soon as possible.

Please also note that the project under study is not the same as the dry cleaning business that you know in town which is much expensive and unaffordable to university students.

You do not need to write your name.

Thank you,

1) Personal Information

Gender ( ) Male ( ) Female

Age Class Year

2) Are you an on campus student?

a) Yes

b) No

3) How do you get your clothes washed?

a) I Manually wash in campus facility

b) I take home for washing

c) I Hire janitors to wash my clothes

d) I use other means (Please Specify)

4) How often do you think students wash their clothes?

a) Every week

b) Every 2 weeks

c) Every 3 weeks

d) Every month

e) Other (Specify)

5) How do you evaluate the current facility for washing clothes?

a) Very Poor

b) Poor

c) Fair

d) Good

e) Very Good

6) Do you think washing of your clothes takes some time?

a) Yes

b) No

7) How much of you total time do you allocate for the following activities (in %)

a) Studying

b) Leisure

c) Sleep

d) Washing of clothes

e) Others

8) How much is your total expenditure for detergents/soaps every time you wash clothes?

_____

_____

9) Do you hire the janitors in your residence blocks to wash your clothes?

a) Yes

b) No

10) If the answer to the above question is yes, how much do you pay for the service?

_____

11) Do you wash your clothes in campus?

a) Yes

b) No

12) If your answer to question 11 is no, where do you wash your clothes?

a) At home

b) Laundry

c) Other (please specify)

13) How many units of the following clothes do you wash every time you wash clothes? Please write the quantity of each item in the third column of the following table

Description	Average Weight per unit (KG)	Number of units You wash at a time
Trousers	0.35	
Shirts	0.18	
Jackets/sweater	2.25	
Women's Dresses	0.35	
Bed Sheets	0.35	
Towels	1.00	
Pajamas	0.45	
Others (average)	0.35	

14) Will you be a user, if a laundry machine (an automatic washer and drier) is installed in your campus?

_____

15) How much can you afford to pay at a time for the service?

_____

16) What benefits do you see with the introduction of an automatic laundry system in your campus?

_____

_____

_____

17) What problems do you see with this system?

_____

_____

_____

_____

18) If you have any other comment, please indicate below

_____

_____

_____

_____