

## **COST - BENEFIT ANALYSIS OF SUBSCRIBING INDIAN PERIODICALS: A CASE STUDY OF BCKV CENTRAL LIBRARY, KALYANI, WEST BENGAL**

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*Presents the results of a study conducted with a sample of 700 users and 25 Indian periodicals subscribed continuously from 1992 to 2001 at Bidhan Chandra Krishi Viswavidyalaya (BCKV), Kalyani, West Bengal. The meaning, importance and the method of implementing cost benefit analysis in a library set-up is discussed with special reference to BCKV Central Library. Here, cost is measured in terms of the money spent for subscribing Indian journals and benefits are measured in terms of use frequency of the journals by different users and savings achieved through different methods of subscription. During the 10-year period, increase in the cost of the journals ranged from 20 per cent at the lowest to 1100 per cent at the highest. The 25 journals that were selected for the study were used by 30 per cent to 75 percent of the users. The study also reveals that the cost of a journal is not directly related with its use. For example, the journal in the sample that cost most, ranked only 8<sup>th</sup> in terms of use. It has also been seen that a saving around 25% can be achieved if the journals are subscribed for three years at a time. Of course, it involves some risks and also availability of funds. The benefit is evaluated against the cost structure of the system, which is represented graphically and statistically in this paper.*

### **INTRODUCTION**

Today's society is called the knowledge-based society. In a knowledge society, development depends on the degree of generation and dissemination of knowledge to the public through research and developmental activities. Knowledge is very much critical for development. In other words, it can be said that developing countries differ from developed ones not only because they have less capital but also because they have less knowledge. "Generation, flow and dissemination of information has been recognized as an essential element or key input for all research and developmental activities in developing countries since long" [1].

Libraries and information centres can play a prime role in today's society by rendering effective and efficient services to general users as well as to the research community using their holdings. Managing knowledge, and disseminating it for proper use are as important as creating new knowledge.

Planning and management are very crucial for rendering quality services through optimum utilization of resources. Planning and controlling of management are now considered as an integrated system [2]. It is also quite apparent in the management control techniques that control is a fundamental managerial function which usually follows other functions. Management control is a coordinated and systematic effort to set up performance standards with planning objectives to design and develop information feedback system, to compare actual performance with the pre-determined standards. On the other hand, management control in libraries is created with a view to achieving objectives of the libraries for completing plans. For this, librarians are to regulate work assignments, review work progress and check operations falling under their jurisdiction. So, managerial control is somewhat akin to the thermostat system of a furnace. The thermostat measures the actual temperature in the house, compares it with desired temperature and transmits this information to the furnace for making necessary adjustments by way of switching the heat off or on. Like the thermostat, librarians require a system to achieve desired results through corrective actions. Evaluation of performance

of employees is of little value unless the control information is promptly communicated to the chief librarian or information manager who can take corrective action only before the completion of the work. However, there are two types of management control: a) budgetary control; and b) non-budgetary control [3]. Budgetary control is especially very useful in controlling performance in the area of profitability.

### **COST-BENEFIT ANALYSIS**

The financial analysis looks after economic cost-benefit analysis and determines economic profitability from the viewpoint of business enterprises initially [4]. Economics of information has now been taken up to include costing, cost effectiveness, cost benefit, cost utility and cost feasibility analysis relating to information systems and services for the generation and dissemination of qualitative information to the user community. According to Gopinath, "Marketing of information and information economics now-a-days becomes an essential part in the field of library and information science". Lancaster states, "In the past ten years, librarians in common with other professionals have become increasingly interested in techniques that might be used to evaluate the services they provide. One reason for this concern is, of course, financial... and the need to justify the importance of library services to those responsible for funding them" [5].

Periodicals are considered as the indispensable as well as chief source of information particularly to the research community for further development of knowledge. The growth of periodical literature in the field of science and technology especially in the field of agriculture is found to be exponential. The cost of periodicals is also increasing exponentially. Thus, the advancement of knowledge and proliferation of printed materials have made it impossible for any professional to conceive of a self-dependent and self-sufficient library and information centre. It is quite obvious that no library or information centre in the world can

afford to subscribe to all the published journals even on a very specific discipline or a micro-subject due to financial constraints. To cope with the changing situation, it is essential to select and subscribe journals with proper care, considering financial limitations as well as coverage of the subject. In addition, it is also true that most of the S & T library and information centres are spending a large share of the budget for journals subscription. It is simply a "committed expenditure"[6]. Once a journal is selected for subscription, it is supposed to be subscribed for a long period. Thus, we may say that selection policy of journals must be made with proper care especially considering cost as input level and benefit derived from these journals at output level, i.e. the frequency of use.

