Chapter - 1

Introduction
CHAPTER – 1

INTRODUCTION

The objective of the present chapter is to highlight the concepts of cost, costing, cost analysis, depreciation, unit cost and cost benefit analysis as well as to specify objectives, hypothesis, limitations, methodology, summary of major conclusions, implications and conspectus of the study.

1.1 PREAMBLE

The cost of providing various library services is increasing rapidly over the past several years. The increase may be attributed to economic, social and technological factors individually or in combination. This results in greater demand to manage and allocate resources carefully and efficiently (Lahiri and Mahapatra, 1986).

Very few libraries have sufficiently detailed picture of costs for their present operations to support scientific management. This lack of cost picture is due to lack of an adequate control over their costs.

Increase in the collection and services of the academic libraries have put tremendous pressure on their infrastructure. These libraries started with humble beginnings but onslaught of the literature as well as of the users made it necessary to ask for better and increased manpower, methods and money which were not coming forth, commensurate with the objectives set by the library or demands put forth by its users (Misra and Phadke, 1986).
It has been difficult task to convince authorities for allocating required budget to meet its requirements in the absence of any systematic performance oriented proposals.

The key of controlling these resources knows the amount of cost incurred upon each activity and services in the library. That means the cost of each unit of activity or service known as the unit cost needs to be determined and standardized. CBA is a set of procedure to measure the merit of actions in monetary terms. It relates the benefits of service to the cost of providing it (Cohen and Cohen, 1982; Stuart and Moran, 2004).

1.2 PROPOSED RESEARCH

The control of library cost has become important to librarians during recent years due to rapid increase in the costs of providing library services. The causes of this increase are however, manifold economic, social and technological, but one cause that can be recognized is the lack of impetus for development and use of effective cost control methods.

No one in the library profession has to be convinced that the current economic crunch, in which we all find ourselves, warrants new approaches to evaluating and justifying our services. At the macro level the question is what is the value of a library? At the micro level the question is this particular library activity more valuable than that library activity? The most disciplined tradition for exploring these areas is the cost benefit analysis.
Cost benefit analysis is a cost accounting tool which helps to evaluate what each programme will cost in terms of magnitude of service required (Pande and Mithani, 1995; Lancaster and Cleverdon, 1988; Young 1976).

Adequate finance is vital for the satisfactory running of any kind of library. No matter how perfect the system of organization and its management and no matter how efficient and well qualified the staff, the fundamental requirement of really satisfactory service is to operate and maintain the service to an approved standard. Some times, it is easy to get the needed funds but at times it becomes difficult to utilize them in an appropriate manner. The success, smooth running, betterment and expansion of any library depend largely upon the proper use of the funds at its disposal. The CBA study is useful in decision making, comparing the difference in economic cost and economic benefits to society. It is also useful to determine the proper allocation of resources as well as to justify the existence of any activity or unit (Greenwald, 1982).

1.2.1 Statement of Research Title

The research on the topic financial management, cost analysis and cost effectiveness have been covered at Ph. D. level while the research on Cost Benefit Analysis of Text Book Section has been covered at M.L.I.Sc. level which indicates that no research on the topic Costing and Cost Benefit Analysis has been covered, hence the researcher has undertaken the study entitled the “Costing and Cost Benefit Analysis of Academic Libraries”.

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1.3 EXPLANATION OF CONCEPTS

1.3.1 Cost

In general cost is what its costs to do something (Kumar, 2003). Cost refers to expenditure and not the price (Dasgupta, 1994; Shimmon, 1976). It is also an estimate of the value of such expenditure that is to be made in the future or is hypothetical (Pande and Mithani, 1995). It is defined as the total expenditure involved in accomplishing a specific activity, completing audit of work or specific job, or acquiring a specific asset (Wight, 1943; Sidney and Weil, 1978; McCabe, 1982).

1.3.2 Types of Cost

Fixed or non-recurring cost / Capital Expenditure

Fixed cost do not change as the level of output changes regardless of the level of production, within a specified time period fixed costs can not be changed. It includes the cost of building, furniture, equipments, computer and peripherals (Kingma and Sinha, 2002; Kingma, 2005).

