

DOCTORAL THESES AWARDED IN ENVIRONMENTAL SCIENCE AT BABASAHEB BHIMRAO AMBEDKAR UNIVERSITY: A STUDY

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ABSTRACT

This paper represents a Bibliometric analysis of Doctoral theses of Department of Environmental Science awarded at Babasaheb Bhimrao Ambedkar University, Lucknow from 2007-2015. Total 49 Doctoral theses were selected and analysed through excel sheet for this study. Some parameters are selected for the study i.e. year-wise distribution, gender-wise contribution, supervisor-wise productivity, discipline-wise distribution etc. Bibliometric laws are applied to prove the study.

INTRODUCTION

Bibliometric the term used for quantitative and effective studies in Library Science, Information Science, Information Technology and other streams. It is useful tool for research and education. The present study is based on Doctoral theses of Department of Environmental Science awarded at Babasaheb Bhimrao Ambedkar University, Lucknow from 2007-2015 on various aspects such as year-wise distribution, gender-wise contribution, supervisor-wise productivity, discipline-wise distribution, references in theses, Authorship pattern, etc.

SOME OTHER USEFUL METRICS

Metrics the term which is used for measurement. Some metrics are very useful in research and study for other streams also like Information Technology, Computer Science, Statistics etc. Some of them are:

Scientometric: Useful in quantitative aspect of science.

Informetrics: Mainly used in the fields of Information Science for measurement of mathematical/ statistical analysis.

Webometrics: It is a quantitative aspects of the number, types of hyperlinks and structure of world wide web.

Cybermetrics: Cybermetrics employs mathematical and statistical techniques of quantity websites.

Librametrics: It is useful to measure all the characteristics of books, readers and staff of the library.

DEPARTMENT OF ENVIRONMENTAL SCIENCE

The Department of Environmental Science under the School for Environmental science, Babasaheb Bhimrao Ambedkar University, Lucknow running full-time Masters' courses M.Sc. (Environmental Sciences) and offers doctoral degree in research related to environmental sciences and manage intends to impart special training to students who can easily handle the emerging environmental problems of various kinds faced by the industries and the society on the both technological and environmental fronts. The Department also offers Doctoral degree in research related to environmental sciences and management. (website BBAU).

OBJECTIVES OF THE STUDY

- To find out Year-wise distribution of theses
- To know Gender-wise contribution of theses
- To find out Supervisor-wise productivity
- To find out the Discipline-wise distribution
- To reveal the distribution of references in theses
- To know the authorship pattern

METHODOLOGY

For analysis of this study, data has been collected from the Gautam Buddha Central Library theses

section and the Ph.D cell of Controller of Examination office of the University and data was collected from the period 2007 to 2015.

DATA ANALYSIS AND INTERPRETATION

Research data analysis was done on some parameters like year-wise productivity, supervisor-wise analysis, gender-wise contribution and discipline-wise analysis, Authorship pattern and Degree of Collaboration.

YEAR-WISE DISTRIBUTION OF THESES

Year has been selected as an indicator to achieve the research output in the Department of Environmental Science. Table below shows the year wise award of Doctoral theses in the Department of Environmental Science.

Table 1: Year-wise productivity

Sl.No.	Year	No. of theses	Cumulative count	% of theses	% of cumulative theses
1	2007	5	5	10.20	10.20
2	2008	2	7	4.08	14.29
3	2009	7	14	14.29	28.57
4	2010	5	19	10.20	38.78
5	2011	2	21	4.08	42.86
6	2012	3	24	6.12	48.98
7	2013	6	30	12.24	61.22
8	2014	10	40	20.41	81.63
9	2015	9	49	18.37	100.00
	Total	49		100.00	

