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## A comparative Analysis of Social Sciences Research Publications in four South Asian countries

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# **A comparative Analysis of Social Sciences Research Publications in four South Asian countries**

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The paper compares the status of social science research in four South Asian countries, namely Pakistan, Bangladesh, Sri Lanka and Nepal for the period 1996-2011 as reflected in their publications output using various quantitative and qualitative indicators. It also looks at the similarities in the research profile of these four countries, besides looking at the priorities assigned and citation impact of different sub-fields under the five broad social science subjects, such as business, management & accounting, decision sciences, economics, econometrics & finance, psychology and social sciences-general in these three countries. The Scopus Citation Database has been used. The data covered in this study has been derived from SCImago Journal and Country Rank website (<http://www.scimagojr.com>).

## **1. Introduction**

We live in a rapidly changing world. The pace and quality of change has been particularly dramatic over the last two decades. With rapid changes in society, economy, politics, culture and other dimensions, the need to understand these complex processes of transformation has become more urgent than ever before. The growing complexity and diversity of social life demands innovations in research methods and perspectives. But the theories and methods which social scientists use and apply to understand societal dynamics often fall behind the rapid changes. The latter pose constant challenges for the invention and reinvention of social scientific methods to capture emerging realities. There are, of course, variations in the ways the various countries have generated social science knowledge through research in universities, colleges, and other educational institutions. There is variation both in the way institutions of social science research are organized and the way in which social science research is financed. Globalization, facilitated by the changes in communication technology, has significantly enhanced interaction across countries. This provides us an opportunity to learn from alternative experiences in the promotion of social science research (ICSSR 2012).

A few scientometric studies have been carried out on South Asia. Gupta and Bala (2012) compared and analysed the S&T research output of Pakistan, Bangladesh, Sri Lanka and Nepal during 2001-10 on several parameters including its growth, global publication share, publication share in various subjects, geographical distribution, share of international collaborative publications and characteristics of high productivity institutions and highly cited papers. Similar S&T publications analysis was undertaken by

Gupta & Bala (2012) on Nepal and Gupta on Pakistan(Gupta 2012) , Sri Lanka (Gupta 2012) and Bangladesh(Gupta 2013). Mehbuba and Rousseau(2010) compared Bangladesh, Pakistan and Sri Lanka research output with India using three indicators, such as percentage of un-cited articles, number of citations per document and h-indices. Here we look at the social science research output of four South Asian countries.

## **2. Objectives**

The main objective of this study is to analyze social science research output of four South Asia countries, namely Pakistan, Bangladesh, Sri Lanka and Nepal, with a view to analyze: (i) global rank and share; (ii) annual publication growth, publication output, research priorities as reflected in national publication share, share of international collaborative publication, h-index and citation quality in overall publication output in social sciences; and (ii) comparative analysis of social science research output by sub-fields.

## **3. Methodology and Data Source**

The present study uses Scopus [<http://www.scopus.com/search/>] international multidisciplinary bibliographical database for analyzing publication data of Pakistan, Bangladesh, Sri Lanka and Nepal. Scopus covers more than 17,000 peer-reviewed journals, besides select trade publications, book series and more than three million conference papers from proceedings. Social sciences in Scopus database is classified under five broad subjects, such as business, management & accounting, decision sciences, economics, econometrics & finance, psychology and social sciences-general. They are further sub-divided under 45 sub-fields. We took in to account all the records in social sciences for each of the countries. For journal and country ranking, SCImago Journal and Country Rank website (<http://www.scimagojr.com>) was used.

## **4. Analysis**

### **4.1 Publication Share and Rank in World**

Pakistan, Bangladesh, Sri Lanka and Nepal contributed 2477, 1159, 590 and 335 papers in overall social sciences during 1996-11, with an average productivity per year of 154.81, 72.44, 36.87 and 20.94 respectively. The highest global share (0.111) was achieved by Pakistan, followed by Bangladesh (0.052), Sri Lanka (0.026) and Nepal (0.015) during 1996-2011. The global publication share of Pakistan increased from 0.069 to 0.133, Bangladesh from 0.042 to 0.057, Sri Lanka from 0.022 to 0.029 and Nepal from 0.012 to 0.017 from 1996-03 to 2004-11. The publication output has increased from 43 to 473 papers in Pakistan, from 29 to 152 papers in Bangladesh, from 18 to 62 papers in Sri Lanka and from 10 to 34 papers in Nepal from the year 1996 to the year 2011, witnessing an annual average growth rate of 21.98%, 12.60%, 12.44% and 9.06% respectively. The cumulative publications has increased from 527 to 1950 in Pakistan, from 319 to 840 in Bangladesh, from 168 to 422 in Sri Lanka and from 90 to 245 in Nepal from 1996-03 to 2004-11, witnessing the growth rates of 270.00%, 163.3%, 151.2% and 172.2% respectively (Table 1).

