


**REPORT OF THE
PYLEE COMMITTEE
ON THE
RECOMMENDATIONS OF THE
PUNNAYYA COMMITTEE
RELATING TO
UNIT COST OF HIGHER EDUCATION
AND OTHER ISSUES**



**UNIVERSITY GRANTS COMMISSION
NEW DELHI**

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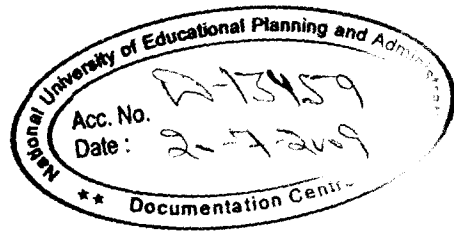


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Letter of Submission

July 4, 1997

Dear Professor Desai,

It gives me great pleasure to present the Report of the Committee which went into the details, modalities and mechanisms for the implementation of certain recommendations of the Punneya Committee Report. The items listed in the terms of reference were six as given below:-

1. Central Universities may switch over to an appropriate mix of input funding and student funding systems, which may be standardized for comparable costs, which may be studied by UGC over a period of time.
2. In regard to student funding consideration of merit as well as social and economic backwardness should be taken into account.
3. Quality, efficiency and innovativeness must be consciously rewarded, and institutions failing to improve financial and academic discipline should face disincentives.
4. The unit cost system of calculation of eligibility of grants should replace the existing incremental system which may be retained till the end of the current Five Year Plan period.
5. Development grants should be linked to an academic audit system and performance indicators to be developed by each university.
6. Central Universities must avoid offering conventional courses except when they are specially needed.

The Committee met twelve times in all by the time it finalised the Report. In almost all its meetings the one item which received the maximum attention of the Committee was the UNIT COST SYSTEM. The concept of Unit Cost is new to India especially in the context of education. Application of Unit

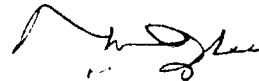
Cost System in a university is fraught with many difficulties because of the complex nature of the university system with many faculties, divisions and departments and each category presenting a cost structure different from the rest.

The Committee took the assistance of AIU which identified twelve universities (four Central, four Deemed and four State) for a pilot study. Thereafter, AIU conducted three workshops of Chairman and two members from different UGC subject panels in which optimum costs for each subject were discussed. It also conducted a workshop for Registrars and Finance Officers of Central Universities and Deemed to be Universities in which the unit cost methodology was discussed. The recommendations of the Committee are largely based on the pilot study made by the AIU and its findings. (Appendix II). I would like to express on behalf of the Committee our appreciation of the work done by AIU under the guidance of Professor K.B.Powar.

I hope that our recommendations on each of the items referred to us would be found acceptable to the Commission and necessary consequential measures will be taken to implement them.

With kind regards,

Yours sincerely,



(M.V. Pylee)

Professor (Miss) A.S. Desai
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ACKNOWLEDGEMENTS

The Committee is indebted to -

- the Chairperson, University Grants Commission, and her colleagues for the excellent facilities provided for holding meetings of the Committee in the office of the University Grants Commission.

- Association of Indian Universities for organizing workshops on Unit Cost of Higher Education and related areas.

- the Director, Nation Assessment and Accrediation Council, Bangalore for making it possible for the Committee to hold its meeting in the Office of the NAAC.

The Committee expresses its appreciation to the work done by the Coordinator of the Committee Dr. R.K.Chauhan, Shri C.K.Kapahi and Shri Vasdev Talreja, of UGC, who have made significant contributions in ensuring timely organisation of the meetings and the final preparation of the report.

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INTRODUCTION

The Committee set up by the University Grants Commission, with Justice (Dr.) K. Punnayya as Chairman, to examine UGC funding of institutions of higher education, had made a series of recommendations on the subject. The UGC on examination of the recommendations of the Committee wanted the details, modalities and mechanisms for some of its recommendations to be considered by a committee. Accordingly, a committee headed by Professor M.V. Pylee was set up with the following members:

1. Professor M.V. Pylee
2. Mr. P.K. Umashankar,
3. Dr. K.B. Powar
4. Dr. R.V. Vaidyantha Ayyar
5. Professor R. Rajaraman
6. Secretary, UGC

TERMS OF REFERENCE

The terms of reference of the Committee were to work out the mechanism and modalities for the implementation of the following recommendations:

1. Central Universities may switch over to an appropriate mix of input funding and student funding systems, which may be standardized for comparable costs, which may be studied by UGC over a period of time.
2. In regard to student funding consideration of merit as well as social and economic backwardness should be taken into account.
3. Quality, efficiency and innovativeness must be consciously rewarded, and institutions failing to improve financial and academic discipline should face disincentives.
4. The unit cost system of calculation of eligibility of grants should replace the existing incremental system which may be retained till the end of the current Five Year Plan period.

5. Development grants should be linked to an academic audit system and performance indicators to be developed by each university.
6. Central Universities must avoid offering conventional courses except when they are specially needed.

The first meeting of the Pylee Committee was held on 17th August, 1994. The Secretary, UGC explained to the Committee that UGC wanted these six important recommendations made by the Punnayya Committee to be examined in detail as they would have far-reaching implications on the efficient functioning of the Central Universities, and their funding. The Commission would like the Committee to guide it in the manner of implementation of these recommendations. The Committee at its first meeting held wide-ranging general discussions on the issues referred to it. Shri Y.N. Chaturvedi, Additional Secretary, Ministry of Human Resource Development, suggested that a uniform formula for funding of the Central Universities should be evolved which may be made applicable from a future specific date. The formula could be discussed with the universities so that anomalies and aberrations could be avoided. On a detailed discussion, the Committee decided that institutional funding and student funding could be considered under two parts. The Association of Indian Universities (AIU), because of its background and experience, might be requested to prepare a uniform design for working of the per unit teaching cost with assistance to be provided by UGC. It was also decided that individual universities should also be asked to undertake the exercise of working out the per unit teaching cost based on the parameters of AIU.

The Committee also decided to examine a draft scheme then under preparation by Ministry of Human Resource Development for providing loans to needy students. The Committee at its next meeting held on 23rd September, 1994 reviewed the papers on the scheme for providing loans to needy students and decided to examine the issue further. The Committee noted that AIU would need to be provided further information by the UGC for preparation of the details of its work. The UGC was requested to make available the audited accounts of nine central universities for the years

1991-92, and 1992-93, and if possible engage a Chartered Accountant to work out the per unit cost in consultation with AIU.

The Committee at its meeting held on 22nd November, 1994, briefly reviewed the work done by AIU and other organisations and decided that the issues will be discussed at the next meeting for taking specific decisions.

The Committee at its meeting held on 1st-3rd May 1995 noted that the work related to universities taking up determination of unit cost need to be expedited. The Committee also decided to call all the representatives of Central Universities and Deemed Universities to a workshop to be arranged by AIU, to discuss the issues relating to modalities to be adopted for working out the unit cost.

In regard to the papers on schemes of fellowships and scholarships in Central Universities, the Committee decided that detailed information might be obtained from the State Governments with regard to fellowships and scholarships that they have in existence for the students belonging to SC/ST and also such schemes available to other socially and economically backward students. The Committee recommended that the views of NAAC, Bangalore, on quality, efficiency and innovativeness, may be obtained for further discussion on the subject.

The Committee at its meeting held on 1st November 1995 reviewed the progress of work relating to determination of unit cost of higher education and while appreciating the work done by the AIU felt that there was need for calculation of academic and administrative costs as well as optimum costs, departmentwise. There was also detailed discussion on this subject and many observations were offered to AIU for duly and appropriately modifying its studies. The Committee also felt that there might be a need for a permanent cell for unit-cost study in UGC. In conclusion, the Committee decided that AIU in the first instance might take a sample of four universities, viz., Delhi, Pondicherry, Shivaji and Kurukshetra and prepare departmentwise unit costs.

The Committee reviewed the study of unit cost presented by AIU at its next meeting held on 5th January, 1996. The AIU was requested to prepare the

optimum unit cost for selected subjects. It was decided that the report in this regard would be sent to subject panels of the UGC for their inputs. It was desired that the notes on academic auditing system prevalent in U.K. and on starting of conventional courses in Central Universities may be circulated for discussion at the next meeting.

The committee at its meeting held on 23rd February, 1996 considered the letter dated 6th February 1996 received from Ministry of Human Resource Development regarding expediting the work on unit cost system. The Committee requested AIU to finalise the proposal on calculation of unit cost by 30th April, 1996. The Committee took note of the information provided by UGC that the proposal of AIU with regard to optimum cost have been communicated to the subject panels for their observations. The Committee decided to request the subject panels to give their observations by 31st March, 1996. The Committee decided to communicate a copy of the academic audit system in U.K. to the Director, NAAC and seek proposals from him for adoption of an appropriate system in Indian Universities. There was detailed discussion regarding the starting of conventional courses and Professor R. Rajaraman was requested to draft the recommendations of the Committee.

The next meeting of the Committee held on 21st March, 1996 considered the draft recommendations regarding starting of conventional courses by the Central Universities and decided to approve the draft note with suitable modifications. The Committee then reviewed the unit cost system in central universities. The work done in preparation of optimum unit cost in a selected subject of Delhi University was also noted.

The Committee met the Chairperson of UGC for apprising her of the progress of work on determination of unit costs in central universities.

The Committee discussed in detail at its meeting held on 7th May, 1996 the action taken to determine the unit cost system and recommended the course of action to be taken by the AIU to convene meetings of the Chairman and two members of each subject panel. The AIU was also requested to invite the Registrars/Finance Officers of Central Universities and Deemed Universities to brief them on the methodologies and other details of unit cost

calculation. With regard to student fundings, it was decided that a further note on the topic would be considered by the Committee. As regards determination of quality, efficiency and innovativeness the Committee requested Professor R.Rajaraman, member of the Committee, to meet the Director, NAAC and in consultation with him prepare a note for consideration of the Committee.

The Committee at its meeting held on 15th July, 1996 made detailed and final recommendations with regard to the adoption of unit cost system and also the proposals for funding the central universities pending implementation of the unit cost system. The Committee also adopted a note on quality, efficiency and innovativeness in the central universities and the linking of grants to the academic audit system and performance indicators with appropriate modifications.

The Committee at its meeting held on 10th December, 1996 reviewed the working of the university system and noted the work done by AIU. It was observed that in the absence of sufficient data it has not been possible for AIU to determine the optimum unit costs. The Committee felt that determination of optimum unit cost would require further detailed considerations and extensive discussion with universities and experts on the subject. Meanwhile, the Committee was of the view that the unit cost could be determined on the basis of average unit cost incurred facultywise by selected universities studied by AIU. This could form the basis for determining the unit cost system of universities. The earlier recommendations made to the UGC were modified by the committee in the light of these developments.

RECOMMENDATIONS ON UNIT COSTS (ITEMS 1 and 4)

1. The Central and State Universities now receive annual grants, particularly on the maintenance side, on incremental basis; the actual amounts being negotiated on the previous year's grant and the University's expenditure. Justice Punnayya Committee observing the inadequacy of such a system of funding, recommended a change-over to a system of financial support based on inputs and also student cost. It also proposed the adoption of Unit Cost System of determining the inputs.

2. Student funding system is a necessary corollary of the unit cost system. It envisages universities determining fees taking into account unit costs of all operations and the State funding the University additional costs in an appropriate manner.
3. The Committee is of the view that considering that our present system is yet to make a start with determining unit costs, and funding the universities on that basis, the system of student funding may have to wait till the unit cost system of funding is introduced and stabilized. The Committee has, therefore, confined its consideration to the input funding on the basis of unit cost.
4. Four main issues concerned with the system of adopting unit cost funding came up before the Committee. These were as follows :
 - (i) Details of activities of Universities for which unit costs should be determined, and their broad grouping.
 - (ii) The method of determining the unit costs under the various activities. It is a complicated task considering the complexity and variety of operations involved. There is clearly a need to standardise this method as it must be broadly common to all the universities.
 - (iii) The manner of introducing the unit cost system in determining the grant under various heads.
 - (iv) The programme for stabilisation of the system of unit cost funding, and developing a programme of bringing into operation a system for determining optimum costs, and standardising the funding on that basis.
5. The major part of the deliberations of the Committee was related to the consideration of the issues detailed above. The Committee enlisted the assistance of the Association of Indian Universities and Prof. Powar its Secretary General in this task. The methodology adopted was as follows:
 - (i) In the First instance the AIU was requested to take up a study of unit costs of selected Central and State Universities and to work out the

modalities and procedures for calculation of unit costs. A workshop was held in May 1995 and it recommended that the unit costs could be determined under the broad heads, academic and administrative activities. The academic costs could be further categorised as teaching and research, academic services and student welfare activities. The administrative costs would cover general administration, other common services, and general charges. These be further divided under various headings and subheadings. The database and the operational details would also be identified for standardising the operations.

- (ii) The AIU team then prepared the unit cost of activities on the methodology identified earlier and brought out a document. This was made available to all Central Universities for their scrutiny with a view to preparing them to determine unit costs on their own. This was also discussed at a meeting of Vice- Chancellors of Central and Deemed to be Universities. It was agreed at that meeting that the universities would calculate the unit cost on the basis of their 1994-95 accounts and send a report to UGC by May 1996.

Concurrently the Committee noted that the methodology proposed would result in the presentation of actual unit costs but these costs might not be the ideal one and they might reflect both the strengths and weaknesses of a programme on the ground. Low student strength, large staff strength, unplanned concessions, inadequate allocations to crucial areas, all these might be reflected in the actual unit costs. Hence, there is a need to develop optimum costs for activities which are similar. The Committee therefore, requested AIU to attempt the determination of optimum costs, particularly for academic activities so that institutions which have low inputs in these areas might get adequate support while those which deploy large inputs might optimise their activities. AIU was to take the assistance of the chairman and members of subject panels from universities. However, after reviewing the results we felt that the formulation of reasonable and practical norms posed difficulties and this would

require further deliberation and scrutiny before optimum costs could be adequately determined.

It is, therefore, recommended that due to the problems in determining the optimum costs, the average unit cost of operations in all the Central Universities (moderated where necessary) may be adopted for implementing the unit cost system of funding.

- (iii) Most Central and Deemed Universities have not yet completed the preparation of unit costs. They appear to be in different stages of action. It would appear that many of them are apprehensive that where their unit costs are high, they might be penalised. The Committee would like to make it clear that the average unit cost is not to be implemented abruptly or without further discussion with the universities. Wherever the unit costs in a university are considerably higher or lower than the average unit cost, the UGC and the concerned universities may look into the causes for such deviation and set in motion corrective measures. Such would be the case, for example, in the case of universities with large estates, departments with large staff and poor student strength, acquired commitments and irrational concessions. It may not be possible to remedy these problems immediately. Various options and alternative courses of action and control measures may have to be planned and put into operation. Meanwhile UGC may permit the higher level of costs while getting the Universities to set in motion measures to control the system. It is only over a period of time that cost structures are likely to get stabilised and standardised, enabling a smooth implementation of the unit cost system. It is not intended as a measure to prune grants to universities but only to encourage them to adopt efficient utilisation of resources.
- (iv) As the calculation of unit cost system in universities becomes a routine operation, it may be possible to stabilise and refine it. We would expect that the progress toward such a system may not be uniform and vary from institution to institution. However pressure must be put on all institutions to persuade them to fall in line. It may then be possible to bring into operation optimum costs. Average unit cost should reflect the reality on the ground; optimum costs would be the

costs that would be required to run a standard programme ensuring adequate inputs in terms of academic and other requirements. Optimum costs could be determined to raise the quality of programmes, particularly on the academic side while ensuring economy of costs. We would recommend that UGC and AIU must continue their efforts to determine optimum costs for most operations of institutions. This would ensure quality as well as efficiency of the institutions.

6. The Committee notes that the task of preparing the basic methodology for determining the unit cost system is over. This has been done in consultation with the Central Universities. The methodology has been detailed by AIU in a booklet (**see Appendix-III**) and it is available to all concerned. The concerned staff of Central Universities have also been trained. Action is now needed to pursue its implementation and further refinement in the process of such implementation.
7. The Committee reviewed the position in regard to the assessment of the Unit Cost System in Universities and the progress made so far in this regard. The Universities were expected to give their Unit Cost calculation by the end of July, 1996. It would appear that most of the universities are in various stages of completing their study of the Unit cost system and, in the opinion of the Committee, it is not likely that the reports of all universities would be available by the end of this financial year. The Committee notes that Delhi University has completed its study and reported it to UGC. The JNU has also independently completed its own study.
8. Meanwhile the UGC have indicated that the preparation of the budget for the year 1997-98 are in advanced stage and the necessary information for this purpose from the Universities would be available to the Commission by the end of August, 1996. The Committee felt that the estimates prepared on the basis of unit costs might not be available to finalise the budgets of Central Universities and Deemed Universities based on unit cost by the end of August, 1996 or even later that year.

9. Further, as 1997-98 would be the beginning of the Ninth Five Year Plan, there would be adjustments in the budget in which recurring costs of the Eighth Plan would be transferred to the non-plan components and new plan programmes might be designed. It is also likely that the recommendations of the UGC Pay Committee/Fifth Central Pay Commission would be available and implemented during the course of the year. In the considered view of the Committee, therefore, this may not be the opportune time to consider introduction of the Unit Cost System in the budget of Central Universities for the year 1997-98. Nevertheless, the Committee is of the view that the present exercise of determining the Unit Cost of the various components of Central Universities must continue vigorously and also these should be available for the Commission for ensuring their scrutiny and the introduction of the system w.e.f. 1998-99. The Committee would also recommend for consideration of the UGC the use of the Unit Cost System for scrutinising the revised estimates for the year 1997-98.
10. The Committee would also recommend that pending the introduction of Unit Cost System, UGC may consider freezing the grant at 1996-97 level and providing for increases to take care of increased cost due to Pay Committee/Pay Commission recommendations and other permissible increases. The Universities may be informed that in future years budget estimates presented unaccomplished by Unit Cost analysis, for the preceding year, will not be considered.
11. The Committee noted that the work relating to Unit Cost is going to be a regular feature of the universities, particularly those who are receiving non-plan grant from the Commission. With a view to have continuity, the Committee recommends that the UGC may consider the creation of a Unit Cost Cell within itself to monitor and implement the Unit Cost System while disbursing the grants and for the analysis of Unit Cost proposals received from the universities. The Committee reiterates that UGC

should have a Professional Cell to scrutinise, monitor and help in the implementation of the Unit Cost System.

RECOMMENDATIONS ON STUDENT FUNDING (ITEM 2)

The Committee would like to reiterate the observations of Justice Punneya Committee that no comprehensive information is available at national, state and even university levels in regard to student support system, such as, scholarships, fellowships, freeships etc. The Committee would recommend that UGC may commission a study to ascertain the student support system available at the national and state level and in Central Universities and State Universities covering mainly the higher education sector. The study may also include individual universities as many universities seem to operate their own system of student assistance.

The criteria for award of fellowships and scholarships should be the same as those governing the establishment of the same in central universities. However, students belonging to SC/ST would be entitled to special consideration. In other cases, the criteria must be merit, All-India character, and social and economic backwardness. Social backwardness may be evaluated in terms of backward areas, such as, tribal and remote areas, backward districts and also those belonging to other backward classes as recently identified by the Central Government. Economic backwardness may be identified in terms of family income at appropriate levels.

All students belonging to SC/ST who are eligible for admission in central universities and deemed to be universities and for whom seats are available under the reserved quota must be given scholarships.

The Committee notes that the central universities offer various courses of studies at diploma, degree, postgraduate and research levels. Some of them also provide primary and secondary school education. The proposals of the Committee concern mainly the students at undergraduate, postgraduate and research levels. The students support system for other courses of study may be left to the discretion of the respective universities.

It is proposed that all students belonging to SC/ST studying at postgraduate and research levels in central universities should be supported fully for the actual cost which will include all fees, living and travel expenses. The UGC may advise the Central Government to evolve a system by which the actual cost involved in these courses are reimbursed to the individual central universities and deemed to be universities.

The Government may also have an imprest account with these universities for ensuring prompt payment of these support systems. Considering that there is need to encourage access of postgraduate education and research to students belonging to SC/ST, this assistance must be available for all the students who qualify for admission to the central universities and deemed universities. The Central Government may also be advised to support a programme for development of book banks in the central universities for assisting the students belonging to SC/ST in their studies. The present pattern of assistance to SC/ST students at graduate and other levels of education may continue.