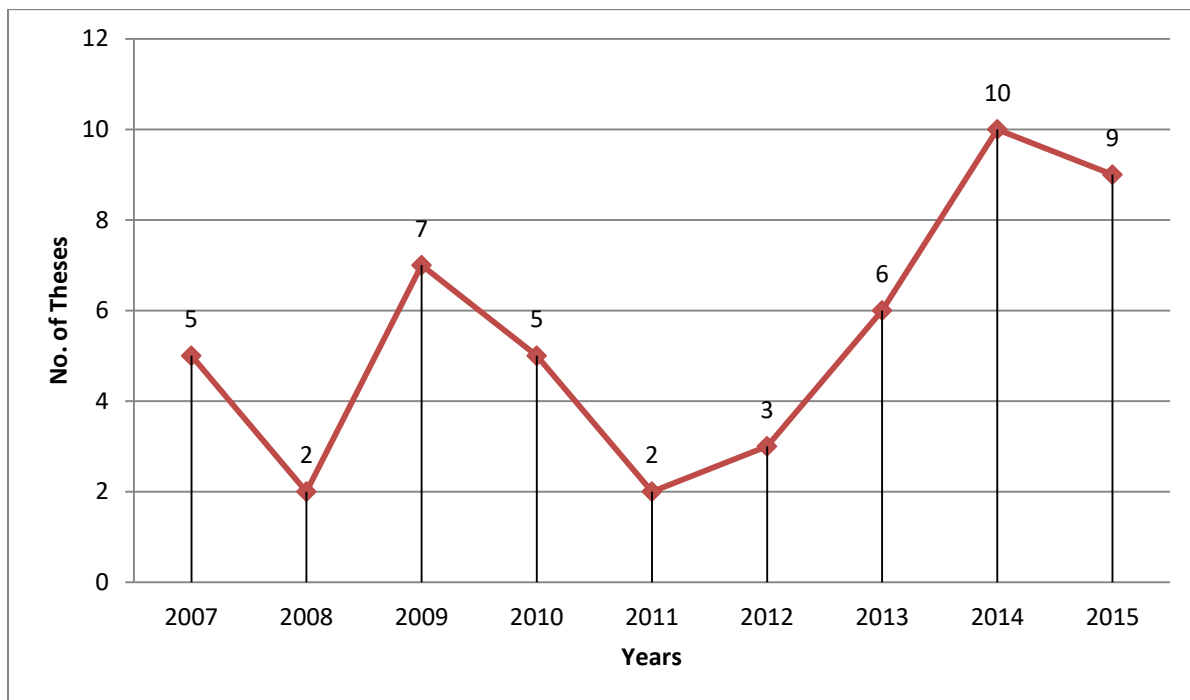
Figure: Year-wise productivity

Table and Figure 1 indicates that the highest numbers of theses in the Department of Environmental Science were awarded in 2014 i.e. 10 (20.41%) followed by 2015 i.e. 9 (18.37%), 14.29% in 2009, 12.24% in 2013, 10.20% in 2010 and 2007

respectively. 6.12% during 2012 and 4.08% during 2011 and 2007 respectively.

SUPERVISOR-WISE ANALYSIS OF DES

Supervisor of any research scholar play an important role in carrying out the research in any field, without the supervisor, research Scholar cannot complete their research, therefore, Supervisor has been taken

as an indicator to assess the status of research output in the form of Doctoral theses in the Department of Environmental Science.

Table 2: Supervisor-wise analysis

S.No.	Supervisor	No. of theses count	No. of cumulative count	% of theses	% of cumulative theses
1	M.Yunus	10	10	20.41	20.41
2	D.P.Singh	14	24	28.57	48.98
3	R.P.Singh	14	38	28.57	77.55
4	S.K.Dwivedi	9	47	18.37	95.92
5	Venkatesh	1	48	2.04	97.96
6	Shikha	1	49	2.04	100.00
	Total	49		100.00	