The average citation per paper (4.23) achieved was highest in Bangladesh, followed by Nepal (3.64), Sri Lanka (3.42) and Pakistan (2.03) during 1996-11. The average citation per paper has decreased from 9.24 to 2.33 in Bangladesh, from 6.91 to 2.44 in Nepal, from 5.49 to 2.60 in Sri Lanka and from 5.00 to 1.23 in Pakistan from 1996-03 to 2004-11 (Table 2).

The highest share (61.79) of international collaborative papers was achieved by Nepal, followed by Bangladesh (51.86), Sri Lanka (46.61%) and Pakistan (24.14%) during 1996-11. The share of international collaborative papers has increased from 57.78% to 63.27% in Nepal, followed by Bangladesh (from 42.95% to 55.24%), Sri Lanka (from 39.88% to 49.29%) and Pakistan (from 24.10% TO 24.15%) from 1996-03 to 2004-11 (Table 2).

**Table 1. Research Output and World Share of South Asia Countries in Overall Social Sciences, 1996-11**

|       | Number of Papers |      |      |     | World Share |       |       |       |
|-------|------------------|------|------|-----|-------------|-------|-------|-------|
|       | PAK              | BANG | SRIL | NEP | PAK         | BANG  | SRIL  | NEP   |
| 1996  | 43               | 29   | 18   | 10  | 0.052       | 0.035 | 0.022 | 0.012 |
| 1997  | 56               | 38   | 18   | 8   | 0.069       | 0.047 | 0.022 | 0.010 |
| 1998  | 38               | 40   | 22   | 11  | 0.045       | 0.047 | 0.026 | 0.013 |
| 1999  | 72               | 36   | 16   | 8   | 0.083       | 0.042 | 0.019 | 0.009 |
| 2000  | 71               | 42   | 18   | 9   | 0.078       | 0.046 | 0.020 | 0.010 |
| 2001  | 82               | 42   | 26   | 16  | 0.082       | 0.042 | 0.026 | 0.016 |
| 2002  | 67               | 39   | 27   | 15  | 0.058       | 0.034 | 0.023 | 0.013 |
| 2003  | 98               | 53   | 23   | 13  | 0.078       | 0.042 | 0.018 | 0.010 |
| 2004  | 95               | 56   | 42   | 22  | 0.075       | 0.044 | 0.033 | 0.017 |
| 2005  | 141              | 68   | 31   | 14  | 0.092       | 0.044 | 0.020 | 0.009 |
| 2006  | 127              | 82   | 46   | 21  | 0.075       | 0.048 | 0.027 | 0.012 |
| 2007  | 141              | 85   | 44   | 35  | 0.078       | 0.047 | 0.024 | 0.019 |
| 2008  | 184              | 104  | 49   | 34  | 0.097       | 0.055 | 0.026 | 0.018 |
| 2009  | 298              | 130  | 71   | 31  | 0.147       | 0.064 | 0.035 | 0.015 |
| 2010  | 491              | 163  | 77   | 54  | 0.228       | 0.076 | 0.036 | 0.025 |
| 2011  | 473              | 152  | 62   | 34  | 0.212       | 0.068 | 0.028 | 0.015 |
| Total | 2477             | 1159 | 590  | 335 | 0.111       | 0.052 | 0.026 | 0.015 |

