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Guest Editorial

Indian Contribution in Scientometrics

In the past, several new terms dealing with quantitative studies have appeared in the library and information science. These are librametry (in 40's), bibliometrics and scientometrics (in late 60's), informetrics (in 80's) and webometrics and almetrics (in 90's). These terms are used interchangeably and analyse the use of scientific information, information phenomena, online data, and non-traditional scientific data, respectively. It includes all the statistical and mathematical aspects connected with library, documentation and information problems with strong links to the theoretical aspects of information retrieval.

Among the different terms mentioned above, scientometrics is most popular which is mainly concerned with quantitative features and characteristics of science. The emphasis is placed on investigations in which the development and mechanism of science are studied by statistical and mathematical methods. Since 1960's, a sharp increase has been observed in scientometric studies, indicating the growing number of publications and specialists and scientific community. Originally, the field was characterised by researchers mainly from traditional librarians perusing studies in this area in a limited domain, counting papers, journals, and citations and concentrating mainly on informational parameters of publications with routine statistical applications. A major change in focus has occurred over the years, with number of researchers coming in the field from other disciplines such as mathematics, computer science, sociology, psychology, S&T studies, etc., providing interdisciplinary approaches for studies in this area. These researchers have used and applied the mathematical and physical models as well as sociological and psychological methods focusing on non-informational parameters of S&T, such as manpower and financial resources, institutions, linkages, etc. Over the last one decade, the focus of scientometric studies has been mainly on 'non-informational' parameters of science. Since the beginning of 80's, scientometrics has evolved as a distinct scientific discipline with specific research profile, several sub-fields and the corresponding scientific communication structures (publication of international journal *Scientometrics* in 1978 and also an international conference since 1983).

India has a long tradition of quantitative studies in library and information science. The number of studies in this area has been steadily growing over the years, as can been seen in bibliographies and reviews. However, at the national level, the field is receiving considerable attention from the researchers since 1970's, which has been reflected in the number of national conferences organised in India and India's participation in international conferences, growing contribution of Indians in national and international journals and increase in funding of projects to scholars from Indian scientific departments/research agencies. Indians scholars have contributed more than 100 papers in international journal '*Scientometrics*' since its foundation and have been participating in increasing number in the biannual international conferences on Bibliometrics, Informetrics, and Scientometrics. In addition, more than 30 % of the articles published in professional library and information science journals published from India and PhD thesis submitted to the Departments of Library and Information Science of Indian universities are devoted to quantitative studies. Despite several contributions from India in this area, India is lagging in research in frontier areas of scientometric research. Except few studies, the research undertaken in India is fairly traditional and lacking in content analysis and application of advanced techniques and mathematical methods.

In view of the special importance of scientometrics to S&T research & management and library & information science in India, *DESIDOC Journal of Library and Information Technology* decided to bring out third special issue in this area on 'Indian Contribution in Scientometrics', the earlier two issues were brought out as January 2007 and September 2011 issues. The present special issue comprises ten papers contributed by leading investigators and scholars from India.

Gangan Prathap in his paper provides a 3-D bibliometric analysis of monsoon research, consisting of 5167 papers, with a view to identify the leading countries, organisations, authors and influential journals, using Web of Science database during 1987-date period. The performance of monsoon research is viewed in this paper in terms of three components, namely quantity, quality and consistency. This paper is important because monsoon systems determines the whether and climate over most parts of Asia and directly influences the lives of nearly one third of global population.

Ritu Gupta, B.D. Kumbar and Rishi Tiwari examine the rankings of 25 most productive Indian universities in social sciences and in its four subfields, based on various quantitative indicators, such as the total number of papers and international collaborative papers, qualitative indicators such as the average number of citations per paper and *h*-index and in terms of new composite indicator (which combines quantitative and qualitative aspects) during 2008-12, using Scopus database.

Anil Sagar, B.S. Kademani and K. Bhanumurthy examine the quantitative and qualitative aspects of Indian agricultural research output, as indexed in Web of Science database during 1993-2012. It studies the growth of research output, citation pattern, international collaborative share, publication distribution in different sub-fields, characteristics of high productive organisations and communication pattern.