The cost-benefit analysis of journal subscription is very much effective to extract maximum possible benefits at the output level, not to justify the cost involved but to see that the output is maximised [7]. The benefit may include the use frequency, users' satisfaction, etc. In cost-benefit, we are generally concerned with the "cost of carrying out a service or activity" and benefits derived from it [8]. But in real practice, it is very difficult to quantify the benefits or output in the case of library and information centre because satisfaction cannot be measured and there are some indirect social values associated with it. Cost-benefit analysis is used quite predominantly in library and information centres as a feedback mechanism. It is also essential for self-evaluation and self-actualisation [9]. Before analysing the cost-benefit of a particular service, it is essential to know what, why and how of it.

### **What is Cost Benefit Analysis (CBA)?**

It is an important tool, firstly used by welfare economists. It is a technique which attempts to set out and evaluate the costs and social benefits of investment project to evaluate it or to decide whether or not a project should be undertaken or to derive maximum benefits from optimum utilization of limited resources.

CBA is defined as "Systematic comparison between the cost of carrying out a service or

activity and the value of that service or activity, quantified as far as practicable, all costs and benefits (direct and indirect, financial and social) being taken into account" [10]. It is also defined as, "The measurement of the positive effect on an operation that can be attributed to a particular cost" [11].

### Why Cost Benefit Analysis?

The essence of CBA includes the following [12]:

- Maximising the level of performance (at output stage / end result) through optimum utilization of resources (i.e. minimise the costs as far as practicable involved in achieving the level/ target).
- Ascertaining if any particular alternative has benefits exceeding its cost.
- Improving service standards.
- Facilitate self-evaluation and self-actualisation, etc.

### How Cost Benefit Analysis is conducted?

Pauline Atherton lists various ways of conducting cost-benefit studies [13 and 14]. They are :

- Cost savings in using this system as compared with the cost of finding the needed information elsewhere;
- Avoidance or loss of productivity that would result if information sources were not readily available;
- Improved decision making or reduction in the level of personnel required to take decisions;
- Avoidance of duplication or waste of research that has either been drawn before or proved unfeasible by earlier investigators;
- Stimulation of invention (industrial current awareness services for the promotion of a new product in the market in place of existing product);
- Measuring the benefits of the information services in terms of income / return or benefit (i.e. calculate return on investment).

### OBJECTIVES

The paper is a case study of the Bidhan Chandra Krishi Viswavidyalaya (BCKV) Central Library. The paper aims

- to examine the cost for periodicals subscription (Indian periodicals only);
- to measure/ identify the use frequency of a journal mainly by the students (undergraduate and postgraduate students), teachers, and research scholars;
- to examine price hike of periodicals;
- to identify the alternate way(s) to reduce the cost factor without hampering the use frequently; and also
- to evaluate the journal selection policy.

### METHODOLOGY

BCKV was established in 1974 at Nadia in West Bengal. Ever since its inception, besides academic activities it promoted the research activities also in various fields of agriculture. The Central Library of BCKV plays a significant role by providing quality services to more than 2000 users comprising teachers, students, research scholars and other staff of the university.

At present the Central Library is subscribing to 220 journals of which 172 are Indian and the rest 48 are foreign. For this study only 25 Indian journals were selected as these were being subscribed regularly at least for ten years (1992-2001). Other journals are not being subscribed regularly due to the shortage of funds and administrative problems. The selection of these 25 journals has been made on the basis of use frequency.

A survey was conducted in September 2002 to find out the information needs of the users of BCKV Central Library and the use frequency of the journals in finding out the desired information. A good blend of users i.e. 700 in number comprising students, teachers, research scholars etc., were taken into consideration. A questionnaire was circulated wherein a vital question, "What journals is

preferred most while attempting to get desired information?" was asked.