Some of the Central Universities and Deemed Universities are operating freeships schemes which are available to students from economically backward sections. The pattern of these freeships varies from exemption from tuition fee to exemption from all patterns of fees. These are at present not operated to the full capacity as the tuition fee level in the central universities and deemed to be universities are low. The freeships scheme would become an important element of the student support system when the fees are raised in accordance with the recommendations of Punnayya Committee.

The Committee would recommend that the central universities and deemed universities be permitted to operate the freeships schemes in their universities limiting it to 10% of the student population. The criteria may be mainly economic considerations. It may be left to the universities to decide the categories of courses to be covered under this scheme.

It is likely that with the upward revisions of the fee structure in the universities, there may be denial of access to those students coming from socially and economically weaker sections of society. The extent of concessions and the scales of income to be determined may be left to the discretion of the

individual universities. Both the schemes of freeships and concessional studentships may be supported by the UGC.

As the central universities and deemed universities are concerned mainly with the promotion of excellence at the level of postgraduate education, the UGC may in consultation with Central Universities and Deemed Universities introduce a scheme of scholarships for the postgraduate and research students studying in central universities. The fellowship should be strictly on the basis of merit and must be available to those whose income is below a prescribed level. In the case of students hailing from outstation states, the fellowship, in addition to tuition costs and living costs, may also include travel expenses. The income category may be related to the family income and may be fixed at the appropriate level in consultation with the universities. The Committee would recommend that in the first instance this scheme of postgraduate scholarships may cover 20% of the sanctioned strength of the students pursuing various postgraduate courses of study and research in Central Universities.

The Committee is unable to indicate the financial commitments involved as the information in this regard is not readily available. The Committee would however recommend that the UGC may in consultation with Central Universities and deemed to be universities prepare a programme for this purpose for inclusion and implementation during the Ninth Five Year Plan period.

During the deliberations of the Committee, the Additional Secretary, Department of Education, Ministry of Human Resource Development brought to the notice of the Committee a draft national loan scholarship scheme under preparation by the Ministry in consultation with the Department of Banking. The scheme, it appears, is intended mainly for post-graduate courses in Management, Engineering and Technology, Computer Science etc. The details of the loan scheme have been prepared keeping in view the fee structure, the duration of the course and the cost of educational requirements. The Committee would recommend that a similar scheme be prepared for the benefit of students at research, postgraduate and graduate courses of study in the central universities and deemed to be universities, in particular, and universities in general in the country. As the Committee could not collect the necessary information relating to fee structure and the

duration of courses and other details, it would recommend that UGC may place the proposal before the Department of Education requesting the Ministry of Human Resource Development to initiate a scheme in consultation with the Department of Banking for implementation in the central universities and also the state universities.

The Committee would recommend that the proposals of the Committee could be revised on the basis of results of the study recommended by the Committee at the beginning of these recommendations and these proposals may be modified or expanded according to the requirements brought out by the study. The Committee would, however, recommend that the proposals of the Committee may be taken up for immediate implementation as the study may take time and it would be desirable in the view of the Committee for a sound student support system to be brought into force before steps are initiated by the universities to upgrade their fee structure. It may be ideal to implement these recommendations in the Ninth Five Year Plan period.

RECOMMENDATIONS DEALING WITH ACADEMIC AUDIT AND PERFORMANCE INDICATORS (ITEMS 10 AND 21)

Alongside improved efficiency and accountability on financial and administrative fronts, the Punnayya Committee has also demanded a corresponding tightening of academic quality and performance. It has further suggested that the amount of funding be linked to academic performance evaluation.

These are very welcome suggestions. However, evaluation and audit of academic activities is a far more delicate and sensitive matter than auditing say, the purchase of equipment or the construction of buildings. Although there is usually some consensus within the academic community as to how good a particular professor or department is in teaching or scholarly research, this consensus is arrived at over time, through an informal synthesis of a variety of inputs and impressions, rather than through specific numerical measurement of quality. Any individual "objective" criterion for evaluating teaching work, such as the number of contact hours, or the student-evaluation of teachers, or the number of problem-sets and term papers assigned per semester, can be inadequate and sometimes misleading.

Similarly, evaluation of research work is also a subtle matter. In and of themselves, quantifiable indices like the number of publications or the citation index or number of Ph.D.'s guided by a professor, give some indication, but are not sure-fire ways of determining quality or excellence. Increasing specialisation of individual research areas can also make it difficult to find qualified peers who can evaluate work in that area.

However, notwithstanding all these difficulties, there is still no doubt that we must have accountability in the academic work of universities, particularly when public funds are subsidising it.

Fortunately, in recent years, this problem has been given considerable attention around the world. In the United Kingdom for instance, under the pressure of fiscal discipline on all fronts demanded by the Thatcher government, an Academic Standards Group was set up in 1983 by the Committee of Vice-Chancellors and Principals under Professor Philip Reynolds to look into academic standards. The work of the Reynolds Committee and subsequent studies and reports on the subject eventually led to the formation of the Academic Audit Unit in the United Kingdom in 1990. This unit in turn prepared a detailed set of guidelines for its academic audit teams and listed mechanisms for quality assurance in designing programmes of study, teaching methods, academic staff and so on. Documents of the British Academic Audit Unit are available with the UGC and have been distributed to the Pylee Committee members.

In India too our educationists have devoted attention in recent years to these questions. Professor K.B. Powar has authored a comprehensive monograph entitled "Accreditation in Higher Education" in which he has discussed in different chapters issues of the evaluation of teaching, research, performance indicators, ranking of universities etc. This monograph also contains a large number of references to international literature on this subject.

In India at an institutional level, as a follow-up of the National Policy on Education (1986), a National Assessment and Accreditation Council was set up in 1994. After its establishment under the Directorship of Prof. A.S. Nigavekar, NAAC has already initiated several moves to systematically

promote voluntary assessment by universities of their academic activities. Specifically, NAAC has brought out a Manual of Self Study, which contains detailed probes and performance indicators for such self-assessment of their academic performance by universities. NAAC has also taken the initiative, with the strong support of UGC, to get universities to establish Internal Quality Assurance Cells (IQAC) with, again, detailed guidelines for the operation of these Cells. We also believe that NAAC is setting up panels of subject experts who can do peer group review, of individual disciplines.

Given that NAAC is established and well on its way, we feel that it is best if the academic audit and performance evaluation suggested by the Punnayya Committee be coordinated by NAAC, through various mechanisms it is setting up. Specifically,

- (i) UGC can require that each Central University make an assessment of the quality and quantity of its academic work. The primary data base for such an assessment could be the self evaluation of the teachers, of their teaching, research, administrative and other contributions. A proforma of such a self appraisal by the teachers was provided by UGC to all Universities many years ago. An updated version of this, intended to meet today's needs and conditions may be used. On the basis of this individual performance reports, the different departments and finally the university may prepare its academic performance report. The expertise developed by NAAC and the information collected by it should be also fully utilised in this exercise.
- (ii) The self assessment report made by each university can be the starting point for UGC's own assessment and academic audit of the university. UGC, may either in conjunction with the teams of NAAC, or entirely through NAAC, make a critical expert evaluation of IQAC report and assess the state of academic quality of each university.
- (iii) Apart from evaluation of the performance of universities as a whole, there should be an automatic audit of various special grants and programmes awarded by UGC to various departments, such as SAP grants, projects etc. These audit reports should not merely be financial

in content (such as utilisation certificates) but must also highlight the academic achievements brought about by the grant/project.

(iv) The report of this critical assessment can be made available to the university in a spirit of positive review, to enable it take steps for further improvement in the future. This can be a periodic on-going process.

(v) This evaluation process can also form an integral part of the decision making on the amount of funds given by UGC to each university.

RECOMMENDATIONS ON STARTING OF CONVENTIONAL COURSE, (ITEM 22)

The recommendation in the Punnayya Committee Report to the effect that "Central Universities must avoid offering conventional courses except when they are specially needed" is an important one. But it has to be properly interpreted in the spirit in which it was intended.

The recommendation primarily applies to new courses and programmes that a Central University may wish to start. In principle, similar criteria also hold for existing courses, but great care has to be exercised in applying to existing courses, both from academic and practical points of view. As is well known, the majority of courses being currently given by our Central Universities are, if one goes by the formal title of the courses, "conventional". Most central universities offer for example an M.Sc. in Mathematics, Physics or Chemistry, or an M.A. in Economics, Sociology or History.

It would clearly not be feasible to abolish all such courses from Central Universities, nor would it be necessarily desirable. The best universities in the world continue to have outstanding departments which give degrees with conventional names like Mathematics, Physics, Chemistry, Economics, History. What matters is not the formal name of the course, but its actual content, the topics covered and the techniques used. In the same way our Central Universities should not abandon basic fields of study. Rather, they should aim for academic excellence measured by the highest international standards, by constantly revising and updating the content of their advanced courses. In so doing, they are unlikely to be duplicating what is available at neighboring State Universities, given ground realities. UGC should require

that they satisfy stringent requirements of academic accountability, in terms of bringing students to the cutting edge of the respective fields.

Keeping in view the above observations, new courses must satisfy one or more of the following criteria in order to justify their introduction:

- (i) They must impart new advanced skills/techniques for which there is clear and stated demand in society as reflected in the market place. Such courses must be tuned to prevailing and projected employment prospects.
- (ii) They cover new and emergent academic disciplines which break new ground and will therefore contribute to human resource development by training manpower in frontier areas of research and scholarship.
- (iii) To the extent that the Central University in question has some specific objectives, charter or mandate, the courses must conform to them and to the general development plans of the university.
- (iv) A Central University must not indulge in duplication of courses merely because of political pressures or to satisfy vested interests of segments of the academic community.
- (v) Conventional courses that are being adequately covered by neighboring State Universities should not be initiated in a Central University.

APPENDICES

UNIT COSTS IN HIGHER EDUCATION

(Work undertaken by the Association of Indian Universities for the Pylee Committee Report)

The Punneya Committee report on 'UGC Funding of Institutions of Higher Education' (UGC, 1993) recommended, amongst other things, that 'the unit cost system of calculation of eligibility for grants should replace the existing incremental system'. The University Grants Commission, while accepting this recommendation, appointed an expert committee, under the chairmanship of Prof. M.V. Pylee, to work out modalities and procedures for calculation of 'unit costs'. The expert committee, in turn, assigned the work of preparing a draft report to the Association of Indian Universities. This was to be done on the basis of information to be provided by a selected group of Indian universities.

The Pylee Committee identified the following 12 universities for a pilot study:

Central Universities

- Banaras Hindu University, Varanasi
- University of Delhi, Delhi
- Jawaharlal Nehru University, New Delhi
- Pondicherry University, Pondicherry

State Universities

- Bangalore University, Bangalore
- Calcutta University
- Kurukshetra University, Kurukshetra
- University of Poona, Pune (Subsequently replaced by Shivaji University, Kolhapur)

Deemed to be Universities

- Gandhigram Rural Institute, Gandhigram
- Gujarat Vidyapith, Ahmedabad
- Indian School of Mines, Dhanbad
- Tata Institute of Social Sciences, Bombay

The work subsequently undertaken by AIU, in two phases, is as follows:

First Phase: Pilot Study

May 19-20, 1995 A workshop on 'Unit Cost of Higher Education' was held at AIU. Twenty one delegates from 11 universities (all the invited universities except Calcutta University) participated.

Fulledged reports based on data of 1992-93 were received from Universities of Delhi,

Kurukshetra and Pondicherry by July, 1995; and because of inadequate response, Shivaji University was requested to join the exercise in August, 1995. The exercise on unit cost calculation was based on the data of the four universities, and accordingly a report on "Unit Costs of Education in Indian Universities" was prepared. The report was sent to UGC on December 15, 1995 to be discussed at the meeting of the 'Pylee Committee' scheduled for January 5, 1996.

Subsequently, an addendum to the report on Unit Costs, containing the optimum costs for the Department of Geology, University of Delhi was submitted to the UGC, as a pilot study.

Second Phase: Final Report

May 22-24, 1996 AIU conducted three workshops of the Chairmen and two members from different UGC subject panels, in which optimum costs for each subject were discussed. The workshops were held as follows:

May 22, 1996: Workshop for Sciences: 8 Members from the following universities participated:

1. Jawaharlal Nehru University (2)
2. Indian Statistical Institute, Delhi (1)
3. Roorkee University (1)
4. Jadavpur University (1)
5. SNDT Women's University (1)
6. Banaras Hindu University (1)
7. Calcutta University (1)

May 23, 1996: Workshop for Social Sciences: 18 Members from the following universities participated:

1. Lucknow University (1)
2. Osmania University (2)
3. University of Delhi (5)
4. Gujarat University, INFLIBNET (1)
5. Jawaharlal Nehru University (1)
6. Karnataka University (1)
7. Jamia Millia Islamia (1)
8. Andhra University (1)
9. Cochin University of Science & Technology (1)
10. Rajasthan University (1)
11. YCM Open University (1)
12. Kurukshetra University (1)
13. G.B. Pant Social Science Institute, Allahabad (1)

May 24, 1996: Workshop for Arts & Humanities:
13 Members from the following universities participated:

1. Dr. H.S. Gaur University (2)
2. Banaras Hindu University (2)
3. Dr. B.R. Ambedkar Open University (1)
4. Rabindra Bharati University (1)
5. Kakatiya University (1)
6. Ch. Charan Singh University (1)
7. Utkal University (2)
8. Jawaharlal Nehru University (1)
9. Prof. S.P. Aggarwal, Lucknow (1)
10. Dr. M. Radhakrishan Sarma, Secunderabad (1)

June 3, 1996

AIU conducted a workshop for Registrars/Finance Officers of the central universities and deemed to be universities, in which the unit cost methodology was discussed; and the universities were requested to send detailed reports by the end of July. 25 nominees of the following universities were present in the workshop:

1. Aligarh Muslim University (1)
2. Avinashilingam Institute for Home Science and Higher Education for Women (1)
3. Central Institute of English & Foreign Languages (1)
4. Dayalbagh Educational Institute (1)
5. University of Delhi (2)
6. Gandhigram Rural Institute (1)
7. Gurukula Kangri Vishwavidyalaya (2)
8. University of Hyderabad (1)
9. Indian School of Mines (1)
10. Jamia Hamdard (1)
11. Jamia Millia Islamia (3)
12. Jawaharlal Nehru University (3)
13. North Eastern Hill University (1)
14. Pondicherry University (1)
15. Rashtriya Sanskrit Vidyapeeth (1)
16. Shri Lal Bahadur Shastri Rastriya Sanskrit Vidyapeeth (2)
17. Tata Institute of Social Sciences (1)
18. Visva-Bharati (1)

An AIU Occasional Paper (No96/1) on "Unit Costs Higher Education" prepared for this purpose circulated in the above workshop.

Nov. 29, 1996

Reports received from TISS, CIEFL and DEI were analysed and findings communicated to UGC.

Dec. 12, 1996

An analysis of 'Optimum Costs' as worked out by UGC panels submitted.

Jan. 30, 1997

Analysis of Unit Cost report on University of Delhi submitted to U.G.C.

UNIT COSTS OF EDUCATION IN INDIAN UNIVERSITIES

[Report of a Study Conducted by the Association of Indian Universities on Unit Costs of Education at the University of Delhi, Delhi; Pondicherry University, Pondicherry; Kurukshetra University, Kurukshetra; and Shivaji University, Kolhapur.]

Association of Indian Universities

**New Delhi
December 1995**

Introduction

The Punneya Committee Report on 'UGC Funding of Institutions of Higher Education' (UGC, 1993) recommended, amongst other things, that '*the unit cost system of calculation of eligibility for grants should replace the existing incremental system*'. The University Grants Commission, while accepting this recommendation, appointed an expert committee, under the chairmanship of Prof. M.V. Pylee, to work out modalities and procedures for calculation of 'unit costs'. The expert committee, in turn, assigned the work of preparing a draft report to the Association of Indian Universities. This was to be done on the basis of information to be provided by a selected group of Indian universities.

The Pylee Committee identified the following 12 universities for a pilot study:

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- Gujarat Vidyapith, Ahmedabad
- Indian School of Mines, Dhanbad
- Tata Institute of Social Sciences, Bombay

These universities were invited to attend a workshop on 'Unit Cost of Higher Education' organised at the Association of Indian Universities, New Delhi on 19th-20th May, 1995, where the modalities for evaluation of 'unit costs' were discussed and a common procedure of calculation was finalised. All the above universities, except Calcutta University, attended (see Appendix I for workshop recommendations and list of universities and participants). The universities were requested to undertake the calculation of unit costs at their end and submit their reports to the University Grants Commission by the end of July, 1995. The response was, however, inadequate and therefore in August, 1995 the Shivaji University, Kolhapur was requested to join the exercise. Calcutta University undertook the exercise on the basis of guidelines circulated.

The responses received from ten universities, viz. Bangalore University, Calcutta University, University of Delhi, Gandhigram Rural Institute, Gujarat Vidyapith, Indian School of Mines, Kurukshetra University, Pondicherry University, Shivaji University and Tata Institute of Social Sciences were scrutinised by the Pylee Committee on 1st November, 1995. It was noted that amongst the conventional universities only four universities - Delhi, Kurukshetra, Pondicherry and Shivaji - had provided information that allowed meaningful comparisons. The AIU was asked to complete its report on the basis of data on these universities.

Unit Costs: Concept and Calculation

The concept of 'unit costs', and the detailed methodology for calculation, as finalised at the AIU workshop in New Delhi, have been detailed elsewhere (Powar et al, 1995). The different types of 'unit cost' to be calculated are:

- i) *Institutional Unit Cost (IUC)* that may be used for purposes of institutional funding.
- ii) *Departmental Unit Cost (DUC)* or *Programme Unit Cost (PUC)* that may form the basis for determining tuition fees. The DUCs for related departments may be combined to give *Faculty Unit Cost (FUC)* or *Subject-group Unit Cost (SgUC)*.
- iii) *Unit Cost for Research (UCR)* that may be used to evaluate cost of research, and consequently the support to research.

The expenditure incurred by a university includes *recurrent* (or variable) costs and *non-recurrent* (or capital or fixed) costs. Thus, the cost on construction of building becomes non-recurrent cost, while the rent on building constitutes recurrent cost. *For purposes of determining unit costs, only the recurrent costs have been considered.*

The costs considered for calculation of IUC may be classified into two groups - academic cost and administrative cost. Academic cost includes expenditure on salaries, academic services, and student welfare activities. Administrative cost includes expenditure on general administration, other departments, and common services and general charges. The components of each of these cost groups are given in Fig.1.

DUC or PUC has been calculated on the basis of expenditure on salaries, teaching input, and administrative and maintenance input, the components of which are detailed in Fig.2. For collecting data for DUC the data base outlined in Fig. 3 was used.

The UCR covers expenditure on all research activities in a department and includes proportion of expenditure on components included in departmental cost.