**Table 2. Citation Impact and Share of International Collaborative papers of South Asia Countries in Overall Social Sciences, 1996-11**

|      | Number of Citations |      |      |     | Average Citations per Paper |       |      |       | Share of International Collaboration |       |       |      |
|------|---------------------|------|------|-----|-----------------------------|-------|------|-------|--------------------------------------|-------|-------|------|
|      | PAK                 | BANG | SRIL | NEP | PAK                         | BANG  | SRIL | NEP   | PAK                                  | BANG  | SRIL  | NEP  |
| 1996 | 321                 | 422  | 76   | 72  | 7.47                        | 14.55 | 4.22 | 7.20  | 37.20                                | 27.59 | 27.78 | 80.0 |
| 1997 | 328                 | 321  | 112  | 128 | 5.86                        | 8.45  | 6.22 | 16.00 | 37.50                                | 60.53 | 50.00 | 62.5 |
| 1998 | 291                 | 368  | 157  | 47  | 7.66                        | 9.20  | 7.14 | 4.27  | 50.00                                | 62.50 | 59.09 | 81.8 |
| 1999 | 296                 | 368  | 90   | 38  | 4.11                        | 10.22 | 5.63 | 4.75  | 20.80                                | 55.55 | 50.00 | 50.0 |
| 2000 | 456                 | 432  | 122  | 92  | 6.42                        | 10.29 | 6.78 | 10.22 | 23.90                                | 30.95 | 16.67 | 55.6 |
| 2001 | 391                 | 303  | 221  | 143 | 4.77                        | 7.21  | 8.50 | 8.94  | 13.40                                | 26.19 | 46.15 | 50.0 |

|       |      |      |      |      |      |      |      |      |       |       |       |      |
|-------|------|------|------|------|------|------|------|------|-------|-------|-------|------|
| 2002  | 295  | 219  | 85   | 22   | 4.40 | 5.62 | 3.15 | 1.47 | 17.90 | 35.89 | 37.03 | 33.3 |
| 2003  | 259  | 514  | 59   | 80   | 2.64 | 9.70 | 2.57 | 6.15 | 16.30 | 43.40 | 30.44 | 61.5 |
| 2004  | 431  | 344  | 147  | 49   | 4.54 | 6.14 | 3.50 | 2.23 | 16.80 | 50.00 | 42.86 | 27.3 |
| 2005  | 316  | 232  | 197  | 51   | 2.24 | 3.41 | 6.35 | 3.64 | 21.30 | 52.94 | 54.84 | 78.6 |
| 2006  | 417  | 357  | 203  | 64   | 3.28 | 4.35 | 4.41 | 3.05 | 31.50 | 53.66 | 56.52 | 81.0 |
| 2007  | 309  | 359  | 189  | 143  | 2.19 | 4.22 | 4.30 | 4.09 | 32.60 | 55.30 | 65.91 | 57.1 |
| 2008  | 281  | 338  | 154  | 165  | 1.53 | 3.25 | 3.14 | 4.85 | 20.1  | 60.58 | 53.06 | 70.6 |
| 2009  | 314  | 170  | 117  | 38   | 1.05 | 1.31 | 1.65 | 1.23 | 23.50 | 57.69 | 42.26 | 61.3 |
| 2010  | 235  | 124  | 77   | 77   | 0.48 | 0.76 | 1.00 | 1.43 | 22.0  | 53.37 | 44.16 | 74.1 |
| 2011  | 98   | 32   | 14   | 11   | 0.21 | 0.21 | 0.23 | 0.32 | 26.20 | 55.26 | 45.16 | 52.9 |
| Total | 5038 | 4903 | 2020 | 1220 | 2.03 | 4.23 | 3.42 | 3.64 | 24.10 | 51.86 | 46.61 | 61.8 |

## 4.2. Subject Priorities in Social Sciences

Pakistan and Bangladesh had similar research priorities compared to Sri Lanka and Nepal in overall social sciences with largest emphasis given to social sciences-general (69.12%, 69.72%, 61.69% and 70.75% share), followed by economics, econometrics & finance (11.55%, 11.73%, 10.68% and 9.55% share), business, management & accounting (10.78%, 11.99%, 19.15% and 10.15% share), decision science (5.25%, 3.11%, 3.39% and 0.30%) and psychology (3.31%, 3.45%, 5.08% and 9.25% share).

**Social Sciences-General** – The publication output of Pakistan, Bangladesh, Sri Lanka and Nepal in social sciences-general consists of 1712, 808, 364 and 237 papers during 1996-2011, accounting for national publication share of 69.12%, 69.72%, 61.69% and 70.75%, respectively.

The Pakistan ranks at 45<sup>th</sup> place in global output in social sciences-general, followed by Bangladesh (54<sup>th</sup> rank), Sri Lanka (75<sup>th</sup> rank) and Nepal (83<sup>th</sup> rank) among 221 countries of the world during 1996-11. The highest global publication share (0.168) was achieved by Pakistan in social sciences-general, followed by Sri Lanka (0.08), Sri Lanka (0.034) and Nepal (0.023). The global publication share of Pakistan has increased from 0.118 to 0.198, followed Sri Lanka (from 0.030 to 0.032) and Nepal (from 0.016 to 0.026), as against decrease in Bangladesh (from 0.079 to 0.078) from 1996-03 to 2004-11.

