The Indian Concrete Journal - A Scientometric Study

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The Indian Concrete Journal - A Scientometric Study

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Abstract

This paper discusses the Scientometric analysis of the journal titled “The Indian Concrete Journal, January 2012 – December 2012”. This article study specifically focus on number of articles in each issue of the volume of journal, authorship pattern, Institution wise contributions, Geographical distribution of contributions (both State wise (India) and Country wise contributions) etc., This study that the total number 59 contributions and maximum number of papers has been contributed by 23 (39%) of Two authors. This study reveals that maximum contribution from India 107 (69.03%).

Keywords: Scientometrics, The Indian Concrete Journal, Authorship Pattern, Institution wise Contributions.

Introduction:

Scientometrics is the study of measuring and analysing science, technology and innovation. Major research issues include the measurement of impact, reference sets of articles to investigate the impact of journals and institutes, understanding of scientific citations, mapping scientific fields and the production of indicators for use in policy and management contexts.[1] In practice there is a significant overlap between scientometrics and other scientific fields such as bibliometrics, information science and science of science policy.

Garg K.C., Kumar, S. & Lal, K. S. analysed 16891 publications by Indian agricultural scientists during 1993-2002 using Science Citation Index Expanded (Web of Science) and observed that the publication output in the agricultural sciences is on the decline since 1998 onwards.

Gupta B.M. analysed the ranking of India’s productive institutions in agricultural sciences, based on the various qualitative indicators during 1999-2008.

About the Journal:

The Indian Concrete Journal (ICJ) ISSN 0019-4565 is the oldest and the foremost civil engineering journal of its kind and repute in India. It was founded way back in August 1927 and since then it is relentlessly disseminating latest technological progress in the spheres of civil and structural engineering, cement and concrete technologies and construction. The back volumes of the ICJ not only highlight the strides made by the construction industry in India but also provide a documentation of how design and construction practices evolved in the country. Construction practices and techniques deployed over the world are also highlighted regularly in the features. For over eight decades, the ICJ has adapted itself to changing needs of the construction industry in India. Both the form and contents of the journal have undergone changes from time to time. However, the basic task of publishing latest information in the spheres of cements and concrete technologies, and newer concepts in design and construction techniques have been ceaselessly carried out. Also, the results of R&D and other technical progress
have been consistently brought to the notice of the readers. This relentless dissemination of latest technical knowledge coupled with constant advocation of good engineering practices, quality control and pursuit of technological excellence has benefited Indian engineers, consultants, architects, contractors, researchers, etc. and has made ICJ what it is today - one of the most reputed civil engineering journals in India and abroad. The readership of the journal is spread throughout the length and breadth of the country. Most of the subscribers of the journal are institutional / organizational and hence the total readership of the journal is in multiple of its circulation. As per a brief sample survey carried out by us, the total readership of the journal is estimated to be in the range of 40,000 to 50,000.

Objectives of the Study

1. To study volume (Issue) issue wise distribution
2. To study authorship pattern
3. To study Institution wise contributions
4. To determine the Geographical (Country and India) wise distributions
5. To study forms of documents cited
6. To examine the Ranked list of cited journals

Methodology

The methodology applied in the present study is scientometric analysis, which is used to study in detail the bibliographic features of the articles and citation analysis of the references at the end of each article published in The Indian Concrete Journal from January 2012 – December 2012, Volume No 86 , total articles 59. The articles were recorded and analyzed. The data have been calculated and represented in tables.

Limitations of the Study

The Journal mainly publishes in research articles those helps to the research scholars, students done their projects and updates their latest development in their respective subjects. This study is limited to research papers on The Indian Concrete Journal form January 2012 – December 2012.