The university administration handles matters related to both the university departments and affiliated colleges. Likewise, the staff is involved in different activities related to teaching and research, and the facilities have multiple user-types. Hence, it is necessary to apportion costs under many heads to different activities. This can be done on the basis of UGC guidelines, where available. Otherwise, it has to be based on empirical data and assessments. Thus the UGC norms of workload have been followed for apportioning salary of teachers between teaching and research (Professors 36:64; Readers 44:56; Lecturers 60:40). The salary of supporting staff and maintenance expenditure of a department have been apportioned

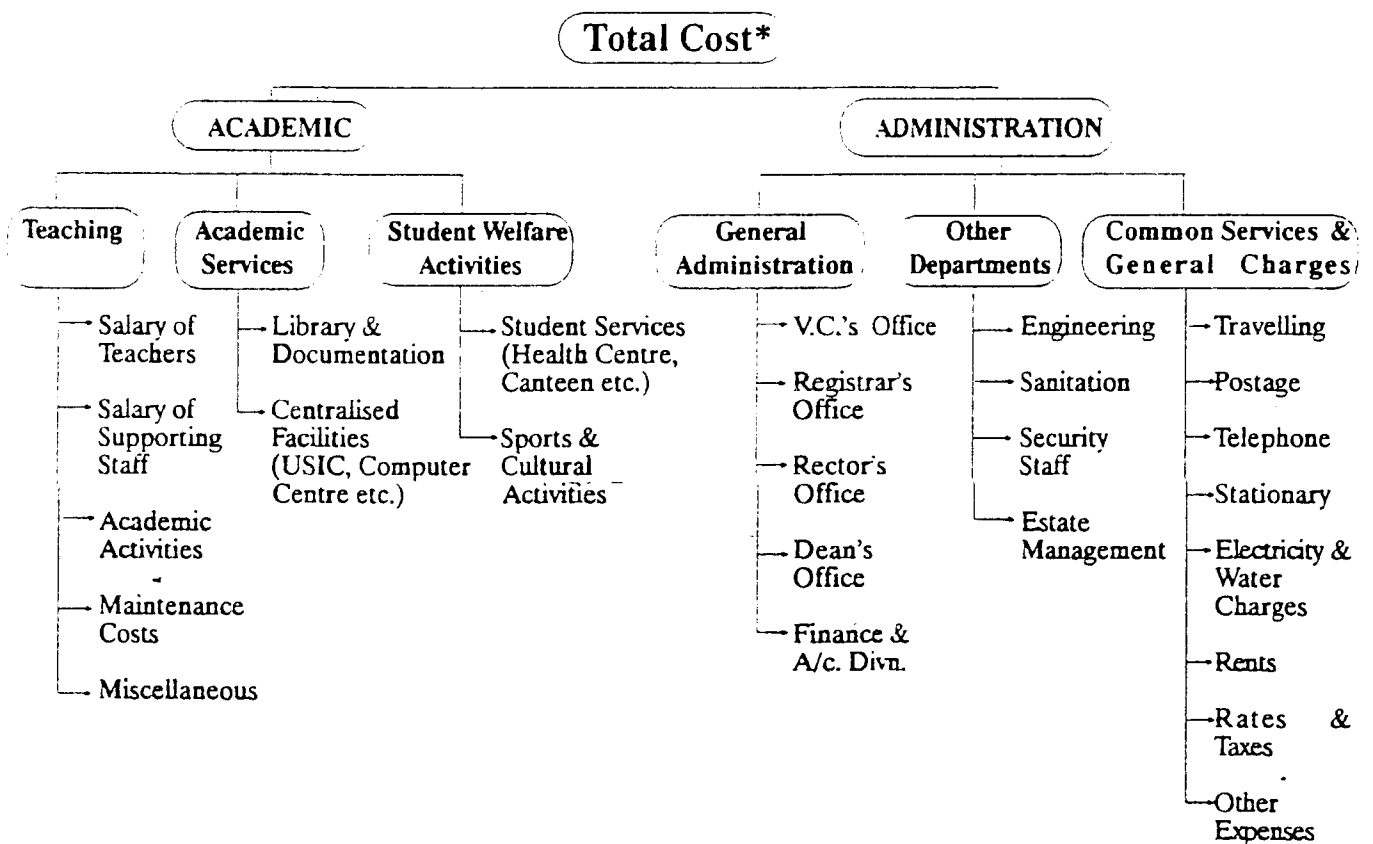


Fig 1 : Components of total cost

* For purposes of finding out unit cost of education
 Note : per student unit cost = total cost/total enrolments.

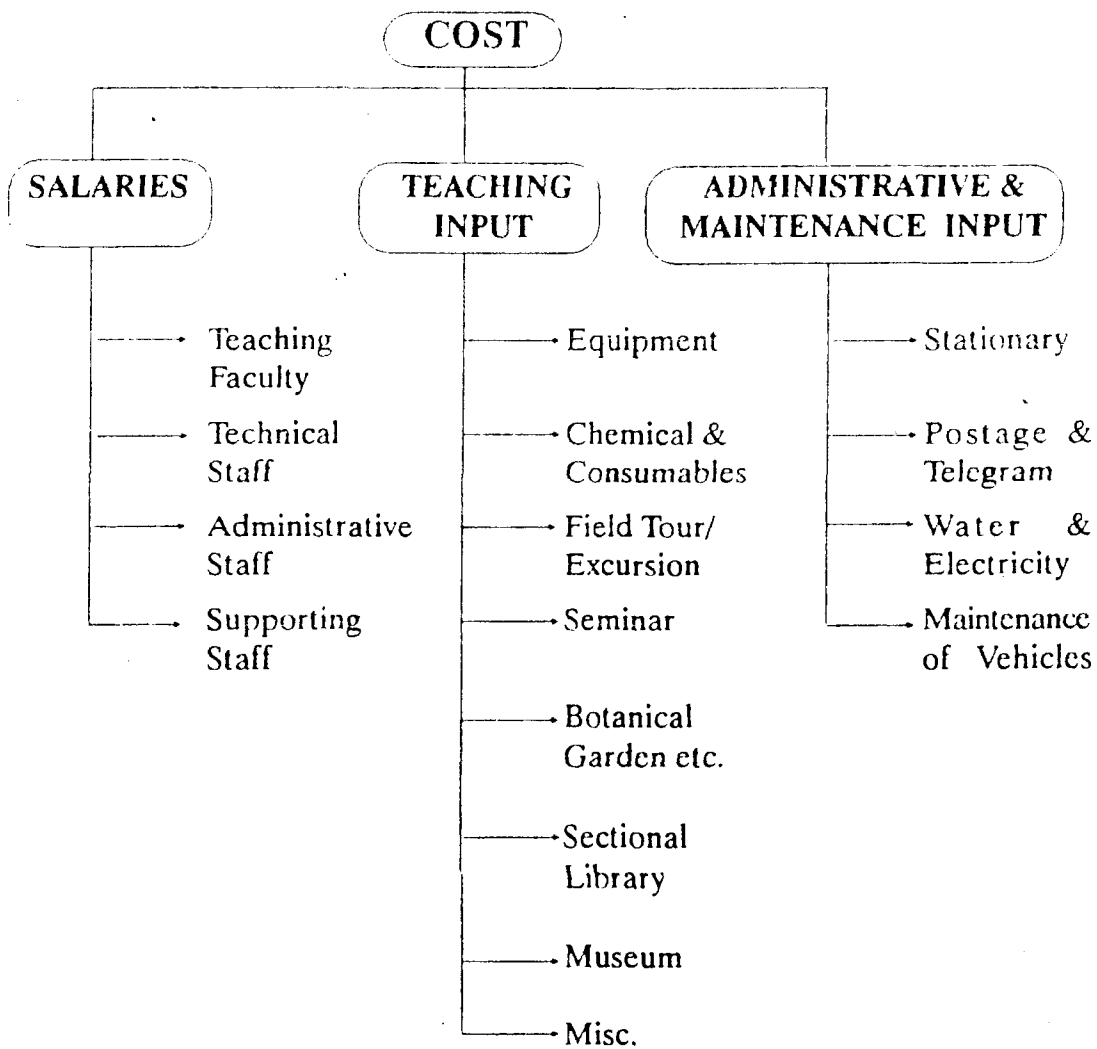


Fig. 2: Components of departmental cost

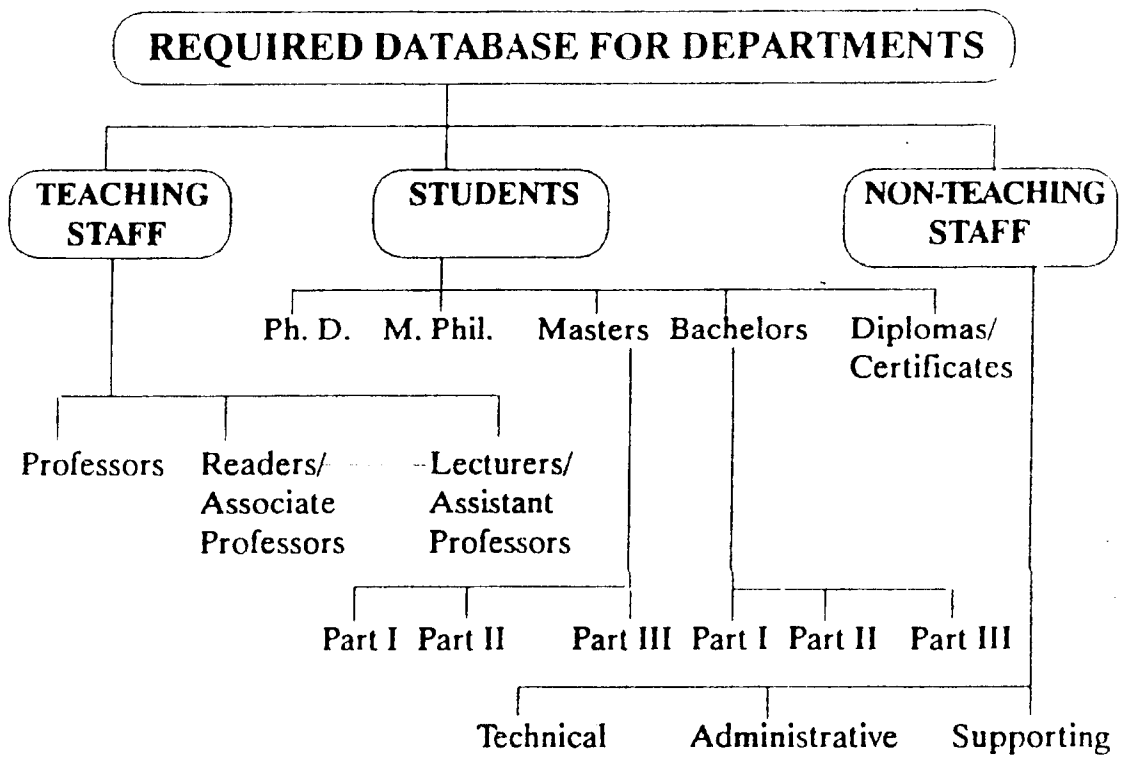


Fig. 3: Database for departments

between teaching and research on a 50:50 basis. The apportioning of salaries of central administrative staff, between campus and colleges, has been decided by individual universities on the basis of their perception of division of work. In case of library, 20% of cost is assigned to teaching and 80% to research. For campuses where there is also undergraduate teaching, 15% of library cost is ascribed to postgraduate teaching and 5% to undergraduate teaching. Similar apportioning has been done in case of other components, where necessary.

Similarly, items under students welfare activities have been apportioned on the basis of the utilisation of budget by the students of different programmes/departments. The administrative cost for a department has been apportioned on the basis of actual expenditure attributable to a particular department.

It may be emphasised that *a realistic apportioning of costs is a prime requisite of the costing exercise*; and the universities were asked to undertake this carefully where freedom to do so was given.

In the present study unit costs for institutions and departments have been calculated for four universities (Delhi, Pondicherry, Kurukshetra, and Shivaji). For the first three universities the data for 1992-93 have been utilised, and the exercise for Shivaji University is based on the data for 1994-95.

Cost Calculation

Institutional unit cost has been calculated on the basis of the following formula:

$$IUC = (AC + ADC)/E$$

Where : IUC = Institutional cost per student

AC = Academic cost

ADC = Administrative cost

E = Total enrolment

The following formula has been used for calculating academic cost per student:

$$AC = (TC + ASC + SWAC)/E$$

Where : AC = Academic cost per student

TC = Teaching cost

ASC = Academic services cost

SWAC = Student welfare activities cost

E = Total enrolment

The calculation of administrative cost per student has been based on the following formula:

$$ADC = (GAC + ODC + CSC)/E$$

Where : ADC = Administrative cost per student

GAC = General administrative cost

- ODC = Other departmental cost
 CSC = Common services and general charges cost
 E = Total enrolment

Programme/departmental cost per student has been calculated by using the following formula:

$$DUC = (SA + TIC + MC + ASC + SWAC) \div E + ADC$$

Where : DUC = Unit cost of a department

SA = Salary of teaching and teaching supporting staff

TIC = Teaching input cost

MC = Maintenance cost

ASC = Academic services cost

SWAC = Student welfare activities cost

ADC = Administrative cost per student (central)

E = Total enrolment in the teaching department

Salient Findings

The Institutional Unit Costs and the Departmental Unit Costs for the four universities are given in the following tables (Delhi: Tables 1-5; Pondicherry: Tables 6-7; Kurukshetra : Tables 8-9; Shivaji: Tables 10-14). A comparison of the costs is made in Tables 15-18. The salient features are summarised below.

i) University of Delhi

a) Institutional Unit Cost

The IUC at the University of Delhi works out to be Rs.23,130. The highest share was that of teaching (35.2%) and the lowest of student welfare activities (0.3%); while the share of administration was 22.7% (Table 1).

b) Departmental Unit Costs

The DUCs for different departments in University of Delhi are given in Table 2. The highest unit cost of Rs.104,410 was obtained for the Department of Plant Molecular Biology Research and the lowest for Law Department at Rs.15,064. As expected the Departments in the Science faculty have higher DUCs because of laboratory costs. However, higher DUCs were also obtained for Departments of Modern Indian Languages (Rs.54,586), Germanic and Romance Languages (Rs.96,578), Persian (Rs.39,701) and English (Rs.31,971) in Arts Faculty, and Sociology (Rs.78,223), Social Work (Rs.52,273), African Studies (Rs.96,238) and Adult Education (Rs.60,545) in the Social Science faculty. The Faculty Unit Cost for different subject groups (faculties) varies from Rs.43,655 for Science faculty (including interdisciplinary subjects) to Rs.15,064 for Law faculty (Tables 3-5).

ii) Pondicherry University

a) *Institutional Unit Cost*

The IUC for Pondicherry University is of the order of Rs.39,180; with the academic unit cost and basic administrative unit cost being Rs. 19,569 (50%) and Rs.14,542 (37.1%) respectively (Table 6). Other costs (Examinations, Hostels) accounted for Rs.5,069 (12.9%) per student. These other costs relate to administration and raise the total administrative cost to Rs.19,611 (50%).

b) *Departmental Unit Costs*

The DUCs for the 19 departments are given in Table 7. They are relatively high possibly because of lesser number of students and development costs of a young university. The highest unit cost of Rs.72,903 is recorded for the Chemistry Department and lowest of Rs.32,752 for French Department.

iii) Kurukshetra University

a) *Institutional Unit Cost*

The IUC for Kurukshetra University (Table 8) was Rs.34,299 of which Rs.15,189 (44.3%) was for academic cost and Rs.19,110 (55.7%) administrative cost. The relatively high expenditure on administration is because of high expenditure on support departments, and common services and general charges, each contributing approximately 17% to the total cost.

b) *Departmental Unit Costs*

There are 34 departments under six faculties in this university. Of these, the Department of Zoology shows the highest unit cost (Rs.51,647) and the Department of Political Science the lowest unit cost (Rs.29,317) (Table 9). The variation is due to variations in unit teaching costs.

iv) Shivaji University

a) *Institutional Unit Cost*

The IUC for Shivaji University for 1994-95 (Table 10) is Rs.19,749, the share of academic activities and administration being 64.8% (Rs.12,804) and 35.2% (Rs.6,945) respectively. Teaching accounts for 50.8% of total cost, academic services 10.7%, student welfare activities 3.4%, common services 18.5%, general administration 10.4% and other departments 6.3%. The expenditure distribution reflects effective utilisation of resources.

b) *Departmental Unit Costs*

The DUCs for Teaching & Research, and for Teaching only, have been calculated separately and are shown in Tables 11 and 12 respectively. The DUC (T+R) varies from Rs.39,987 for Polymer Chemistry to Rs.7,800 for Hindi. The DUC (T) is only a little lower, varying from Rs.41,959 for Journalism to Rs.7,553 for Hindi. The input for research ranges

from Rs.9,286 for Statistics to Rs.247 for Hindi for every research personnel. The FUC (teaching + research) for different faculties is given in Table 13 and varies from Rs.10,224 for Humanities to Rs.24,723 for Science. The FUC (teaching only) for different faculties (Table 14) varies from Rs.20,652 for Science faculty to Rs.9,344 for Humanities.

Table 15 shows variations in IUC amongst the four universities. The unit cost is highest in the case of Pondicherry University and lowest in the case of Shivaji University. The higher cost at Pondicherry University is attributable to the smaller number of students and the large expenditure required for development purposes. The figures emphasise the need to show special consideration to the requirements of newly established or young universities.

Table 16 shows DUCs for some common subjects in the four universities. It is normally to be expected that the DUCs for Science departments will be higher than those for departments in the faculties of Arts and Social Sciences. This pattern is obtained in the case of the Shivaji, Kurukshetra and Pondicherry Universities. However, in case of University of Delhi some departments of the Social Sciences and Arts faculty show high unit costs. The highest and lowest unit costs in the four universities are given in Table 17 to illustrate the magnitude of variation. The FUCs for four universities given in Table 18 allow inter-university comparisons.

Policy Implications

The 'unit costs' obtained in this study show wide variations between universities, and across various disciplines/subjects within a university. They are actual costs that indicate 'where the money goes'. They help to identify areas of over-expenditure that require monitoring, as also areas that are inadequately financed and could benefit from a more sympathetic consideration.

In the case of IUC, it is not clear as to how the administrative expenses have been apportioned between the university campus and its affiliated colleges. It is presumed that the methodology given by AIU has been followed. If not, the actual IUC may be a little different from what has been presented here. However, this should not affect, to a substantial extent, the overall conclusions.

The differences in Departmental Unit Cost between comparable units in different universities may be the result of differences in staffing pattern, number of students admitted to different programmes, cost of administrative support, stage of development of the institution, and even quality of education imparted. As such the figures obtained cannot immediately be used for determining funding. They are, however, important for determining future course of actions.

It is recommended that as a follow up the universities should be asked to undertake an exercise, following the methodology adopted here, for ascertaining the optimum unit cost for each department. This should be based upon:

- i) Faculty-strength as required by work-load norms for teachers laid down by the University Grants Commission.

- ii) Cost of academic support (laboratory, field work, etc.) as required for implementing the model syllabi developed by the Curriculum Development Centres of UGC; or requirements identified by expert groups for each subject.
- iii) Minimum library support for teaching and research to be identified by expert groups.
- iv) Cost of minimum basic support for research for faculty, it being understood that the major source of research funding will be project grants obtained from external agencies.

It is suggested that the UGC undertakes, through its subject pannels, an appraisal of the costs under ii); iii) and iv) above.

A comparison of actual unit cost and optimum unit cost should help initiate a process of adjustment as regards faculty-strength, number of administrative staff (about three times the academic staff), laboratory and library support, and other expenditures.

It has also to be recognised that while some universities are research-oriented others lay stress on teaching. In the case of the former additional support for research activities should be available, the quantum being dependent on the research productivity.

If the policy of relating tuition fees to cost of education is accepted, it will be necessary to calculate the FUC for teaching alone (as has been done for Shivaji University) for different faculties or groups of subjects, and fix tuition fees as a percentage of this cost.

References

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- UGC (1993), *UGC Funding of Institutions of Higher Education (Report of Justice Dr. K. Punnayya Committee, 1992-93)*, University Grants Commission, New Delhi, 179pp.

Table 1: Institutional Unit Cost for University of Delhi

(In Rs.)

Component of Cost	Unit Cost	%
A. Academic		
1. Teaching	8141	35.2
2. Staff Welfare Activities	2589	11.2
3. Academic Services	4009	17.3
4. Examination	178	0.8
5. Student Welfare Activities	77	0.3
B. Administration	5259	22.7
C. Other	2877	12.5
Total	23130	100.0

Table 2: Departmental Unit Costs for University of Delhi

(In Rs.)

Faculty/Department	Academic	Non-Academic	Misc.	Other Common Apportioned Cost	Total
<u>Faculty of Science</u>					
1. Agro-Chem. & Pest Management		1305	5807	17358	24464
2. Anthropology	10401	5351	747	17358	33857
3. Botany	10351	12708	3387	17358	43804
4. Chemistry	8104	5728	2284	17358	33474
5. Geology	15329	10615	2583	17358	45885
6. Physics & Astro-Physics	5471	5761	1200	17358	29790
7. Zoology	9728	13470	4505	17358	45061
<u>Faculty of Mathematical Science</u>					
8. Computer Science	7390	2448	473	16017	26328
9. Mathematic	3346	212	26	16017	19601
10. Operational Research	8350	1058	824	16017	26249
11. Statistics	5803	1850	352	16017	24022
<u>Faculty of Inter-Disciplinary Sciences</u>					
12. Bio-Chemistry	11971	-	6688	18370	37029
13. Bio-Physics	46894	-	9143	18370	74407
14. Electronic Science	8045	3360	732	18370	30507
15. Environmental Biology	-	-	7972	18370	26342
16. Genetics	12594	-	5115	18370	36079
17. Life Science	-	-	-	-	-
18. Micro Biology	14502	-	5794	18370	38646
19. Plant Molecular Bio-Res.	25879	19366	40795	18370	104410

(Contd...)