The highest average citation per paper (4.06) in social sciences-general was achieved by Bangladesh, followed by Nepal (3.46), Sri Lanka (2.73) and Pakistan (1.71) during 1996-11. The average citation per paper decreased from 7.96 to 2.25 in Bangladesh, followed by Nepal (from 9.76 to 2.04), Sri Lanka (from 4.88 to 1.58) and Pakistan (from 4.52 to 0.57) from 1996-03 to 2004-11.

The highest h-index value (24) in social sciences-general was achieved by Bangladesh, followed by Pakistan (16), Sri Lanka (16) and Nepal (14) during 1996-11.

The highest share of international collaborative papers (61.54%) was depicted by Nepal, followed by Bangladesh (45.88%), Sri Lanka (41.21%) and Pakistan (18.67%) during 1996-11. The international collaborative papers share decreased from 62.07% to 60.47% in Nepal, as against increase from 38.67% to 48.19% in Bangladesh, from 32.20% to 59.70% in Sri Lanka and from 18.22% to 18.92% in Pakistan from 1996-03 to 2004-11.

The publication output in social sciences-general during 1996-2011 has been classified under 19 sub-fields (including miscellaneous subfield). Among these 18 sub-fields, the priorities assigned by different South Asia countries in social sciences-general are depicted in Table 3.

**Table 3. Sub-Field Wise Break Up of Publications of Pakistan, Bangladesh, Sri Lanka and Nepal in Social Sciences-General, 1996-2011**

|    |   | Number of Papers |      |       |      | Average Citation per Paper |       |       |       |
|----|---|------------------|------|-------|------|----------------------------|-------|-------|-------|
|    |   | PAK              | BANG | SRILA | NEPA | PAK                        | BANG  | SRILA | NEPA  |
| 1  | Anthropology                                | 6                | 12   | 5     | 12   | 6.10                       | 4.10  | 5.20  | 3.02  |
| 2  | Archeology                                  | 2                | 2    | 5     | 0    | 0.50                       | 0.50  | 1.75  | 0     |
| 3  | Communication                               | 7                | 16   | 2     | 1    | 4.90                       | 0.72  | 9.0   | 3.0   |
| 4  | Cultural Studies                            | 28               | 34   | 14    | 11   | 0.34                       | 0.90  | 0.0   | 7.30  |
| 5  | Demography                                  | 10               | 43   | 15    | 4    | 11.88                      | 9.68  | 5.70  | 2.0   |
| 6  | Development                                 | 794              | 186  | 93    | 59   | 1.21                       | 3.15  | 1.91  | 0.98  |
| 7  | Education                                   | 188              | 81   | 38    | 16   | 3.99                       | 2.23  | 3.20  | 4.49  |
| 8  | Gender Studies                              | 4                | 18   | 9     | 6    | 0.83                       | 0.76  | 0.71  | 0.75  |
| 9  | Geography, Planning & Development           | 290              | 240  | 140   | 92   | 2.48                       | 3.93  | 2.30  | 2.14  |
| 10 | Health (Social Sciences)                    | 61               | 98   | 23    | 36   | 14.16                      | 16.94 | 10.62 | 15.07 |
| 11 | Human Factors & Ergonomics                  | 4                | 3    | 4     | 1    | 7.17                       | 4.25  | 0.50  | 0.0   |
| 12 | Law   | 31               | 26   | 35    | 13   | 3.44                       | 2.20  | 1.83  | 1.86  |
| 13 | Library & Information Science               | 117              | 45   | 23    | 1    | 2.98                       | 2.08  | 1.28  | 3.0   |
| 14 | Life-Span and Life-Course Studies           | 3                | 1    | 0     | 0    | 0.33                       | 4.0   | 0     | 0     |
| 15 | Linguistics & Language                      | 3                |      |       |      | 0.67                       |       |       |       |
| 16 | Political Science & International Relations | 85               | 69   | 45    | 23   | 0.73                       | 0.93  | 1.03  | 0.52  |
| 17 | Public Administration                       | 4                | 5    | 4     | 4    | 2.0                        | 1.40  | 0.75  | 0.67  |
| 18 | Safety Research                             | 9                | 4    | 3     | 0    | 0.63                       | 3.17  | 2.67  | 0     |
| 19 | Miscellaneous                               | 280              | 147  | 29    | 30   | 8.38                       | 6.68  | 3.75  | 4.09  |

**Business, Management & Accounting** - The publication output of Pakistan, Bangladesh, Sri Lanka and Nepal in business, management & accounting consists of 267, 139, 113 and 34 during 1996-2011, accounting for national publication share of 10.78%, 11.99%, 19.15% and 10.15%, respectively.