Data Analysis and Interpretation

Table No 1: Volume - Issue wise Distributions of articles Year 2012

<table>
<thead>
<tr>
<th>S.No</th>
<th>Vol.No</th>
<th>Issue No</th>
<th>Month</th>
<th>No of Articles</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>86</td>
<td>1</td>
<td>January</td>
<td>5</td>
<td>8.5</td>
</tr>
<tr>
<td>2</td>
<td>86</td>
<td>2</td>
<td>February</td>
<td>6</td>
<td>10.2</td>
</tr>
<tr>
<td>3</td>
<td>86</td>
<td>3</td>
<td>March</td>
<td>4</td>
<td>6.8</td>
</tr>
<tr>
<td>4</td>
<td>86</td>
<td>4</td>
<td>April</td>
<td>6</td>
<td>10.2</td>
</tr>
<tr>
<td>5</td>
<td>86</td>
<td>5</td>
<td>May</td>
<td>5</td>
<td>8.5</td>
</tr>
<tr>
<td>6</td>
<td>86</td>
<td>6</td>
<td>June</td>
<td>4</td>
<td>6.8</td>
</tr>
<tr>
<td>7</td>
<td>86</td>
<td>7</td>
<td>July</td>
<td>4</td>
<td>6.8</td>
</tr>
<tr>
<td>8</td>
<td>86</td>
<td>8</td>
<td>August</td>
<td>6</td>
<td>10.2</td>
</tr>
<tr>
<td>9</td>
<td>86</td>
<td>9</td>
<td>September</td>
<td>5</td>
<td>8.5</td>
</tr>
</tbody>
</table>
Table No: 1, indicates that Issue-wise contributions of articles in the Indian Concrete Journal year 2012. Out of 59 articles three month issues were same positions like February, April and August 6 (10.2%) , Five month issues were same contributions like January, May, September, October and November 5 (8.5%), four issues were same contributions like March, June, July and December 4 (6.8%).

Table 2: Authorship Patterns of Contributions

<table>
<thead>
<tr>
<th>S.No</th>
<th>Single</th>
<th>Two</th>
<th>Three</th>
<th>Four</th>
<th>Five</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
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<tr>
<td>2</td>
<td>2</td>
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<td>1</td>
<td>2</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td>4</td>
</tr>
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<td>4</td>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td>6</td>
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<td>1</td>
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<tr>
<td>7</td>
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<td></td>
<td>1</td>
<td>3</td>
<td></td>
<td>4</td>
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<tr>
<td>8</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td>6</td>
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<tr>
<td>9</td>
<td></td>
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<td>2</td>
<td>1</td>
<td></td>
<td>5</td>
</tr>
<tr>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>5</td>
</tr>
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<td>11</td>
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<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>23</td>
<td>15</td>
<td>13</td>
<td>1</td>
<td>59</td>
</tr>
<tr>
<td>%</td>
<td>11.9</td>
<td>39.0</td>
<td>25.4</td>
<td>22.0</td>
<td>1.7</td>
<td>100</td>
</tr>
</tbody>
</table>

Table No: 2 shows that authorship pattern of contributions of The Indian Concrete Journal, among the 59 articles contributed, 7 (11.9%) are Single authors, 23 (39%) are Two authors, 15 (25.4%) are three authors, 13 (22%) are Four authors, 1 (1.7) are Five authors. Finally from the above analysis the maximum number of contributions are 23 (39%) of Two authors in the articles contributions.

Table No: 3 Forms of Documents Cited

<table>
<thead>
<tr>
<th>S.No</th>
<th>Forms of Documents cited</th>
<th>Citations</th>
<th>%</th>
<th>Cumulative</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Journals</td>
<td>368</td>
<td>48.10</td>
<td>368</td>
<td>48.1</td>
</tr>
<tr>
<td>2</td>
<td>Books</td>
<td>106</td>
<td>13.86</td>
<td>474</td>
<td>61.96</td>
</tr>
<tr>
<td>3</td>
<td>Proceedings/ Conference &amp; Seminars</td>
<td>90</td>
<td>11.76</td>
<td>564</td>
<td>73.72</td>
</tr>
</tbody>
</table>
The Table No: 3 indicates that the Forms of Documents cited in articles , among the total number of citations, which is 765, Journals have received 368 (48.10%), Books 1069 (13.86), Proceedings/Conference& Seminars 90 (11.76%), Bureau of Indian Standards 60 (7.84%), Research & technical Reports 33 (4.31%), Symposium 21 (2.75%), Websites 21 (2.75%), Others have citations 14(1.83%),Both Ph.D Thesis and ASTM(American Society of Testing Material Standard) have 10 (1.31%), same like that Workshops and Indian Roads Congress 6 (0.78%), International Congress and M.Tech Projects 5(0.65%), Irrigation Research Institute 3 (0.39), Indian Railways Institute of Civil Engineering and Laboratory 2 (0.26%), Human Resource Planning , IX Five Year Plan and Canadian Standards Association 1 (0.13%).