Figure 2: Supervisor-wise analysis

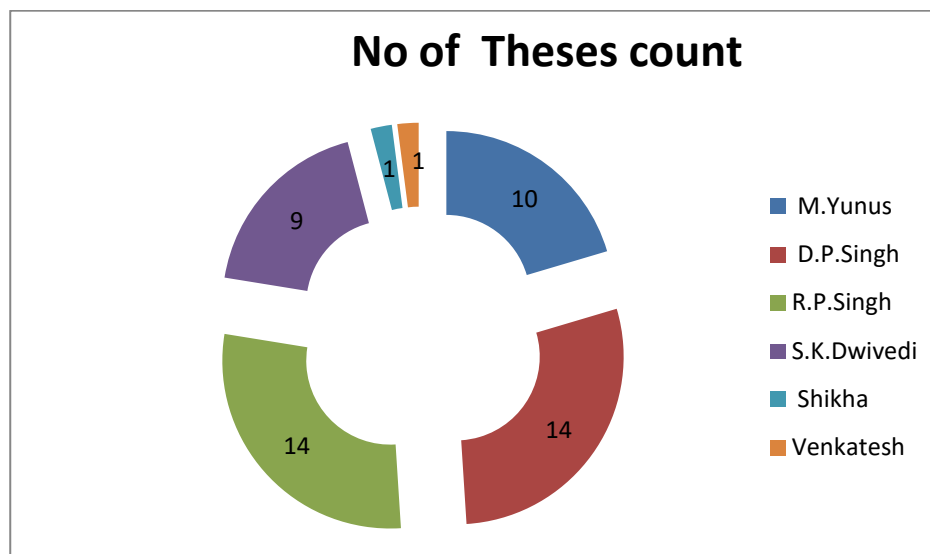


Table and Figure 2 depict that out of 48 theses, Professor D.P. Singh and Professor R.P. Singh, a well known persons in the field of Environmental Science supervised 14-14 each Doctoral theses i.e. 28.57 %

of the total research output in the Department. Professor M.Yunus guided 10 theses i.e. 20.41% followed by Dr. S.K. Dwivedi 9 i.e. 18.37. Percentage of Dr. Shikha and Dr. Venkatesh

respectively i.e 2.04% each, in Environmental Science.

GENDER-WISE CONTRIBUTION OF DES

Gender wise research analysis carried out in the Department of Environmental Science. Gender has been taken as an indicator to assess the status of research analysis. Status of Gender indicated in the table below.

Table 3: Gender-wise contribution

Sl.No.	Gender	No. of theses count	No. of theses cumulative count	% of theses	% of cumulative theses
1	Male	28	28	57.14	57.14
2	Female	21	49	42.86	100.00
	Total	49		100.00	

Figure 3: Gender-wise contribution

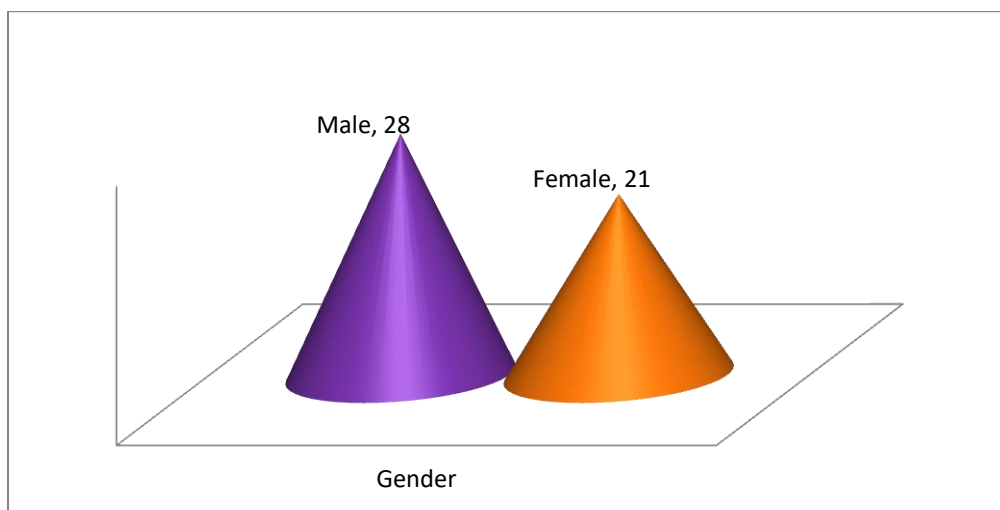


Table and Figure 3 indicates that males are more contributing in research as compare to females. Females are less in research because of many reasons such as negative attitudes of society and family, marriage, children and so on. Therefore, male performance is higher in research than the females. Male percentage of research output of Doctoral theses were 28 (57.14%) while female contributed

21(42.86%) of total research carried out in the Department of Environmental Science.

