REFERENCE

[CANADA] [MINISTRY OF STATE FOR SCIENCE & TECHNOLOGY]

[REPORT OF THE STUDY GROUP ON THE COSTS OF UNIVERSITY RESEARCH]

REFERENCE C.1

MINISTRY OF STATE
MINISTÈRE D'ÉTAT
BIBLIOTHÈQUE
MAY 6 1976
LIBRARY
SCIENCE AND TECHNOLOGY
SCIENCES ET TECHNOLOGIE

LB
2342.2
.C3R4

[CANADA] [1] [2] [MINISTRY OF STATE FOR SCIENCE & TECHNOLOGY]

LB
2342.2
C3R4

REFERENCE

MINISTRY OF STATE
MINISTÈRE D'ÉTAT
BIBLIOTHÈQUE
AESH
MAY 6 1976
LIBRARY
SCIENCE AND TECHNOLOGY
SCIENCES ET TECHNOLOGIE

15765

[3] REPORT OF THE STUDY GROUP

ON THE COSTS OF UNIVERSITY RESEARCH

November, 1974

ERRATUM

PAGE	LINE	CORRECTION
ii	32	"consistant" should be "consistent"
3	14	"in" should be "is"
6	2	"that" should be deleted
7	27	"the" should be "The"
9	1	"it" should be "is"
13	14	"analysis" should be "analyses"
20	15	sentence beginning "However, universities which have a sophisticated cost accounting system...." should be replaced by "However, universities which have a sophisticated cost accounting system may consider some costs as direct (for example, in the case of a computer where a research project is billed for computer time), whereas, institutions which do not have a fee for service system are more likely to consider the same costs as indirect."
20	24	"a" should be "an"
21	2	"easy" should be "easily"
22	22	"are" should be "as"
30	footnote	"prodedures" should be "procedures"
32	12	"repective" should be "respective"

This is a technical study which was commissioned by a joint Task Force of the Council of Ministers of Education, Canada and the Government of Canada as represented by the Ministry of State for Science and Technology (MOSST), the Department of the Secretary of State and the Federal-Provincial Relations Office. In no way does it necessarily reflect the views of the participating governments and institutions.

Terms of Reference

1. Identify and discuss possible principles affecting the definitions and determination of the costs of research. Samples of these principles are: the extent to which precise accounting of costs versus administratively simpler methods are to be used; and the degree of standardization of calculating costs among universities.

2. Identify and define the primary operations of a university to which all costs may be allocated.

3. Identify the time period over which costs may be calculated. The fiscal years of universities, provincial governments and the federal government may all differ.

4. Identify and define expenditures within a university that may be considered direct costs of research.

5. Identify and define expenditures within a university that may be considered indirect costs.

6. Establish methods of assigning indirect costs to the primary operation of the university.

MEMBERS OF STUDY GROUP

PROJECT COORDINATOR:

Mr. K. Clements	- Executive Director, Canadian Association of University Business Officers (CAUBO). Mr. Clements was under contract with the Ministry of State for Science and Technology for this project.

MEMBERS:

Dr. E. Vogt	- Professor of Physics, University of British Columbia
Dr. P. Glynn	- Health Sciences Education Coordinator, Ministry of Colleges and Universities, Ontario.
Dr. C. Lee	- Director, Administrative Services Colleges and Universities, Department of Advanced Education, Alberta.
Mr. M. Spalding	- Assistant Director, Education Support, Research Liaison Branch, Secretary of State Department.
Dr. F. Ogilvie	- Science Advisor, Domestic Cooperation Division, Ministry of State for Science and Technology.

SUMMARY

In order to determine the costs of university research it is necessary to examine all the costs within a university and to establish costs according to the primary activities. In establishing a structure for a program costing system the major concern is the use which will be made of the information derived from the system, because to a large extent the program structure and definitions used in the structure are arbitrary. Program costing will provide information so that governments can make improved policy decisions on research funding to universities and provide information for better internal management within universities.

Costing and funding should not be confused with each other; costing is a technical problem, funding involves a policy decision. However, funding decisions can affect costing procedures and vice-versa.

The three primary operations of a university can be stated as Instruction, Research and Public Service. Support functions can be classified as Academic Support, Student Support and Institutional Support. Data within these primary and support functions should be collected by field of study on a aggregate or intermediate basis. Within the program structure universities should charge costs directly to the primary operations whenever possible.

In order to determine the full cost of university research, the cost of faculty members' effort on research and the cost of capital assets must be determined. Faculty activity analysis of some sort should be conducted to determine the cost of faculty members' effort on research.

Direct costs are those expenditures that can be easily assigned to one of the primary activity centres with a high degree of accuracy. Indirect costs can then be considered as being costs that are initially charged to one of the activity centres under the support function categories. Fairly simple allocation procedures have been recommended so that a consistent approach can be implemented to all institutions in Canada.

RECOMMENDATIONS:

It is recommended that:

1. the primary operations of the university be considered as Instruction, Research (specifically funded), and Public Service;

2. the support functions be considered as Academic Support, Student Support, and Institutional Support;

3. the cost data be collected by field of study on an aggregated or intermediate basis;

4. universities should be encouraged to charge costs to the primary operations directly within their accounting records;

5. actual usage data such as time records be used in preference to some arbitrary process in the allocation process;

6. some type of faculty activity analysis be made to correctly associate the cost of a faculty members' effort with the appropriate activity centres;

7. all capital assets be written off as expenses in the year that the expenditures for the assets are made instead of setting up depreciation accounts;

8. consistent methods be used at all universities in allocating indirect costs to the primary operations;

9. the costs associated with support activities be allocated directly to the primary operations without any intermediate steps of allocating support activities to other support activities;

10. the fiscal years of the universities be used as the time period over which costs should be calculated;

11. every possible attempt should be made to implement costs studies in universities at the earliest possible date.

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF FIGURES

1. INTRODUCTION:

It is generally agreed that there is a need for better cooperation among universities, provincial governments and the federal government on university research matters. To further this end, the Council of Ministers of Education, Canada, The Secretary of State Department, and The Ministry of State for Science and Technology established a Task Force on University Research. It became apparent that data on the costs of university research was a priority requirement in order to develop improved policies regarding university research funding. In addition there was an obvious need to have a consensus on definitions and terminology used in the costing and funding of university research. The Study Group on the Costs of University Research was therefore established to examine the different methods of costing and to develop common definitions. The Study Group was charged with recommending a single method of determining the costs of university research that could be used throughout Canada.

It must be clearly understood that the methodology used may have different implications for universities, provincial governments and the federal government. The major concern in deriving the method is the use which will be made of the information. It is considered that the best method of determining costs is the one that will serve all possible users of the information. The Study Group on the Costs of University Research considers that the methodology contained herein will provide this flexibility.

1.1 Purpose of Cost Analysis

The establishment of cost analysis systems within the universities will provide two benefits:

(a) It will provide information so that governments can make improved policy decisions on research

funding in universities.

(b) It will provide information for better internal management within universities.

1.1.1. Policy Decisions:

Governments have the responsibility for making policy decisions regarding the funding level of research in universities. In recent years, there has been a great deal of criticism of the overall level of funding of university research and of the indirect costs incurred by universities in conducting federally sponsored research. Provincial governments are concerned about the possible steering effects of federal funding of university research on university programs. In order to investigate the impact of past funding of university research and to develop improved policies, it is necessary to know the total costs of research within universities.

1.1.2 Internal Management:

A major benefit to universities from a standard set of costing principles and procedures would be to improve their own capabilities for internal management. The greatest use of program oriented cost data in the university would be the "flagging" of possible problem areas for more detailed investigations which may or may not result in a reallocation of resources. From the cost data alone it may appear that the cost of some activities are out of line with the cost of similiar programs. If further investigations support this first observation, university administrators may wish to take

corrective action in future budget allocations. A second use of cost data for internal management could be that of providing parameters for improved future budgeting. A third benefit is that a common set of costing procedures may result in a reduced reporting burden to external agencies.

1.2 Alternative Methods:

In establishing a structure for a program costing system a large number of alternatives could be used for the definitions, cost centres and methods of allocation. To a large extent the definitions and program structure are arbitrary. In establishing a structure for a program costing system, the use which will be made of the cost information in paramount. A factor in the success of any costing procedures on a national basis is that standard definitions of terms are used in both accounting procedures and in description of programs being measured. Without standard definitions and procedures comparability of the information would be lacking and the information would be of limited value for policy purposes. Moreover, the definitions must be pragmatic in relation to costing procedures. For example, the terms " reflective inquiry" and "frontier research" used by Bonneau and Corry would not be very useful for the determination of costs of research[1]. The definitions used should also be in agreement with nationally or internationally accepted definitions for accounting and scientific activities. The program structure recommended in this report relies heavily on a costing model developed by NCHEMS (The National Centre for Higher Educational Management Systems) and on a proposal by CAUBO (The Canadian Association of University Business Officers). In July 1974 the NCHEMS group

1 *L.P. Bonneau and J.A. Corry, Quest for the Optimum, AUCC, (1972).*

issued a cost analysis manual which provides a ready-made university costing model. This cost analysis manual is attached with this report. The terminology in this cost analysis manual is designed to fit the United States scene. Some of the concepts of the CAUBO costing model were incorporated into the program structure recommended herein to make the costing procedures more appropriate to Canada. It would be possible however, to use the costing model of NCHEMS with hardly any revisions, if it were desired to have information comparable to the United States.

Even though a standard set of definitions and program structure is accepted, there are still a number of alternative methods for deriving costs of university research. The preferable method would be to establish program costing systems at all universities. Another method could be to conduct program costing at selected universities and to base decisions on the results of this sample. This would be less expensive and less time consuming than establishing program costing at all universities. However, such costing procedures would be beneficial mainly to those universities which were included in the sample. The major drawback of this procedure is that there is no guarantee that the costs at the universities selected would be representative of the costs at all universities. A third method would be to consider only the costs generated by federally sponsored research. This method might be less time consuming than the other two methods and might be acceptable if the sole objective of the costing procedures were to arrive at a rate for payment of indirect costs of federally sponsored research. However, the method would not arrive at the real cost of university research, and would have only limited value for internal management within a university.

1.3 Relationship of funding with Costing:

The difference between funding and cost must be clearly recognized. Costing is a technical problem, funding is a policy decision. A policy decision may be made that certain expenditures should not be allowable in the funding of research. For example, the Federal Government may decide that the salary costs of faculty members are not allowable as an expense for research supported by the three granting councils. However, such an expenditure should be considered as a cost of research. Establishing a program costing system to determine the cost of research may not be synonymous with the determination of direct and indirect costs to be funded for research.

A university will incur costs regardless of the source of funds. Even if we are only concerned with costs generated by Federally sponsored research, all costs of a university would have to be examined. However, funding decisions may affect the costing procedures. For example, if the Federal Government made the decision that it would fund depreciation of capital assets on federally supported research grants and contracts, then depreciation accounting would be required of the universities. Funding decisions may also be affected by the costing procedures used. For example, if the decision were made to fund indirect costs of federally sponsored research, then the funds made available to the university would be dependent on the method used to calculate the indirect cost.