1.3.3 Variable / Recurring Cost or Current Expenditure

Variable cost increases or the level of output increases within a given period of time. It includes the manpower cost, i.e. salary of personnel, stationery, electricity and postage (Kingma and Sinha, 2002; Kingma, 2005).

1.3.4 Costing

Costing is the technique and process of ascertaining costs. According to Wheldon, costing is the classifying, recording and appropriate
allocation of expenditure for the determination of costs of products or services and for the presentation of suitably arranged data for purposes of control and guidance of management (Dasgupta, 1994).

1.3.5 Cost Accounting

Cost accounting is a branch of accounting and has been developed due to limitations of financial accounting (Jain and Narang, 1997). It enables an administrator to gauge and record all the constituent elements of cost involved in manufacturing a particular unit of an article or providing a particular service.

It involves the collection of costs for every job, process, service or unit, in order that suitably arranged data may be presented as a guide in the control of an organization.

Cost accounting is a method of accounting which provides for searching out and recording all the elements of cost incurred to attain a purpose to carry on an activity or operations or to complete a unit of work or specific job (Abrol and Sharma, 1996).

1.3.6 Cost Analysis

Cost analysis defines as, breaking down the cost of some operation and reporting on each factor separately an investigation of component parts of a whole and their relations in making up the whole. Cost analysis is also helps to management in the area of planning, policy making, pricing production planning, services for the purpose of profit maximization (Rath, 1988).
1.3.7 Depreciation

Depreciation is the loss of value, through its use or accident, because either they become older or better product replaces them (Groman, 1992). It may be defined as loss (in value or utility of property), not restored by current maintenance which is due to one or more of the forces operating to bring about the ultimate retirement of the property. The forces operating include wear and tear, decay, inadequacy and obsolescence (Patil, 1988).

1.3.8 Unit Cost

Unit cost is the cost of an unit of activity or service (Mishra and Phadke, 1986; Lahiri and Mahapatra, 1986; Graugh and Shrikantaih, 1996). Unit cost is an average cost. It is cost per unit. The unit cost is ascertained by the formula-

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\text{Total cost of production} / \text{Total number of units produced} \quad (\text{Dougherty and Heinritz, 1966}).
\]

1.3.9 Cost Benefit Analysis

Cost benefit analysis attempts to relate the cost of providing some service to the benefits of having the service available (Baliarsingh and Mahapatra, 1986). It is cost accounting tool which helps to evaluate what each programme will cost, in terms of magnitude of service required (Pande and Mithani, 1995; Lancaster and Cleverdon, 1988; Young, 1976).
It is a procedure provides economic information as an aid to decision making aims identifying and comparing the difference in economic cost and economic benefits to society resulting from choosing between alternative decisions or policies (Rout, 1982; Greenwald, 1982; Mane, 1993).

It is a technique of control, used in management to measure effectiveness (Trucker, 1982; Stuart and Moran, 2004). Cost benefit analysis is a set of procedure to measure the merit of actions in monetary terms. It relates the benefits of a service to the cost of providing it (Cohen and Cohen, 1982).

CBA is a cost accounting tool which helps to evaluate what each programme will cost in terms of magnitude of service required. It is a tool for better fiscal control CBA study is one that tries to justify that existence of the activity by demonstrating that the benefits outweigh the costs (Lancaster, 1978; Hu, 1975).

1.4 OBJECTIVES OF THE STUDY

Present study has been undertaken with a view –

1. To analyse the operations/activities involved in different sections of BAMUL.

2. To analyse cost of each activity.

3. To calculate the unit cost of different sections of BAMUL.

4. To survey the use of books.

5. To ascertain the benefits accrued by the library.
1.5 HYPOTHESIS

For the present study following hypothesis were formulated –

1. Library collection is hardly used.

2. More the cost more the use.

3. More the production lesser the unit cost.

4. More the use of library, more the benefits.

1.6 SCOPE AND LIMITATIONS

Present study deals with the determination of different costs and unit cost of the different sections of Dr. Babasaheb Ambedkar Marathwada University Library, Aurangabad, viz. Ordering, Technical, Circulation, Reference, Periodical, Binding, Reprography Section, Reading Hall and Cost Benefit Analysis of BAMUL. The time limit of study is from 2004-05 to 2008-09.