The Pakistan ranks at 55<sup>th</sup> place in global output in business, management & accounting, followed by Bangladesh (64<sup>th</sup> rank), Sri Lanka (68<sup>th</sup> rank) and Nepal (99<sup>th</sup> rank) among 187 countries of the world during 1996-11. The highest global publication share (0.061%) was achieved by Pakistan in business, management & accounting, followed by Bangladesh (0.034), Sri Lanka (0.024) and Nepal (0.012%) during 1996-11. The global publication share of Pakistan has increased from 0.022 to 0.110, followed by Bangladesh (from 0.013 to 0.054), Sri Lanka (from 0.016 to 0.034) and Nepal (from 0.01 to 0.013) from 1996-03 to 2004-11. The highest average citation per paper (3.09) was achieved by Sri Lanka, followed by Nepal (2.91), Bangladesh (1.42) and Pakistan (1.40) during 1996-2011. The average citation per paper decreased from 3.93 to 1.31 in Sri Lanka, followed by Nepal (from 12.5 to 1.76), Bangladesh (from 1.71 to 1.22) and Pakistan (from 8.37 to 0.71) from 1996-03 to 2004-11. The highest h-index value (10) in business, management & accounting was achieved by Pakistan and Sri Lanka, followed by Bangladesh (7) and Nepal (5) during 1996-11. The highest share of international collaborative papers (75.65%) in business, management & accounting was depicted by Nepal, followed by Bangladesh (61.87%), Sri Lanka (44.25%) and Pakistan (33.71%) during 1996-11. The international collaborative papers share increased from 75.00% to 76.19% in Nepal from 42.86% to 64.22% in Bangladesh and from 42.86% to 44.78% in Sri Lanka, as against decrease from 63.16% to 30.73% in Pakistan from 1996-03 to 2004-11.

The publication output in business, management & accounting during 1996-2011 has been classified under 10 sub-fields (including miscellaneous). Among these 9 sub-fields, the priorities assigned by different South Asia countries in business, management & accounting are depicted in Table 4.

**Table 4. Sub-Field Wise Break Up of Publications of Pakistan, Bangladesh, Sri Lanka and Nepal in Business, Management & Accounting, 1996-2011**

|   |  | Number of Papers |      |       |      | Average Citation per Paper |      |       |      |
|---|--|------------------|------|-------|------|----------------------------|------|-------|------|
|   |  | PAK              | BANG | SRILA | NEPA | PAK                        | BANG | SRILA | NEPA |
| 1 | Accounting                             | 6                | 10   | 4     | 0    | 5.80                       | 2.25 | 3.75  | 0    |
| 2 | Business & International Management    | 67               | 33   | 38    | 6    | 5.14                       | 0.54 | 1.89  | 9.67 |
| 3 | Industrial Relations                   | 2                | 7    | 3     | 2    | 0.0                        | 0.50 | 0.75  | 1.0  |
| 4 | Management Information Systems         | 16               | 14   | 14    | 3    | 2.81                       | 1.50 | 6.02  | 0.33 |
| 5 | Management of Technology & Innovations | 39               | 10   | 21    | 3    | 4.12                       | 0.67 | 6.50  | 3.33 |
| 6 | Marketing                              | 17               | 0    | 4     | 9    | 5.47                       | 0    | 3.25  | 3.33 |
| 7 | Organizational Behavior & Human        | 5                | 3    | 0     | 0    | 4.80                       | 1.67 |       |      |

|    |   |     |    |    |   |      |      |      |      |
|----|---|-----|----|----|---|------|------|------|------|
|    | Resource Management                       |     |    |    |   |      |      |      |      |
| 8  | Strategy & Management                     | 32  | 15 | 13 | 6 | 1.94 | 4.52 | 5.18 | 1.0  |
| 9  | Tourism, Leisure & Hospitality Management | 1   | 2  | 3  | 1 | 0.0  | 5.07 | 6.00 | 5.0  |
| 10 | Miscellaneous                             | 123 | 54 | 27 | 6 | 1.87 | 1.71 | 4.38 | 0.25 |

**Economics, Econometrics & Finance** – The publication output of Pakistan, Bangladesh, Sri Lanka and Nepal in economics, econometrics & finance consists of 286, 136, 63 and 32 papers during 1996-2011, accounting for national publication share of 11.55%, 11.73%, 10.68% and 9.55%, respectively.