2. PROGRAM STRUCTURE:

2.1 Primary Operations:

It is widely recognized that in order to establish the real costs of university research a cost analysis of all university operations must be performed. This in turn requires the development of a program structure around which total costs can be collected and/or allocated. The program structure shows the organization of the activities of the university on a logical basis where similar activities are grouped in the same categories. Such activities should relate to the institutional program goals and objectives of the universities which are normally thought of as involving the teaching of students; the creation and dissemination of new knowledge; and providing services to clientele external to the institution. Various university costs studies which have been conducted in North America relate to these three main activities by classifying the three primary cost or activity centres as being Instruction, Research and Public Service. There may be some question as to whether or not Public Service need be singled out as a primary program since it is quite possible to fit this activity into the instructional program if the main objective is to present non-credit instructional courses, or alternatively, to consider it as one of the support functions of running a university. However, for the sake of consistency with existing university costs studies, and to clearly highlight the fact that public service is an expected output of the universities, it seems preferable to consider public service as one of the three primary programs.

Along the same lines, it can also be argued that instruction is the most important mission of a university and that research is subordinate to and dependent on the instructional function. Others, however, maintain[1] that research is a chief concern of the university in its own right. For the purpose of determining the costs of university research, however, it is not necessary to address the problem.

1 *John B. Macdonald, The Role of the Federal Government in Support of Research in Canadian Universities, Special Study No. 7 prepared for the Science Council of Canada and the Canada Council (October 1969)*

Indeed it is quite possible that this question will remain unresolved.

The arrangements of the operations of a university into three major cost centres involves arbitrary classifications since the university accounting structure tends to identify expenditures such as salaries, supplies, travel costs, etc. by organizational units. Within these organizational units there is a great deal of interplay within the three activities of Instruction, Research and Public Service. For example, universities conducting research often choose to engage only in projects which also contribute to the achievement of the instruction objective. This is particularly true in the graduate student area. One of the major spillover benefits of the research program therefore, is the opportunity it provides for research activities which are essential to high quality instruction and faculty development. Further, another approach often followed is to exclude from the primary mission of research those activities related to the improvement of instructional skill which could be described as the effort and related costs of an individual faculty member's personal research, including general reading and scholarship. The program classification structure of NCHEMS (The National Centre for Higher Education Management Systems) for example has stated the position that such activities are inseparable from the teaching function and should therefore be included within the primary program of instruction. The primary program for research is therefore categorized by being an activity established to undertake an investigation of a specified scope as defined under the terms of agreement with agencies external to the institution or separately budgeted and conducted with internal funds. Personal research conducted within an academic department, which is not specifically budgeted and accounted for, is therefore included with the instruction program.

Therefore, the primary operations may be defined in the following manner:

2.1.1 Instruction:

Instruction consists of those program elements whose outputs are primarly eligible for credit in meeting specified formal curriculum requirements, leading toward a particular degree or certificate granted by the institution.

Activities included in instruction are the presentation of lectures, laboratory experiments, tutorials, seminars, demonstrations, preparation for these presentations and activities related to the improvement of instructional skills such as personal research, general reading and study and scholarly activity.

2.1.2 Research (specifically funded):

Research is creative work undertaken on a systematic basis to increase the stock of scientific and technical knowledge. This category includes all expenditures for activities specifically organized to produce research outcomes whether commissioned by an agency external to the institution or separately budgeted and accounted for by an organizational unit within the institution.

2.1.3 Public Service:

Public Service includes all activities which are beneficial to individuals and groups external to the institution. Such benefits may be cultural or economic and may be directed toward individuals, common interest groups, or larger communities.

More detailed definitions of the primary operations are given in Appendix "A".

2.2 Recommended Program Structures

A graphic presentation of the various activity centres, segregated into primary and support function

categories, it outlined in attached Figure 1. It parallels the NCHEMS Program Classification Structure which is illustrated on page 11 of their Cost Analysis Manual. Program structure definitions of the functions and sub-functions illustrated in Figure 1 are given in Appendix "A".

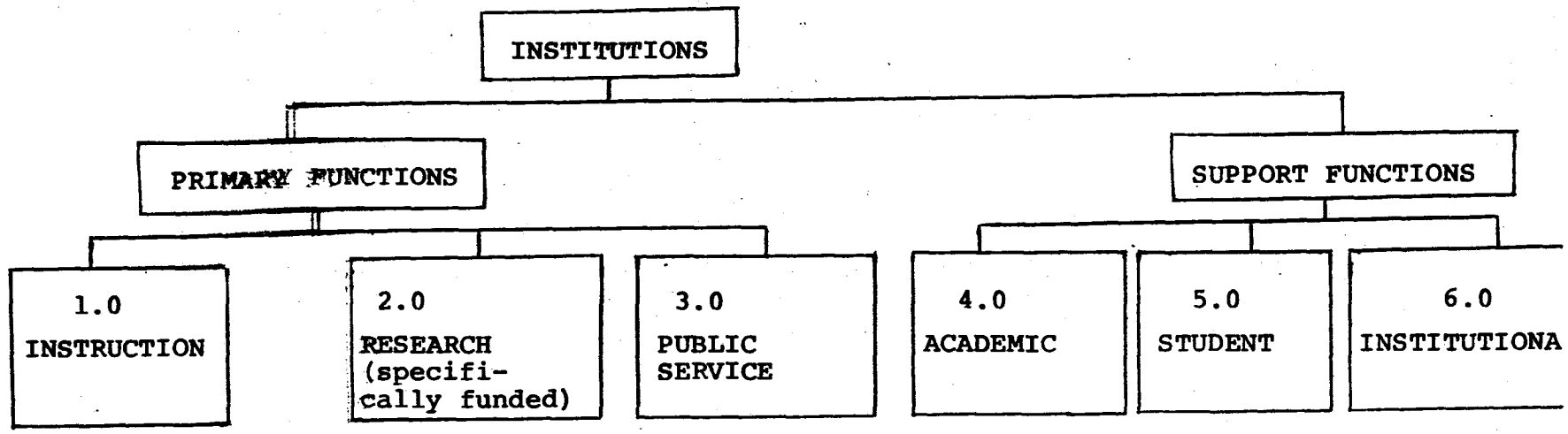
2.3 Level of Aggregation of Data:

Within any given program structure, costing data could be collected and allocated to the primary activity centres by field of study, by department, by faculty or by institution. The reporting of data by institution, by faculty or by department could restrict the options available for policy decisions and therefore could be of limited value. Statistics Canada has developed classifications of fields of study on detailed, intermediate and aggregate bases (See Appendix "E"). These classifications could be used for costing purposes. However, the cost of collecting information by detailed fields of study probably would not be warranted by the benefits from doing so. Therefore, it is recommended that cost data be collected by field of study on an aggregate or intermediate basis.

Considering the level of aggregation of data, the costs of academic administration and services should only be allocated to activity centres which are appropriate. For example, the costs associated with the administrative duties of the Head of the Chemistry Department should only be allocated to Chemistry if intermediate fields of study are used or to Mathematics and Physical Sciences if aggregated fields of study are used.

Figure 1

Program Structure



Sub-Functions						
1.1 General Academic Instruction	2.1 Institutes & Research Centres	3.1 Community Education	4.1 Libraries	5.1 Student Services	6.1 General Universi Adminis-tration Services
1.2 Special Session & Extension Instruction	2.2 Project Research	3.2 Community Services	4.2 Audio-Visual Services	5.2 Admiss-ion & Regist-rarial Services	6.2 Computer Services
			4.3 Academic Adminis-tration & Services	5.3 Ancillary Enter-prises	6.3 Physical Plant Operatio
			4.4 Research Adminis-tration		6.4 Plant Expansio Modifica tion
					6.5 Communit Relation

3. PRINCIPLES AFFECTING COST ANALYSIS:

Within a given program structure a number of principles must be established which will affect the cost analysis.

3.1 Direct Costing vs Allocation Procedures:

It is our view that universities should be encouraged to charge costs to the primary operations directly within their accounting records. For example, computer usage or machine shop services can be charged directly to various other operations using a charge-out system. However, in most instances, with such a charge-out system there will be a residual cost in the activity centre that has not been charged-out. This residual cost should be allocated to the primary operations on the basis of the charges already made.

In cases where charge-out systems are not in use, other records such as time sheets may exist, or special studies may be conducted to obtain data on actual usage on a post-facto basis. Actual usage data should always be used in preference to some arbitrary procedure in the allocation process. However, the additional cost of obtaining actual usage data may not always be warranted by the benefits derived. For example, actual usage data could be collected for all utilities, plant maintenance and administration costs. However, the cost of collecting data for such costs could be greater than the costs themselves.

Therefore, some arbitrary allocation procedures must be established and accepted by all parties concerned. The main consideration is that the procedures are reasonable and justifiable. The objective of the process of allocating costs of support activity centres to primary operations is to transfer costs in a manner

that will accurately reflect the actual utilization of resources by activity centres that receive services from other activity centres. In many cases the methods to be used in the allocation process must rely on parameter data that have a high correlation with the level of services provided to the activity centres utilizing those services.

3.2 Faculty Payroll Costs & Faculty Activity Analysis:

The major current operating expense within universities is the salaries and fringe benefits paid to faculty. Faculty payroll costs could be considered solely as a cost of instruction. However, this would clearly underestimate the costs of research and of public service and overestimate the cost of instruction. On the other hand, faculty payroll costs could be distributed to the primary functions via some parameter (e.g. faculty contact hours). However, this fails to recognize all of the components of the costs of a faculty member's effort. If the cost of a faculty member's effort is to be correctly associated with the appropriate activity centres then some type of faculty activity analysis must be made.

The determination of faculty effort is at present an extremely difficult and contentious issue. Some of the major factors contributing to the difficulty are:

1. Whether the various duties of faculty members can be identified and separated is questionable. Most faculty members believe that research and instruction are so interrelated that the two duties cannot be separated.

2. The measurement of effort or work done on intellectual pursuits is not easily performed. The usual proxy for measurement of work done is time spent on a task, but this is clearly not a precise measurement.

3. Faculty members vary greatly in the amount of time and effort spent on different tasks.

4. The efforts required on different activities are not comparable; (e.g.,an hour of instruction is not equivalent to an hour in committee).

5. The role of a faculty activity analysis for costing purposes should not be confused with the evaluation of performance of faculty members. In the past, many faculty activity analyses have been used for other than their stated purpose or misused in various ways.

6. The validity of the estimates of time spent on an activity by any individual faculty member is highly questionable.

Most of the above factors are valid. It must be emphasized that any faculty activity analysis will only provide estimates of work done on various activities and estimates of the related costs. These estimates will not be precise in the accounting sense. Since any faculty activity analysis is based on the judgement of the respondent, bias and errors cause a lack of precision. The estimates are also based on the definitions used which are to some extent arbitrary.

Although the use of time spent on an activity as a proxy for work done is imprecise, there appears to be no more appropriate measure. For most purposed this imprecision is of little consequence. The total time

spent each week by faculty members on their duties will vary greatly; one may spend thirty hours a week while another may spend seventy hours a week. Therefore, establishing a cost of faculty time per hour will not have much significance. However, each faculty member will receive a certain salary regardless of the total amount of time he spends on his duties. The cost associated with the percentage of time an individual spends on any one activity becomes a significant cost of the activity.