1.7 METHODOLOGY

Present study was conducted with the help of case study method. The case study is “a way of organizing social data for the purpose of viewing social reality. It examines a social unit as whole. The unit may be a person, a family, a social group, a social institution or a community” (Best and Kahn, 2010; Kothari, 2005).

The case study probes deeply and analyzes interactions between the factors that explain present status or that influence change or growth. It is a
longitudinal approach, showing development over a period of time (Best and Kahn, 2010; Verma and Verma 2006; Vaughan, 2009; Carpenter and Vasu, 1978).

1.7.1 Data Collection

The data has been collected for the calculation of unit cost and cost benefit analysis by various methods and records such as observation, interviews.

1.7.1.1 Observations

Observation is the prevailing method of inquiry. To aid in the recording of information gained through observation, a number of devices have been extensively used, such as check lists, rating scales score cards and scaled specimens provide systematic means of summarizing or quantifying data collected by observation or examination. In this study the device checklists have been used to record the data (Best and Kahn, 2010; Kothari, 2005).

1.7.1.1.1 Checklist

The checklist is the simplest device in which the list of items was prepared. This simple “laundry list” device systematizes and facilitates the recording of observations and helps to ensure the consideration of the important aspect of the object or act observed (Best and Kahn, 2010; Kothari, 2005).
1.7.1.2 Interviews

The purpose of interviewing is to find out what is in or on someone else’s mind. Interviews are used to gather information regarding an individual’s experiences and knowledge; his or her opinions, beliefs, and feelings and demographic data. Interview questions can be asked so as to determine past or current information as well as predictions for the future (Best and Kahn, 2010; Verma and Verma 2006; Vaughan, 2009; Carpenter and Vasu, 1978).

By using the above techniques and devices, the data was recorded and collected from the estate section, accounts section, press, and telephone department of Dr. Babasaheb Ambedkar Marathwada University under the headings –

A) Cost to operations/facilities within subsystem.

B) Calculation of Unit Cost of different sections of BAMUL

C) Measuring benefits.

A) Cost to Operations / Facilities within Subsystem

By considering the type of work, weightage given to work as well as experience gained during the investigations and numerous interviews with the librarian and other personnel in the library, an appropriate distribution of the percentage of the total cost was made for each of the activity / operation within each subsystem.
On the basis of these distributed cost the unit cost of each activity has been calculated.

B) Calculation of Unit Cost of Different Sections

The data was classified as –

a) Operations performed in each section.

b) Cost data

c) Allotment of cost data to each subsystem.

a) Operations Performed in Each Subsystem

By observing the work flow in each section, each subsystem has been divided into number of operations. The subsystems include ordering, technical, circulation, reference, periodical, binding, reprography section and reading hall.

The operations within each subsystem are shown in the chapter “Cost Analysis of Different Sections of BAMUL”.

b) Cost Data

It contains various types of cost viz. –

i) Fixed cost

ii) Variable Cost
i) **Fixed Cost**

   It includes the cost of building, furniture, equipment, books, computer and peripherals.

**Building Cost**

   The total area occupied by the library, year of construction and total cost was taken from the estate section of BAMU.

**Furniture and Equipment Cost**

   The list along with the cost of furniture and equipment was taken from the dead stock register of furniture and equipment of the estate section.

**Book Cost**

   The yearwise books and periodicals cost was taken from the annual accounts of BAMU from 1958 to 2009.

ii) **Variable Cost**

   It includes salary of personnel, cost of stationery, electricity, postage, binding, telephone bills, maintenance and contingencies.

**Salary of Personnel**

   The salary of personnel was taken from the salary unit of BAMU.

**Stationery**

   The cost of stationery was taken from the press, central stores of BAMU and provision watch register of the library.
Electricity

The cost data of electricity bills paid was taken from the estate section of BAMU.

Postage

The postage cost required was taken from the annual accounts from 2004-05 to 2008-09 of BAMU.

Telephone Bill

The telephone bills paid for 2004-05 to 2008-09 was taken from the telephone section of BAMU.

c) Allotment of Cost Data to each Subsystem

The cost was allotted to each subsystem according to their percentage.

C) Measuring Benefits

a) From Book Use

To calculate the cost benefit from the book use of the library, the sample from 2004-05 to 2008-09 were considered. The cards for each book purchased during these years were prepared.