DISCIPLINE-WISE ANALYSIS OF DES

Every subject has some sub discipline. So the discipline has been selected as indicator for research

output of doctoral theses in the Department of Environmental Science.

Table 4: Discipline-wise analysis

S.No.	Discipline/ Subject	No. of theses count	% of theses	DDC No.
1	Microorganisms, fungi & algae	14	28.57	579
2	Geology, hydrology & meteorology	13	26.53	551
3	Biochemistry	9	18.37	572
4	Life Sciences; biology	7	14.29	570
5	Plants noted for their characteristics & flowers	6	12.24	582
	Total	49	100.00	

Figure 4: Discipline-wise analysis

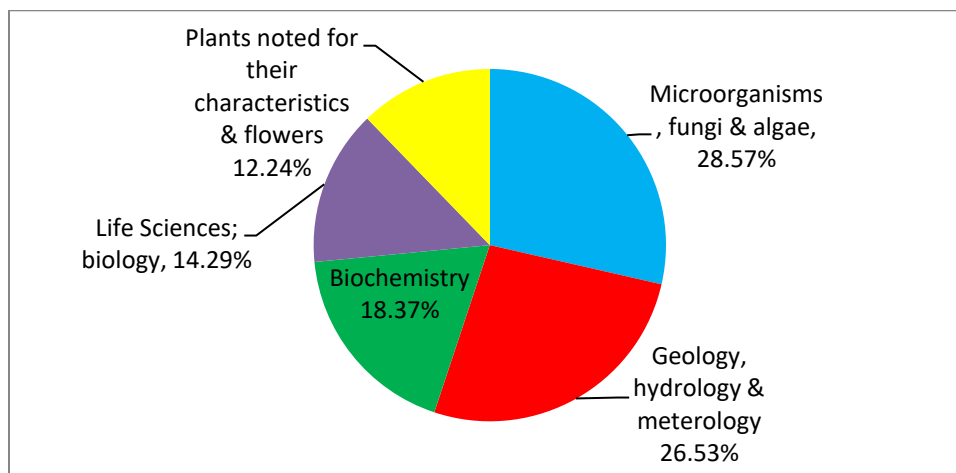


Table and Figure 4 indicates that larger portion of research were carried out in discipline Microorganisms, fungi & algae i.e. 28.57% with DDC No. 579 followed by Geology, hydrology & meteorology i.e. 26.53% with DDC No. 551; Biochemistry i.e. 18.37% with DDC No. 572; next in disciplines 'Life Sciences; biology 14.29% DDC No. 570

; Plants noted for their characteristics and flowers i.e. 12.24% with DDC no.582.

NUMBER OF REFERENCES USED

To reveal the distribution of references in Doctoral theses the table below made.

Table 5: Number of referenced used

S.No.	Number of references	Number of theses	Rank
1	1-150	09	4 th
2	151-300	11	3 rd
3	301-450	16	1 st
4	451-600	13	2 nd

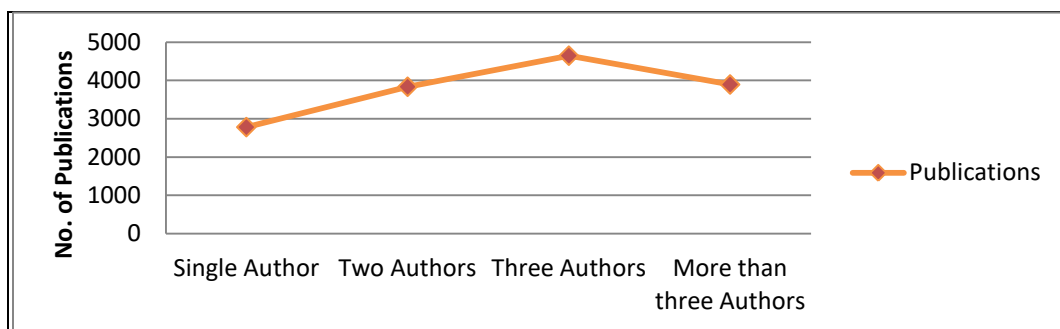
The above table shows the number of references used by research scholar in 49 Doctoral theses. References are categorised in a order and are ranked. The table clearly indicates that the number of references 301-450 are used by more scholars in their 16 theses and it stands with the 1st rank, followed by 451-600 references in 13 Doctoral theses which are ranked 2nd. Number of references 151-300 got the 3rd rank which was adopted by scholars in their 11 Doctoral theses.