The validity of the estimates made by respondents was a major concern of the A.U.C.C. cost study[1]. Indications from this study are that faculty members individually are not able to estimate the percentage of time they spend on specific tasks. Estimates obtained by two different methods (Annual estimates by faculty and diaries of selected days) showed little correlation. However, the mean values obtained from the two methods did show a high relationship. Self-estimates of time spent on various activities can be considered valid if the means of a large population of respondents are used.

There are a number of alternative methods by which a faculty activity analysis can be conducted, some of which are given below:

1. Annual estimates of time spent on different activities could be supplied by an experienced researcher in this area for all faculty members in Canada based on past studies conducted in Canada and the United States.

1 *Association of Universities and Colleges of Canada. An Exploratory Cost Analysis of some Canadian Universities: The Report on the Study of the costs of University Programmes in Canada, (1970) pp. 31-45.*

2. Annual estimates of time spent on different activities could be supplied by department chairmen and reviewed by the appropriate academic dean.

3. Annual estimates of time spent on different activities could be supplied by individual faculty members and verified by department chairmen.

4. Annual estimates of time spent on different activities could be supplied by individual faculty members and sent directly to Statistics Canada.

5. Diaries for selected days or weeks could be kept by individual faculty members which would form the basis for annual estimates of time spent on different activities.

6. Methods 3, 4, and 5 could be done using sampling techniques instead of requesting the information from all faculty members.

It is unlikely that alternative 1 would be acceptable to very many people. It is, however, the least costly and the simplest method and can be shown to yield an answer differing little from that found through other methods. Alternative 5 was used in the U.K. It was found that many faculty members discontinued keeping diaries during the required period and that the information was no more accurate than if annual estimates had been made. Alternative 4 would insure the confidentiality of the information and guarantee that the data would not be used for evaluation purposes. However, there would always be a doubt in many peoples' minds that the data was biased. Alternative 3 would probably gain the greatest acceptance for the accuracy of the data. However, with the present attitude of university personnel to faculty activity analysis, alternative 2 may be the best method to use.

3.3 Capital Assets:

In an attempt to determine the cost of university research, it is necessary to account for the cost of resources utilized in the process of achieving institutional objectives. Thus it is necessary to consider current operating expenses and the cost of capital assets owned by the institution. However, there are a number of conceptual and practical difficulties in deriving an appropriate policy for accounting for capital expenditures in a university.

At present, what is reported as capital assets by most universities depends upon the fund used to purchase the assets. Assets may be purchased from the general operating fund or from the capital fund. Equipment and renovations financed from the general operating fund may not be reported as capital assets. Some universities may report the purchase of library books as both capital assets and current expenses.

A university could follow accepted principles of commercial accounting. That is to say, the cost of all longer-lived assets over a certain minimum value would be recorded as capital assets suitably classified. Depreciation would be written as an annual expense in the statement of operations. When assets were retired, they would be written off against accumulated depreciation. Some of the difficulties with this procedure are:

1. Appropriate minimum values and minimum life-times for capital assets would have to be established. It is quite difficult to assign an appropriate amortization period to special purpose equipment. For example, equipment purchased for a research project may or may not have usefulness after the project is completed.
2. Appropriate depreciation methods would have to be established.
3. The decentralized nature of most universities makes adequate fixed asset accounting quite difficult.

4. Many of the older universities would have a tremendous problem in setting up detailed records of assets on hand and valuation of these assets.

One of the major reasons for depreciation accounting in commercial enterprises is for taxation purposes. This reason does not exist for universities. Therefore, it is questionable whether depreciation accounting is necessary or appropriate in universities. Governmental support of universities is usually geared to their cash needs. Operating grants are given to meet recurring types of expenses. Capital grants are provided for larger capital projects. So long as a university derives most of its support for capital projects from a provincial government the calculation of depreciation has little significance.

Moreover, as illustrated in Figure 2 there is a marked decline in the rate of capital expenditures as related to operating expenditures and a projected levelling off in the total dollar expenditures for capital assets. Under these conditions, accounting for property, plant and equipment may reasonably be done on a cash basis. All capital assets may be written-off as expenses in the year that the expenditures for the assets are made instead of setting up depreciation accounts.

If the present practices change such that a significant portion of the financial support for capital projects is derived from sources other than provincial governments, depreciation accounting may become essential. Under present circumstances depreciation accounting could be instituted but the Study Group does not recommend such a course of action.

3.4 Net Costs:

There are a number of revenue producing operations within a university. These are generally within the ancillary enterprises category such as food services and residences or within the community services category, such as dental clinics associated with dental schools. In many instances the revenue

does not equal the cost of operations. In these instances only the net cost should be considered.

Figure 2

EXPENDITURES ON UNIVERSITY EDUCATION
($'000,000)

Fund	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	Total
OPERATING TOTAL:	183	211	244	290	345	433	582	749	897	1,084	1,095	1,258	1,572	1,649	1,815	2,023	2,268	16,698
CAPITAL:																		
Land, Building Contents	79	85	113	146	218	252	325	378	315	325	320	349	N/A	N/A	N/A	N/A	N/A	
Other	1	-	-	-	-	-	-	-	21	31	56	70	N/A	N/A	N/A	N/A	N/A	———
TOTAL:	80	85	113	146	218	252	325	378	336	356	376	419	316	237	240	234	242	4,353
Ratio capital to operating	43.7%	40.4%	46.3%	50.3%	63.2%	58.2%	55.8%	50.5%	37.5%	32.5%	34.3%	33.3%	20.1%	14.4%	13.2%	11.6%	10.7%	26.1%

Notes:

1. Figures 1960-69 derived from Table 9 on page 186 of "Decade of Education Finance" published July 1974 by Statistics Canada, catalogue #81-560.

2. Figures for 1971 derived from C.A.U.B.O. financial statistics.

3. Figures for 1972-76 derived from Table 13 on page 30 of "Advance Statistics of Education" published August 1974 by Statistics Canada, catalogue #81-220.

4. Operating funds include expenditures for General Purpose, Trust and Endowment, Sponsored Research and Ancillary Enterprises. If only General Purpose funds were included, the ratio would be significantly higher. Fore example, for 1971, General Purpose operating funds represent an amount of $1,060 out of the total shown of $1,258. The ratio shown of 33.3% would increase to 39.5%.

4. DIRECT AND INDIRECT COSTS OF UNIVERSITY RESEARCH

4.1 Definitional Problems:

As indicated in the list of definitions in Appendix "D" the standard definition for the term direct cost is an item of cost that may reasonably and conveniently be identified with a specific unit or product, or with a specific operation, process, department or other cost unit. Other costs are considered to be indirect. This distinction between the terms direct and indirect expenses is therefore associated with manufacturing companies and not pertinent to university accounting, although often applied in the context of accounting for research projects. In the latter case usually items such as salaries, supplies, equipment and travel are considered direct costs while costs connected with space, administration and university services provided to the research project are indirect. However, universities which have a sophisticated cost accounting system may consider some costs as direct (for example, in the case of a computer where a research project is billed for computer time), whereas, institutions which do not have a fee for service system are more likely to consider the same costs as indirect. There are presently no universal rules for determining which costs are direct and which are indirect. Distinction depends on an institution's internal accounting practices.

4.2 Meaning of Direct & Indirect Costs for University Accounting:

An analogy which can be made with normal accounting practice is to consider the three primary operations of Instruction, Research and Public Service as being the output producing units. Direct costs in the university context are then those expenditures which can be identified specifically with say, a particular research

project or which can be directly assigned to such primary activities relatively easy with a high degree of accuracy. Specific identification would include examples such as salaries for technicians working on a research project whereas direct assignment would apply in such cases as charging out computer or audio-visual services.

In comparison, indirect costs are accordingly those that have been incurred for common or joint objectives and thus are not readily subject to treatment as direct costs. Instead of being identified directly with one of the three primary functions, indirect costs can be described as being costs that are initially charged to one of the activity centres under the three support function categories noted in Figure 1.

4.3 Expenditure Categories:

Attached Figure 3 provides a listing of some twenty-five expenditure categories which are provided on the annual financial statistics return compiled by CAUBO and Statistics Canada for Canadian universities. On the basis of the above distinction for direct and indirect costs for universities, the appropriate treatment is indicated. In cases where indirect costs are involved, the name is shown of the activity centre where the expenditures are initially collected. In some cases, an expenditure item can be either direct or indirect. For example, premiums for a specific policy to insure a large piece of research equipment against theft or malicious damage would be a direct expense for the primary activity of research whereas, costs of insuring the buildings where the equipment is contained would be generally classified as part of the cost of the Physical Plant Operations and therefore considered an indirect expense.

The expense categories are also combined into seven main classifications in order to relate with the same framework followed by NCHEMS.

The name of the twenty-five expenditure categories displayed in Figure 3 in most cases provides a self-explanatory description of the objects or types of expense items involved. A more detailed description however is available in Appendix "B".

4.4 Identification of Direct Costs of Research:

As mentioned previously, one of the principles that should be established in calculating direct costs of research, is that every attempt should be made to relate expenditures with one of the three primary functions and thereby allocate directly on a rational basis. Types of expenditures where it is felt that such accounting treatment can be followed, and accordingly classified as direct costs of research, are shown in Appendix "C".

Examples of the cost accounting methods that can be followed in order to implement direct costing include time analysis, requisition or work order systems, logging of computer utilization, use of meters, etc. Application of these procedures as related to the major expense categories, can be described as follows:

4.4.1 Academic Staff Payroll Costs:

Salaries and related fringe benefit costs can be charged directly to one of the activity centres shown in Figure 1 by means of a faculty activity analysis. It is recognized here that such costs may or may not be funded in the case of research grants and contracts. At the same time, however, it is a legitimate cost of activities such as a research project and should therefore be included to arrive at the full cost.

4.4.2 Other Research Payroll Costs:

In this case, the payroll records adequately reflect

the appropriate cost of research assistants etc. However, it should be pointed out that any remuneration paid to graduate students if it is to be considered a direct research cost should be equivilant to the effort expended and in effect be a payment for a service. In the case of other graduate student payments such as fellowships and scholarships, it can be argued that such support is not a prerequisite for the carrying out of research at a university. The main purpose of such expenses is for graduate student support and training and should accordingly be charged to the instruction function.

4.4.3 Other Payroll Costs:

It is recognized in this expense category that costs of part-time personnel are not always easily identifiable. Attempts should be made however, to direct cost of all such items through eitner use of a charge-out system, say, in the case of services of a computer programmer or by apportioning the time of, say, a secretary working on various research projects.