The data about Accession number, Author, Title and Price of the book was noted from the accession register.

By using author and / or title, the call numbers of each book was noted from the catalogue to know the location of the book in the stack and specifically on book rack.
With the help of the call number, the books on racks were located. The use of each book were noted from the book card and recorded on the backside of the card prepared year wise.

b) By Comparing Alternative Benefit Measurements in Monetary Values

The study was based on “If the BAMUL did not existed?” The alternative selected was Jaykar Library, Pune. By Comparing the costs required to get information from both libraries were collected.

1.7.2 Data Analysis

The collected data has been analysed and interpreted under following headings –

A) Unit cost of different sections of BAMUL.

B) Cost Benefit Analysis of BAMUL.

A) Unit Cost of Different Sections of BAMUL

a) Fixed Cost: The fixed cost includes building cost, furniture cost, equipment cost, computer and peripherals cost and book cost.

i) Building Cost

To calculate the unit cost of each section, the area occupied by the section was measured. The cost per Sq. m. was calculated on the basis of total area, divided by total cost of building. Then the cost of each section was analyzed.
The depreciation value was calculated @2% per year (Annual Accounts, 2008), from the next year of its construction i.e. from 1966 to 2009. As the study is limited to five years i.e. from 2004-05 to 2008-09, the data is presented only for these years.

ii) Furniture Cost

The list of furniture along with their numbers available in each section was prepared and the cost of each item of furniture was noted from the dead stock register of furniture from estate section. According to Annual Accounts (2008) of BAMU, the rate of depreciation is 4% per year. Accordingly, the item wise depreciation value of old and new furniture items were calculated from the next year of purchase of item of each section.

As the study is limited to 2004-05 to 2008-09, the depreciation value of these five years presented in the table.

iii) Equipment Cost

The list of old as well as new equipments and their numbers available in each section was prepared and the costs of each item of equipment were noted from the dead stock register of the estate section of BAMU.

The depreciation value of each item i.e. old as well as new equipment was calculated from the next year of the purchase @of 5% per year (Annual Accounts, 2008). In the chapter of cost analysis the table shows the depreciation value from 2004-05 to 2008-09.
iv) **Computer and Peripherals Cost**

The list along with the number of computer and peripherals available in the section was prepared from each section. The cost of each item was noted from the provision watch register of the library.

The depreciation value of old and new computer and peripherals @50% per year (Annual Accounts, 2008) was calculated item wise from the next year of purchase. As the study is limited from 2004-05 to 2008-09 the depreciation of these five years are presented in Chapter Cost Analysis of Different Sections of BAMUL.

v) **Book Cost**

The cost of books purchased from the date of establishment i.e. from 1958 to 2009 was noted from the Annual Accounts of BAMU. The depreciation value of old and newly purchased books was calculated @10% per year (Annual Accounts, 2008) from the next year of purchase.

As the study is limited from 2004-05 to 2008-09 the depreciation of these five years are presented in Chapter Cost Analysis of Different Sections of BAMUL.

b) **Variable Cost**

The variable cost include the salary of personnel, cost of stationery, electricity, postage, telephone bill and binding.
i) **Salary of Personnel**

The names of personnel working in each section were noted along with their designation. The salary of each personnel working in library from 2004-05 to 2008-09 were noted from the salary unit of BAMU.

ii) **Cost of Stationery**

The stationery items used by each section were noted from the head of section and provision watch register of the stationery. As the items of stationery were purchased from press and central stores, the cost of these items were noted from press and central stores.

iii) **Cost of Electricity**

The electricity bills paid by university were taken from the estate section of BAMU. As the bill of whole library was available, for calculation of unit cost of each section, the electrical points in each section were measured. With the discussion with electrical engineer and the rate sheet of MSEB, the rates per point were calculated. Accordingly the electricity bills of each section was calculated from 2004-05 to 2008-09 and presented in Chapter Cost Analysis of Different Sections of BAMUL.

iv) **Postage**

The cost required for postage was taken from the annual accounts of BAMU. In annual accounts, the postal charges of whole library are available. The section-wise bifurcation of postal charges was not recorded. There is no need of postage for all sections, but if requires only for ordering,
circulation and periodical sections. So, the whole amount available in annual accounts was distributed in these three sections and presented in Chapter of Cost Analysis of Different Sections of BAMUL.

v) Telephone Bills

The data of telephone bills was taken from the telephone section of the BAMU. The data of telephone bills paid towards all the university numbers along with EPABX was only available.