Table No: 4 Institution wise Contributions

<table>
<thead>
<tr>
<th>S.No</th>
<th>Institution</th>
<th>No of Citations</th>
<th>%</th>
<th>Cumulative</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>University &amp; Colleges</td>
<td>93</td>
<td>60.00</td>
<td>93</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>Indian Institute of Technology &amp; National Institute of Technology</td>
<td>19</td>
<td>12.26</td>
<td>112</td>
<td>72.26</td>
</tr>
<tr>
<td>3</td>
<td>Private Companies Ltd</td>
<td>11</td>
<td>7.10</td>
<td>123</td>
<td>79.35</td>
</tr>
<tr>
<td>4</td>
<td>CSIR- Structural Engineering Research Centre</td>
<td>6</td>
<td>3.87</td>
<td>129</td>
<td>83.23</td>
</tr>
<tr>
<td>5</td>
<td>Irrigation Research Institute</td>
<td>3</td>
<td>1.94</td>
<td>132</td>
<td>85.16</td>
</tr>
<tr>
<td>6</td>
<td>ACC Ltd</td>
<td>2</td>
<td>1.29</td>
<td>134</td>
<td>86.45</td>
</tr>
<tr>
<td>7</td>
<td>EON Designers</td>
<td>2</td>
<td>1.29</td>
<td>136</td>
<td>87.74</td>
</tr>
</tbody>
</table>
Table No: 4 gives institution wise distribution of contributions of this Journal. Out of 155, the Highest number 93 (60.00%) has been contributed by University & Colleges, secondly 19( 12.26%) has been contributed by the members from Indian Institute of Technology & National Institute of Technology, Thirdly Private Companies Ltd 11(7.10%) and 6(3.87%) has been contributed by CSIR- Structural Engineering Research Centre, 3(1.94%) has been contributed by Irrigation Research Institute, same contributions received from ACC Ltd, EON Designers, NTPC- BHEL Power Projects, Research Laboratory 2(1.29%), like that Aditya Birla Group, Advance Materials and Process Urban Habitat, CSIR - National Geophysical Research Institute, Drymix Mortar Industry, Global R & D Centre, Central Road Research Institute (CPRI), Hydro Training Institute, Ministry of Road Transport and Highways, Ministry of water Resources, National Environmental Engineering Research Institute, National Institute of Technical Teachers Training and Research Extension Centre, The Public Works Department of Tamil Nadu (TNPWD) and Thane Municipal Corporation 1(0.65%).

Table No: 5 Geographical (Country) wise Distributions

<table>
<thead>
<tr>
<th>S.No</th>
<th>Country</th>
<th>No of Citations</th>
<th>Cumulative</th>
<th>Cumulative</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>India</td>
<td>107</td>
<td>69.03</td>
<td>107</td>
<td>69.03</td>
</tr>
<tr>
<td>2</td>
<td>Malaysia</td>
<td>10</td>
<td>6.45</td>
<td>117</td>
<td>75.48</td>
</tr>
<tr>
<td>3</td>
<td>United Kingdom</td>
<td>7</td>
<td>4.52</td>
<td>124</td>
<td>80.00</td>
</tr>
</tbody>
</table>
The Table No 5 represents that Country wise Distribution of articles. Maximum number of contributions from India 107 (69.03%), Malaysia 10(6.45%) contributions, United Kingdom and United States of America same contributions 7 (4.52%), Italy 5 (3.23%), Canada and Chile were same 4 (2.58%), Michigan 3 (1.94%), France 2 (1.29%), Six Countries were of the same like Algeria, Australia, Iraq, Nigeria, Pakistan and Libya contributed 1(0.65%) article.