4.4.4 Supplies and Services Expenditures:

The practise of requisitioning supplies through central stores facilities is quite common at universities. It is also customary to keep track of the exact cost to the user of other similiar items in this expenditure category. Examples are postage, photocopying, and telephone charges. Another example of cost accounting that can be applied is the area of large central services such as computer departments, audio-visual services, and Physical Plant workshops. In these areas, most universities have instituted charge-out systems. With such systems, combined with requisitioning for the services, the associated cost can be treated as direct. Another form of service expenditure that was considered is the maintenance cost of space. This expense could be considered direct and in effect could be a *quasi rental* figure. Calculation of such a rental rate

may not be that difficult since many universities employ such a system in billing external users in the case of facilities' rentals for conferences, etc. The costs normally reflect the costs of maintaining the actual space on a square footage basis. Use of meters to arrive at any special costs of utilities such as air conditioning systems can often be included. Albeit, the problem of space used for both research and instruction would pose a problem. For example, in the case of humanities and social sciences areas, there is no space specifically for research and faculty members carry out most of their research activities in their offices. It is therefore expected that maintenance costs would normally be allocated as an indirect expense.

4.4.5 Equipment Expenditures:

As mentioned previously in this report, consideration was taken of establishing fixed asset inventory records and following a form of depreciation accounting and charging activities such as research project with a use charge. However, the conceptual and practical difficulties in measuring the value of fixed assets are so complex that the Study Group has determined to concentrate only on the acquisition cost as a rational method of arriving at the annual cost of this item. Another factor which especially pertains to equipment purchased for research purposes is that the estimated useful life is often shortened greatly by functional obsolescence more than physical deterioration.

Equipment expenditures of material value that are charged directly to the primary operations should not be combined with operating costs assigned directly to these operations. Because of the uneven pattern of such acquisitions, such costs should be excluded from the allocation parameter "Total Direct Costs".

It is recognized here that equipment found in some laboratories is used in both teaching and research function. In these cases acquisitions should be charged initially to Plant Expansion and Modification and then allocated out as an indirect expense and added to capital costs directly assigned to the primary operations.

4.5 Indirect Costs of Research:

Figure 3 illustrates the type of expense that could be classified as indirect expenditures. If the costing procedures suggested in Section 4.4 are followed for direct expenses, the amount of expenses remaining to be allocated as indirect expenses may be less than expected. There are also some types of indirect expenses which require special treatment which are described as follows:

4.5.1 Costs Not Attributable to Research:

In looking at direct costs of research, it was pointed out that some costs such as student aid to graduate students should not be considered as a cost of research. Another way of isolating such expenditures is to consider all expenses charged to the activity centres noted under the Student Support function in Figure 1 as being applicable entirely to the other two primary functions.

In the same manner it might be argued that the subfunction entitled Community Relations represents a cost centre whose activities are soley attributable to either the Instruction or Public Service primary functions. However, it would seem justifiable to include such indirect costs. The fund raising activity included here for example can certainly provide benefits to research in the form of certain research facilities.

4.5.2 Research Administration:

The costs of some activity centres may not be included as indirect expenses of research. Contrariwise, the expenditures incurred by the activity centre, shown

in Figure 1, entitled Research Administration should be considered entirely as attributable to the research function.

4.5.3 Depreciation or Use Expense:

Although in theory a depreciation or use expense of fixed assets including buildings could be considered as an indirect cost, few universities amortize capital assets and only account for capital acquisitions on a cash basis. The problems inherent in calculating an appropriate depreciation expense charge have already been commented upon. The concept of a use charge is quite common in the United States with respect to research contracts. An alternative approach is to consider current year acquisitions as an indirect expense and to arrive at a rational apportionment of this current year's expense between the three primary operations on the basis of the intended use of the facilities being acquired. This simplistic approach could be easily calculated. Also it could very likely result in a uniform charge comparable to a more sophisticated depreciation cost accounting method, especially if it is assumed that the capital acquisitions are the result of a policy of maintaining the original value of building and equipment at a constant level. Such an assumption, at least on a province-wide basis is quite likely with the stable enrolment pattern depicted for the 1970's.

Another factor that could support this approach is that the amounts involved may not be too material in the future as they have in the past. It is therefore recommended that current year acquisitions for fixed assets (other than direct equipment expenditures) be included as one of the indirect costs of research, and charged initially to Plant Expansion and Modification. In the allocation process these costs should be added to the costs of fixed assets that can be charged directly to the primary operations.

The problem of funding versus costing should also be reiterated here by pointing out that such expenses may

be excluded from any cost reimbursements from research projects financed by the federal government, especially in a case of buildings which may be constructed fully with provincial funds.

4.5.4 Library Costs:

One of the major problems in assessing indirect costs is determining the portion of library costs that appropriately may be considered a cost of research. Library materials may be used for Instruction, Research and Public Service and there is no good method of allocating the cost of the use of library materials to these primary operations. The Ministry of State for Science and Technology has commissioned a study by Mr. L. Vagianos and Mr. J. Oxley of Dalhousie University to develop hypotheses for assessing library costs of materials needed for research use. Their report is presently in press and will be distributed to provincial governments and universities upon publication. A drawback of their hypotheses is that university libraries would require detailed computerized circulation files to use the method proposed by Vagianos and Oxley. At present, in the absence of a better method it is recommended that the allocation procedure used by NCHEMS be followed. This involves allocating library costs on the basis of Academic Staff Payroll Costs (adjusted by a faculty activity analysis).

4.6 Determination & Application of an Indirect Cost Rate:

This section of the report has attempted to spell out in detail the type of expense that should be included in the determination of the full costs of research. Guidelines have also been presented to segregate the direct and indirect expense components. This breakdown provides a useful framework for calculating an overhead rate for research, which would simply be the ratio of indirect to direct expenses. For this purpose, pilot studies carried out at several universities might be adequate. Such pilot studies could indicate how the indirect cost rate should vary by discipline, if at all, and whether or not the cost should be different for grants from contracts.

Figure 3

Expenditure Classification

Types of Expenditures	Direct* Expense	Indirect* Expense	Specified Activity Centre in Support Functions
1. Academic staff payroll costs:			
(a) Salaries	X		
(b) Fringe benefits	X		
2. Other instruction and research payroll costs:			
(a) Salaries and wages	X		
(b) Fringe benefits	X		
3. Other payroll costs:			
(a) Salaries and wages	X	X	Various
(b) Fringe benefits	X	X	Various
4. Supplies and services expenditures:			
(a) Travel and moving	X	X	Various
(b) Books and periodicals	X	X	4.1 Libraries
(c) Operational supplies and expenses	X	X	Various
(d) Utilities		X	6.3 Physical Plant Operations
(e) Professional fees	X	X	Various
(f) Insurance	X	X	6.1 General University Administration & Services OR 6.3 Physical Plant Operations
(g) Institutional membership fees		X	6.5 Community Relations
(h) Externally contracted services		X	Various

Types of Expenditures	Direct* Expense	Indirect* Expense	Specified Activity Centre in Support Functions
5. Equipment expenditures:			
(a) Computer purchase		X	6.4 Plant Expansion & Modification
(b) Computer rental	X	X	6.2 Computer Services
(c) Other purchases	X	X	Various
(d) Other rentals	X	X	Various
6. Capital costs:			
(a) Renovations and alterations		X	6.4 Plant Expansion & Modification
(b) Space rental	X	X	Various
(c) Property taxes (net of provincial grants)		X	6.3 Physical Plant Operations
(d) Debt retirement and servicing (net of provincial grants)		X	6.3 Physical Plant Operations
(e) Buildings		X	6.4 Plant Expansion & Modification
(f) Land and site services		X	6.4 Plant Expansion & Modification
7. Scholarships:			
(a) Scholarships, bursaries and prizes		X	5.1 Student Services

* Where 'X' is indicated in both columns, some expenditures may be treated as direct expenses while others need to be allocated.

Figure 3

Expenditure Classification

Types of Expenditures	Direct* Expense	Indirect* Expense	Specified Activity Centre in Support Functions
1. Academic staff payroll costs:			
(a) Salaries	X		
(b) Fringe benefits	X		
2. Other instruction and research payroll costs:			
(a) Salaries and wages	X		
(b) Fringe benefits	X		
3. Other payroll costs:			
(a) Salaries and wages	X	X	Various
(b) Fringe benefits	X	X	Various
4. Supplies and services expenditures:			
(a) Travel and moving	X	X	Various
(b) Books and periodicals	X	X	4.1 Libraries
(c) Operational supplies and expenses	X	X	Various
(d) Utilities		X	6.3 Physical Plant Operations
(e) Professional fees	X	X	Various
(f) Insurance	X	X	6.1 General University Administration & Services OR 6.3 Physical Plant Operations
(g) Institutional membership fees		X	6.5 Community Relations
(h) Externally contracted services		X	Various

Types of Expenditures	Direct* Expense	Indirect* Expense	Specified Activity Centre in Support Functions
5. Equipment expenditures:			
(a) Computer purchase		X	6.4 Plant Expansion & Modification
(b) Computer rental	X	X	6.2 Computer Services
(c) Other purchases	X	X	Various
(d) Other rentals	X	X	Various
6. Capital costs:			
(a) Renovations and alterations		X	6.4 Plant Expansion & Modification
(b) Space rental	X	X	Various
(c) Property taxes (net of provincial grants)		X	6.3 Physical Plant Operations
(d) Debt retirement and servicing (net of provincial grants)		X	6.3 Physical Plant Operations
(e) Buildings		X	6.4 Plant Expansion & Modification
(f) Land and site services		X	6.4 Plant Expansion & Modification
7. Scholarships:			
(a) Scholarships, bursaries and prizes		X	5.1 Student Services

* Where 'X' is indicated in both columns, some expenditures may be treated as direct expenses while others need to be allocated.

5. METHODS OF ASSIGNING INDIRECT COSTS TO THE PRIMARY OPERATIONS:

5.1 Objective:

Assigning indirect costs to the primary operations refers to the process of transferring the cost lodged in the support activity centres to the three primary functions of Instruction, Research (specifically funded) and Public Service. The objective of this allocation process is to accomplish this transfer of costs in a manner that will accurately reflect the actual utilization of resources by activity centres that receive services from other activity centres. Therefore, in most cases the methods to be used in the allocation process rely on parameter data that have a high correlation with the level of services provided to the activity centres utilizing those services. Actual usage data, if available, should always be used in preference to other parameter data.

5.2 Allocation Parameters:

There are a number of different methods that could be used for allocating indirect costs. Earlier studies of NCHEMS[1] have considered a number of allocation parameters during pilot studies at university campuses. These included total direct costs, faculty payroll, staff payroll costs, supplies and services expenditures, full-time equivalent faculty, full-time equivalent staff, head count of faculty, head count of staff, assignable square feet, student credits, student contact hours, course enrolments and faculty contact hours.

[1] *Cost finding Principles and Prodedures: Field Review Addition (Zeimer, Young and Topping) 1971*

It is interesting to note here that the recent United States National Commission on the Financing of Post-Secondary Education commented on these findings[1] and mentioned that various methods have a substantial effect on the apportionment of costs. Standard allocation procedures were therefore recommended which would permit differences in cost to represent the underlying use of resources rather than variances in cost allocation procedures. In addition to being consistent it was also recommended that any allocation procedures followed on a national basis for arriving at cost comparisons should be fairly simple in order to be implemented at the majority of institutions.