There is no record of separate bill paid towards library for telephone. The total connections available in university were 320. So, the bill per EPABX number was calculated by total bill paid divided by total number i.e. 320.

The data of telephone bill of library is useful for the calculation of total benefit.

vi) Binding Cost

The cost of binding was taken from the Annual Accounts of BAMU from 2004-05 to 2008-09. To calculate the unit cost of binding section, the cost of binding was considered.

B) Cost Benefit Analysis

Cost benefit can be calculated by –

a) Measuring benefits from book use.

b) By comparing alternative benefit measurements in monetary values.
a) Measuring Benefits from Book Use

Attempts were made to calculate the year wise use of books along with the cost of books. The total number of books, total cost and total use was calculated from 2004-05 to 2008-09.

By using Cohen Jacob's formula (Cohen, 1977) of cost benefit analysis, the 'Total Benefit' was calculated.

Further the attempts were made to calculate 'Net Benefit' of library through book use, the cost of unused books were subtracted from the total benefits calculated.

b) By Comparing Alternative Benefit Measurements in Monetary Values

By comparing the costs of BAMUL and Jaykar Library, Pune the benefits were calculated in monetary values, which is presented in the Chapter “Cost Benefit Analysis of BAMUL”.

1.7.2.1 Correlation

Statistical method, correlation was used to analyse the data. Correlation is the relationship between two or more paired variables or two or more sets of data. The degree of relationship is measured and represented by the coefficient of correlation. This coefficient may be identified by either the letter ‘r’ or the Greek letter ‘rho’ (ρ).

The degree of linear correlation can be represented quantitatively by the coefficient of correlation. Perfect positive correlation specifies that for every unit increase in one variable there is a proportional unit increase in
other while the perfect negative correlation specifies that for every unit increase in one variable there is a proportional unit decrease in the other (Best and Kahn, 2010; Verma and Verma 2006; Vaughan, 2009; Carpenter and Vasu, 1978).

1.8 SUMMARY OF MAJOR FINDINGS, CONCLUSIONS AND IMPLICATIONS

Some of the major findings / conclusions and implications are as follows:

1.8.1 Findings / Conclusions

- Total collection of BAMUL was 340758 up to 2009, while the average use per year is 47376 which are meager. This indicates that the “Library collection is hardly used” (Hypothesis No.1) is valid.

- The proportion of users to reading material is 1: 122, is very high but use is less. This indicates that the “Library collection is hardly used” (Hypothesis No.1) is valid.

- The proportion of users and transaction is 1:17, i.e. from such a huge collection one user hardly use seventeen books only. This indicates that the “Library collection is hardly used” (Hypothesis No.1) is valid.

- The coefficient of correlation between total Cost of BAMUL and Total Transaction comes 0.6. The Correlation is substantial, means as the
cost increases use also increases. This indicates that the “More the Cost, More the Use” (Hypothesis No.2) is valid.

- The coefficient of correlation between total production and unit cost of Ordering Section by rank method comes -0.8. The correlation is negatively high to very high, means as the production increases unit cost decreases. This indicates that the “More the Production Lesser the Unit Cost” (Hypothesis No.3) is valid.

- The coefficient of correlation between total production and unit cost of Technical Section by rank method comes -0.9. The correlation is negatively high to very high, means as the production increases unit cost decreases. This indicates that the “More the Production Lesser the Unit Cost” (Hypothesis No.3) is valid.

- The coefficient of correlation between total production and unit cost of Circulation Section by rank method comes -0.9. The correlation is negatively high to very high, means as the production increases unit cost decreases. This indicates that the “More the Production Lesser the Unit Cost” (Hypothesis No.3) is valid.

- The coefficient of correlation between total production and unit cost of Binding section by rank method comes -1. The correlation is negatively high to very high, means as the production increases unit cost decreases. This indicates that the “More the Production Lesser the Unit Cost” (Hypothesis No.3) is valid.
The coefficient of correlation between total production and unit cost of Reprography Section by rank method comes -0.7. The correlation is negatively substantial, means as the production increases unit cost decreases. This indicates that the “More the Production Lesser the Unit Cost” (Hypothesis No.3) is valid.