AUTHORSHIP PATTERN

A table below shows the authorship pattern of publications of Doctoral theses.

Table 6: Authorship Pattern

Authorship Pattern	Publications	Percentage
Single Author	2782	18.35
Two Authors	3836	25.30
Three Authors	4647	30.65
More than three Authors	3895	25.69

Figure 6: Authorship Pattern

To find out the authorship pattern publication has been analysed in the Doctoral theses awarded in the Department of Environmental Science. It is clear from the above table that the largest number of publications was contributed by three authors 4647 (30.65%) followed by more than three authors 3895 (25.69%), two authors contributed 3836 (25.30%) while single author contributed 2782 (18.35%).

DEGREE OF COLLABORATION

In the year 1983 Subramanyam introduced a mathematical formula to calculate the degree of collaboration among authors in a discipline. The values of the degree of collaboration can be calculated for publication. The formula for a degree of collaboration of authorship (publications) expressed as:

$$DC = Nm / (Nm + Ns)$$

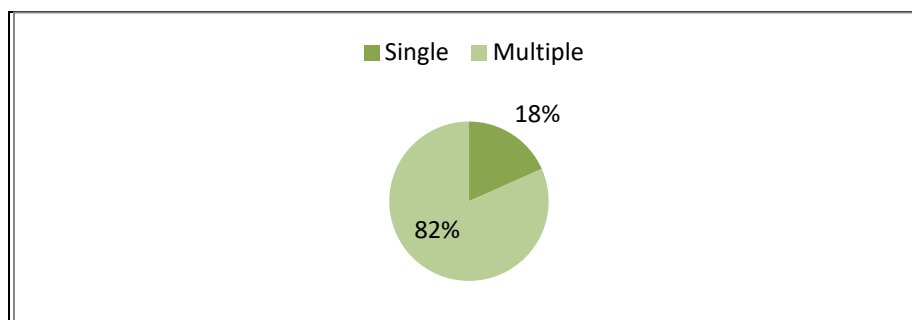
Where, DC = degree of collaboration,

Nm=Number of multiple authors,

Ns= Number of single authors.

Table 7: Degree of collaboration

Authorship	Single	Multiple
Publications	2782	12378
Percentages	18.35	81.65

Figure 7: Degree of collaboration

Nm = 12378

Ns = 2782

$C = 12378 / (12378 + 2782)$
= 0.81

The degree of collaboration of authorship (publications) is calculated as 0.81.

CONCLUSION

The bibliometric analysis examines the 49 Doctoral theses which have been awarded in the Department of Environmental Science in Babasaheb Bhimrao Ambedkar University, Lucknow. In the year 2014 the highest number of theses was awarded 10 (20.41), the contribution of male and female scholars was recorded 28 (57.14%) and 21 (42.86%), which indicates the need of encouragement to female scholars for research. Out of 6 supervisors, Professor D.P. Singh and Professor R.P. Singh both supervised 14 (28.57%) scholars for research, every supervisor guided number of scholars as per their service length in the department. Scholars selected Microorganism, fungi & algae discipline as a larger portion for research i.e. 14 (28.57%). The study also reveals that scholars used a number of references 301-450 in their 16 Doctoral theses followed by 451-600 references in 13 Doctoral theses. The maximum number of contributors are three authors contributed 4647 (30.65%) publications. In this study Degree of collaboration calculated as 0.81. This study is helpful for research scholars and students for their research and study in future need.

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