Another paper that was reviewed by the Study Group when considering allocation parameters is entitled " A Proposed Direction for the Extension of Aggregated Financial Statistics on a National Basis". This material was drafted by the Accounting Research Committee of CAUBO and was submitted in June 1974 to all university presidents in order to describe a university costing model that could be implemented by expanding somewhat the present annual university financial statistics compiled by CAUBO and Statistics Canada.

5.3 Recommended Parameters for Allocation of Indirect Costs:

Figure 4 provides standard and fairly simple allocation procedures to be followed. Details on the support activity centres are available in Figure 1 and Appendix "A". Explanations of the parameters suggested are as follows:

5.3.1 Academic Staff Payroll Costs:

Represents the total amount of dollars including gross salaries and fringe benefits paid directly to faculty and charged out to the three primary cost centres.

1 *Page 32 of the Staff Paper of the National Commission entitled "Interim National Standard Procedures for Deriving per Student Cost in Post- Secondary Educational Institutions" December 31, 1973.*

It should be mentioned here that it is assumed that a faculty activity analysis has been conducted in a manner previously described.

5.3.2 Actual Usage Data:

Represents apportionment to the user of total costs of an activity centre as evidences by time and material records, on a post-facto basis as distinct from a charge-out system incorporated in the accounting records.

5.3.3 Full-Time Equivalent Enrolment:

Includes total full-time students plus an amount for part-time students as calculated by a conversion method followed within a repective province.

5.3.4 Total Direct Costs:

Includes categories of expenditures for payroll costs and supplies and service expenditures. Specifically excluded from total direct costs are capital costs of equipment and buildings because of the uneven pattern of such acquisitions.

5.3.5 Book Acquisitions and/or Circulation Data:

This alternative allocation procedure could be employed for universities which maintain accurate records of where books are purchased directly for research or instructional purposes and not made available for normal use. Automated information on circulation, which is a form of actual usage data, might also be available.

5.3.6 Student Courses:

Represents courses offered by an institution for at least one semester.

5.3.7 Assignable Square Feet:

Represents the sum of all areas of all floors of a building assigned to or available for assignment to an occupant; includes every type of space functionally usable by the occupant excepting those spaces defined as custodial,

circulation, mechanical and structural areas.

5.4 Recursive or Step-Down Method:

One suggested rule often mentioned in university cost studies that is recommended in assigning indirect costs is that a step-down approach be used for allocating costs from function to function. That is, once the cost of a function has been allocated to a higher function no further cost will be accumulated to that function. Normally, the support cost functions are arranged in such order that the centre that renders the greatest service to other centres in proportion to benefits received appears first. In examining the data from the pilot test studies conducted by NCHEMS it was found that use of the step-down method did not provide significantly different results from the direct allocation method. The latter method is based on the premise that the services produced by all support activity centres contribute directly and exclusively to the three primary cost centres. Therefore, the costs associated with support activities need not be allocated to other support activities as an intermediate step. It is therefore recommended that the direct allocation method be followed.

Figure 4

SUPPORT COST ALLOCATION PROCEDURES

Step*	Support Activity Centre Code	Support Activity Centre Name	Recommended Allocation Parameter**	Alternative Allocation Parameter	Activity Centres Receiving Support Costs
1.	4.1	Libraries	Academic Staff Payroll Costs (adjusted by a faculty activity analysis)	Book Acquisitions and/ or circulation data	All activity centres within programs 1.0, 2.0, and 3.0.
2.	4.2	Audio-Visual Services	Actual Usage Data	Academic Staff Payroll Costs (adjusted by a faculty activity analysis)	All activity centres within programs 1.0, 2.0, and 3.0.
3.	4.3	Academic Administration & Services	Total Direct Costs	Academic Staff Payroll Costs (adjusted by a faculty activity analysis)	All appropriate activity centres within programs 1.0, 2.0, and 3.0.
4.	4.4	Research Administration	Total Direct Costs	Academic Staff Payroll Costs (adjusted by a faculty activity analysis)	All activity centres within program 2.0.
5.	5.1	Student Services	Full-time equivalent enrolment	Student Courses	All activity centres within program 1.0.
6.	5.2	Admission and Registrarial	Full-time equivalent enrolment	Student Courses	All activity centres within programs 1.0 and 3.0.
7.	5.3	Ancillary Enterprises	Full-time equivalent enrolment	Student Courses	All activity centres within program 1.0.

Step*	Support Activity Centre Code	Support Activity Centre Name	Recommended Allocation Parameter**	Alternative Allocation Parameter	Activity Centres Receiving Support Costs
8.	6.1	General University Administration & Services	Total Direct Costs	None Specified	All activity centres within programs 1.0, 2.0, and 3.0.
9.	6.2	Computer Services	Actual Usage Data	Total Direct Costs	All activity centres within programs 1.0, 2.0, and 3.0.
10.	6.3	Physical Plant Operations	Assignable Square Feet	Total Direct Costs	All activity centres within programs 1.0, 2.0, and 3.0.
11.	6.4	Plant Expansion & Modification	Assignable Square Feet***	Total Direct Costs	All activity centres within programs 1.0, 2.0, and 3.0.
12.	6.5	Community Relations	Total Direct Costs	None Specified	All activity centres within programs 1.0, 2.0, and 3.0.

* It is recommended that the allocations be made by the direct allocation method. Therefore, the order in which the allocations are performed is not significant. The numbering of the steps is used as a convenient reference.

** If the recommended allocation parameter is unavailable, use the suggested alternative parameter.

*** Assignable Square Feet in this case refers to the projected square feet in the new facilities as distinct from existing space in the allocation of Physical Plant Operations.

6. TIME PERIOD OVER WHICH COSTS MAY BE CALCULATED:

6.1 Statement of Problem:

The fiscal year-end dates of universities range at the present time between the four dates of March 31, April 30, May 31, and June 30. As indicated by the attached Figure 5, there are some regional consistencies however, with all Ontario universities following an April 30 year-end; the Quebec universities concentrating on May 31; the Atlantic region tending to pick June 30; and the Western universities favouring March 31. the fiscal year of the federal government is March 31. As a result, there may be some problems associated with calculations of say, overhead rates on federal government projects when the base period for rate determination may differ by up to three months from the period of the project (which is normally April 1 to March 31). Albeit, it may be interesting to note that such problems have not been apparent in connection with payments to provinces under the Federal-Provincial Fiscal Arrangements Act. In this case, the financial year-end of a university has been taken as its fiscal year "if more than ½ of the total number of days in the financial year fall within the fiscal year (government)".(Per section 30(2)(b) of the Federal-Provincial Fiscal Arrangements Act. 1972).....

6.2 Advantages of Standardization Year-End Date of Universities:

There are some advantages in standardizing year-end dates for universities, one main advantage being to standardize reporting of payments. A year-end date which matched the fiscal year-end of the respective province might also facilitate the payment procedures for financing higher education.

If it were decided to agree on a uniform fiscal year-end date, either nationally or within a given region or province, the following are suggested guidelines:

1. "Generally a business finds it more convenient to end its annual accounting period during a slack season rather than during a time of peak activity"[1]. The same logic can apply for universities, especially in the normal case where a university follows a semester system for both full-time and part-time programs which are normally classified as fall, winter and spring or summer terms. The fall semester normally covers the period September to December; the winter semester (with only a short Christmas break period) January to April or May; and the third term May or June to August. In this case, a year-end date of either April or May 31 would seem more logical than other month ends.
2. An April 30 or March 31 year-end facilitates the "closing of the books" by following up on items such as travel advances and other "cut-off" problems during a time when staff are available on a full-time basis. A month-end of say June 30 or even May 31 conflicts with the holiday season of July and August.
3. A March 31 year-end date would seem to provide a better closing date for reporting on research projects financed from the federal government.

1 *Meigs, Johnson, Blazouske, Accounting, The Basic for Business Decisions, Page 63, McGraw-Hill Publications.*

4. The pay period for the staff should also be considered. In this case, it has been customary for academic salary periods to be a uniform annual period of July 1 to June 30. A June 30th date would thereby facilitate budgeting by including the salary expenditures at the same rate. There has been a trend, however, at least in the provinces of Ontario and Québec, to change the pay period to agree with their fiscal year-end dates of April 30 and May 31.

6.3 Application of Weighting Factors:

An alternative approach that could be followed if it is considered necessary to eliminate the impact of differing fiscal years, is to adjust an individual university's financial results to say a common base period of April 1 to March 31. If a university's year-end date is June 30th, an adjustment can be made for salary expenses by taking 9/12 of the current year's rates and adding 3/12 of the prior year. Inflation cost factors can be applied for supplies and other expenses.

Although standardizing year-end dates of universities would simplify the calculation of costs of research, the Study Group did not consider this to be essential. It is recommended that the fiscal years of the universities be used as the time period over which costs should be calculated.

Figure 5

SUMMARY OF OPERATING EXPENDITURES
BY REGION, AND BY MONTH OF FISCAL YEAR ENDED IN 1973
(Stated in Thousands of Dollars)*

Region	March 31		April 30		May 31		June 30		TOTAL	
	No.	$	No.	$	No.	$	No.	$	No.	$
Ontario			25	474,917					25	474,917
Québec					11	237,081	2	13,179	13	250,260
Atlantic:										
Newfoundland	1	24,624							1	24,624
New Brunswick							2	26,371	2	26,371
Nova Scotia	1	2,592			2	32,153	3	15,268	6	50,013
Prince Edward Island							1	4,756	1	4,756
Western:										
Alberta	3	108,676							3	108,676
British Columbia	3	107,983					1	1,038	4	109,021
Manitoba	4	53,661							4	53,661
Saskatchewan							2	48,207	2	48,207
	12	297,536	25	474,917	13	269,234	11	108,819	61	1,150,506

* Source as reported for the 1972-73 CAUBO-Statistics Canada Survey, "Financial Statistics of Universities and Colleges"

7. RECOMMENDED FUTURE ACTION

The Study Group on the Costs of University Research recommends that the following steps be taken:

1. This report of the Study Group should be reviewed by the Task Force on University Research for approval in principle or for modification.

2. The recommendations of the Task Force together with the report of the Study Group as approved should be passed on to the Council of Ministers of Education, Canada and to the Federal Government.

3. The Council of Ministers of Education, Canada and the Federal Government should decide on whether or not to implement the report.

4. If it is decided to implement the report, an Implementation Group should be created composed of representatives from the Task Force, AUCC, CAUBO, Statistics Canada and DSS that will be charged with the development of procedures and the implementation of the cost study. The study should be conducted by CAUBO together with Statistics Canada.

5. Participation by universities in the cost study should be on a voluntary basis. Each provincial government should work with the universities in their respective provinces to achieve maximum participation.

6. The Task Force on University Research should consider ways of creating incentives for university participation such as:

   (a) government funding of start-up costs. Depending upon the data base already available in different universities, it is estimated that to establish program costing systems will require one or two man-years of a professional accountant's time costing between $20,000 and $50,000 per university.

(b) lower (e.g. 10%) or no payment of indirect costs of research by Federal and Provincial Governments to those universities that do not participate.

7. Every possible attempt should be made to implement the cost study for the 1975-76 fiscal year, even if all details are not fully resolved. Complete resolution of all details can be accomplished for the 1976-77 fiscal year.