### SUBSCRIPTION RATES DURING TEN YEARS (1992-2001)

Table 1 shows the increase in subscription rate that ranged from 20 per cent to 1100 per cent. *Indian Journal of Agricultural Economics* and *Indian Economic Diary* registered only 20 per cent during the decade. On the other hand *Applied Botany Abstract* listed at serial no 22 registered an unbelievable increase of 1100 per cent! The cost of the journal rose from Rs. 50 in 1992 to Rs 600 in 2003 (8 times). In 2001 the cost was 12 times the cost in 1992, i.e. Rs. 600. The rate of increase has been 100 per cent or less in five cases, between 101 – 200 per cent in fourteen cases, between 201 – 300 per cent in one case, between 301 – 400 percent in one case, between 401 – 500 in two cases, between 501 – 600 per cent in one case, and more than 600 percent in one case as stated above. Now, it is seen that in majority of the cases the increase has been between 101 - 200 per cent.

### USE OF PERIODICALS – GENERAL

The analysis is based on the survey conducted with a sample of 700 users of different categories. Table 2 records the use of the periodicals by various categories of users. *Crop Research*, *Indian Journal of Agricultural Research*, and *Indian Journal of Agronomy* are the most used journals in as much as each one is used by 75 per cent users. These three are followed by *Annals of Agricultural Research* and *Journal of Mycology and Plant Pathology* as both are found to be used by 70 per cent users. *Legume Research* and *Indian Journal of Entomology* rank third with the use by 60 per cent users. *Indian Journal of Agricultural Chemistry*, *Journal of Root Crops*, and *Indian Journal of Plant Physiology* rank fourth with the use by 55 per cent users using them. *Haryana Journal of Horticultural Science*, *Journal of Tropical Agriculture*, and *Indian Journal of Nematology* rank fifth with 50 per cent users using them. The remaining twelve journals are being used by between 30 per cent to fifty percent users.

### USE OF PERIODICALS – ACCORDING TO COST

Is the cost of a periodical directly related to its use? In plain words, will a periodical costing more be used more? Table 3 tries to answer this question. The most costly periodical of the sample titled *Indian Journal of Plant Physiology* ranks 8<sup>th</sup> in respect of its use. The periodicals ranking 2<sup>nd</sup> in terms of cost i.e., *Journal of Mycology and Plant Pathology*, and *Indian Journal of Agricultural Chemistry* rank respectively 4<sup>th</sup> and 8<sup>th</sup> in terms of use. The three periodicals that ranked 1<sup>st</sup> in terms of use i.e., *Crop Research*; *Indian Journal of Agricultural Research*; and *Indian Journal of Agronomy* rank respectively 4<sup>th</sup>, 13<sup>th</sup> and 10<sup>th</sup> in terms of cost. It clearly shows that the cost and use do not have a direct link. Hence, spending more money in subscribing to costly periodicals may not bring about proportionately high use.

### COST vs USE ANALYSIS

Table 4 shows that out of 25 journals, 11 are used by less than 50% of the users. *Applied Botany Abstract* (ser. no.22) which registered 1100 per cent hike in 10 years is also used by less than 50% of the users. It indicates sometimes maximum input in terms of cost derives minimum benefit. Fig. 1 also portrays that increase in cost does not proportionately increase the use which depends on a number of other factors.

Besides this, the study also tried to determine the savings for a few periodicals when subscribed in advance for a period of three years. It is to be noted that some publishers offer certain reduction in subscription cost if the periodical is subscribed in advance for a minimum period of three years. Keeping that in view, the periodicals listed in Table 5 were subscribed in advance and a saving of 23.28% was achieved.