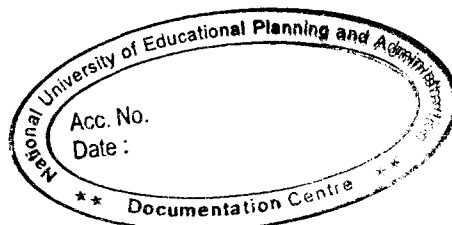
FACULTY OF ARTS

20.	App. Psychoogy	9845	966	1190	13295	25296
21.	Arabic	15768	3913	58	13295	33034
22.	Buddhist Studies	1703	250	124	13295	15372
23.	English	2816	464	24	13295	31971
24.	Germanic & Romance	28939	13846	8527	13295	96578
25.	Hindi	1925	246	34	13295	15500
26.	Library & Information Sc.	6675	2153	375	13295	22498
27.	Linguistics	7477	2516	452	13295	23740
28.	Modern Indian Languages	36918	4147	226	13295	54586
29.	Persian	23204	2661	541	13295	39701
30.	Philosophy	4649	949	40	13295	18933
31.	Psychology	5985	2444	232	13295	21956
32.	Punjabi	4023	133	32	13295	17483
33.	Sanskrit	2913	168	10	13295	16386
34.	Urdu	12310	1488	153	13295	27246

Faculty of Social Sciences

35.	Adult Education	-	46730	805	13010	60545
36.	African Studies	17837	4393	453	13010	96238
37.	Chinese & Japanese Studies	20627	5508	705	13010	39850
38.	Commerce	3947	430	272	13010	17659
39.	Economics	9939	1254	325	13010	24528
40.	Geography	4958	3558	248	13010	21774
41.	History	3489	311	42	13010	16852
42.	Political Science	2050	174	22	13010	15256
43.	Social Work	10725	11438	1844	13010	52273
44.	Sociology	9258	3117	505	13010	78223

(Contd...)



Faculty of App. Soc. Sc. & Humanities

45.	Business Economics	7955	-	494	15108	23557
46.	Slavonic & Finn-Ugrain Studies	46043	18142	24325	15108	103618

Faculty of Law

47.	Law	1669	707	68	12620	15064
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Other Faculties

48.	F/o Music & Fine Arts	10549	6420	65	10829	27863
49.	F/o Management Studies	3607	2356	284	13792	20039
50.	F/o Education	9379	9990	1635	11364	32368

Table 3: Faculty Unit Costs for Science Group at University of Delhi

(In Rs.)

Component of Cost	Science	Mathe- matical	Inter-Dis- ciplinary Science	Total C Per Stu Sc. Gro
Teaching	18087	6395	25285	15311
Staff Welfare Activities	2589	2589	2589	2589
Academic Services	5598	4257	6610	5677
Examinations	178	178	178	178
Student Welfare Activities	77	77	77	77
Administration	5259	5259	5259	5259
Others	3657	3657	3657	3657
Total	35445	22412	43655	32748

Table 4: Faculty Unit Costs for Humanities Group at University of Delhi

(In Rs.)

Component of Cost	Arts	Social Science	App.Sc. & Humanities	Total Cos Per Stude Humanitie Group
Teaching	6467	7537	24317	7290
Staff Welfare Activities	2589	2589	2589	2589
Academic Services	2535	2250	4348	2546
Examinations	178	178	178	178
Student Welfare Activities	77	77	77	77
Administration	5259	5259	5259	5259
Others	2657	2657	2657	2657
Total	19762	20547	39425	20596

Table 5: Faculty Unit Costs for Professional
Subjects Group at University of Delhi

(In Rs.)

Component of Cost	Total Cost Per Student			
	Management	Law	Education	Music & Fine Arts
Teaching	6247	2444	21004	17034
Staff Welfare Activities	2589	2589	2589	2589
Academic Services	3032	1860	604	69
Eaminations	178	178	178	178
Student Welfare Activities	77	77	77	77
Administration	5259	5259	5259	5259
Others	2657	2657	2657	2657
Total	20039	15064	32368	27863

Table 6: Institutional Unit Cost for Pondicherry University

(In Rs.)

Component	Unit Cost	%
1. <u>Academic</u>		
1.1 Teaching		
1.1.1 Salary of teachers	9435	24.1
1.1.2 Salary of supporting staff	2729	7.0
1.1.3 Academic activities	2338	6.0
1.1.4 Maintenance costs	363	0.9
1.1.5 Miscellaneous	432	1.1
1.2 Academic services	3351	8.5
1.3 Student welfare activities	921	2.4
Sub-total (Academic)	19569	50.0
2. <u>Administration</u>		
2.1 General administration	406	1.0
2.2 Other departments	6462	16.5
2.3 Common services & general charges	7674	19.6
3. Examinations	4546	11.6
4. Hostel	523	1.3
Sub-total (Administration)	19611	50.0
Grand Total	39180	100.0

Table 7: Departmental Unit Costs for Pondicherry University

(In Rs.)

Components of Cost	Academic			Administration			Examina- tions	Hostel	Total
	Teaching	Academic Services	Student Welfare Activities	General Admini- stration	Other Deptts.	Common Services & General Charges			
Departments	2	3	4	5	6	7	8	9	10
Management	14967	3351	921	4577	6462	7674	4546	523	43021
Drama	20765	3351	770	4577	6462	7674	4546	523	48668
Philosophy	9516	3351	770	4577	6462	7674	4546	523	37419
Tamil	15118	3351	770	4577	6462	7674	4546	523	43021
English	7338	3351	770	4577	6462	7674	4546	523	35241
French	4849	3351	770	4577	6462	7674	4546	523	32752
Sanskrit	12000	3351	770	4577	6462	7674	4546	523	39903
International Studies	21591	3351	770	4577	6462	7674	4546	523	49481
History	21522	3351	770	4577	6462	7674	4546	523	49425
Economics (Pondy)	14971	3351	770	4577	6462	7674	4546	523	42874
Economics (MAHE)	20700	3351	770	4577	6462	7674	4546	523	49603
Commerce	10500	3351	770	4577	6462	7674	4546	523	38403
Physical Education	7333	3351	770	4577	6462	7674	4546	523	35236
Computer Science	11957	3351	770	4577	6462	7674	4546	523	39860
Ecology	21922	3351	770	4577	6462	7674	4546	523	49825
Maths	35611	3351	770	4577	6462	7674	4546	523	63514
Physica	36475	3351	770	4577	6462	7674	4546	523	64378
Chemistry	45000	3351	770	4577	6462	7674	4546	523	72903
Psychology	36321	3351	770	4577	6462	7674	4546	523	64224

Table 8: Institutional Unit Cost for Kurukshetra University

(In Rs.)

Component of Cost	Unit Cost	%
1. <u>Academic</u>		
1.1 Teaching	9319	27.2
1.2 Academic Services	3507	10.2
1.3 Student Welfare Services	2363	6.9
Sub-Total	15189	44.3
2. <u>Administration</u>		
2.1 General Administration	7017	20.4
2.2 Other Supporting Departments	6032	17.6
2.3 Common Services & Gen. Charges	6061	17.7
Sub-Total	19110	55.7
Grand Total	34299	100.0

Table 9: Departmental Unit Costs for Kurukshetra University
(In Rs.)

Component of Cost Department/Faculty	ACADEMIC				ADMINISTRATIVE				
	Teaching	Academic Services	Student Welfare Services	Sub-Total (2+3+4)	Gen. Admn.	Other Supporting Deptts.	Common Services & Gen. charges	Sub-Total (6+7+8)	Grand Total (5+9)
1	2	3	4	5	6	7	8	9	10
Science Faculty									
1. Chemistry	22618	3507	2363	28488	7017	6032	6061	19110	47598
2. Bio-Chemistry	11964	3507	2363	17834	7017	6032	6061	19110	36944
3. Physics	23896	3507	2363	29866	7017	6032	6061	19110	48976
4. Electronics Science	8303	3507	2363	14173	7017	6032	6061	19110	33283
5. Botany	22976	3507	2363	28846	7017	6032	6061	19110	47956
6. Zoology	26667	3507	2363	32537	7017	6032	6061	19110	51647
7. Mathematics	7993	3507	2363	13863	7017	6032	6061	19110	32973
8. Statistics & Operational Research	7741	3507	2363	13611	7017	6032	6061	19110	32721
9. Geo-Physics	20015	3507	2363	25885	7017	6032	6061	19110	44995
10. Master of Computer Sc. & Application	8612	3507	2363	14482	7017	6032	6061	19110	33592
11. Geology	21480	3507	2363	27350	7017	6032	6061	19110	46460
12. Geography	10745	3507	2363	16615	7017	6032	6061	19110	35725
Faculty of Arts & Languages									
13. English	4946	3507	2363	10816	7017	6032	6061	19110	29926
14. Hindi	5273	3507	2363	11143	7017	6032	6061	19110	30253
15. Panjabi	7117	3507	2363	12987	7017	6032	6061	19110	32097
16. Linguistics	14272	3507	2363	20142	7017	6032	6061	19110	39252
17. Library & Information Science	6218	3507	2363	12088	7017	6032	6061	19110	31199

(Contd...)

1	2	3	4	5	6	7	8	9	10
Faculty of Social Sciences									
18. Political Science	4337	3507	2363	10207	7017	6032	6061	19110	2930
19. Public Administration	4829	3507	2363	10699	7017	6032	6061	19110	2980
20. Social Works	10521	3507	2363	16391	7017	6032	6061	19110	3550
21. Economics	7143	3507	2363	13013	7017	6032	6061	19110	3212
22. History	11414	3507	2363	17284	7017	6032	6061	19110	3693
23. Psychology	10500	3507	2363	16370	7017	6032	6061	19110	35480
Faculty of Indian Studies									
24. Sanskrit, Pali & Prakrit	10840	3507	2363	16710	7017	6032	6061	19110	35820
25. Ancient Indian History, Culture & Archaeology	13897	3507	2363	19767	7017	6032	6061	19110	38877
26. Philosophy	13723	3507	2363	19593	7017	6032	6061	19110	38703
27. Miscellaneous	21081	3507	2363	26951	7017	6032	6061	19110	46061
Faculty of Education									
28. Education	8155	3507	2363	14025	7017	6032	6061	19110	33135
29. Special Education Unit	19633	3507	2363	25503	7017	6032	6061	19110	44613
30. Physical Education	7494	3507	2363	13364	7017	6032	6061	19110	32474
Faculty of Law									
31. Law	3049	3507	2363	8919	7017	6032	6061	19110	28029
Faculty of Commerce & Management									
32. Commerce	5059	3507	2363	10929	7017	6032	6061	19110	30039
33. Management	16229	3507	2363	22099	7017	6032	6061	19110	41209
34. Tourism	7229	3507	2363	13099	7017	6032	6061	19110	32209
Average	9319	3507	2363	15189	7017	6032	6061	19110	34299

Table 10: Institutional Unit Cost for Shivaji University

(In Rs.)

Component of Cost		Unit Cost	%
A.	ACADEMIC	12804	(64.8)
A.1	<u>Teaching</u>	10028	(50.8)
A.1.1	Salary of teaching staff	6670	(33.8)
A.1.2	Salary of teaching supporting staff	2239	(11.3)
A.1.3	Non-salary items	1119	(5.7)
A.2	<u>Academic services</u>	2107	(10.7)
A.2.1	Library and Documentation	1411	(7.1)
A.2.1.1	Salary of staff	637	(3.2)
A.2.1.2	Non-salary items	775	(3.9)
A.2.2	Centralised facilities	696	(3.6)
A.2.2.1	Salary of staff	356	(1.8)
A.2.2.2	Non-salary items	340	(1.7)
A.3	<u>Student Welfare Activities</u>	669	(3.4)
A.3.1	Health Centre	206	(1.0)
A.3.1.1	Salary of staff	142	(0.7)
A.3.1.2	Non-salary items	64	(0.3)
A.3.2	Hostel	378	(1.9)
A.3.2.1	Salary of staff	22	(0.1)
A.3.2.2	Non-salary items	356	(1.8)
A.3.3	Sports	73	(0.4)
A.3.3.1	Salary of staff	46	(0.3)
A.3.3.2	Non-salary items	27	(0.1)
A.3.4	DSW	12	(0.06)
A.3.4.1	Salary of staff	5	(0.02)
A.3.4.2	Non-salary items	7	(0.04)
	Total (A)	12804	(64.8)
	Salary of staff	10116	(51.2)
	Non-salary items	2688	(13.6)
B.	ADMINISTRATION	6945	(35.2)
B.1	General administration	2048	(10.4)
B.2	Other departments	1255	(6.3)
B.3	Common services	3642	(18.5)
	Total (B)	6945	(35.2)
	Total (A + B)	19749	(100.0)

**Table 11: Departmental Unit Costs (Teaching and Research)
for Shivaji University**

(In Rs.)

Sr. Components of Cost No.	Name of the Department	Academic cost			Total	Administra-	Grand Total
		Salaries	Teaching input	Maintenance input		tion cost	
					Adminis-		
					trative		
	SCIENCE FACULTY	14968	2312	282	17562	7161	24723
1.	Physics	14414	1433	253	16100	7235	23335
2.	Chemistry	15408	1904	400	17712	7327	25039
3.	Botany	16183	2594	256	19033	7119	26152
4.	Zoology	14864	2038	233	17135	7270	24405
5.	Mathematics	13592	87	452	14131	7187	21318
6.	Statistics	19635	1592	367	21594	7594	29188
7.	Computer Science	3735	3039	-	6774	6744	13518
8.	Geography	14126	285	287	14698	7317	22015
9.	Polymer Chemistry	21821	10420	337	32578	7409	39987
10.	Applied Electronics	21241	7695	294	29230	7538	36768
11.	Geology	25087	1672	289	31049	4196	35545
	HUMANITIES (Arts Faculty)	3318	86	84	3488	6736	10224
12.	Marathi	3160	3	74	3237	6700	9937
13.	Hindi	1107	17	54	1178	6622	7800
14.	English	6641	252	86	6979	6987	13966
15.	Dept. of Foreign language	4751	252	289	5292	6644	11936
	SOCIAL SCIENCE FACULTY	4851	109	125	5085	6827	11912
16.	Economics	4561	48	71	4680	6830	11510
17.	Political Science	4263	28	99	4390	6768	11158
18.	History	6066	26	99	6191	6870	13061

(Contd...)

19. Sociology	5437	28	101	5566	6914	12480
20. Journalism	8740	826	352	9945	6910	16858
21. Library Science	1649	400	256	2335	6657	8992
22. F/o Commerce & Management	973	610	75	1661	6526	8187
23. F/o Education	5998	91	53	6142	6932	13074
24. F/o Fine Arts	23910	2014	600	26524	7475	33999

Average	8932	1119	183	10234	6945	17179
	(52.0)	(6.5)	(1.1)	(59.6)	(40.4)	(100.0)

Figures within parentheses are the percentages to respective total.

**Table 12: Departmental Unit Costs (Teaching)
for Shivaji University**

(In Rs.)

Sr. No.	Components of cost Name of the Department	Teaching			Total	Administra- tion	Grand Total
		Salaries	Teaching input	Maintenance input		Adminis- trative	
	SCIENCE FACULTY	10227	3093	193	13513	7139	20652
1.	Physics	12238	2389	209	14836	7235	22071
2.	Chemistry	11908	1831	303	14042	7327	21369
3.	Botany	12259	3230	196	15685	7119	22804
4.	Zoology	10807	2612	171	13590	7271	20861
5.	Mathematics	7986	106	273	8365	7187	15552
6.	Statistics	10212	1790	206	12208	7594	19802
7.	Computer Science	1914	3039	-	4953	6744	11697
8.	Geography	9171	362	182	9715	7317	17032
9.	Polymer Chemistry	12794	12157	196	25147	7410	32557
10.	Applied Electronics	13499	15795	188	29482	7538	37020
11.	Geology	17564	1986	172	19722	4496	24218
	HUMANITIES (Arts Faculty)	2414	127	62	2603	6741	9344
12.	Marathi	2552	5	62	2619	6700	9319
13.	Hindi	862	27	42	931	6622	7553
14.	English	4332	346	59	4737	6987	11724
15.	Dept. of Foreign language	2809	252	144	3205	6645	9850
	SOCIAL SCIENCE FACULTY	3041	141	80	3262	8585	11847
16.	Economics	3111	71	53	3235	6830	10065
17.	Political Science	2449	34	60	2543	6768	9311
18.	History	3740	33	63	3836	6870	10706

(Contd...)

19. Sociology	4044	41	73	4158	6914	11072
20. Journalism	4621	826	191	5638	36321	41959
21. Library Science	782	411	147	1340	6657	7997
22. F/o Commerce & Management	1418	1926	123	3467	6526	9993
23. F/o Education	5377	165	48	5590	6932	12522
24. F/o Fine Arts	15207	2518	375	18100	7475	25575

Average	4440	1098	91	5629	5186	10815
	(41.1)	(10.1)	(0.8)	(52.0)	(48.0)	(100.0)

Figures within parentheses are the percentages to respective total.

Table 13: Faculty Unit Costs for Different Faculties in Shivaji University (Teaching + Research)

(In Rs.)

Faculty	Academic Cost			Total	Adminis- trative	Grand Total
	Salaries	Teaching input	Maintenance cost			
Science	14968	2312	282	17562	7161	24723
Humanities	3318	86	84	3488	6736	10224
Commerce & Management	973	610	78	1661	6523	8187
Education	5998	91	53	6142	6932	13074
Fine Arts	23910	2014	600	26524	7475	33999
Social Science	4851	109	125	5085	6827	11912

Table 14: Faculty Unit Costs for Different Faculties in Shivaji University (Teaching)

Faculties	Teaching			Total	Adminis- trative cost	Grand Total
	Salaries	Teaching input	Maintenance input			
1. Science	10227	3093	193	13513	7139	20652
2. Humanities	2414	127	62	2603	6741	9344
3. Commerce & Management	1418	1926	123	3467	6526	9993
4. Education	5377	165	48	5590	6932	12522
5. Fine Arts	15207	2518	375	18100	7475	25575
6. Social Science	3041	141	80	3262	8585	11847

Table 15: Comparison of Institutional Unit Costs

(In Rs)

University	Academic	Administrative	Total
1. Delhi	14994 (64.8)	8136 (35.2)	23130 (100)
2. Pondicherry	19569 (50.00)	19611 (50.00)	39180 (100)
3. Kurukeshetra	15189 (44.3)	19110 (55.7)	34299 (100)
4. Shivaji	12804 (64.8)	6945 (35.2)	19749 (100)

Figures within parantheses indicate percentages.

Table 16: Departmental Unit Costs for Some Common Subjects

(In Rs.)

Department	Delhi	Pondicherry	Kurukshetra	Shivaji
1. Physics	29790	64378	48976	23335
2. Chemistry	33474	72903	47598	25039
3. Botany	43804	-	47956	26152
4. Zoology	45061	-	51647	24405
5. Maths.	19601	63514	32973	21318
6. Statistics	24022	-	32721	29188
7. Geography	-	-	35725	22015
8. Geology	45885	-	46460	35545
9. Hindi	15500	-	30253	7800
10. English	31971	35241	29926	13966
11. Economics	24528	42874	32123	11510
12. Pol. Science	15256	49494 (Int.Stu.)	29317	11158
13. History	16852	49425	36934	13061
14. Sociology	78223	-	-	12480
15. Lib.Science	22498	-	31198	8992
16. Commerce	17659	38403	30039	8187*
17. Management	20039	43021	41209	-
18. Education	32368	-	33135	13074
19. Fine-Arts	27863	-	-	33999

*Represents both Commerce and Management unit costs.

Table 17: Highest and Lowest DUCs for Four Universities

(In Rs.)

University	Highest Cost		Lowest Cost	
Delhi	Sociology	78,223	Pol. Science	15,256
Pondicherry	Chemistry	91,414	French	33,857
Kurukshetra	Zoology	51,647	Pol. Science	29,317
Shivaji	Fine Arts	25,575	Lib. Sc.	7,997

Table 18: Comparative FUCs for Four Universities

(In Rs.)

	Delhi	Pondicherry	Kurukshetra	Shivaji
Arts/Humanities	19762	37094	31082	10224
Social Science	20547	46271	32156	11912
Education	32368	-	33832	13074
Science	35445	55747	40942	24723
Comm. & Management	20039	41343	33005	8187
Fine Arts (and Music)	27863	48669	-	33999

Note: In the University of Delhi, Commerce Department comes under the Faculty of Management.