In order for program costing to be effective on a long term basis there must be cooperation and commitment to this concept from university personnel. To obtain this commitment, program costing will have to be seen to be beneficial to the universities. The Study Group believes that the usefulness of program costing can be demonstrated by implementing the cost study by the method described above.

APPENDIX "A"

PROGRAM STRUCTURE DEFINITIONS

1.0 INSTRUCTION

Basic to all institutions of higher education is that they offer some form of post-secondary instruction and most award degrees or certificates as an indicator of the level of proficiency achieved by the student. Thus, the instruction function or program consists of those program elements whose outputs are primarily eligible for credit in meeting specified formal curriculum requirements, leading toward a particular degree or certificate granted by the institution.

The set of activities involved in carrying out this instruction function, at both undergraduate and graduate student levels, includes the presentation of lectures, laboratory experiments, tutorials, seminars and demonstrations, as well as the preparation for these presentations whether by faculty or support staff. Preparation includes the effort involved in general reading and personal research by faculty members, and discussions with colleagues. Instruction also includes the interaction between faculty and students in relation to this instruction, such as academic counselling and special review or coaching as well as the evaluation of the students in these courses by marking or correcting papers and determining grades.

1.1 General Academic Instruction

Consists of those activities whose outputs are eligible for credit in meeting specified curricular requirements leading toward a particular post-secondary degree, certificate or diploma granted by the institution.

This subfunction could be further subdivided into degree program and year levels depending on amount of aggregation required. It is expected that these activities will be performed mainly during the institution's regular teaching term of September to May.

1.2 Special Session and Extension Instruction

Consists of all instructional activities offered during a summer session, interim session, or other period that is not in common with the institution's regular term. Also included are those instructional activities that are managed separately by an extension division or similar agency within the institution. In both cases they consist of activities whose outputs are

eligible for credit meeting specified curricular requirements leading to a particular post-secondary degree or certificate granted by the institution.

2.0 RESEARCH (specifically funded)

Research is creative work undertaken on a systematic basis to increase the stock of scientific and technical knowledge. This category includes all expenditures for activities specifically organized to produce research outcomes whether commissioned by an agency external to the institution or separately budgeted by an organizational unit within the institution.

Subject to these conditions, it includes expenditures for individual and/or project research as well as those of institutes and research centres. This category does not include all sponsored programs (training grants are an example) nor is it necessarily limited to sponsored research, since internally supported research programs, if separately budgeted, might be included in this category under the circumstances described above. Expenditures for departmental research that are separately budgeted specifically for research are included in this category.

Externally funded educational program elements such as workshops, short courses, and training grants are normally considered as either Instruction or Public Service.

Also excluded are activities related to the improvement of instructional skills which can be categorized as personal research, or general reading and study, and scholarly activity.

2.1 Institute and Research Centres

Contains all research-related program elements that are part of a formal research organization. Typically, research organizations are created to manage a number of research efforts. Included are research divisions, bureaus, institutes, and experimental stations.

2.2 Project Research

Consists of research activities that are normally managed within the academic departments. This subprogram consists of the various research-related program elements that have been created as a result of a contract, grant, or specific allocation of institutional resources to conduct a study or investigation of a specific scope. Generally, such program elements may be identified with the principal investigator and should be coded within

his or her assigned discipline. Program elements within this subprogram are normally of a temporary nature (i.e., created for a specified period of time) as contrasted to the more permanent nature of the research organizations within the institutes and research centres subprogram. However, an institution can explicitly commit departmental resources to the creation of research outcomes of an ongoing basis as a part of its educational program or policy.

3.0 PUBLIC SERVICE

Public service program elements are established to make available to the public the various unique resources and capabilities of higher education. The objective of the public service function is to provide services which are beneficial to individuals and groups external to the institution. Such benefits may be cultural or economic and may be directed toward individuals, common interest groups, or larger communities.

3.1 Community Education

Consists of activities that are designed to provide services beneficial to groups external to the institution and that are managed within the academic departments or elsewhere within the institution to provide continuing education, e.g., noncredit instructional services to members of the community. Community education is considered to be those activities that have been established to provide an educational service to the various members of the community and are not part of the degree curriculum, e.g., short courses, professional review courses, courses put on in cooperation with outside agencies, etc.

3.2 Community Services

These activity centres consist of activities that are designed to provide services beneficial to groups external to the institution and that are established to provide general community services, excluding instructional activities. Community service activities are managed either within the academic departments or elsewhere within the institution and have been established to provide general public services to the community at large or special sectors within the community. Community service is concerned with making available to the public various resources and unique capabilities that exist within the institution. Examples of community service may be conferences and institutes, general advisory services and reference bureaus,

radio and television, consultation, art galleries and museums (to the extent that they are not used in Instruction and Research), concerts and special lecture series, and service on public boards or commissions (where no reimbursement to the university).

4.0 ACADEMIC

The objectives of the academic support function are to provide support services which are an integral part of the operations of the primary activities. These are defined as the preservation, maintenance, and display of the current stock of knowledge and the provision of various services and capabilities for the primary programs. The academic support program is further characterized by the media and technology employed in accomplishing its overall objectives.

In addition to activities involving media, the academic support function also includes organizational units and resources which directly assist the academic objectives of the institution.

4.1 Libraries

Libraries consists of all activities that directly support the operation of a catalogued or otherwise classified collection of published material. Included here would be the institution's main, branch, faculty and departmental libraries.

4.2 Audio-Visual Services

Audio-visual services consists of all activities associated with providing audio and visual services to support the academic programs of the institution. The elements of service included would be closed-circuit television, programmed teaching, language labs, production, distribution and storage of files, slides, etc., and photography.

4.3 Academic Administration and Services

Consists of activities which are related to the planning, policy-making, coordination, and direction of curriculum, academic appointments, promotions, tenure, and university ceremonials. Included should be materials, supplies, salaries, fringe benefits, and expenses associated with the administrative duties of:

1. Senate
2. Deans of Faculties -- including administrative assistants, secretarial and clerical help

3. Dean of Graduate Studies
4. Department Heads
5. Secretarial Staff in Departments
6. Other departmental staff such as stock room assistants.

With Deans and Department Heads who hold joint administrative and faculty positions and who do some teaching and research as well as their administrative tasks, it is necessary to determine the appropriate costs associated with academic administration by means of a faculty activity analysis.

4.4 Research Administration

The expenses under this cost grouping are those that have been incurred by a separate organization or administrative unit established solely to administer the research activity. The head of such a unit may have varying titles such as Vice-President - Research, Vice-Provost - Research, Dean of Research or simply Research Administrator. If a separate unit has not been established and the signing authority and administration work associated with research grants and contracts is carried out by a senior administrator with other duties, then the research administration costs should appear in General University Administration or Academic Administration.

5.0 STUDENT

The overall objective of a student support program is to contribute to the student's emotional and physical well-being and his intellectual, cultural, and social development, outside the context of the formal academic program. The student service function attempts to achieve this overall objective by:

(a) enhancing the student's effectiveness as a student;
(b) expanding the dimensions of the student's educational experience; and
(c) providing the necessities and conveniences for the physical and emotional well-being of students.

5.1 Student Services

Includes the direct costs of student unions to the institution (excluding those expenditures which are offset by income received from students) the costs of the student health service; counselling service; chaplaincy, athletics (not physical education); student accommodation services (not residences); student placement; deans of men, women and students; student transportation services; bursaries, scholarships and prizes; the student financial aid office and day care centres.

5.2 Admission and Registrarial Services

Consists of those activities established within the institution to provide admission and registration services to students. This activity centre typically maintains the permanent academic records of the students.

5.3 Ancillary Enterprises

This activity centre consists of those activities established within an institution to provide convenient services to the student body or services to special student groups. Examples are activities such as student housing, bookstores, food services, and retail services and concessions. In this case, any revenue derived from these activities would be applied against the cost to arrive at the net loss or excess of expense over revenue.

It is assumed here that other activities of an ancillary nature such as a university press, operating a football stadium or other facilities such as parking garages, etc. would be run on a self-supporting basis.

6.0 INSTITUTIONAL

In higher education, as in any organized system, program elements have been established to provide those services which are necessary to maintain and sustain the organization. The institutional support function consists of program elements which provide operational support for the day-to-day functioning of the organization. The overall objective of the institutional support program is to maintain the institution's organizational effectiveness and continuity. It does this by:

(a) providing planning and executive direction;
(b) providing efficient administrative and logistical services;
(c) maintaining the quality of the physical environment; and
(d) enhancing relationships with the institution's constituencies.

6.1 General University Administration and Services

This subfunction includes the activities of the following: president's office, vice-presidents, finance, personnel, university planning (including institutional research), purchasing and stores, secretaries, and administrative information systems. It also includes expenditures on convocations, legal and audit fees, professional fees, institutional membership fees, and that portion of debt servicing not financed by specific government grants.

6.2 Computer Services

Consists of those activities established to operate all campus computing facilities.

6.3 Physical Plant Operations

This activity centre consists of those activities established to provide services related to the campus grounds and facilities. Included in this category are costs related to physical plant administration, building and grounds maintenance, custodial services and utilities.

6.4 Plant Expansion and Modification

This activity centre contains program elements which represent institutional resources committed to creating new facilities or modifying existing facilities. Also included would be the costs of equipment which could not be assigned directly to the primary operations. All program elements could normally be classified as fixed assets because of their material value and/or having an estimated life of more than one fiscal year.

6.5 Community Relations

This activity centre consists of those activities that have been established to maintain relationships with the general community, the institution's alumni or other constituents, and to conduct activities related to development and fund raising.

APPENDIX "B"

EXPENDITURE CATEGORIES' DEFINITIONS

1. ACADEMIC STAFF PAYROLL COSTS

(a) Salaries

Includes salaries paid to academic staff with an academic rank from instructor, lecturers to deans inclusive in faculties, academic departments, summer schools, credit extension courses and other academic functions. Include both full-time and part-time appointments.

(b) Fringe Benefits

Includes a university's contribution to pensions, group life insurance, workman's compensation, unemployment insurance, supplementary pension payments and other like benefits. Vacation pay, however, should be included under salaries and also all payments for sabbatical leave.

2. OTHER INSTRUCTION AND RESEARCH PAYROLL COSTS

Included in this category are salaries and wages paid to personnel who perform such professional duties as tutor, demonstrator, monitor, invigilator or marker, research assistant, or carry out any duty related to research or teaching without any lecturing or course responsibility.

Payments to graduate and undergraduate students fulfilling these functions are to be included in this category.

Amounts paid to post-doctoral fellows and full-time non-ranked staff (engaged in instruction and research) are also be to included here.

3. OTHER PAYROLL COSTS

Includes all salaries not reported in parts 1. and 2. above. Specifically, it includes salaries and wages paid to such people as lab technicians, maintenance personnel, office staff, etc., as well as salaries paid to full-time staff holding academic rank who are engaged in activities other than instruction and research, e.g. certain professional librarians or computing personnel.

4. SUPPLIES AND SERVICES EXPENDITURES

(a) Travel and Moving

Includes expenditures on recruitment, travel and relocation of staff and other types of travel necessary for the operation of an institution.

4. (b) Books and Periodicals

Includes purchases of books, periodicals, microfilms and other reference material for the main branch, faculty and department libraries.