### CONCLUSION

The study reveals that the use frequency of journals is not directly related with cost. Hence

Table 1— Increase in Subscription Rate during 1992 -2001

Sl. No	Journal Name	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	%age of increase
1	<i>Indian Journal of Entomology</i>	200	500	500	500	500	500	500	500	500	500	150
2	<i>Indian Journal of Forestry</i>	250	250	250	350	500	500	500	500	500	500	100
3	<i>Indian Journal of Nematology</i>	135	225	225	225	225	225	225	500	500	800	492.5
4	<i>Indian Journal of Plant Physiology</i>	400	500	500	500	1000	1000	1000	1500	1500	2500	525
5	<i>Journal of Applied Hydrology</i>	200	200	200	400	400	400	400	400	1000	1000	400
6	<i>Journal of Mycology and Plant Pathology</i>	200	200	200	300	500	500	1000	1000	1000	1200	500
7	<i>Legume Research</i>	250	250	300	350	400	400	500	500	550	550	120
8	<i>Journal of Root Crops</i>	200	200	200	200	200	200	200	500	500	500	150
9	<i>Journal of Tropical Agriculture</i>	100	100	100	100	150	150	300	300	300	300	200
10	<i>Mushroom Research</i>	200	200	200	200	200	200	200	500	500	500	150
11	<i>Indian Journal Animal Research</i>	125	125	150	200	250	250	300	300	300	300	140
12	<i>Indian Journal of Agronomy</i>	350	350	350	350	450	482	490	600	600	600	71.43
13	<i>Indian Journal of Agricultural Research</i>	250	250	300	350	400	400	500	500	550	550	120
14	<i>Indian Journal of Agricultural Economics</i>	250	250	250	250	250	300	300	300	300	300	20
15	<i>Indian Journal of Agricultural Chemistry</i>	450	600	600	700	800	900	1000	1000	1200	1200	166.6
16	<i>Indian Economic Diary</i>	500	500	500	500	500	500	500	600	600	600	20
17	<i>Haryana Journal of Horticultural Science</i>	300	325	350	350	500	500	550	550	550	550	83.3
18	<i>Environment &amp; Ecology</i>	250	250	250	325	325	325	375	450	650	700	180
19	<i>Andhra Agricultural Journal</i>	100	125	150	175	175	175	250	250	300	300	200
20	<i>Annals Agricultural Research</i>	300	300	300	300	400	400	400	500	500	850	183.33
21	<i>Crop Research</i>	300	450	1000	1000	1000	1000	1000	1000	1000	1000	233
22	<i>Applied Botany Abstract</i>	50	400	400	400	400	400	400	400	400	600	1100
23	<i>Annals of Arid Zones Research</i>	200	250	250	250	250	350	350	350	450	450	125
24	<i>Advances in Plant Science</i>	150	150	150	150	200	250	250	300	300	400	166.66
25	<i>Food Technical Abstract</i>	250	250	250	325	325	325	375	450	650	700	180

Table 2— Ranking of Periodicals according to Use

Ranking	Journal Name	No. of users used the periodicals	Percentage
1	<i>Crop Research</i>	525	75
1	<i>Indian Journal of Agricultural Research</i>	525	75
1	<i>Indian Journal of Agronomy</i>	525	75
4	<i>Annals Agricultural Research</i>	490	70
4	<i>Journal of Mycology and Plant Pathology</i>	490	70
6	<i>Legume Research</i>	420	60
6	<i>Indian Journal of Entomology</i>	420	60
8	<i>Indian Journal of Agricultural Chemistry</i>	385	55
8	<i>Journal of Root Crops</i>	385	55
8	<i>Indian Journal of Plant Physiology</i>	385	55
11	<i>Haryana Journal of Horticultural Science</i>	350	50
11	<i>Journal of Tropical Agriculture</i>	350	50
11	<i>Indian Journal of Nematology</i>	350	50
14	<i>Applied Botany Abstract</i>	315	45
14	<i>Environment &amp; Ecology</i>	315	45
16	<i>Annals of Arid Zones Research</i>	280	40
16	<i>Indian Economic Diary</i>	280	40
16	<i>Mushroom Research</i>	280	40
16	<i>Journal of Applied Hydrology</i>	280	40
20	<i>Advances in Plant Science</i>	245	35
20	<i>Andhra Agricultural Journal</i>	245	35
20	<i>Indian Journal of Agricultural Economics</i>	245	35
20	<i>Indian Journal of Forestry</i>	245	35
24	<i>Food Technical Abstract</i>	210	30
25	<i>Indian Journal Animal Research</i>	210	30