### Table No: 6 State (India) wise Distributions

<table>
<thead>
<tr>
<th>S.No</th>
<th>State wise (India) Distributions</th>
<th>No of Citations</th>
<th>%</th>
<th>Cumulative</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maharashtra</td>
<td>21</td>
<td>19.63</td>
<td>21</td>
<td>19.63</td>
</tr>
<tr>
<td>2</td>
<td>Karnataka</td>
<td>20</td>
<td>18.69</td>
<td>41</td>
<td>38.32</td>
</tr>
<tr>
<td>3</td>
<td>Tamil Nadu</td>
<td>20</td>
<td>18.69</td>
<td>61</td>
<td>57.01</td>
</tr>
<tr>
<td>4</td>
<td>Andhra Pradesh</td>
<td>16</td>
<td>14.95</td>
<td>77</td>
<td>71.97</td>
</tr>
<tr>
<td>5</td>
<td>Uttarakhand</td>
<td>11</td>
<td>10.28</td>
<td>88</td>
<td>82.25</td>
</tr>
<tr>
<td>6</td>
<td>Kerala</td>
<td>7</td>
<td>6.54</td>
<td>95</td>
<td>88.79</td>
</tr>
<tr>
<td>7</td>
<td>Madhya Pradesh</td>
<td>3</td>
<td>2.80</td>
<td>98</td>
<td>91.59</td>
</tr>
<tr>
<td>8</td>
<td>West Bengal</td>
<td>3</td>
<td>2.80</td>
<td>101</td>
<td>94.40</td>
</tr>
<tr>
<td>9</td>
<td>New Delhi</td>
<td>2</td>
<td>1.87</td>
<td>103</td>
<td>96.27</td>
</tr>
<tr>
<td>10</td>
<td>Orissa</td>
<td>2</td>
<td>1.87</td>
<td>105</td>
<td>98.13</td>
</tr>
<tr>
<td>11</td>
<td>Uttar Pradesh</td>
<td>2</td>
<td>1.87</td>
<td>107</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>107</strong></td>
<td><strong>100</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table No: 6 indicates that State wise (India) Distribution of contributions of articles. Maximum number of contributions from Maharashtra 21 (19.63%), Karnataka and Tamil Nadu were the same 20(18.69%), Andhra Pradesh 16 (14.95%), Uttarakhand 11 (10.28%), Kerala 7 (6.54%), Two states same contributions like Madhya
Pradesh and West Bengal 3 (2.80%), and Three States were of the same position like New Delhi, Orissa and Uttar Pradesh contributed 2 (1.87%) articles. Table No 7 shows that ranked list of citations, among the total number of citations is 368, The Indian Concrete Journal is the first position with 61 (16.58%) citations, ACI Materials Journal 50 (13.59%) is in the Second Position, Construction and Building Materials 30(8.15%) is in the third position and remaining journals follow at different levels respectively.