The coefficient of correlation between total production and unit cost of Reading Hall by rank method comes 0.9. The correlation is high to very high, means as the production increases unit cost also increases. This indicates that the “More the Production Lesser the Unit Cost” (Hypothesis No.3) is invalid.

The coefficient of correlation between circulation and benefit comes 0.9 which represents high to very high correlation, means that the benefit calculated is purely depends upon the circulation of books or circulation or use of books is directly proportional to the benefit. This indicates that “More the use of library, more the benefits” (Hypothesis No.4) is valid.

Based on the observations as well as results, following are the implications given to various authorities of BAMU.

1.8.2 Implications

University Authorities

University authorities should keep all the records of Accounts, by establishing a “Cost Centre”.
The cost of library building is near about zero, so university should either build up a new library building or renovates old building.

There must be one “library hour” in daily time table of all courses, to increase the use of library.

**Estate Section**

- Resident Engineer should maintain departmentwise light bill of BAMUL.

**Telephone Department**

- In charge, Telephone Department should maintain the separate record of telephone bills of each department of BAMU.

**Central Stores**

- In charge of Central Stores should maintain the separate record of stationery items provided to various departments of BAMU.

**Salary Unit**

- The record of daily wagers employees should be maintained with permanent employees.

**Library**

**Librarian**

- Accession Register should be modified by inserting the column ‘Date of Accessioning’ and ‘Call No’.
The library should maintained authority files and staff manual, without which it resulted inconsistent entries in catalogue.

To increase the book use, librarian should arrange some “extension programmes” frequently.

To undertake the ‘book use’ and cost studies’, it is necessary to preserve book cards, or to make the use of computer for home lending.

Subject wise use statistics should be maintained for the collection development.

Library should provide the ‘OPAC’ to enhance the book use.

Separate Account Section should be established in the library.

**Assistant Librarians**

- The daily statistics of use of reference books, periodicals and books used in reading hall should be maintained separately.
- To save the time of users shelving of books should be done daily.
- Head should motivate readers to use reading material efficiently.
- To increase the use, the location mark should be provided to simple books which were kept in reference section.
- Library should maintain the binding record.
As the unit cost of reprography section come 1.91, the rate for Xerox should be 2 per page or the production of copies should be increased.

Library Office

To undertake cost studies of library, the cost data, provision watch registers of a library should be maintained sectionwise.

1.9 CONSPECTUS

The present thesis has been divided into seven chapters viz –

Chapter – 1 : Introduction

This chapter covers the preamble, proposed research, objectives of the study, hypothesis, scope, limitations, methodology, summary of major conclusions and conspectus.

Chapter – 2 : Costing and Cost Benefit Analysis of Academic Libraries - A Review

This chapter describes in brief the definitional analysis of the library, academic library, university library, objectives and functions of library, cost, costing, cost analysis, depreciation, unit cost and cost benefit analysis.

Chapter – 3 : Brief profile of Dr. Babasaheb Ambedkar Marathwada University Library

It presents the objectives, functions of BAMUL, development of BAMUL and different sections of the BAMUL.
Chapter – 4 : Cost Analysis of Different Sections of BAMUL

It presents the section wise cost analysis of ordering, technical, circulation, reference, periodical, binding, reprography section and reading hall.

Chapter – 5 : Unit Cost of Different Sections of BAMUL

It presents the unit cost of ordering, technical, circulation reference, periodical, binding, reprography section and reading hall.

Chapter – 6 : Cost Benefit Analysis of BAMUL

This chapter describes the cost benefit analysis of Dr.Babasaheb Ambedkar Marathwada University Library.

Chapter – 7 : Conclusions / Findings and Implications

This chapter summarizes the major findings and recommendations based on the study. The thesis concludes with a bibliographical references and appendix.

1.10 CONCLUSION

To conduct any type of research, it is essential to know the minute/micro information about the topic for the concept clearance and it is also necessary to survey what others have written on the topic, hence it was felt necessary to review the relevant literature on costing and cost benefit analysis of academic libraries, hence chapter-2 presents the review, entitled “Costing and Cost Benefit Analysis of Academic Libraries : A Review”.

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REFERENCES