Table 3— Ranking of Periodicals according to Cost and their Use

Ranking by Cost	Journal Name	Cost in 2001 (in Rs.)	Ranking by Use
1	<i>Indian Journal of Plant Physiology</i>	2500	8
2	<i>Journal of Mycology and Plant Pathology</i>	1200	4
2	<i>Indian Journal of Agricultural Chemistry</i>	1200	8
4	<i>Journal of Applied Hydrology</i>	1000	16
4	<i>Crop Research</i>	1000	1
6	<i>Annals Agricultural Research</i>	850	4
7	<i>Indian Journal of Nematology</i>	800	11
8	<i>Environment &amp; Ecology</i>	700	14
8	<i>Food Technical Abstract</i>	700	24
10	<i>Indian Journal of Agronomy</i>	600	1
10	<i>Indian Economic Diary</i>	600	16
11	<i>Applied Botany Abstract</i>	600	14
13	<i>Legume Research</i>	550	6
13	<i>Indian Journal of Agricultural Research</i>	550	1
13	<i>Haryana Journal of Horticultural Science</i>	550	11
16	<i>Indian Journal of Entomology</i>	500	6
16	<i>Indian Journal of Forestry</i>	500	20
16	<i>Journal of Root Crops</i>	500	8
16	<i>Mushroom Research</i>	500	16
20	<i>Annals of Arid Zones Research</i>	450	16
20	<i>Advances in Plant Science</i>	400	20
22	<i>Journal of Tropical Agriculture</i>	300	11
22	<i>Indian Journal Animal Research</i>	300	24
22	<i>Indian Journal of Agricultural Economics</i>	300	20
22	<i>Andhra Agricultural Journal</i>	300	20

Table 4 — Cost vs Use of Journals

S.No.	Journal Name	Cost in 1992 (in Rs.)	Cost in 2001 (in Rs.)	% increase of cost	% of use of the journal
1	<i>Indian Journal of Entomology</i>	200	500	150	60
2	<i>Indian Journal of Forestry</i>	250	500	100	35
3	<i>Indian Journal of Nematology</i>	135	800	492.5	50
4	<i>Indian Journal of Plant Physiology</i>	400	2500	525	55
5	<i>Journal of Applied Hydrology</i>	200	1000	400	40
6	<i>Journal of Mycology and Plant Pathology</i>	200	1200	500	70
7	<i>Legume Research</i>	250	550	120	60
8	<i>Journal of Root Crops</i>	200	500	150	55
9	<i>Journal of Tropical Agriculture</i>	100	300	200	50
10	<i>Mushroom Research</i>	200	500	150	40
11	<i>Indian Journal Animal Research</i>	125	300	140	30
12	<i>Indian Journal of Agronomy</i>	350	600	71.43	75
13	<i>Indian Journal of Agricultural Research</i>	250	550	120	75
14	<i>Indian Journal of Agricultural Economics</i>	250	300	20	35
15	<i>Indian Journal of Agricultural Chemistry</i>	450	1200	166.6	66
16	<i>Indian Economic Diary</i>	500	600	20	40
17	<i>Haryana Journal of Horticultural Science</i>	300	550	83.3	50
18	<i>Environment &amp; Ecology</i>	250	700	180	45
19	<i>Andhra Agricultural Journal</i>	100	300	200	35
20	<i>Annals Agricultural Research</i>	300	850	183.33	70
21	<i>Crop Research</i>	300	1000	233	75
22	<i>Applied Botany Abstract</i>	50	600	1100	45
23	<i>Annals of Arid Zones Research</i>	200	450	125	40
24	<i>Advances in Plant Science</i>	150	400	166.6	35
25	<i>Food Technical Abstract</i>	250	700	180	30

selection and renewal of subscription of journals should be considered after realizing the use frequency as well as users' need. The deletion of a journal from the list should be predominantly based on its use frequency. If a ranked list is prepared on the basis of the use frequency, then the journals with use frequency 0 or nearly 0 will figure at the bottom and should be the likely candidates for deletion. Out of 172 Indian journals, the 25 journals that were selected for the study were used by 30 per cent to 75 percent of the users. From the study it is seen that a considerable amount of money can be saved if journals are subscribed for a longer period (at least 3 years) instead of yearly subscription. Of course, there are some risks. The subscribed journal may cease publication after one or two years [15], budget allocation sometimes may

create problem, and the use of the journal might decline. From management point of view cost-benefit analysis is highly appreciated due to tremendous financial constraint faced by libraries today. It is quite obvious that the benefits of a library system is determined by the degree to which these services contribute towards the attainment of specific goal. Furthermore, the cost of library services can be measured quantitatively, but it is very difficult to measure the benefits derived from this as benefits may include some social value. Cost-benefit analysis now-a-days is used as an effective tool to deploy capital and other valuable resources which can be optimally allocated for maximum output [16]. Marketing of information sometimes confuse the concept that library is a welfare organization i.e., non-