**Table No: 7 Ranked List of Journals**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Rank</th>
<th>Name of the Journal</th>
<th>No of Citations</th>
<th>%</th>
<th>Cumulative</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>The Indian Concrete Journal</td>
<td>61</td>
<td>16.58</td>
<td>61</td>
<td>16.58</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>ACI Materials Journal</td>
<td>50</td>
<td>13.59</td>
<td>111</td>
<td>30.17</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Construction and Building Materials</td>
<td>30</td>
<td>8.15</td>
<td>141</td>
<td>38.32</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Magazine of Concrete Research</td>
<td>14</td>
<td>3.80</td>
<td>155</td>
<td>42.12</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>ACI Structural journal</td>
<td>11</td>
<td>2.99</td>
<td>166</td>
<td>45.11</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Cement and Concrete Composites</td>
<td>11</td>
<td>2.99</td>
<td>177</td>
<td>48.10</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>Journal of Materials in Civil Engineering</td>
<td>10</td>
<td>2.72</td>
<td>187</td>
<td>50.82</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
<td>Materials and Structures</td>
<td>9</td>
<td>2.45</td>
<td>196</td>
<td>53.26</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>ASCE Journal of Structural Engineering</td>
<td>8</td>
<td>2.17</td>
<td>204</td>
<td>55.44</td>
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<tr>
<td>10</td>
<td>8</td>
<td>Civil Engineering and Construction Review</td>
<td>8</td>
<td>2.17</td>
<td>212</td>
<td>57.61</td>
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<tr>
<td>11</td>
<td>9</td>
<td>Concrete International</td>
<td>7</td>
<td>1.90</td>
<td>219</td>
<td>59.51</td>
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<tr>
<td>12</td>
<td>10</td>
<td>Journal of Ferro cement</td>
<td>5</td>
<td>1.36</td>
<td>224</td>
<td>60.87</td>
</tr>
<tr>
<td>13</td>
<td>10</td>
<td>Journal of Engineering Mechanics</td>
<td>5</td>
<td>1.36</td>
<td>229</td>
<td>62.23</td>
</tr>
<tr>
<td>14</td>
<td>11</td>
<td>Earthquake engineering and structural dynamics</td>
<td>4</td>
<td>1.09</td>
<td>233</td>
<td>63.32</td>
</tr>
<tr>
<td>15</td>
<td>11</td>
<td>Building and Environment</td>
<td>4</td>
<td>1.09</td>
<td>241</td>
<td>65.49</td>
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<tr>
<td>16</td>
<td>11</td>
<td>Concrete Construction</td>
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<td>1.09</td>
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<td>66.58</td>
</tr>
<tr>
<td>17</td>
<td>11</td>
<td>Journal of the American Concrete Journal</td>
<td>4</td>
<td>1.09</td>
<td>245</td>
<td>66.58</td>
</tr>
<tr>
<td>18</td>
<td>12</td>
<td>Journal of Structural Engineering</td>
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<td>0.82</td>
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<td>67.40</td>
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<tr>
<td>19</td>
<td>12</td>
<td>The international journal of cement composites</td>
<td>3</td>
<td>0.82</td>
<td>251</td>
<td>68.21</td>
</tr>
<tr>
<td>20</td>
<td>12</td>
<td>The Master Builder</td>
<td>3</td>
<td>0.82</td>
<td>254</td>
<td>69.03</td>
</tr>
<tr>
<td>21</td>
<td>12</td>
<td>Earthquake Spectra</td>
<td>3</td>
<td>0.82</td>
<td>257</td>
<td>69.84</td>
</tr>
<tr>
<td>22</td>
<td>12</td>
<td>Journal of Civil Engineering</td>
<td>3</td>
<td>0.82</td>
<td>260</td>
<td>70.66</td>
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<tr>
<td>23</td>
<td>12</td>
<td>J. Therm. Anal</td>
<td>3</td>
<td>0.82</td>
<td>263</td>
<td>71.47</td>
</tr>
<tr>
<td>24</td>
<td>12</td>
<td>Journal of Indian Highways</td>
<td>3</td>
<td>0.82</td>
<td>266</td>
<td>72.29</td>
</tr>
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Conclusions

Maximum number of papers have been written by 23 (39%) of Two authors in the articles contributions, which shows the collaborative research practice in The Indian Concrete Journal articles are mostly cited from Journals, Books, Conferences, Proceedings, and Technical Reports, ASTM Standards (American Society of Testing Material Standard) etc., respectively. The journal is popular among the members in The Indian Concrete Journal 61 citations (16.58 %) and maximum contributions from India 107 (69.03 %) articles and the highest number is 93 (60%), which has been contributed by the members from University and College Institutions. The Indian Concrete Journal is the highly preferred Journal for Civil Engineer’s.

References