(c) Operational Supplies and Expenses

Includes expenditures for supplies which would normally be consumed within the fiscal year, including postage, photocopying, publications, long distance telephone charges, repair materials, maintenance supplies, etc.

(d) Utilities

Includes all expenditures for fuel, electricity, water, gas, telephone equipment rental, etc.

(e) Professional Fees

Includes all fees paid to legal counsellors, auditor fees, consultant's fees, etc.

(f) Insurance

Includes all payments for insurance relating to the current year. Liability insurance should be reported under the General University Administration and Services activity centre with other insurance including fire reported under Physical Plant.

(g) Institutional Membership Fees

All institutional fees paid by the institution to such organizations as A.U.C.C. are to be included here.

(h) Externally Contracted Services

This category includes all expenditures for services provided by non-university agencies. Examples are, in the area of food services, security, cleaning or computer contracts.

5. EQUIPMENT EXPENDITURES

Includes all expenditures, purchase or rental, for furniture or equipment normally classified as fixed assets because of their material value and/or having an estimated life of more than one fiscal year.

6. CAPITAL COSTS

(a) Renovations and Alterations

Represents costs involving renovations and alterations to existing university space.

6. (b) Space Rental

The costs of renting space and land should be included in this category.

(c) Property Taxes

This includes all taxes paid to municipalities by the institution. In cases where such expenses are reimbursed by a province such grants should be offset against the expense to arrive at a net figure.

(d) Debt Retirement and Servicing

Includes both the principal and interest repayments to service debts of the institution such as bank interest, mortgage interest, debenture interest and related charges. Here again, any direct reimbursements by a province should be offset against this expense category.

(e) Buildings

This category should include all expenditures which are normally considered part of the construction cost, except where applicable furniture and equipment and site services which are costed out separately.

7. SCHOLARSHIPS, BURSARIES AND PRIZES

This should include all payments to students except for those for which the student is required to perform services, including fee remissions and gifts.

APPENDIX "C"

EXPENDITURE ITEMS CLASSIFIED AS DIRECT COSTS OF RESEARCH

1. ACADEMIC STAFF PAYROLL COSTS

Represents the portion of the remuneration and related fringe benefit costs paid to faculty members equivalent to the effort they put in on research.

2. OTHER RESEARCH PAYROLL COSTS

Included here would be the cost of salaries and related fringe benefits for payments to research assistants and other persons engaged in research such as graduate students who do not have an academic rank.

3. OTHER PAYROLL COSTS

These represent salary, wages and group benefit plan payments for personnel engaged to work directly on a research project. Included would be technicians, computer programers, clerical and secretarial personnel, interviewers, editorial assistants and persons hired as human subjects.

4. SUPPLIES AND SERVICES EXPENDITURES

(a) Travel and Moving

Included here would be costs incurred in the following elements: administrative travel; field work; attendance at professional meetings; travel for consultation; consultant's travel; subsistence; automobile rental; and, aircraft and ship rentals.

(b) Books and Periodicals

Books purchased directly for research purposes and not made available for normal library use.

(c) Operational Supplies and Expenses

Includes materials purchased specifically for research under a grant or contract as well as withdrawals from general stores or stock rooms. Due credit should be given for all proceeds for any scrap or for any materials returned to general stores. Items to be included are: (1) animals (2) animal food (3) laboratory supplies (4) glassware (5) chemicals (6) electronic supplies (7) test materials (8) questionnaire forms (9) office supplies if purchased in sufficient quantities to be charged directly to research (10) postage (11) long distance telephone charges (12) telegrams and cables (13) incoming transportation charges on purchases (14) publication charges.

4. (c) Another major item in this category are university services. Here, every university has a number of facilities which provide services upon requisition by a user. Such services include: (1) computer services (2) printing services (3) photographic services (4) machine shop services (5) glass blowing services (6) electronic shop services (7) analytical laboratory services, and (8) service contracts.

(d) Professional Fees

For research projects this expense would include payment to outside consultants.

(e) Insurance

Represents premium cost for a specific coverage related to a research project. Normally universities self-insure for such risks. Losses should also be included here to the extent they arise from deductible clauses.

5. EQUIPMENT EXPENDITURES

Includes the acquisition and rental costs of furniture and equipment items, including computer 'hardware', which are employed specifically on a research project.

6. SPACE RENTAL

Includes rental costs of premises which is required to conduct a research project.

APPENDIX "D"

ALPHABETICAL LIST OF DEFINITIONS

	SOURCE
Accrual Accounting. (a) The method of recording transactions by which revenues and expenses are reflected in the accounts in the period in which they are considered to have been earned and incurred, respectively, whether or not such transactions have been finally settled by the receipt or payment of cash or its equivalent. Compare cash basis of accounting. (b) The accounts should be maintained and reports prepared on the accrual basis of accounting. Revenues should be reported when earned and expenditures when materials or services are received. Included in expenditures are (1) all expenses incurred, determined in accordance with generally accepted accounting principles except for the omission of depreciation, and (2) expenditures for the acquisition of capital assets, to the extent expended. Expenses incurred at the balance sheet date should be accrued and expenses applicable to future periods should be deferred. However, certain deferrals and accruals, such as investment income and interest on student loans, often are omitted. Nevertheless, the only basis for their omission should be that the omission does not have a material effect on the financial statements. Revenues and expenditures of an academic term that encompasses parts of two fiscal years, such as a summer session, should be reported totally within the fiscal year in which the program is predominantly conducted.	C.I.C.A. (Canadian Institute of Chartered Accountants) Handbook, Page 3, Toronto, 1957. College and University Business Administration, May 1974, Part 5, N.A.C.U.B.O. (National Association of College and University Business Officers)
Allocation. Means the process by which the indirect costs apportioned to instruction and research are assigned among the primary operations.	Executive Office of the President. Bureau of the Budget. Cir. No. A-21 (Revised), March 3, 1965.
Ancillary Enterprises. Ancillary enterprises are traditionally services of a sales producing nature provided supplementary to the primary function of teaching and research and include such functions as Bookstore, Food Services, Residences, Parking, University Press-Publishing, and Facility rentals. Services provided to students out of general revenue, or wholly or in part by a specific charge included in the incidental fee structure, are not ancillary enterprises but are classified as student services and include Health Services, Counselling, Athletics, Dean of Men or Women, Placement Services, Student Housing Services and other student programme costs.	Committee of Finance Officers-Universities of Ontario. Fall meeting, Brock University, October 26, 1973.
Assisted, Sponsored or Contract Research. Means research that is conducted by an educational institution or an individual employed thereby, either alone or in conjunction with others, or on behalf of an educational institution or an	Canada Gazette, Part II, Vol. 106, No. 8, Pages 585-586, April 26, 1972.

	SOURCE
individual employed thereby, and that is (a) financed in whole or in part with money given to the educational institution by an outside agency or a province that, at or prior to the giving of the money, restricted the use thereof to the research that is so conducted, or (b) paid for in whole or in part by an outside agency or a province under a contract with the educational institution or individual whereby the research is conducted for it or specialized services are rendered to it.	
Cash Accounting. A method of recording transactions by which revenues and expenses are reflected in the accounts in the period in which the related cash receipts or disbursements occur.	C.I.C.A. Handbook, Page 16, Toronto, 1957.
Cost. (a) The outlay made or the obligation incurred, as measured in terms of money, to obtain property or services.	C.I.C.A. Handbook, Page 20, Toronto, 1957.
(b) The word "cost" has a vague and ill-defined meaning by itself. A proper definition can only be made in reference to a specific situation and even then, it usually must be supplemented with the terms full, average, marginal, etc.	Anthony, Robert N. Article in Harvard Business Review, "What should 'cost' mean". June 1970.
Depreciation Accounting. "Depreciation accounting is a system of accounting which aims to distribute the cost or other basic value of tangible capital assets, less salvage (if any), over the estimated useful life of the unit (which may be a group of assets) in a systematic and rational manner. It is a process of allocation, not of valuation. Depreciation for the year is the portion of the total charge under such a system that is allocated to the year. Although the allocation may properly take into account occurrences during the year, it is not intended to be a measurement of the effect of all such occurrences." (Accounting Terminology Bulletin No. 1, American Institute of Accountants)	C.I.C.A. Handbook, Page 24, Toronto, 1957.
Direct Cost. An item of cost that may reasonably and conveniently be identified with a specific unit of product or with a specific operation, process, department, or other cost unit.	C.I.C.A. Handbook, Page 25, Toronto, 1957.
Expenditure. An outlay made or liability incurred to obtain an asset or service, as distinguished from "disbursement" (the payment of cash), and "expense" (that portion of an expenditure assignable to current revenues, or which was incurred during the fiscal period and is not assignable to future revenues or fiscal periods). An expenditure incurred in one fiscal period may be an expense of	C.I.C.A. Handbook, Page 30,

	SOURCE
the same or a later period or charged to expense over a series of periods, e.g. depreciation charges. Some expenditures are not or do not become expenses, e.g. purchase of securities.	
Financial Year. A financial year of an educational institution is related to a fiscal year if more than 1/2 of the total number of days in the financial year fall within the fiscal year.	Federal-Provincial Fiscal Arrangements Act, Page 28, Chapter 8, 1972.
Fixed Assets. A tangible long-term asset, such as land, building, equipment, etc., held for use rather than for sale.	C.I.C.A. Handbook, Page 32, Toronto, 1957.
Full-Time Teachers. Is defined to include the following:- 1. Staff appointed on a full-time position for the complete academic year. 2. Staff appointed on a full-time basis where term of appointment is less than a year, e.g. four months, eight months, etc.	University Full-Time Teaching Staff System Manual, 1974-75, Statistics Canada, Education, Science and Culture Division.
Fund Accounting. (a) Accounting procedures in which a self-balancing group of accounts is provided for each accounting entity established by legal, contractual, or voluntary action, especially in governmental units. In fund accounting for municipalities, for example, it is customary to account separately for the capital fund, the current, revenue, or general fund, the sinking fund, and sometimes other funds. The accounts for each such entity will record the fund's resources on the one hand and the liabilities, surplus and other credits on the other hand.	C.I.C.A. Handbook, Page 32, Toronto, 1957.
(b) Fund concept - For reporting purposes, all funds are considered to be either capital or operating. The latter is subdivided into general purpose, trust and endowment, sponsored research and ancillary enterprises.	Canadian Association of University Business Officers-Statistics Canada, Education. Notes to Accompany the Data Form, Page 3, June 26, 1974.
Indirect Costs. Those elements of cost that are not conveniently identifiable with a specific unit of product or with a specific operation, process, department, or other cost unit.	C.I.C.A. Handbook, Page 37, Toronto, 1957.
Instruction. (a) The set of activities concerned with the teaching of students in formalized courses and supervised study. It includes the presentation of lectures, labs, tutorials, seminars and demonstrations as well as the preparation for these presentations whether by faculty or support staff. Preparation includes some proportion of general reading, discussions with colleagues, and attendance at conferences and seminars. Instruction also includes the interaction between faculty and students in relation to this instruction, such as	A Programme Costing Manual for Ontario Universities. DRAFT, January 5, 1973.