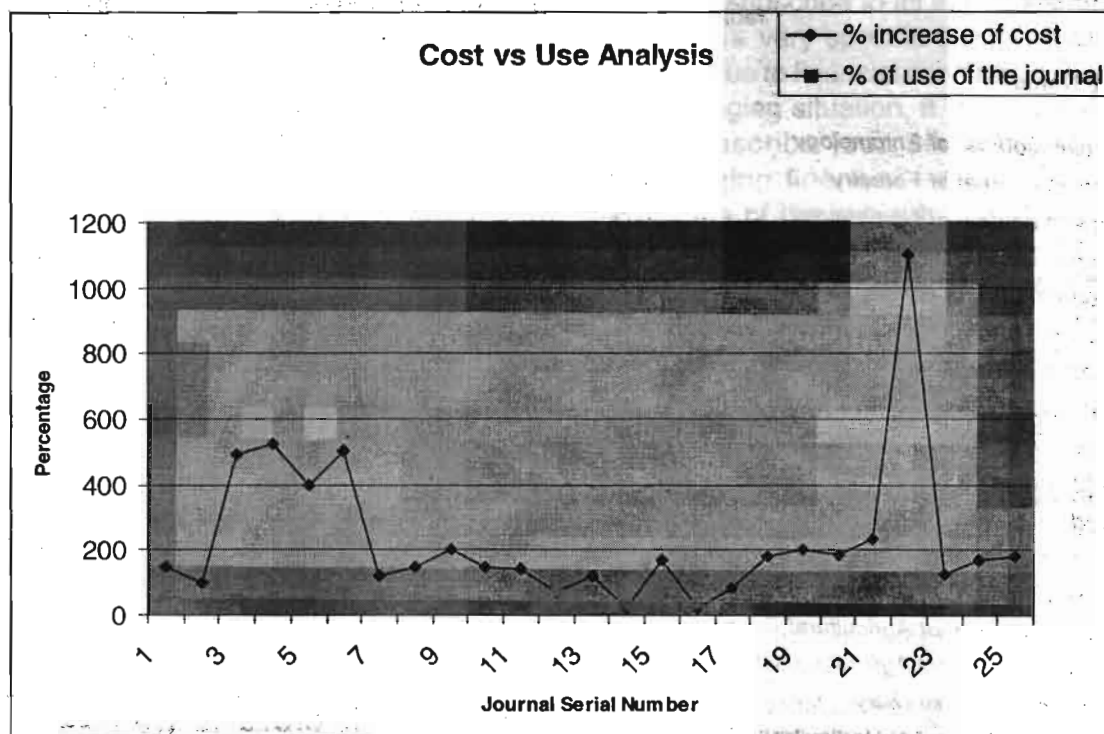


Fig. 1 — Cost vs. Use

Table 5 – Savings achieved by subscribing periodicals for 3 years together.

Sl. No	Name of Journals	Subscription Rate (in Rs)				Subscription Rate (in Rs) for 3 years together
		1999	2000	2001	Total	
1	Indian Journal of Agricultural Research	500	550	550	1600	1200
2	Indian Journal of Animal Research	300	300	300	900	700
3	Legume Research	500	550	550	1600	1300
4	Agricultural Research	500	550	550	1600	1200
5	Agricultural Science Digest	500	550	550	1600	1200
	<b>Total</b>				<b>7300</b>	<b>5600</b>

profit seeking organization. When we consider the information as marketable commodity it is essential to measure the cost of input and value of output. Cost-benefit analysis effectively measure, evaluate and modify the library set-up for providing quality services to its readers.

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