Addendum to the Report on "Unit Costs of Education in Indian Universities"

As a follow-up of the recommendations made in the main report, the optimum costs were determined for the Department of Geology, University of Delhi. As suggested on page 9 and 10 of the report, the required faculty strength was ascertained from the time-tables of different classes as provided by the Department of Geology of University of Delhi. The costs of academic support and minimum library support considered for determining optimum cost are those recommended by Earth Sciences Panel of the UGC (meeting of Earth Science Panel held on February 23, 1996). Further an additional amount of Rs.5,000 per faculty member has been added as the cost of minimum basic research support. It may be noted that from 1994-95 the M.Sc. programme has been reduced from three years to two years. Hence the teaching load for postgraduate courses (M.Phil, M.Sc. Part I and II) will, from 1996-97, be 97 periods per week, and for B.Sc. 55 periods per week. The salary components for postgraduate and undergraduate teaching (in the above ratio) have been computed, and only the postgraduate component included in the calculations. The number of postgraduate students from 1996-97 will be 30 (10 each in M.Sc. Part I and II, M.Phil.). The actual unit cost works out at Rs.98,728 while the optimum unit cost should be Rs.64,009. The actual unit cost worked out here (based on M.Phil and 2-year M.Sc.) is different from that obtained in the main report because the latter is based on the student strength of M.Sc. Part I, II and III. As part III has been abolished, there will be a consequent reduction in the number of students. However, during the current academic year (1995-96) the three-year programme is still be in existence. For this year the number of students is 40, faculty required for postgraduate teaching 10, actual unit cost Rs.84,814, and optimum unit cost Rs.53,694.

**Actual and Optimum Costs of M.Sc. Programme in
Geology, University of Delhi**

		Actual Cost (in Rs.)	Optimum Cost (in Rs.)
A.	Salary Input		
A.1	Teaching staff salary	11,64,800	7,96,250
A.2	Teaching supporting staff salary	7,79,008	7,79,008
B.	Other departmental input		
B.1	Text-books	74,000	20,000
B.2	Journals	7,00,000	1,00,000
B.3	Chemicals & consumables	25,000	50,000
B.4	Equipments	1,04,040	50,000
B.5	Field tours	1,00,000	80,000
B.6	Seminars & other group discussion	15,000	10,000
B.7	Faculty research support	-	35,000
Total (A+B)		29,61,848	19,20,258
Unit cost		98,728	64,009

Notes:

- i) The salary input has been taken from the Annual Budget estimates for 1994-95. Other departmental inputs, considered are those for which optimum amounts have been suggested by the UGC Panel for Earth Sciences.
- ii) The requirements for teachers, as per UGC norms, will be 7 for postgraduate classes and 5 for undergraduate classes (1996-97 onwards). The requirement for 1995-96 was 10 teachers for postgraduate classes and 5 for undergraduate. The actual strength is 16.

Appendix I

Report of the workshop on 'Unit Cost of Higher Education' held at AIU house from 19th to 20th May, 1995

A 'Workshop on Unit Cost of Higher Education', sponsored by the UGC, was held at AIU from 19th to 20th May, 1995. Twenty one delegates from the following 11 universities participated:

1. Banaras Hindu University
2. Bangalore University
3. University of Delhi
4. Gandhigram Rural Institute
5. Gujarat Vidyapith
6. Jawaharlal Nehru University
7. Indian School of Mines
8. Kurukshetra University
9. Pondicherry University
10. University of Poona
11. Tata Institute of Social Sciences

The Calcutta University was not represented. Representatives of UGC and AIU also participated.

The AIU had prepared a background paper giving the basic concepts of unit cost determination and outlining the procedure to be adopted in its determination. This was explained in detail to the participants. Emphasis was placed on the aspects of disaggregation of data given in budgets, and the apportioning of costs where the expenditure covered more than one activity or area. The guidelines issued by UGC, from time to time, constitute the basis for apportioning.

The suggested procedure was then thoroughly discussed. The following consensus emerged out of the discussions:

- (a) The calculation of unit cost would be carried out according to the scheme given by AIU in Fig.1.
- (b) If the universities felt it necessary, other components of unit cost may also be calculated and shown separately.
- (c) The apportioning of cost for various items were suggested as follows:
 - (i) While calculating the unit cost, apportioning of salaries of Professors, Readers and Lecturers, for teaching and research activities will be on following basis:

	<i>Teaching</i>	<i>Research</i>
Professors	36%	64%
Readers	44%	56%
Lecturers	60%	40%

Both the total cost and apportioned costs will be shown.

- (ii) 20 percent of the cost of major equipments, purchased essentially for research, but being utilised for teaching also, would be apportioned to the teaching cost of equipment purchased by the department.
- (iii) Apportioning of library cost between teaching and research will be in the proportion 20:80 percent. For university libraries in the universities undertaking undergraduate teaching, suitable modifications can be made - say 80:15:5. Both total costs and apportioned costs will be shown.
- (iv) In the case of affiliating universities, and universities undertaking undergraduate teaching, the apportioning of the cost of general administration, other departments and common services and general charges between the university departments and colleges, and between postgraduate and undergraduate divisions, was left to the universities.

The universities were requested to complete their exercise in unit cost determination by the end of July. It was desired that the services of AIU research staff be made available if required by the universities.

The participants felt that after the work was finalised a meeting could be held to compare results, and discuss other problems of mutual interest.

A 'list of participants' follows.

Sd/-
(K. B. Powar)

**List of the Participants who attended the Workshop on Unit Cost of Higher Education
held on May 19-20, 1995 at AIU, New Delhi**

S.No.	Name of the University	Name of the participants and designation
1.	Banaras Hindu University	i) Sh. Prabhat Chandra Finance Officer ii) Sh. Ishwar Chandra Dy. Registrar
2.	Bangalore University	i) Sh. S. Krishna Dy. Registrar (Accounts) ii) Ms. K.M. Umashashi Dy. Registrar (Finance)
3.	University of Delhi	i) Prof. Neelamegham Dean (Planning) ii) Sh. K.C. Rastogi (Planning)
4.	Gandhigram Rural Institute	i) Dr. N. Joseph Dean, Faculty of Rural Social Sciences ii) Dr. G. Karthikeyan Prof. & Head, Deptt. of Chemistry
5.	Gujarat Vidyapith	i) Prof. Ram Lal Parikh Vice-Chancellor
6.	Jawaharlal Nehru University	i) Prof. D.N. Rao School of Social Sciences ii) Sh. M. Krishnamurthy
7.	India's School of Mines	i) Sh. A. Sarkar Dy. Registrar
8.	Kurukshetra University	i) Sh. K.D. Khajuria Fin. & Dev. Officer ii) Sh. H.P. Bhola Suptd. Accounts
9.	Pondicherry University	i) Dr. V. Natarajan Dy. Registrar (Planning) ii) Sh. K. Chandramoorthy Dy. Registrar (Fin. & Accounts)
10.	University of Poona	i) Sh. S.M. Ahire Asstt. Fin. Officer ii) Sh. B.B. Argade Asstt. Fin. Officer
11.	Tata Institute of Soc. Sciences	i) Dr. S.K. Bandyopadhyay Registrar ii) Mr. V.L. Ghotage Asstt. Registrar (Accts.)

12. University Grants Commission
- i) Sh. Vasdev Talreja
 - ii) Sh. V.P. Kohli
 - iii) Sh. M.S. Yadav
13. Association of Indian Universities
- i) Prof. K.B. Powar
Secretary General
 - ii) Dr. S.K. Panda
Director (Research)
 - iii) Sh. P.K. Malhan
Asstt. Director (DB)
 - iv) Dr. (Mrs.) Mridula Sharma
Asstt. Director (P)
 - v) Ms. Veena Bhalla
Research Associate (DB)
 - vi) Sh. D. Gangopadhyay
Sr. Research Asstt.
 - vii) Dr. T.C. Sharma
Research Asstt.
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Appendix-III

AIU Occasional Paper 96/1

Unit Costs in Higher Education

K B Power



Association of Indian Universities

New Delhi

1996

Unit Costs in Higher Education

K. B. Powar

(Association of Indian Universities, New Delhi)

Higher education systems throughout the world are presently under severe financial constraints. The reasons for this are fairly apparent. First, the higher education sector has undergone unfettered growth rendering it uneconomical. Second, with the expansion of information and knowledge bases, and with developments in educational technology, education has become costlier. Third, academics and administrators, used to not being questioned, have not bothered to count costs. Fourth, society has reduced its philanthropic activities and is slowly withdrawing support from the field of education. And last, but most importantly, governments are no longer able (or willing) to shoulder the mounting costs of higher education. As is to be expected the constraints are the severest in developing countries, like India, where tertiary education had undergone uncontrolled expansion, where inflation rates have been high, and where academic institutions have been totally dependant upon government funding for their functioning. Faced with fiscal crises educational institutions have now to look for alternate sources of revenue and find ways and means of reducing costs. The latter calls for an analysis of expenditure and determination of unit costs.

Cost of Education

A reduction of expenditure is possible only after there is analysis of costs and identification of the pattern and areas of spending. Hence, estimation of the cost of education has become important. At this stage it is, perhaps, necessary to clarify the usage of different terms. The words 'cost' and 'expenditure' are often used synonymously, especially by accountants. Tilak (1988) points out that it is necessary to distinguish between '*cost of education*' and '*expenditure on education*'. 'Cost' is that part of the spending that has some relationship to the production process and the output. 'Expenditure' has a broader connotation and includes related expenses that may have no relationship with the production process or output.

Tilak (*op. cit.*) while discussing the taxonomy of education recognises two basic domains - the *private* or *individual* and the *public* or *institutional*. Cost of education incurred by a student in his or her individual domain includes the spending on fees, books and stationery, and accommodation. Costs in the institutional domain include the salaries of teaching and support staff, the expenditure on libraries, laboratories and student facilities, and the value of stipends, scholarships etc. The sum of the institutional and individual costs is referred to as social cost. Generally studies on the cost of education are restricted to institutional costs because the interest of governments and grant-giving bodies is limited to the expenditure likely to be incurred by the exchequer, and because data on private costs is highly variable and not easily available.

Institutional costs are of two types - *capital* and *current*. Capital cost, also referred to as non-recurrent cost, covers investments in building, major equipments and other items that constitute one-time expenditure. Current cost, also referred to as recurrent cost, covers all operating expenses including the expenditure on salaries, maintenance of infrastructure and equipment, expenses related to electricity, stationery and postage, and other spendings that are repeated every year. Within recurrent cost two sub-categories can be recognised. These are direct and indirect costs. Direct cost is the cost on salaries and other expenses like those on materials, equipment and specific services that can be directly attributed to a given activity. Indirect cost is the share attributed to the given activity from expenditure incurred centrally, for example the expenditure on central facilities (library), central services (security) and campus maintenance.

Education is a social obligation and it is the responsibility of the government to meet the cost of infrastructure, and of development. These are usually met from one-time allocations, under what are generally referred to as 'plan grants'. These non-recurring grants are not taken into consideration while determining the cost of education.

The cost of education can be calculated in terms of current prices or in terms of constant prices. When calculated in terms of current prices comparisons over different periods of time lose meaning. Thus data for one institution calculated for the budget year 1990-91 cannot be meaningfully compared with data for another institution calculated for say 1992-93. Hence it is desirable to calculate for constant prices for a given year. It requires recalculation for each item or service on the basis of the prices prevalent during the base year. This is not an easy task as a very large data base would be required. An approximation of constant price with respect to a base year can be done taking into consideration the annual rate of inflation. This is not an entirely satisfactory solution because the variation in the wholesale price index differs from the variations in the value of commodities required for educational activities alone. However, it should serve the purpose of cost comparisons.

Unit Cost

Unit cost is the expenditure incurred on each unit of a product during the course of any activity. In the case of educational institutions and activities the unit against which expenditure is evaluated is the student. However, there is some difference of opinion regarding the category of student to be considered. The calculations may be made in terms of the number of students enrolled, the number of students actually attending classes, or the number of successful students. Further, taking into consideration the wider social context the unit could be the number of persons in the relevant age group that could avail of the opportunity given the chance, or even per capita (of population) (Tilak, 1988). In general economic theory the unit cost is usually given in terms of the units of output. This would suggest that 'successful student' would be the appropriate unit of reference. However, expenditure on various educational activities is related to the number of students participating in them. And 'wastage' in any activity has to be taken into account. It, will, therefore, be more appropriate to calculate unit cost in terms of 'students on roll' or on 'students attending classes'. The difference between the two is usually small. In view of difficulties in monitoring attendance it would be more pragmatic to adopt the former as the unit. In fact, most studies on higher education have considered "student on roll" as the unit for estimation of unit costs. This practice is, therefore, recommended for adaptation.

Unit cost could be used for different purposes, including comparison of patterns of spending across universities, and across departments within the same university. It *could* be the basis of determining the quantum of funds to be given to an institution, or the fees to be charged from a student. *However, its main utility is that it allows managements to clearly see how money is being spent. Unit costs help identify areas of over-expenditure, that require monitoring, as also areas that are inadequately financed and could benefit from more sympathetic consideration.*

Types of Unit Costs

In the case of higher education systems different types of unit costs may be calculated depending upon the objective (see Powar *et al.*, 1995). These include:

1. *Institutional Unit Cost (IUC)* that indicates the expenditure incurred by an institution per student for all its activities. It includes expenditure on both academic and administrative matters. It may be used to decide upon the quantum of grants that are to be given to an institution. The important components and sub-components of institutional cost are shown in Fig. 1.

2. *Departmental Unit Cost (DUC)* that indicates the unit expenditure on the academic programmes. It has two basic components - the *Programme Unit Cost (PUC)* that describes the expenditure on a teaching programme, and the

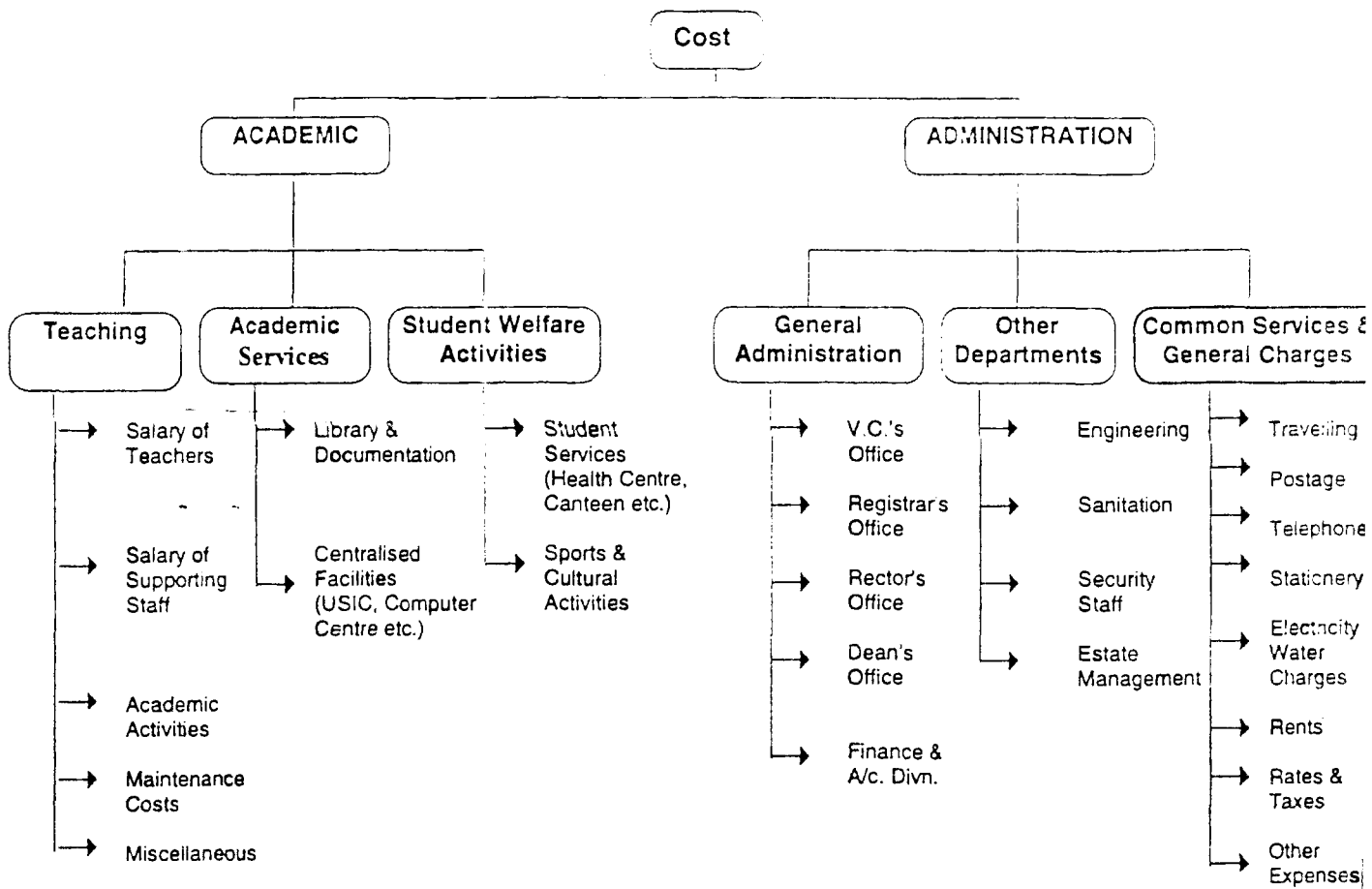


Fig.1 : Components of Institutional Cost

Research Unit Cost (RUC) that indicates the expenditure on research. DUC may be used as a basis of determining the fees to be charged from students. The DUCs for related departments may be combined to give *Faculty Unit Cost (FUC)* or *Subject-group Unit Cost (SgUC)*. The components and sub-components of DUC are shown in Fig. 2. For collecting information required for computing DUC the data base outlined in Fig. 3 may be used.