The Pakistan ranks at 49<sup>th</sup> place in global output in economics, econometrics & finance, followed by Bangladesh (60<sup>th</sup> rank), Sri Lanka (75<sup>th</sup> rank) and Nepal (91<sup>th</sup> rank) among 191 countries of the world during 1996-11. The highest global publication share (0.11) was achieved by Pakistan in economics, econometrics & finance, followed by Bangladesh (0.052), Sri Lanka (0.024) and Nepal (0.017). The global publication share of Pakistan has increased from 0.05 to 0.18, followed Bangladesh (from 0.026 to 0.080) and Nepal (from 0.017 to 0.018), as against decrease in Sri Lanka (from 0.033 to 0.025) from 1996-03 to 2004-11.

The highest average citation per paper (7.07) in economics, econometrics & finance was achieved by Bangladesh, followed by Sri Lanka (6.46), Nepal (6.41) and Pakistan (1.66) during 1996-11. The average citation per paper decreased from 31.08 to 2.59 in Bangladesh, followed by Sri Lanka (from 10.5 to 3.97), Nepal (from 7.0 to 5.13) and Pakistan (from 11.08 to 0.54) from 1996-03 to 2004-11.

The highest h-index value (18) in economics, econometrics & finance was achieved by Bangladesh, followed by Pakistan (11), Sri Lanka (11) and Nepal (6) during 1996-11.

The highest share of international collaborative papers (78.13%) in economics, econometrics & finance was depicted by Nepal, followed by Bangladesh (67.06%), Sri Lanka (57.91%) and Pakistan (27.97%) during 1996-11. The international collaborative papers share increased from 61.54% to 69.47% in Bangladesh, as against decrease from 80.0% to 73.91% in Nepal, 60.0% to 51.43% in Sri Lanka and 69.23% to 23.17% in Pakistan from 1996-03 to 2004-11.

The publication output in economics, econometrics & finance during 1996-2011 has been classified under 3 sub-fields (including miscellaneous subfield) (Table 3). Among these 2 sub-fields, the priorities assigned by different South Asia countries in economics, econometrics & finance are depicted in Table 5.



**Table 5. Sub-Field Wise Break Up of Publications of Pakistan, Bangladesh, Sri Lanka and Nepal in Economics, Econometrics & Finance, 1996-2011**

|   |                          | Number of Papers |      |       |      | Average Citation per Paper |       |       |       |
|---|--------------------------|------------------|------|-------|------|----------------------------|-------|-------|-------|
|   |                          | PAK              | BANG | SRILA | NEPA | PAK                        | BANG  | SRILA | NEPA  |
| 1 | Economics & Econometrics | 124              | 90   | 43    | 27   | 5.90                       | 17.59 | 11.50 | 10.08 |
| 2 | Finance                  | 90               | 13   | 5     | 3    | 3.36                       | 1.57  | 3.63  | 0.75  |
| 3 | Miscellaneous            | 87               | 38   | 19    | 4    | 0.44                       | 1.92  | 1.48  | 0.33  |

**Decision Science** - The publication output of Pakistan, Bangladesh, Sri Lanka and Nepal in decision science consists of 130, 36, 20 and 1 paper during 1996-2011, accounting for national publication share of 5.25%, 3.11%, 3.39% and 0.30%, respectively.

The Pakistan ranks at 61<sup>st</sup> place in global output in decision science, followed by Bangladesh (73<sup>th</sup> rank), Sri Lanka (83<sup>rd</sup> rank) and Nepal (147<sup>th</sup> rank) among 151 countries of the world during 1996-11. The highest global publication share (0.12%) was achieved by Pakistan in decision science, followed by Bangladesh (0.038), Sri Lanka (0.028%) and Nepal (0.020%) during 1996-11. The global publication share of Pakistan has increased from 0.036 to 0.180, followed by Sri Lanka (from 0.020 to 0.029), as against decrease in Bangladesh (from 0.07 to 0.03) from 1996-03 to 2004-11.