	SOURCE
academic counselling and special review or coaching as well as the evaluation of the students in those courses by marking or correcting papers and determining grades. This would include all supporting activities and resources for carrying out the instructional activities. 1. Undergraduate Instruction - The set of instructional activities given to students seeking their first degree at the baccalaureate level. This sub-function could be further subdivided into degree programme and year levels depending on degree of aggregation required. This would include the investigation or study undertaken by an undergraduate student outside of the classroom for which there is no generally recognized course of study, but which is a prerequisite for the completion of his degree, and the activities required to direct and support such study. 2. Graduate Instruction - The set of instructional activities offered to students pursuing studies leading to a post-graduate designation. This would include the investigation or study undertaken by a graduate student outside of the classroom for which there is no generally recognized course of study, but which is a prerequisite for the completion of his degree, and the activities required to direct and support such study. This sub-function could be further subdivided into degree programme category.	
(b) This category should include expenditures for all activities that are part of an institution's instruction program, with the exception of expenditures for remedial and tutorial instruction, which should be categorized as Student Services. Expenditures for credit and noncredit courses, for academic, occupational, and vocational instruction, and for regular, special and extension sessions should be included. Expenditures for departmental research and public service that are not separately budgeted should be included in this classification. This category excludes expenditures for academic administration when the primary assignment is administration, for example, academic deans. However, expenditures for department chairmen, in which instruction is still an important role of the administrator, are included in this category.	College and University Business Administration, Part 5, NACUBO, May 1974.
Primary Programs. A stratum of the Program Classification Structure hierarchy. The primary programs contain the activities directly related to the accomplishment of the missions of higher education.	WICHE Program Classification Structure, Pages 5-10, June 1970.
Program Budgeting. A resource allocation technique which facilitates the organization and identification of the activities of an institution in terms of its objectives, displays the cost of these activities over an extended time frame, and relates these activities and their costs to the outputs of the institution's programs. The budget-aspect of a Planning Programming and Budgeting System.	WICHE Program Classification Structure, Pages 5-10, June 1970.

	SOURCE
Public Service. This category should include funds expended for activities that are established primarily to provide non-instructional services beneficial to individuals and groups external to the institution. These activities include community service programs (excluding instructional activities) and cooperative extension services. Included in this category are conferences, institutes, general advisory services, reference bureaus, radio and television, consulting, and similar non-instructional services to particular sectors of the community.	College and University Business Administration, Part 5, NACUBO, May 1974.
Research and Experimental Development. Research and experimental development may be defined as creative work undertaken on a systematic basis to increase the stock of scientific and technical knowledge and to use this stock of knowledge to devise new applications. 1. Basic Research - Basic research is original investigation undertaken in order to gain new scientific knowledge and understanding. It is not primarily directed towards any specific practical aim or application. 2. Applied Research - Applied research is also original investigation undertaken in order to gain new scientific or technical knowledge. It is, however, directed primarily towards a specific practical aim or objective. 3. Experimental Development - Experimental development is the use of scientific knowledge in order to produce new or substantially improved materials, devices, products, processes, systems or services.	OECD: The Measurement of Scientific and Technical Activities. "Frascati Manual", Pages 8-9, Paris, 1970.
Research (specifically funded). This category should include all expenditures for activities specifically organized to produce research outcomes, whether commissioned by an agency external to the institution or separately budgeted by an organizational unit within the institution. Subject to these conditions, it includes expenditures for individual and/or project research as well as those of institutes and research centres. This category does not include all sponsored programs (training grants are an example) nor is it necessarily limited to sponsored research, since internally supported research programs, if separately budgeted, might be included in this category under the circumstances described above. Expenditures for departmental research that are separately budgeted specifically for research are included in this category.	College and University Business Administration, Part 5, NACUBO, May 1974.
Step-Down Method of Cost Analysis. "The cost centres (are) arranged in such order that the department which renders the greatest service to other departments in proportion to benefits received appears first in the arrangement. This would mean that activities representing primary cost centres would appear last. As the expenditures for each overhead or general service department, beginning with the first, are allocated to all other departments which it serves, the costing process for that cost centre is, for general purposes, considered closed. No	Committee of Presidents of Universities of Ontario, Report No. 70-3, December 1970. Thompson, I.W. and Lapp, P.A. "Method for Developing Unit Costs in Educational Programs".

	SOURCE
further allocations are made to it. Under this system, expenditures for plant operation and maintenance, for example, might as a first step be allocated to all departments. When this process is completed, the plan management account is closed; nothing is added to it or deducted from it."	
Student services. "Costs of services provided to students by the University in addition to direct teaching, research and administrative services will include Health Services, Counselling, Athletics, Dean of Men or Women, Placement Services, Student Housing Services, Grants to Student Organizations, Student Programme Costs, e.g. Cultural, Music, Drama, Student Centre Costs, Coordination (Waterloo only). These services may be provided out of general university revenue or wholly or in part by a specific charge included in the incidental fee structure. Do not include Student Activity Fees collected and turned over to Student Councils or Federations where the university is acting in an agency capacity. If any of the foregoing items are carried as Ancillary Enterprises on the statements of the university, the revenue and expenses should be transferred to this functional area for purposes of this report."	Committee of Finance Officers-Universities of Ontario. Minutes of Meeting, Carleton University, Ottawa, March 9, 1973.
University. The term university is used in Canada to describe almost any post-secondary institution which has the power to grant degrees. In this sense, in 1973 there were 66 universities in Canada, 16 of which held their degree-granting powers in abeyance while in federation or affiliation with other universities. About 25 of these are multi-faculty institutions in the usual sense of the term. Until recently the term "college" was occasionally applied to other post-secondary institutions with limited powers or to constituent parts of a university but this term is now generally applied to "community colleges" which are outside university structure.	AUCC-Statistics Canada. "Universities and Colleges of Canada, 1973". S.C. Catalogue No. 81-230.

APPENDIX "E"

LIST OF FIELDS OF STUDY

Field of Study (Aggregated)

Education
Fine Arts, Music
Humanities and Related
Social Sciences and Related
Agriculture and Biological Sciences
Engineering and Applied Sciences
Health Specializations
Mathematics and Physical Sciences

Field of Study (Intermediate)

Education
Fine Arts, Music
Classics
History
Library and Records Science
English
French
Other Languages
Philosphy
Religion and Theology
Other Humanities
Anthropology
Administration, Business, Commerce
Economics
Geography
Law
Environmental Studies, Urban Planning and Related
Political Sciences and Public Administration
Psychology
Social Work
Sociology
Other Social Sciences and Related
Agriculture
Forestry
Household Sciences and Dietetics
Veterinary Medicine
Medicine, Surgery, Medical Specializations
Dentistry
Nursing
Pharmacy
Public Health
Other Health (Optometry, rehabilitation,etc.)
Biology
Biochemistry and other Basic and Paraclinical Medical Science
Botany
Zoology
Architecture
Engineering and Applied Science
Chemistry
Physics

Mathematics and Applied Mathematics
Geology and Earth Sciences
Other Sciences

Field of Study (Detailed)

Education Teaching Fields:

Elementary, Kindergarden and Pre-school
Exceptional Groups of Children (blind, deaf, etc.)
Physical and Health Education and Recreation
Practical or Vocational Subjects (e.g. art, commerce industrial arts, etc.)
Secondary Schooling
Other Teaching Fields- Education Non-teaching Fields
Counselling and Guidance
Educational Administration & Organization
Educational Psychology
Education (unspecialized)
Other Non-teaching Fields (including theory)

Fine and Applied Arts:

Music
Other Fine and Applied Arts,(drama, interior design etc.)

Humanities and Related:

Classics, Classical Languages
History
Library and Records Science
Modern Language and Literature (English)
Modern Language and Literature (French)
Modern Language and Literature (all others including comparative literature)
Philosophy
Religious Studies (including theology)
Translation and Interpretation
Other Humanities and Related (creative writing, journalism, mass medial studies etc.)

Social Sciences and Related:

Administration and Management, Institutional (excluding, schools, etc., but including hospital, hotel and restaurant administration)
Agricultural Economics
Anthropology (including anthropolinguistics)

Archaeology
Area Studies (Canadian studies, Islamic studies etc.,; excluding those concerned primarily with the languages or literature of an area)
Commerce- (Specialization in accounting)
Commerce- Other Commerce or Business Administration (marketing, industrial relations, finance etc.)
Criminology
Economics (except agricultural)
Geography (excluding earth science, urban and regional planning)
Law
Linguistics (excluding anthropolinguistics)
Man/Environment Studies (regional, rural, urban or town planning, community development; resource management, etc.; excluding landscape, architecture, environment engineering)
Political Science (including military studies but excluding public administration)
Psychology, Clinical (excluding vocational counselling)
Psychology, Other (excluding educational psychology, school and vocational counselling and guidance)
Public Administration
Secretarial Science
Social Work
Sociology, (including demography, sociology of education)
Other Social Sciences & Related (general programmers, etc.)

Agriculture and Biological Sciences(excluding health professions):

Agriculture (excluding agr. economics, agr. engineering landscape architecture)
Biochemistry (non-medical)
Biology (including non-medical biophysics)
Botany (excluding paleobotany)
Dietetics and Nutrition
Forestry
Household Sciences and Related (excluding dietetics, nutrition, interior design)
Veterinary Medicine and Science
Zoology (excluding paleontology) (including fishery science)

Engineering and Applied Sciences:

Aeronautical Engineering (including astronautical, aero space)
Agricultural Engineering
Architecture
Architecture- Landscape
Biomedical Engineering (including biomedical electronics)
Chemical Engineering

Civil Engineering (including hydraulic, sanitary, surveying, geodesy, transportation)
Electrical (including electronics)
Engineering Science, Engineering Psysics
Geological Engineering
Industrial Engineering (including design & systems engineering)
Mechanical Engineering
Metallurgical Engineering, Material Science
Mining Engineering
Other Engineering (ceramics, environmental, forestry marine, naval architecture, nuclear, ocean engineering, textile, etc.)

Health Specializations:

Dentistry
Medicine, Basic Sciences (medical biochemistry, medical pharmacology, etc.)
Medicine, Family or General Practice
Medicine, Medical specializations (internal, paediatrics, psychiatry, etc.)
Medicine, Paraclinical Sciences(medical bacteriology, medical immunology, medical parasitology, etc.)
Medicine, Surgery and Specializations in Surgery (obstetrics, neurosurgery, heart surgery etc.)
Nursing (including nursing education)
Pharmacy
Public Health and Hygiene
Rehabilitation Medicine (occupational and physical therapy, audiology, etc.)
Other Health Specializations (optometry, medical technology, dental hygiene, etc.)

Mathematics, Physical Sciences, Earth, Marine and Space Sciences:

Astronomy and Astrophysics
Chemistry (excluding bio-chemistry)
Computer Science
Geology and Related Earth Sciences (including geophysics, geochemistry, paleontology, paleobotany)
Mathematical Statistics
Mathematics Other (including acturial science, operations research)
Metallurgy, Materials Science (excluding engineering)
Meteorology, and Other Atmospheric Sciences
Physics
Oceanography, Marine Science