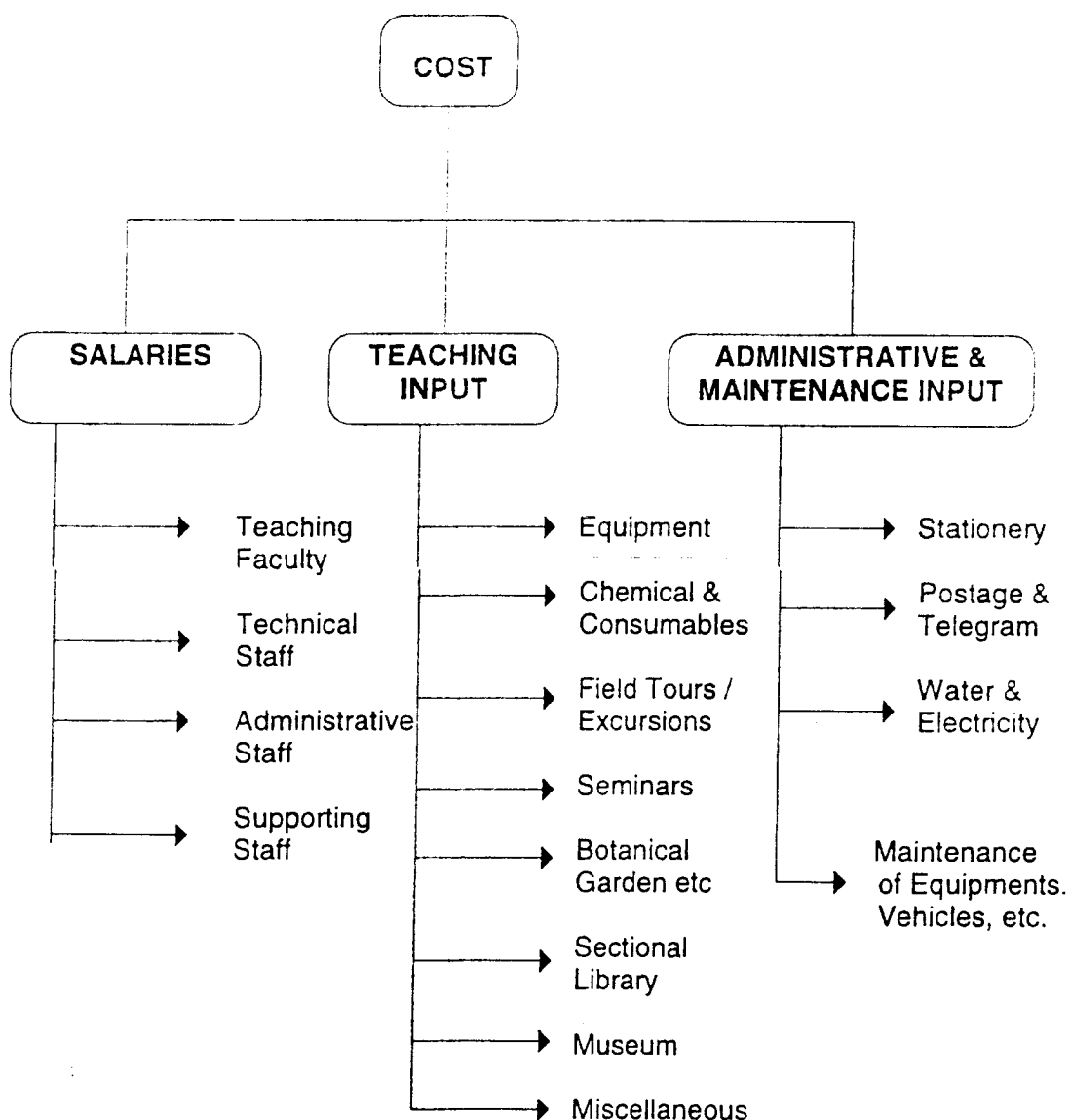


Fig. 2: Components of Departmental Cost

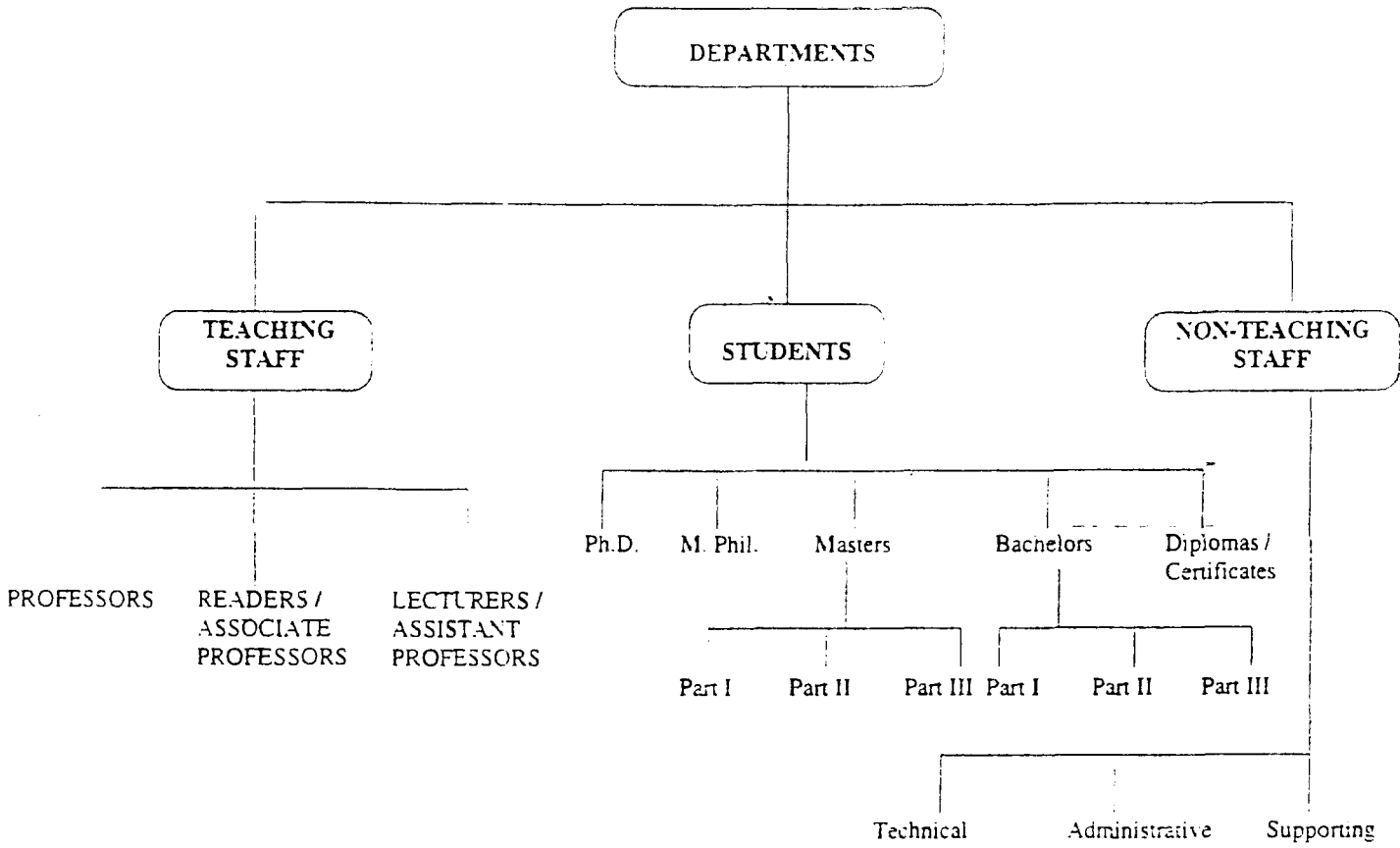


Fig. 3 : Database for Departments

Apportioning of Costs

The activities undertaken in a university are very diverse and cater to the needs of multiple user types. For example, the university administration handles matters related to both the departments on the campus and the affiliated colleges. Likewise, the staff (both academic and administrative) undertake functions related to both teaching and research. Hence, while calculating unit cost for any activity, especially while computing DUC, it is necessary to apportion costs, for many items, to different heads. This is best done on the basis of UGC guidelines, where available. Thus the UGC guidelines on workload may be used for apportioning the expenditure on teacher-salary between teaching and research activities. In the case of library-related expenditure the cost has to be apportioned between teaching and research activities. The consensus at a workshop conducted by the Association of Indian Universities (AIU, 1995) was that library cost be apportioned between teaching and research in the proportion 80% for research and 20% for teaching. In case of university campuses where undergraduate teaching is also undertaken the share for teaching be further sub-apportioned - 15% for postgraduate teaching and 5% for undergraduate teaching. The cost of maintenance of major equipments purchased under research grants is often substantial. In case the equipment is also used for teaching purposes 20% of the maintenance cost may be debited to teaching activity. In the case of teaching-cum-affiliating universities the apportioning of expenditure on salaries of central administrative staff, between campus and affiliated colleges, has to be decided by individual universities on the basis of *their perception* of division of work. Most of the work undertaken by the Examination and Affiliation units of teaching-cum-affiliating universities relates to undergraduate students in colleges and this has to be reflected in apportioning. Appendix I is an example of the apportioning of cost done in the case of the Shivaji University, Kolhapur while ascertaining unit costs for the year 1994 - 1995. It must be emphasised that *a realistic apportioning of costs is a prime requisite of the costing exercise; and the universities should do this carefully where freedom to do so is given.*

Cost Calculation

In higher education, IUC is calculated as the total expenditure incurred by an institution divided by the number of students on roll. As indicated in Fig.1 institutional cost has two major components - academic and administrative, each with three sub-components. Academic cost includes expenditure on teaching, academic services, and student welfare activities. Administrative cost covers expenditure on general administration, other departments, and common services and general charges. The different components of IUC, and IUC, may be calculated using the following formulae:

$$\text{AcCS} = (\text{TC} + \text{ASC} + \text{SWAC}) / \text{E} \dots \dots \dots (1)$$

$$\text{AdCS} = (\text{GAC} + \text{ODC} + \text{CSC}) / \text{E} \dots \dots \dots (2)$$

$$IUC = AcCS + AdCS \dots\dots\dots(3), \text{ or}$$

$$IUC = (AcC + AdC) / E \dots\dots\dots(4)$$

where:

AcC is Academic Cost and AcCS is Academic Cost per Student

AdC is Administrative Cost and AdCS is Administrative Cost per Student

IUC is Institutional Unit Cost

TC is Teaching Cost

ASC is Academic Services Cost

SWAC is Student Welfare Activities Cost

GAC is General Administration Cost

ODC is cost on Other Departments

CSC is Cost on Common Services and General Charges

E is Total Enrolment in the Institution.

DUC refers to the unit cost incurred by the departments or schools. It is calculated by using the formula:

$$DUC = \{(SC + TIC + AMC) / E\} + ASCS + SWACS + AdCS \dots\dots(5)$$

where:

DUC is Departmental Unit Cost

SC is cost of Salaries (teaching and non-teaching staff in department)

TIC is Teaching Input Cost

AMC is Administration and Maintenance Cost

ASCs is Academic Service Cost per Student

SWACS is Student Welfare Activities Cost per Student

AdCS is Administrative Cost per Student

E is Total Enrolment in the Department.

After proper apportioning it is likewise possible to separate DUC into PUC and RUC. Likewise the data for DUC may be combined to give FUC or SgUC.

Results

A recent study conducted by AIU (Association of Indian Universities, 1995) shows that unit costs may vary widely between universities, and across various departments within a university. The differences in IUC may be due to a variety of factors including the stage of development of a university. A new university with few students and a large campus may have a high IUC. Likewise there may be substantial difference in DUC for the same discipline in different universities because of differences in the staffing patterns, number of students enrolled, cost of administrative support, and even quality of education imparted. A low IUC or DUC does not necessarily imply administrative efficiency. It may even result from inadequate staff, a high number of students, and inadequate provision for library, laboratory and other requirements. As such the figures

obtained cannot be immediately used for determining funding. They are, however, important for determining future course of actions.

Suggestions

It is necessary to determine, in addition to actual unit costs, optimum or standard unit costs for each department. The exercise should take into consideration:

1. Faculty-strength as required by work-load norms laid down by the University Grants Commission.
2. Cost of academic support (for laboratories, fieldwork, etc.) as required for implementing the model syllabi developed by the Curriculum Development Centres of the UGC; or requirements identified by expert groups for each subject.
3. Minimum library support for teaching and research as identified by expert groups.
4. Cost of minimum basic support for research, to be provided to the faculty: it being understood that the major source of research funding will be project grants obtained from external agencies.

In accordance with the recommendations of the *Punnayya Committee* (UGC, 1993) the ratio between the academic and administrative components of IUC should be about 65:35. In the case of many universities the administrative component is much larger. If this is to be rectified it will also be necessary to draw up workload norms for non-teaching positions. Only then we will be able to obtain meaningful optimum unit costs.

In case the proposal of relating tuition fees to cost of education is accepted it will be necessary to calculate PUC for individual subjects/subject groups/faculties, so that tuition fees can be fixed as a percentage of one of these costs.

Conclusion

Keeping in view the financial constraints under which universities will have to function in the immediate future they should undertake an evaluation of unit costs. The universities should consider this exercise as a self-assessment activity for finding out 'where the money goes' - for identifying areas of over-expenditure, as also those that are inadequately supported. A comparison of actual unit cost and optimum unit cost should help initiate a process of adjustment as regards faculty strength, number of support and administrative staff, laboratory and library support, support for research activities, and other expenditures. A caution: funding agencies and grant-giving bodies have to bear in mind that optimum unit costs cannot form the basis of abrupt changes in funding

pattern. Finally, a one-time determination of unit cost will not serve much purpose, unit cost determination has to be a part of a regular internal audit system.

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Appendix I

APPORTIONING OF COSTS ADOPTED BY SHIVAJI UNIVERSITY, KOLHAPUR

[Shivaji University, Kolhapur, is a teaching-cum-affiliating university in western Maharashtra having jurisdiction over the four districts of Kolhapur, Satara, Sangli and Solapur. It has about 215 affiliated colleges, covering all faculties. In addition, there are 21 departments on the university campus at Kolhapur, and three departments on the sub-campus at Solapur. The campus has different facilities like hostels, library, computer centre, USIC, press and health centre. Only postgraduate teaching and research are undertaken on the university campus.]

ADMINISTRATION

Sr. No.	Units	Apportioned Expenditure
A) GENERAL ADMINISTRATION		
A.1	Vice-Chancellor's Office	50%
A.2	Pro-Vice-Chancellor's Office	50%
A.3	Registrar's Office	30%
A.4	Finance & Accounts Officer	30%
A.5	Establishment	100%
A.6	Affiliation	0%
A.7	Stats. Section (UGC Unit)	50%
A.8	B.O.S.	25%
A.9	P.G. Admission	100%
A.10	Stationery (Central Store)	100%
A.11	Drivers	100%
A.12	Telephone Section	20%
A.13	Central Typing Pool	20%
A.14	Xerox Unit	10%
A.15	Meeting Section	50%
A.16	Inward, Outward Section (D)	20%
A.17	Accounts Section	50%
A.18	PG (BUTR)	100%
A.19	PG (Seminar)	100%

B) OTHER DEPARTMENTS:

B.1	Engineering (Civil)	100%
B.2	Electrical	100%
B.3	Water Supply	100%
B.4	Sanitation	100%
B.5	Garden	100%
B.6	Security Staff	100%
B.7	Guest House	100%

C) COMMON SERVICES & GENERAL CHARGES:

C.1	Travelling	20%
C.2	Postage	20%
C.3	Telephone	10%
C.4	Stationery	50%
C.5	Electricity/Water Charges	100%
C.6	Rent	-
C.7	Rates & Taxes (Corporation)	100%
C.8	University Press	50%
C.9	Other Expenses :	

1.	Association of Indian Universities	100%
2.	Association of Commonwealth Universities	100%
3.	Learned Society	100%
4.	Insurance	100%
5.	Office Furniture	100%
6.	Furniture for Dept.	100%
7.	Furniture for V.C.'s Lounge	100%
8.	Servicing & Repairs (Equip. Furniture)	100%
9.	Convocation etc.	10%
10.	Convocation Ptg.	10%
11.	Ptg. of Degree/Diploma	10%
12.	Delegates to Conference	100%
13.	Staff Orientation	100%
14.	Contingencies	100%
15.	Audit	100%
16.	S.A. to V.C.	100%
17.	Hospitality	100%
18.	Extra Mural Board	100%
19.	Sports & Cultural Activities of Staff	100%
20.	Edu. Facilities Cl.IV Staff	100%
21.	Uniform (IV)	100%
22.	Dep. Contribution	100%
23.	Replenishment of Dep. Fund	100%
24.	Gratuity Fund (N.T. Staff/Teaching)	100%

25. Servicing Electronic Typewriters,PC etc.	100%
26. Liaison Cell	100%
27. Employees' Welfare Fund	100%
28. R & D Fund	100%
29. Advertisement	100%
30. Legal Expenses	50%

ACADEMIC

Sr. No.	Units	Apportioned Expenditure
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A) TEACHING:

1.	Salary of Teachers	100%
2.	Salary of Supporting Staff	100%
3.	Academic Activities	100%
4.	Maintenance Costs	100%
5.	Miscellaneous	100%

B) ACADEMIC SERVICES:

I. LIBRARY & DOCUMENTATION:

1.	Salary of Staff	100%
2.	Cost of Books	100%
3.	Cost of Journals	100%
4.	Electricity/Water Charges	100%
5.	Maintenance	100%
6.	Miscellaneous	100%

II. CENTRALISED FACILITIES:

a) USIC:

1.	Salary of Staff	100%
2.	Maintenance Cost	100%
3.	Electricity/Water Charges	100%
4.	AMC of Equipments	100%
5.	Miscellaneous	100%

b) Computer Centre:

1.	Salary of Staff	80%
2.	Electricity/Water Charges	80%
3.	AMC Computer System	80%
4.	Miscellaneous (Maint., Insurance, Stationery)	80%

C) STUDENT WELFARE ACTIVITIES:

a) Health Centre:

1.	Salary of Staff	100%
2.	Cost of Medicine	100%
3.	Maintenance Cost	100%

b) Hostel:

1.	Salary of staff	100%
2.	Electricity/Water Charges	100%
3.	Maintenance Cost	100%

c) Sports :

1.	Salary of Staff	10%
2.	Purchase of Sports Equipment	10%
3.	Maintenance of Sports Complex	10%

d) Students Welfare :

1.	Salary of Staff (Hon.)	10%
2.	Cultural Activities	10%

Note: The unit cost determined after apportioning reflects expenditure on students of departments under the direct control of the university. The unit cost related to students in affiliated colleges can be worked out separately from the 'left out' costs.

**EVALUATION OF REPORTS ON UNIT COSTS FOR 1994-95
SUBMITTED TO ASSOCIATION OF INDIAN UNIVERSITIES**

**ASSOCIATION OF INDIAN UNIVERSITIES
NEW DELHI**

I : CENTRAL INSTITUTE OF ENGLISH AND FOREIGN LANGUAGES

1. Plan and Non-plan grants have been considered for calculation of IUC and DUC.

(The types of items of Plan grants they have included needs some clarification).

2. The expenditure incurred on part time UG courses, non-statutory courses and the expenditure on extension work have been excluded for the estimation of IUC and DUC.

(Basis of apportionment of expenditure has not been mentioned, but the apportionment done may be accepted).

3. In estimation of IUC, indirect expenditure has been apportioned among three divisions i.e. English, Foreign Language and Distance Education in the ratio 2:2:1 respectively.

(The justification has been given about this ratio that facilities and services are used by these divisions. But the major user of the facilities and services are students which have not been taken into account).

4. For estimation DUC, the distance education cost has been apportioned on a percentage basis keeping in view the realistic approach to actual incidence of the cost.

(However, the realistic approach has not been explained).

5. For estimation of departmental cost, the indirect cost has distributed among departments equally.

(It is not justifiable, while size of the each department differs).

6. They have apportioned 70% of the cost to PG and 30% of the cost for the campus UG courses.

(It requires more methodological explanation).

Central Institute of English & Foreign Languages
Department-Wise Unit Cost - 1994-95

Division/Deptt./ University	Unit Cost (in Rs.)		
	Acade- mic	Admini- strative	Total

I. <u>English Division</u> - (82)			
Department of:			
1. Phonetics & Spoken English	5292	6846	12138
2. Methods	6758	6846	13604
3. Linguistic Contemporary Eng.	5624	6846	12470
4. Extension Services	6965	6846	13811
5. English Literature	6534	6846	13380
6. Mat. Production	8271	6846	15117
7. Radio, TV & Cinematography	9265	6846	13161
8. Evaluation	3661	6846	10507
II <u>Distance Education Division</u> - (905)			
9. Distance Education	2269	2249	4518
III <u>Foreign Languages Division</u> - (29)			
10. German	124838	149694	274532
11. French	65169	93558	158727
12. Russian	74402	83162	157564
13. Arabic	112789	187116	299905
14. Spanish	110417	249488	359905

Total/University	64147	80905	145063

Figures within parenthesis are enrolment in concerned Division.

II : TATA INSTITUTE OF SOCIAL SCIENCES

1. In estimation of IUC, AcCS and AdCS they have followed the AIU formula, but some variables like SWAC and ODC have not been taken into account as proportioned in Table 2.
2. DUC has also been calculated vide Tables 3 to 10. In these tables, AIU guidelines for "per unit cost estimation" has not been followed, like:
 - (i) They have not added the cost per student pertaining to student welfare activities and administration.
 - (ii) We could not understand the procedure of unit cost estimation of Teaching Inputs, Academic Services and Salary of administrative staff for academic (teaching) work.
 - (iii) Teaching workload of teachers has also been worked out by their own methods, i.e. 40% of total workload has been given to teaching.

**Tata Institute of Social Sciences
Department-Wise Unit Cost - 1994-95**

Department	Unit Cost (in Rs.)
1. Personnel Management & Industrial Relations (56)	33079
2. Medical & Psychiatric Social Work (45)	27497
3. Urban & Rural Community Development (36)	25888
4. Criminology and Correctional Administration (27)	35670
5. Family and Child Welfare (43)	29166
6. Research Methodology (87)	10035
7. Health Services Studies (16)	49350
8. Social Welfare Administration (15)	54040
Total/Univ.	20047

Figures within parenthesis are the enrolment in respective department.

III : DAYALBAGH EDUCATIONAL INSTITUTE

1. Unit institutional cost has not been calculated.
2. Apportioning of administration cost has not been explained.
3. Academic non-salary items are not clear. Have they included the teaching input in this head?
4. Student welfare activities figure differs only in department of Drawing and Painting. Why is it so?
5. The basis of apportioning of Academic Cost/Services is not correct.
6. Unit cost of Electrical and Mechanical Engineering departments do not tally with the total of all components of cost of respective departments.

(The report is of very sketchy (2 pages) and a comprehensive evaluation is not possible).