The highest average citation per paper (5.44) was achieved by Bangladesh in decision science, followed by Pakistan (4.42), Sri Lanka (2.75) and Nepal (2.00) during 1996-11. The average citation per paper has decreased from 6.43 to 1.93 in Bangladesh, from 4.78 to 3.72 in Pakistan and from 21.0 to 1.27 in Sri Lanka from 1996-03 to 2004-11. The highest h-index value (12) in decision science was achieved by Pakistan, followed by Bangladesh (8), Sri Lanka (4) and Nepal (1) during 1996-11.

The highest share of international collaborative papers (100.0%) was depicted by Nepal in decision science, followed by Sri Lanka (65.00%), Bangladesh (63.89%) and Pakistan (53.85%) during 1996-11. The international collaborative papers share has increased from 57.14% to 66.67% in Bangladesh, as against decrease from 100.0 % to 53.33% in Sri Lanka and from 88.89% to 50.88% in Pakistan from 1996-03 to 2004-11

The publication output in decision science during 1996-2011 has been classified under 4 sub-fields (including miscellaneous field). Among these 3 sub-fields, the priorities assigned by different South Asia countries in decision science are depicted in Table 6.

**Table 6. Sub-Field Wise Break Up of Publications of Pakistan, Bangladesh, Sri Lanka and Nepal in Decision Science, 1996-2011**

|  |  | Number of Papers |      |       |      | Average Citation per Paper |      |       |      |
|--|--|------------------|------|-------|------|----------------------------|------|-------|------|
|  |  | PAK              | BANG | SRILA | NEPA | PAK                        | BANG | SRILA | NEPA |

|   |  |    |    |   |   |       |      |      |     |
|---|--|----|----|---|---|-------|------|------|-----|
| 1 | Information Systems & Management         | 64 | 8  | 5 | 0 | 10.77 | 8.79 | 0.63 | 0   |
| 2 | Management Science & Operations Research | 37 | 20 | 9 | 0 | 4.99  | 7.60 | 5.50 | 0   |
| 3 | Statistics, Probability & Uncertainty    | 29 | 12 | 2 | 1 | 3.0   | 1.31 | 3.0  | 2.0 |
| 4 | Miscellaneous                            | 8  | 2  | 4 | 0 | 3.60  | 5.50 | 2.33 | 0   |

**Psychology** - The publication output of Pakistan, Bangladesh, Sri Lanka and Nepal in psychology consists of 82, 40, 30 and 31 papers during 1996-2011, accounting for national publication share of 3.31%, 3.45%, 5.08% and 9.25%, respectively.

The Pakistan ranks at 62<sup>th</sup> place in global output in psychology, followed by Bangladesh (76<sup>th</sup> rank), Sri Lanka (83<sup>rd</sup> rank) and Nepal (81<sup>th</sup> rank) among 187 countries of the world during 1996-11. The highest global publication share (0.11%) was achieved by Pakistan in psychology, followed by Bangladesh (0.014), Sri Lanka (0.012%) and Nepal (0.012%) during 1996-11. The global publication share has increased from 0.05 to 0.18 in Pakistan, from 0.01 to 0.016 in Bangladesh, as against decrease in 0.016 to 0.010 in Sri Lanka and from 0.013 to 0.012 in Nepal from 1996-03 to 2004-11.

The highest average citation per paper (12.42) was achieved by Nepal in psychology, followed by Pakistan (8.44), Sri Lanka (7.23) and Bangladesh (6.63) during 1996-11. The average citation per paper has decreased from 29.57 to 1.00 in Nepal, followed by Pakistan (from 19.5 to 1.48), Sri Lanka (from 11 to 2.36) and Bangladesh (from 21.75 to 2.39) from 1996-03 to 2004-11.

The highest h-index value (16) was achieved by Pakistan in psychology, followed by Nepal (10), Bangladesh (9) and Sri Lanka (8) during 1996-11.

The highest share of international collaborative papers (77.42%) in psychology was depicted by Nepal, followed by Sri Lanka (76.67%), Bangladesh (72.50%), and Pakistan (27.97%) during 1996-11. The international collaborative papers share has decreased from 79.43% to 66.67% in Nepal, followed by Sri Lanka (from 78.0% to 71.43%), Bangladesh (from 100.0% to 66.67%) and Pakistan (from 69.23% to 23.17%) from 1996-03 to 2004-11.