Suresh Kumar's paper examine the applicability of two forms (verbal and graphical) of Bradford's law of scattering to the pattern of journal productivity in the field of Human-computer interaction (HCI) (consisting of 137120 articles) in five data sets of five years each from 1987-2011. It identifies the Bradford zones and test the applicability of Leimkuhler's model in five data sets.

B.M. Gupta, Ritu Gupta and M. Ahmed examined 37049 world papers in mouth cancer, as indexed in Scopus database during 2003-12. It examines the world research output, its growth, rank, global publications share and citation impact of top 15 most productive countries, contribution and impact by different sub-fields, by different types of research, by site origin and treatment methods used and by different population age groups and also study the contribution and citation impact of 25 leading organisations.

K.C. Garg and Sandhya Dwivedi examined 2074 papers of different countries on various aspects of Japanese Encephalitis (JE), as covered in SCI-Expanded database during 1991-2010. It studied the type of co-authorship pattern and the strength of co-authorship among different countries using co-authorship index and collaborative coefficient, identifies the pattern and magnitude of collaboration in different sub-specialties of JE, studies the magnitude and pattern of local, domestic and international collaboration and identification of most prolific institutions having strong collaboration.

S.L. Sangam, Uma B. Arali, C.G. Patil and S.R. Gani's paper compared the research priorities of 16 sub-specialties of genetics in 10 Asian countries with the help of relative indicator using PubMed database during 1992-2001 and 2002-11.

Ganesh Surwase, Lalit Mohan, B.S. Kademani and K. Bhanumurthy made a bibliometric assessment of 17511 global publications in food preservation during 1985-2012, as indexed in Scopus database. Their paper focused on the publication growth, publication share of different countries, share of international collaboration, publication by different methods of food preservation and preservation by food types, highly productive organisations and channels of communication.

Gurjeet Kaur Ratan examined the generic structure of acknowledgments appearing in articles published in *DESIDOC Journal of Library & Information Technology* during 1998-2013, with a focus on their frequency distribution, types of acknowledgment (classified as access support, moral support, financial support, technical support, peer interactive communication, clerical support, editorial/linguistic support and others), and their appearance in terms of number per article.

K. Nageswara Rao, Rajeev Kumar Sharma, S. Girija Devi and S. Muralidhar presents a bibliometric analysis of 4047 articles published in bi-monthly journal *Journal of Propulsion and Power* published by the American Institute of Aeronautics and Astronautics (AIAA) during 1985-2013. It examines the growth pattern of research output, authorship pattern, institutional productivity and geographical distribution of output.

I am grateful to Shri Suresh Kumar Jindal, Director, DESIDOC for inviting me to be the Guest Editor of this Special Issue and also indebted to the the contributors for their cooperation and timely submission of the manuscripts.

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About the Guest Editor

Dr B.M. Gupta was Emeritus Scientist in the National Institute of Science, Technology & Development Studies (NISTADS), CSIR, New Delhi (1998-2013). He retired from CSIR as Scientist 'G' in July 2008. He obtained his BLIS from Kurukshetra University in 1971, Associatship in Documentation from INSDOC in 1975 and PhD from Karnatak University in 1999. He is the recipient of the Fullbright Professional Fellowship in Library & Information Science (1999) and is elected the Fellow of the Society for Information Science (2007). He was the Principal Investigator for several projects sponsored by research agencies, such as DFG, South Asia Office, All India Council for Technical Education (AICTE), Department of Science & Technology (DST) and Office of the Principal Scientific Advisor to the Government of India. He has published more than 150 research papers in national/international journals and as several chapters in books and conference proceedings. He has also edited two important book series 'Handbook of Libraries, Archives & Information Centers in India' (16 Volumes) and 'South Asia Bibliography and Documentation' (8 Volumes), besides bringing out a number of technical reports and other books. He has been the Guest Editor of a two special issues of the serial '*Scientometrics*' and also of two issues of the '*DESIDOC Journal of Library & Information Technology*'. He is Editorial Board member of journals, namely, *Journal of Scientometric Research* and *COLLNET Journal of Scientometrics & Information Management*.