**Recommendations of Workshops of Representatives
of Subject Panels for Evaluating Optimum Costs**

**Data Base Unit
Research Division
Association of Indian Universities
New Delhi 110 002**

Recommendations of Workshops of Representatives of Subject Panels for Evaluating Optimum Costs

As a part of the exercise undertaken by the Pylee Committee for estimation of unit costs, the Association of Indian Universities organised three workshops for evaluating the optimum unit costs for different subjects. These workshops were held according to the following schedule:

- i. Science : May 22, 1996
- ii. Social Sciences : May 23, 1996
- iii. Arts & Humanities : May 24, 1996

The participants were asked to identify the minimum essential requirements for the following:

- 1 = a. Essential Journals
b. Text Books
- 2 = Minor Equipments Required for Teaching Purposes
- 3 = Chemical and Consumables
- 4 = Seminars/Group Discussions
- 5 = Research Support to Staff
- 6 = Field Work etc.

In order to facilitate compilation of teaching loads the subject-representatives were also asked to indicate optimum class-strength. These are given in Annexure III. The optimum costs recommended for the year 1995-96 for these different heads are given in Annexure I. The lists of essential journals suggested for different subjects are given in Annexure II. It may be pointed out that these lists do not include 'common journals (like *Nature*) and compilations of Abstracts. Provision will have to be made to purchase them centrally. The cost of journals has been calculated for the rates prevalent during 1995-96.

“Optimum Costs” (in Rs.) as worked out by UGC Panels

- 1a. = Essential Journals
 1 b. = Text Books
 2 = Minor Equipments Required for Teaching Purposes
 3 = Chemicals and Consumables
 4 = Seminars/Group Discussions
 5 = Research Support to Staff
 6 = Field Work etc.

S.No.	Subject	1	2	3	4	5	6
Science							
1.	Bio- Science	a. 2,97,088 b. 30,000	2-3 lakhs	0.5-1 lakhs	30,000	3,000	
2.	Chemistry	a. 1,26,530 b. 50,000	3,00,000	2,00,000	40,000	3,000 per teacher	
3.	Computer Science	a. 1,84,995 b. 42,000	50,000	30,000			50,000 AMC
4.	Earth Sciences	a. 83,4,117 b. 20,000		50,000	10,000		3,000 per teacher; 30,000 pa for P.G.; 20,000 pa for U.G.
5.	Geography	a. 33,867 b. 90,000	20,000		15,000	50,000 per teacher	
6.	Physics	a. 16,00,000 b. 5,00,000	1,00,000	10,00,000	20,000	6,00,000	
7.	Statistics	a. 4,72,866 b. 62,500	7,55,000		26,000	6,35,000	
Arts and Humanities							
8.	English	a. 1,90,000 b. 1,60,000	20,000		15,000	5,000 per teacher	
9.	Foreign Languages	a. 25,000 b. 60,000	20,000		10,000	5,000 per teacher	

10.	History and Archeology	a. 1,70,836 b. 75,000	75,000	35,000	25,000	45,000	PG students - 30,000 and UG students - 30,000 Archeological Expploration - 60,000
11.	History of Art (Arts)	a. 30,193 b. 50,000	non- requiring - 1,00,000 requiring- 25,000	25,000	50,000	7,000 per teacher	
12.	Indian Languages	a. 5,000 b. 25,000			10,000	5,000 per Professor 4,000 per Reader 3,000 per Lecturer	
13.	Linguistics	a. 25,600 b. 50,000	10,000		12,000	5,000 per teacher	
Social Sciences							
14.	Anthropology	a. - b. -	30,000	1,75,000	10,000	70,000	field work; PG - 1,20,000 UG -60,000 M.Phil.- 75,000
15.	Commerce and Management	a. 32,589 b. 1,000 per student	1,000 per student	1,000 per student	500 per teacher	25,00 per teacher	
16.	Education	a. 2,05,000 b. 1,40,000	4,00,000	2,00,000	20,000	2,000 per teacher	
17.	Journalism and Mass Communication	a. 11,875 b. 50,000	30,000	15,000	25,000	5,000 per teacher	
18.	Law	a. 10,8,236	1,00,000	1,50,000	25,000	1,00,000 Field work 1,50,000	
19.	Library and Information Science	a. 69,462 1,43,534 b. 2,50,000	1,80,000	25,000	15,000	20,000	

20.	Political Science and Public Administration	a. 41,708 b. 600 per student	1,00,000	-	40,000	3,000-5,000 per teacher
21.	Psychology	a. 1,12,156 b. 25,000	45,000	20,000	10,000	10,000
22.	Social Work	a. 22,199 b. 1,00,000	1,00,000	1,00,000	20,000	50,000 Field work 1,00,000; Field action projects 1,00,000; Visiting faculty 20,000; Faculty development 25,000; Field work Rs. 200 per student
23.	Sociology	a. 10,3,780 b. 75,000		-	30,000 to 50,000	60,000

Annexure II

Lists of Essential Journals in:

1. **Sciences**
2. **Arts & Humanities**
3. **Social Sciences**

SCIENCES

Physics

Journals for Students

1. Physics Today
2. American Journal of Physics
3. Reviews of modern Physics
4. Physics Education Science
5. Resonance
6. Contemporary Physics

Basic Journals for Faculty

1. Physical Review A,B,C,D,E and Physics Review Letters
2. Journal of Physics A,B, condensul Matter
3. Pramana
4. Journal of Applied Physics
5. Physics A,B,C,D
6. Physical Review Letters

Chemistry

1. Journal of Physical Chemistry
2. Journal of Organic Chemistry
3. Journal of Inorganic Chemistry
4. Journal of Chemistry Sco. (Physical, Organic, Inorganic)
5. Journal of Chemical Education
6. Journal of Analytical Chemistry
7. Indian Journal of Chemistry
8. Current Science
9. Resonance

Bioscience

1. Proc. National Academy of Science
2. Biochemistry Journal
3. Nature,
4. Trends in Biochemistry
5. Trends in Genetics
6. Trends in Immunology
7. Science
8. Current Contents
9. Journal of Molecular Biology
10. Cell Journal of Bioscience
11. Current Science
12. Journal of Molecular
13. Microbiology
14. Resonance
15. Biochemistry Journal
16. Molecular and General Genetics
18. Journal of Genetics
19. Common journals for all disciplines under Bioscience

Statistics

1. Annals of Statistics
2. Annals of Probability
3. Annals of Applied Probability
4. Statistical Science
5. Journal of Multivariate Analysis
6. Journal of Royal Statistical Society Ser. A
7. Journal of Royal Statistical Society Ser. B
8. Journal of Royal Statistical Society Ser. C
9. Journal of American Statistical Association
10. International Statistical Review
11. Statistic Processes and its Applications
12. Probability Theory and Related Fields
13. Theory of Probability and its Applications
14. Biometrics
15. Biometrika
16. Statistical Theory and Methods Abstracts
17. Sankhya Ser A
18. Sankhya Ser B
19. Annals of Institute of Statistical Mathematics
20. Scandinavian Journal of Statistics
21. Journal of Applied Probability
22. Advances in Applied Probability
23. Statistics
24. Statistics and Probability Letters
25. Applied Statistics
26. Technometrics
27. Mathematical Reviews
28. European Journal of Operation Research
29. Journal of Indian Statistical Association
30. Computational Statistics and Data Analysis
31. Naval Research Logistic Quarterly

Specialized Journals

1. Bernoulli
2. Statistica Sivica
3. IEEE Transaction in Information Theory
4. Theory of Probability and Mathematical Statistics
5. Canadian Journal of Statistics
6. Communication in Statistics
7. Australian Journal of Statistics
8. Operations Research
9. Mathematics of Operation Research
10. Statistics in Medicine

Computer Science

1. ACM Trans. On Computing Surveys
2. ACM Trans. On Mathematical Software
3. ACM Trans. on Programming Languages and Systems
4. ACM Trans. on Software Engineering and Methodology
5. ACM Trans. on Computer Systems
6. ACM Trans. on Database Systems
7. ACM Trans. on Graphics
8. ACM Trans. on Information Systems
9. ACM Trans. on Modelling and Computer Simulation
10. ACM Jr. of the Association for Computing Machinery
11. IEEE Communication Magazine
12. IEEE Jr. of Selected Area of Communication
13. IEEE Network
14. IEEE Software
15. IEEE Trans on Computer Graphics and Application
16. IEEE Trans on Computers
17. IEEE Trans on Image Processing
18. IEEE Trans on Knowledge and Data Engg.
19. IEEE Trans on Neural Network
20. IEEE Trans on Parallel and Distributed Systems
21. IEEE Trans on Pattern Analysis and Machine Intelligence
22. IEEE Trans on Software Engg.
23. IEEE Trans on Systems, Man and Cybernatics

Earth Sciences

Geology

1. Geological Society of American Bulletin
2. Journal of Geology
3. Geological Society of India
4. Geology
5. Episodes

Minerology

1. Minerological magazine
2. American minerologist
3. Indian Minerals

Igneous Petrology

1. Journal of Petrology

Metamorphic Petrology

1. Metamorphic Petrology

Sedimentology

1. Bulletin of American Association of Petroleum Geologist
2. Journal of Sedimentary Petrology

Palaeontology

1. Journal of Palaeontology
2. Micropalaeontology

Economic Geology

1. Economic Geology
2. Mineralium Deposits

Applied Geology

1. Precambrian Research
2. Earth and Planetary Science Letters
3. Chemical Geology
4. Zeit Geomorphology
5. American Journal of Science
6. Earth Science Review

Geophysics

1. Geophysics
2. Leading Edge of Exploration
3. Geophysical Prospecting
4. First Break
5. Geopxploration
6. Geophysics Journal International
8. Journal of Amercian Society of Seismologist
9. Earth Science Review
10. Journal of Australian Society of Seismologist
11. Journal of Indian Association of Exploration Geophysics

Geogrpahy

Indian Journals

1. Geographical Review of India, Calcutta
2. Transactions, Institute of Indian Geographers, Puna
3. Journal of National Association of Geographers of India, Delhi
4. Indian Geographical Journal, Madras
5. Geographer, Aligarh
6. North-East Geographer, Guwahati

Foreign Journals:

1. Geographical Journal, London
2. Geographical Review, New York
3. Economic Geography, Clark University, U.S.A.
4. Soviet Geography, New York
5. Professional Geographer, New York
6. Geo-Journal, Germany
7. Japanese Geographer, Tokyo
8. Antipode, U.S.A.
9. Journal of Tropical Geography, Singapore
10. National Geographical Magazine, Washington D.C.

ARTS AND HUMANITIES

English

Foreign:

1. Critical Inquiry
2. Critical Quarterly
3. Journal of Contemporary Thought
4. New Literary History
5. The Oxford Literary Review
6. New York Review of Books
7. Times Literary Supplement
8. Journal of Commonwealth Literature
9. Diacritics
10. Modern Drama
11. Modern Fiction Studies
12. The partisan Review
13. PMLA (including annual Bibliography)
14. Sight and Sound
15. Review of English Studies
16. Essays in Criticism
17. Shakespeare Quarterly
18. ELT
19. Landon Review of Books

Indian:

1. Literary Criterion
2. Journal of Indian Writing in English
3. Littcrit
4. Indian Literature (Sahitya Akademy)
5. Journal of Literary Criticism
6. Odyssey International Journal of Philosophy and Literature
7. Book Review
8. Indian Book Review (Delhi)
9. Discourse and Society (Sage)
10. Indian Journal of Gender Studies (Sage)
11. History of the Human Sciences (Sage)

Foreign Languages

Seven International journals, at least one each in the areas of Culture, Literature, Philosophy, Lexicography, Interpretation, Translation, and Language Teaching Analysis

Indian Languages

5 Journals for each Indian Language. for example for Oriya

1. Jhankar
2. Konark
2. Istahar
4. Esana
5. Samavesh

Linguistics

1. Indian Linguistics
2. Bhasha
3. Journal of Indian Philosophy
4. ABORI, Pune
5. Journal of School of Languages

Foreign:

1. Languages
2. Phonetics
3. International Journal of Applied Linguistics
4. Philology
5. Word
6. Linguistics
7. PMLA (Including Annual Bibliography)

History of Art

1. Marg
2. Unesco (Museums)
3. Artibus Asia
4. Arts of Asia (Hongkong)
5. Journal of Oriental Art
6. Lalit kala

SOCIAL SCIENCES

History and Archeology

1. Bengal - Past and Present
2. Punjab - Past and Present
3. Journal of Indian History
4. Quarterly Review of Indian Historical Studies
5. Indo-British Review
6. Itihas -State Arcives
7. Indian Economic and Civil History Review
8. Studies in History
9. Indian Historical Reivew
10. The Annals
11. European History Quarterly
12. European Journal of Women Studies
13. Indian Journal of Gender Studies
14. Journal of Contemporary History
15. Seventh Asian Survey
16. Theory, Culture and Socity
17. Philosophy and History
18. Journal of Urban History
19. Modern Asian Studies
20. Journal of Peasant Studies
21. American Historical Review
22. Puratattva
23. Indian Archeology - A Review
24. Pakistan Archeology
25. Journal of Field Archeology
26. Journal of South Asian Studies
27. Journal of Archeological Science
28. Journal of American Oriental Society
29. Journal of Asian Studies (U.S.A.)
30. Journal of Royal Asiatic Society of Great Britain and Ireland
(U.K.)
31. Bulletin of the school of Oriental and African Studies
(U.K.)
32. Journal Asiatique
33. Prachya - Jyoti (Kurukshetra)

Political Science and Public Administration

1. Indian Journal of Political Science
2. Indian Journal of Public Administration
3. International Studies
4. Journal of Indian Society of International Law
5. India Quarterly
6. Gandhi Marg
7. Nagar Lok
8. Participation and Development (London)
9. British Journal of Political Studies
10. Government and Opposition (England)
11. Journal of Parliamentary Affairs (London)
12. Public Administration Review (America)
13. Canadian Journal of Political Science
14. Canadian Journal of Public Administration
15. International Political Science Review (Published by IPSA)
16. International Review of Administrative Sciences (Brussels)
17. Australian Journal of Public Administration
18. Indian Journal of Local self Government (Bombay)
19. Seminar
20. World Focus
21. American Political Science Review
22. Foreign Affairs
23. Journal of Comparative Politics
24. Journal of Constitution and Parliamentary Affairs
25. Journal of International Politics
26. Indian Journal of Strategic and Defence Studies
27. China Quarterly
28. Africa Quarterly
29. Journal of Asian and Pacific Affairs
30. Journal of Indian Law Institute

Psychology

1. Psychological Abstracts
2. Indian Psychological Abstracts and Reviews
3. Psychological Review
4. Psychological Bulletin
5. Journal of Experimental Psychology
6. Journal of Personality and Social Psychology
7. Journal of Personality
8. Child Development
9. Journal of Clinical and Consulting Psychology
10. Journal of Applied Psychology
11. Indian Journal of Applied Psychology
12. Vikalpa

Education

Indian Journals

1. Indian Educational Review
2. Perspectives of Education
3. Media and Technology for Human Resource Development
4. Experiments in Education
5. Research on Educational Media
6. Dharwad Journal of Educational Research
7. Journal of Higher Education (UGC)
8. University News (AIU)
9. Indian Social Science Abstracts (ICSSR)
10. Comparative Education Review
11. Computers in Education
12. Prospects (UNESCO)

Foreign Journals

1. Review of Educational Research
2. Educational Technology and Training
3. Journal of Educational Thought
4. American Journal of Distance Education
5. British Journal of Educational Technology
6. Harvard Educational Review
7. Teachers College Record
8. Distance Education (Australia)
9. Higher Education (Netherlands)

Library and Information Science

Indian

1. Journal of Library and Information Science,
2. Annals of Library Science and Documentation
3. Annals of Librery Science with a slaut to documents
4. IASLIC Bulletin
5. ILA Bulletin
6. Library Herald and other bulletins/newsletters

Foreign:

1. Journal of College and Research Libraries
2. Journal of Academic Library
3. Journal of Documentation
4. JASIS
5. Journal of Research in Library and Information Science
6. Library Trends
7. Library Quarterly
8. Library IFLA Journal,
9. Aslib Proceedings
10. LISA
11. RQ Journal of Library Administration
12. Special Libs.

Plus:

10 Journals depending on specialisation offered (medical librarianship business, information, etc.).

Journalism and Mass Communication

1. Vidura (Press Institute of India)
2. Communicator (Indian Institute of Mass Communication)
3. Varuna (Banaras Hindu University)
4. Interface (Osmania University)
5. Media Asia (Asian Mass Communication and Information Centre, Singapore)
6. Journalism Quarterly (USA)
7. Democratic Journalist (IOJ, Prague)
8. NORDICOM (Norway)

Commerce and Management and Allied Courses at PG Level

Finance

1. Journal of Finance
2. Journal of Financial and Quantitative Analysis
3. Journal of Portfolio Management
4. Journal of Business
5. Finance India
6. Chartered Financial Analyst

Accounting

1. Accountant Review
2. Management Accountant
3. Journal of Accounting Research
4. Chartered Accountant

Marketing

1. American Journal of Marketing
2. Indian Journal of Marketing
3. Advertising Management
4. Global
5. Foreign Trade Review

General

- a. Harvard Business Review
2. Economic and Political Weekly
3. Decision
4. Vikalp
5. Journal of Industrial Relations
6. Personnel
7. personnel Today
8. Indian Journal of Training and Development
9. Reserve Bank of India Bulletin
10. Economist

Law

Foreign Journal

1. Harvard Law Review
2. Yale Law Journal
3. Law Quarterly Review
4. Current Legal Problems
5. Modern Law Review
6. Cambridge Law Journal
7. Public Law Journal
8. American Journal of International law
9. British Journal of Internal law
10. Canadian Law Review
11. Australian Law Journal
12. Malayan Law Journal
13. Environmental Law Reporter
14. Environmental law and Policy
15. Oxford Journal of Environmental Law
16. Journal of Criminology
17. All England Reports
18. Journal of Planning in Environmental Law
19. U.S. Reports (Lawyer's Edition)
20. Commonwealth Law Reports

Indian Journals:

1. Journal of the Indian Law Institute
2. Annual Survey of the Indian Law
3. Academy Law Review
4. Banaras Law Review
5. Chandigarh Law Review
6. Cochin University Law Review
7. Delhi law Review
8. Journal of the Indian Society of International Law
9. Index to Indian Periodicals
10. Jaipur Law Journal
11. Indian Bar Review
12. Journal of Indian Society of Criminology
13. All India Reporter
14. Supreme Court Cases
15. Supreme Court Journal
16. Criminal Law Journal
17. Indian Journal of Labour Law
18. Consumer Protection Cases
19. Judgements Today
20. Indian Socio-Legal Journal

Sociology

1. Sociological Bulletin
2. Economic and Political Weekly
3. Indian Journal of Social Work
4. Man in India
5. Eastern Anthrologist
6. Man and Development
7. Indian Economic and Social Hisotyr Review
8. Journal of Higher Education in INdia
9. Contributions to Indian
10. Contributions to Indian
11. Sociology
12. Social Action
13. Social Change
14. Dalit Voice
15. Demography in India
16. Seminar
17. Indian Journal of Gender Studies
18. Journal of Entrepreneurship (India)
19. Journal of Industrialk Relations
20. British Journal of Sociology
21. Sociology
22. American Journal of Sociology
23. American Sociological Review
24. Social Research
25. Sociology and Social Research
26. Daedalus
27. Current Sociology
28. Current Anthropology
29. Theory and Society
30. Philosophy of Social Sciences
31. Sociological Abstracts
32. Enquiry
33. International Journal of Comparative Sociology
34. Economic Development and Cultural Change
35. Journal of Marriage and Family
36. Journal of Peasant Studies
37. Man
38. Rural Sociology

Social Work

1. Social Work Education (USA)
2. Social Service Research (USA)
3. Social Policy (USA)
4. Families in Society (USA)
5. Social Group Work (USA)
6. Community Organisation (USA)
7. Culture, Medicine and Psychiatry
8. Social Security Review
9. International Labour Review
10. Social Work (USA)
11. Social Work Research Abstracts (USA)
12. Smith College Studies in Social Work
13. Journal of Family Issues
14. Research on Social Work Practice
15. Social Work Education Reporter
16. Profit and Voluntary Sector Quarterly
17. Indian Journal of Social Work
18. Social Welfare (Hindi/English)
19. Social Action
20. Journal of Family Welfare
21. Gandhi Marg
22. Rural Development (National Institute of Rural Development)
23. Economic and Political Weekly
24. Lucknow Journal of Contemporary Social
25. Development and Change
26. International Journal of Social Work
27. British Journal of Social Work
28. Australian Journal of Social Work
29. Australian Journal of Social Issues
30. Social Development Issues (USA)
31. Social Service Review (Chicago)
32. Social Work Research and Practice
33. Community Development (UK)

Optimum Class Strengths

It is recommended that in the case of the subjects in the Faculties of Arts and Social Sciences the number of students should be 50 and in the case of subjects in the Science Faculty it should be 30. It was further decided that the number of students in a practical batch at the Master's level should be 10 to 15 depending upon the nature of the subject.