The publication output in psychology during 1996-2011 has been classified under 7 sub-fields (including miscellaneous). Among these 6 sub-fields, the priorities assigned by different South Asia countries in psychology are depicted in Table 6.

**Table 28. Sub-Field Wise Break Up of Publications of Pakistan, Bangladesh, Sri Lanka and Nepal in Psychology, 1996-2011**

|   |  | Number of Papers |      |       |      | Average Citation per Paper |       |       |       |
|---|--|------------------|------|-------|------|----------------------------|-------|-------|-------|
|   |  | PAK              | BANG | SRILA | NEPA | PAK                        | BANG  | SRILA | NEPA  |
| 1 | Applied Psychology                         | 3                | 0    | 3     | 1    | 48.67                      | 0     | 3.67  | 6.0   |
| 2 | Clinical Psychology                        | 9                | 1    | 1     | 2    | 9.77                       | 1.0   | 0.0   | 7.0   |
| 3 | Developmental & Educational Psychology     | 9                | 6    | 3     | 5    | 14.88                      | 3.0   | 8.75  | 0.0   |
| 4 | Expert & Cognitive Psychology              | 1                | 1    | 0     | 0    | 1.0                        | 0     | 0     | 0     |
| 5 | Neuropsychology & Physiological Psychology | 10               | 0    | 1     | 0    | 8.08                       | 0     | 1.0   | 0     |
| 6 | Social Psychology                          | 16               | 3    | 2     | 11   | 4.96                       | 0.33  | 0.50  | 12.81 |
| 7 | Miscellaneous                              | 49               | 34   | 22    | 22   | 12.11                      | 13.82 | 6.50  | 19.60 |

### Summary

Pakistan, Bangladesh, Sri Lanka and Nepal had published 2477, 1159, 590 and 335 papers in overall social sciences during 1996-11, with an average productivity per year of 154.81, 72.44, 36.87 and 20.94. Pakistan achieved the highest global share (0.111) in overall social sciences during 1996-2011, followed by Bangladesh (0.052), Sri Lanka (0.026) and Nepal (0.015). The publication output of Pakistan in overall social sciences has increased from 43 to 473 papers, followed by Bangladesh (from 29 to 152 papers), Sri Lanka (from 18 to 62 papers) and Nepal (from 10 to 34 papers) from the year 1996 to the year 2011, witnessing an annual average growth rate of 21.98%, 12.60%, 12.44% and 9.06%. The Bangladesh achieved the highest average citation impact per paper of 4.23, followed by Nepal (3.64), Sri Lanka (3.42) and Pakistan (2.03) during 1996-11. Nepal achieved the highest share (61.79) of international collaborative papers, followed by Bangladesh (51.86), Sri Lanka (46.61%) and Pakistan (24.14%) during 1996-11.

Among the four South Asia countries, the largest national publication share (5.25%) is depicted by Pakistan in decision science; Bangladesh in economics, econometrics & finance (11.73%); Sri Lanka in business, management & accounting (19.15%); and Nepal in psychology (9.25%) and social sciences-general (70.75%) during 1996-2011.

The highest global publication share is achieved by Pakistan in all five subjects among the four South Asia countries, namely in social sciences-general (0.168%), followed by decision science (0.12%), psychology (0.11%), economics, econometrics & finance (0.11%) and business, management & accounting (0.061%) during 1996-2011.

The highest average citation impact per paper (12.42) is depicted by Nepal in psychology (7.25) among the four South Asia countries, Bangladesh in economics, econometrics & finance (7.07), decision science (5.44) and social sciences-general (4.06) and Sri Lanka in business, management & accounting (3.09) during 1996-2011

Among the four South Asia countries, the highest h-index values is achieved by Bangladesh in social sciences-general (24) and economics, econometrics & finance (18); Pakistan in psychology (16), decision science (12) and business, management & accounting (10) and Sri Lanka in business, management & accounting (10) during 1996-2011

The highest share of international collaborative papers is achieved by Nepal in all the five subjects among the four South Asia countries, namely decision science (100.0%), economics, econometrics & finance (78.13%), psychology (77.42%), business, management & accounting (75.65%) and social sciences-general (61.54%) among the four South Asia countries during 1996-2011

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