Smaller student strengths have been indicated for some departments/subjects in the Faculties of Arts and Social Sciences as follows:

<u>Departments</u>	<u>Number</u>
1. History of Arts, Musicology	20
2. Fine Arts	20
3. Journalism and Mass Communication	20

In the Faculty of Science, smaller class strengths of 20-25 are suggested for the following subjects:

1. Earth Sciences	20
2. Statistics	25

**ANALYSIS OF UNIT COST REPORT RECEIVED
FROM UNIVERSITY OF DELHI, DELHI**

**ASSOCIATION OF INDIAN UNIVERSITIES
NEW DELHI**

Faculty-Wise Unit Cost - 1994-95
University of Delhi

Sr.No.	Faculty	ACADEMIC										ADMINISTRATION					
		Salary of the Staff				Input			Acad. Services	Student Welfare Activities	Total (2+10)	Gen. Admn.	Other Deptt.	Common Services Gen. Charges	Total (12+13+14)	Misc.	G. Total
		Teaching	Non-Teaching	Lower Subordinate	Total	Teaching	Maint.	Total									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	Arts & Humanities	7651	1374	525	9550	330	104	434	3357	1721	15062	3843	1317	2212	7372	3056	25490
		30.0	5.4	2.1	37.5	1.3	0.4	1.7	13.2	6.7	59.1	15.1	5.2	8.7	28.9	12.0	100.0
2.	Social Sciences	9532	2125	1190	12847	429	226	655	3188	1721	18411	3843	1317	2212	7372	3056	28839
		33.0	7.4	4.1	44.5	1.5	0.8	2.3	11.0	6.0	63.8	13.3	4.6	7.7	25.6	10.6	100.0
3.	App. Social Sciences & Humanities	190083	6396	840	197319	4488	4055	8543	887	1721	208470	3843	1317	2212	7372	3056	218898
		86.8	2.9	0.4	90.1	2.0	1.9	3.9	0.4	0.8	95.2	1.7	0.6	1.0	3.3	1.4	100.0
4.	Science	8633	6040	2600	17273	2110	143	2253	4111	1721	25358	3843	1317	2212	7372	3056	35786
		24.1	16.9	7.3	48.3	5.9	0.4	6.3	11.5	4.8	70.9	10.7	3.7	6.2	20.6	8.5	100.0
5.	Inter Disc. Science	29614	10850	2970	43434	17809	714	1852	4111	1721	67789	3843	1317	2212	7372	3056	78217
		37.8	13.9	3.8	55.5	22.8	0.9	3	5.3	2.2	86.7	4.9	1.7	2.8	9.4	3.9	100.0
								237									
6.	Mathematical Science	6011	1079	470	7560	687	54	741	4111	1721	14133	3843	1317	2212	7372	3056	24561
		24.5	4.4	1.9	30.8	2.8	0.2	3.0	16.7	7.0	57.5	15.6	5.4	9.0	30.0	12.5	100.0
7.	Music & Fine Arts	27402	14233	2635	44270	360	47	407	887	1721	47285	3843	1317	2212	7372	3056	57713
		47.4	24.7	4.6	76.7	0.6	0.1	0.7	1.5	3.0	81.9	6.7	2.3	3.8	12.8	5.3	100.0
8.	Education	10750	2979	2271	16000	510	677	1187	2780	1721	21688	3843	1317	2212	7372	3056	16890
		33.5	9.3	7.1	49.9	1.6	2.1	3.7	8.7	5.3	67.6	12.0	4.1	13.1	43.6	18.1	100.0
9.	Law	2056	708	363	3127	60	27	87	1527	1721	6462	3843	1317	2212	7372	3056	16890
		12.2	4.2	2.1	18.5	0.3	0.2	0.5	9.0	10.3	38.3	22.7	7.8	13.1	43.6	18.1	100.0
10.	Management	7014	3004	1210	11228	11696	121	1181	2082	1721	26848	3843	1317	2212	7372	3056	37276
		18.8	8.1	30.1	30.1	31.4	0.3	7	5.6	4.6	72.0	10.4	3.5	5.9	19.8	8.2	100.00
								31.7									
	Σ	29875	4879	1307	31261	3818	603	4425	2704		41151						55599
	○	54096	4308	986	56436	5778	1177	6063	1224		58151						57043
	CV%	181	88	75	180	151	195	137	453		141						103

Department-Wise Unit Cost - 1994-95
Faculty of Social Science
University of Delhi

(in Rs)

Sr.	Name of the Department	Salary of the Staff				Input			Sub-Total	Academic Services	Student Welfare Activities	Central Unit Cost	Grand Total
		Teaching	Non-Teaching	Lower Subordinate	Total Salary	Teaching	Maint.	Total					
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Economics	16606 46.0	3082 8.5	3313 9.2	23001 63.7	454 1.2	387 1.1	841 2.3	23842 66.0	3188 8.8	1721 4.8	7372 20.4	36123 100.0
2.	Sociology	13248 42.1	3447 10.9	1766 5.6	18461 58.6	475 1.5	296 0.9	771 2.4	19232 61.0	3188 10.1	1721 5.5	7372 23.4	31513 100.0
3.	African Studies	24360 54.1	4063 9.0	1644 3.7	30067 66.8	2216 4.9	462 1.0	2679 5.9	32746 72.7	3188 7.1	1721 3.8	7372 16.4	45027 100.0
4.	Geography	6263 27.1	3423 14.8	616 2.7	10302 44.6	398 1.7	109 0.5	507 2.2	10809 46.8	3188 13.8	1721 7.5	7372 31.9	23090 100.0
5.	History	5586 29.3	682 3.6	287 1.5	6555 34.4	174 0.9	48 0.3	222 1.2	67770 35.6	3188 16.7	1721 9.0	7372 38.7	19058 100.0
6.	Political Science	2463 15.7	539 3.4	210 1.4	3212 20.5	122 0.8	49 0.3	171 1.1	3383 21.6	3188 20.3	1721 11.0	7372 47.1	15664 100.0
7.	Commerce	18921 53.5	2210 6.3	492 1.4	21623 61.2	1208 3.4	206 0.6	1414 4.0	23037 65.2	3188 9.0	1721 4.9	7372 20.9	35318 100.0
8.	Chinese & Japanese	104292 72.9	14574 10.1	9270 6.5	128136 89.5	1677 1.2	997 0.7	2674 1.9	130810 91.4	3188 2.2	1721 1.2	7372 5.2	143091 100.0
9.	Social Work	13833 30.3	11548 25.3	5266 11.5	30647 67.1	1244 2.7	1499 3.3	2743 6.0	33390 73.1	3188 7.0	1721 3.8	7372 16.1	45671 100.0
	Σ	22841	4841	2540	30221	741	350	1336	31558				4 43839
	○	29537	4596	2850	35801	735	430	1024	36482				36482
	CV(%)	129	95	112	118	99	123	77	116				83

Faculty of Arts & Humanities
University of Delhi

(in Rs)

Sr.	Name of the Department	Salary of the Staff				Input			Sub-Total	Academic Services	Student Welfare Activities	Central Unit Cost	Grand Total
		Teaching	Non-Teaching	Lower Subordinate	Total Salary	Teaching	Maint.	Total					
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Germanic & Romance	93227 48.5	35129 18.3	17369 9.0	145725 75.8	31187 16.2	2838 1.5	34025 17.7	179750 93.5	3357 1.7	1721 0.9	7372 3.9	192200 100.0
2.	Buddhist Studies	2794 17.1	593 3.6	302 1.8	3689 22.5	141 0.9	83 0.5	224 1.4	3913 23.9	3357 20.5	1721 10.5	7372 45.1	16363 100.0
3.	English	4898 26.1	862 4.6	317 1.7	6077 32.4	131 0.7	89 0.5	220 1.2	6297 33.6	3357 17.9	1721 9.2	7372 39.3	18747 100.0
4.	Philosophy	9635 39.1	1835 7.4	429 1.7	11899 48.2	177 0.7	142 0.6	319 1.3	12218 49.5	3357 13.6	1721 7.0	7372 29.9	24668 100.0
5.	Psychology	4763 23.7	1956 9.8	549 2.7	7268 36.2	183 0.9	167 0.8	350 1.7	7618 38.0	3357 16.7	1721 8.6	7372 36.7	20068 100.0
6.	Sanskrit	4012 23.10	430 2.5	270 1.6	4712 27.2	123 0.7	45 0.3	168 1.0	4880 28.2	3357 19.4	1721 9.9	7372 42.5	17330 100.0
7.	Hindi	2821 17.3	542 3.3	334 2.0	3697 22.6	140 0.9	48 0.3	188 1.2	3885 23.8	3357 20.6	1721 10.3	7372 45.1	16335 100.0
8.	Arabic	11806 42.5	1998 7.2	1239 4.5	15043 54.2	178 0.6	111 0.4	289 1.0	15332 55.2	3357 12.1	1721 6.2	7372 26.5	27782 100.0
9.	Persian	30158 62.9	3374 7.1	1214 2.5	34746 72.5	605 1.2	129 0.3	734 1.5	35480 74.0	3357 7.0	1721 3.6	7372 15.4	47930 100.0
10.	Urdu	17500 48.3	5373 14.80	516 1.5	23389 64.6	239 0.7	133 0.3	372 1.0	23761 65.6	3357 9.3	1721 4.8	7372 20.4	36217 100.0
11.	MIL	60095 77.1	3649 4.7	986 1.3	64730 83.1	410 0.5	330 0.4	740 0.9	65470 84.0	3357 4.3	1721 2.2	7372 9.5	77920 100.0

12.	Punjabi	5516	676	409	6601	119	52	172	6773	3357	1721	7372	19223
		20.7	3.5	2.1	34.3	0.6	0.3	0.9	35.2	17.5	9.0	38.3	100.0
13.	Linguistic	11936	3248	1785	16969	797	134	931	17900	3357	1721	7372	30350
		39.3	10.7	5.9	55.9	2.5	0.4	3.1	59.0	11.0	5.7	24.3	100.0
14.	Lib. & Information Sc.	19000	4929	21080	26037	698	319	1017	27065	3357	1721	7372	39504
		48.1	12.5	5.3	65.9	1.8	0.8	2.6	68.5	8.4	4.4	18.7	100.0
	Σ	19869	4614	1988	26470	2509	330	2839	29309				41759
	\emptyset	25123	8609	4303	36730	7957	701	8054	44744				44743
	cv (%)	126	186	216	139	317	212	305	153				107

Department-Wise Unit Cost - 1994-95

Faculty of Social Science

University of Delhi

(in Rs)

Sr.	Name of the Department	Salary of the Staff				Input			Sub-Total	Academic Services	Student Welfare Activities	Central Unit Cost	Grand Total
		Teaching	Non-Teaching	Lower Subordinate	Total Salary	Teaching	Maint.	Total					
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Economics	16606 46.0	3082 8.5	3313 9.2	23001 63.7	454 1.2	387 1.1	841 2.3	23842 66.0	3188 8.8	1721 4.8	7372 20.4	36123 100.0
2.	Sociology	13248 42.1	3447 10.9	1766 5.6	18461 58.6	475 1.5	296 0.9	771 2.4	19232 61.0	3188 10.1	1721 5.5	7372 23.4	31513 100.0
3.	African Studies	24360 54.1	4063 9.0	1644 3.7	30067 66.8	2216 4.9	462 1.0	2679 5.9	32746 72.7	3188 7.1	1721 3.8	7372 16.4	45027 100.0
4.	Geography	6263 27.1	3423 14.8	616 2.7	10302 44.6	398 1.7	109 0.5	507 2.2	10809 46.8	3188 13.8	1721 7.5	7372 31.9	23090 100.0
5.	History	5586 29.3	682 3.6	287 1.5	6555 34.4	174 0.9	48 0.2	222 1.2	6777 35.6	3188 16.7	1721 9.0	7372 38.7	19058 100.0
6.	Political Science	2463 15.7	539 3.4	210 1.4	3212 20.5	122 0.8	49 0.3	171 1.1	3383 21.6	3188 20.3	1721 11.0	7372 47.1	15664 100.0
7.	Commerce	18921 53.5	2210 6.3	492 1.4	21623 61.2	1208 3.4	206 0.6	1414 4.0	23037 65.2	3188 9.0	1721 4.9	7372 20.9	35318 100.0
8.	Chinese & Japanese	104292 72.9	14574 10.1	9270 6.5	128136 89.5	1677 1.2	997 0.7	2674 1.9	130810 91.4	3188 2.2	1721 1.2	7372 5.2	143091 100.0
9.	Social Work	13833 30.3	11548 25.3	5266 11.5	30647 67.1	1244 2.7	1499 3.3	2743 6.0	33390 73.1	3188 7.0	1721 3.8	7372 16.1	45671 100.0
	Σ	22841	4841	2540	30221	741	350	1336	31558				4
	Σ	29537	4596	2850	35801	735	430	1024	36482				43839
	CV(%)	129	95	112	118	99	123	77	116				36482
													83

Department-Wise Unit Cost - 1994-95
Faculty of Science
University of Delhi

(in Rs)

Sr.	Name of the Department	Salary of the Staff				Input			Sub-Total	Academic Services	Student Welfare Activities	Central Unit Cost	Grand Total
		Teaching	Non-Teaching	Lower Subordinate	Total Salary	Teaching	Maint.	Total					
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Physics and Astro Physics	7878 26.4	5191 17.4	2054 6.8	15123 50.6	1462 4.9	81 0.3	1543 5.2	16666 55.8	4111 13.7	1721 5.8	7372 24.7	29870 100.0
2.	Chemistry	10049 28.6	5553 15.8	3466 9.9	19068 54.3	2759 7.8	100 0.3	2859 8.1	21927 62.4	4111 11.7	1721 4.9	7372 21.0	35131 100.0
3.	Botany	12382 28.2	11236 25.6	4021 9.1	27639 62.9	2899 6.6	170 0.4	3069 7.0	30708 69.9	4111 9.4	1721 3.9	7372 16.8	43912 100.0
4.	Zoology	10466 23.7	11511 26.1	4364 9.9	26341 59.7	4337 9.9	216 0.5	4553 10.4	30894 70.1	4111 9.3	1721 3.9	7372 16.7	44098 100.0
5.	Anthropology	9397 30.9	4908 16.1	1615 5.3	15929 52.3	1177 3.9	126 0.4	1303 4.3	17223 56.6	4111 13.5	1721 5.7	7372 24.2	30427 100.0
6.	Geology	13684 35.2	6928 17.8	2772 7.1	23384 60.1	2020 5.2	316 0.8	2336 6.0	25720 66.1	4111 10.6	1721 4.4	7372 18.9	38924 100.0
7.	MSc course in Agro-Chemical & Pest Management	-	1486 5.8	2001 7.8	3487 13.6	6640 25.8	2369 9.2	9009 35.0	12496 48.6	4111 16.0	1721 6.7	7372 28.7	25700 100.0
	Σ	10643	6688	2899	18709	2185	468	3525	22233				35437
	\ominus	1909	3333	994	7675	1160	779	2451	6655				6655
	CV(%)	18	50	34	41	53	166	69	30				19

Department-Wise Unit Cost - 1994-95
Faculty of Applied Science & Humanities
University of Delhi

(in Rs)

Sr.	Name of the Department	Salary of the Staff				Input			Sub-Total	Academic Services	Student Welfare Activities	Central Unit Cost	Grand Total
		Teaching	Non-Teaching	Lower Subordinate	Total Salary	Teaching	Maint.	Total					
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Business Economics	8835	1119	290	10244	529	35	564	10808	887	1721	7372	20788
		42.5	5.4	1.4	49.3	2.5	0.2	2.7	52.0	4.3	8.3	35.4	100.0
2.	Slavonic & Finn9 Studies	106500	51780	5570	163850	38530	38600	77130	240980	887	1721	7372	250960
		42.4	20.6	2.2	65.3	15.3	15.4	30.7	96.0	0.3	0.7	3.0	100

Department-Wise Unit Cost - 1994-95
Faculty of Inter-Disciplinary Science
University of Delhi

(in Rs)

Sr.	Name of the Department	Salary of the Staff				Input			Sub-Total	Academic Services	Student Welfare Activities	Central Unit Cost	Grand Total
		Teaching	Non-Teaching	Lower Subordinate	Total Salary	Teaching	Maint.	Total					
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Bio-Chemistry	26273 43.5	1835 3.0	870 1.4	28978 47.9	17245 28.5	1010 1.7	18255 30.2	47231 78.1	4111 6.8	1721 2.8	7372 12.3	60417 100.0
2.	Bio-Physics	50550 57.9	1835 2.1	870 1.0	53255 61.0	20116 23.0	793 0.9	20909 23.9	74164 84.9	4111 4.7	1721 2.0	7372 8.4	87368 100.0
3.	Micro-Biology	25432 46.3	1835 3.3	870 1.6	28137 50.2	13178 24.0	411 0.8	13589 24.8	41726 76.0	4111 7.5	1721 3.1	7372 13.4	54930 100.0
4.	Genetics	22679 44.7	1835 3.6	870 1.7	25384 50.0	11704 23.1	443 0.9	12147 24.0	37531 74.0	4111 8.1	1721 3.4	7372 14.5	50735 100.0
5.	Electronic Science	23874 52.5	2711 6.0	2475 5.4	29060 63.9	2928 6.4	317 0.7	3245 7.1	32305 71.0	4111 9.0	1721 3.8	7372 16.2	45509 100.0
6.	Plant Molecular Biology	63850 28.0	52192 22.9	6406 2.8	122448 53.8	90928 39.9	1222 0.5	92150 40.4	214598 94.2	4111 1.8	1721 0.8	7372 3.2	227802 100.0
	Σ	35443	10374	2060	47877	26016	699	26716	74593				87797
	∅	15897	18704	2030	34633	29518	335	29784	64021				64021
	CV(%)	45	180	98	72	113	50	111	86				73

Department-Wise Unit Cost - 1994-95
Faculty of Mathematical Sciences
University of Delhi

(in Rs)

Sr.	Name of the Department	Salary of the Staff				Input			Sub-Total	Academic Services	Student Welfare Activities	Central Unit Cost	Grand Total
		Teaching	Non-Teaching	Lower Subordinate	Total Salary	Teaching	Maint.	Total					
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Mathematics	3386 19.2	606 3.9	169 1.0	4161 23.7	182 1.0	38 0.2	220 1.2	4381 24.9	4111 23.4	1721 9.8	7372 41.9	17585 100.0
2.	Operational Research	6476 29.9	981 4.5	445 2.0	7902 36.4	519 2.4	69 0.3	588 2.7	8490 39.1	4111 18.9	1721 7.9	7372 34.1	21694 100.0
3.	Mathematical Stat.	6128 27.9	1255 5.7	710 3.2	8094 36.8	633 2.9	49 0.2	782 3.1	8776 39.9	4111 18.7	1721 7.8	7372 33.6	21980 100.0
4.	Computer Science	47944 46.5	15335 14.8	8000 7.7	71279 69.0	18426 17.8	435 0.4	18861 18.2	90140 87.2	4111 4.0	1721 1.7	7372 7.1	103344 100.0
	Σ	15983	4544	2331	22859	4940	148	5088	27946				41151
	∅	18491	6234	3279	27999	7788	166	7954	35949				35949
	CV(%)	116	137	141	122	158	112	156	129				87

Unit Institutional Cost - 1994-95
University of Delhi

	Component of Cost	Unit Cost	Percentage
I.	<u>ACADEMIC</u>		
A.	Teaching		
A1	Salary of Teaching Staff	8021	28.9
A2	Salary of Teaching Supporting Staff	3594	12.9
A3	Teaching Input	1314	4.7
A4	Maint. Input	155	0.6
	Total of A	13084	47.1
B.	Academic Services	2526	9.1
C.	Student Welfare activities	1721	6.2
	Total of I	17331	62.4
II.	<u>Administration</u>		
A.	General Administration	3843	13.8
B.	Common Services & General Charges	2212	8.0
C.	Other Departments	1317	4.7
	Total II	7372	26.6
III.	<u>Misc. Activities*</u>	3056	11.0
	Grand Total (I+II+III)	27759	100.0

*Includes activities like examination, pension, gratuity and staff canteen etc.

