

# Mapping of STS Literature on “Science and Technology Studies in India”

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**Abstract**—*Current Literature on Science of Science (CLOSS) was an internationally recognized abstracting/reviewing journal in the field of "Science Technology Studies" (STS) aiming at international readership of scientists, scholars, policy makers and planners. It was printed for Circulation/Exchange /Subscription purpose. STS is a multifaceted discipline of widely scattered nature. With a few dedicated journals, the literature is scattered over a broad spectrum of specialities and large number of institutes and publishers are also solely devoted to STS. "Science and Technology Studies in India" a special issue on Indian STS was brought out every year . Large number of Indian and foreign journals of varied disciplines were extensively covered in Indian special issue . Authors from more than 100 Indian and foreign institutes/govt organization/ universities/ individual had been contributing to 'Special Issue on India' every year . In Current Literature on Science of Science Vol 33, No 3-4, March-April 2004 , a special issue on "Science and Technology Studies in India" , 85 journals and 199 abstracts of varied discipline were covered . Some of the Indian journals covered in this special issue are : Current Science, Economic and Political Weekly, Indian Journal of History of Science , Indian Journal of Regional Science, Journal of Scientific & Industrial Research , Kurukshetra, Vikalpa, and Yojana. Contributions from various Indian organisations is also noted. Examples are: Department of Scientific & Industrial Research, New Delhi; Council of Scientific and Industrial Research, New Delhi ; IARI, New Delhi; Indian Institute of Science, Bangalore; Indian Institute of Technology, Kanpur; Indian institute of Technology, Kharagpur, Indian National Science Academy, New Delhi; Institute of Economic Growth, University of Delhi.*

## 1. INTRODUCTION

Publications and patents are the indicator of S&T activity. Publications brought out by scientists and patents obtained by them broadly indicate the output of S&T. These outputs can be used to understand growing India's capacities and potentials in different fields of S&T. A review of these indicator provides significant insight into the national R&D capabilities, emerging priorities, performance and future trajectories of scientific institution in the country says the report India Science and Technology 2010

Research papers (primarily in peer reviewed journals) and patents are the most commonly used proxies in assessing intensity of knowledge creation and utilisation. Research articles act as major channels for dissemination of scientific

knowledge and their number serve as indicators of scientific production. Patent is a very powerful form of protection. It protects the idea itself irrespective of the way in which it is expressed. Patents are, thus, one of the most useful instruments in transforming raw outputs of science into tradable commodities for knowledge-intensive industries. Patent is seen as output to research and development (R&D) and input to process of innovation. Patent, as indicators of innovation, has limits. Innovation does not always correspond to patented invention and not all patented invention possesses technological or economic value. Not all products are patented and not all patents yield products.

Science and Technology Policy Statements (STPS) are the policy tools for the Government of India for stating technology policy objectives and approaches. Scientific Policy Resolution 1958, Technology Statement of 1983 and Science and Technology policy of 2003 of Government of India' continued political commitment to support This political commitment has led to the of a vast S&T infrastructure within the government R&D institutions, universities, non-government organisations and firms in the industry says the India Science and Technology 2010 report.

## 2. CURRENT LITERATURE ON SCIENCE OF SCIENCE (CLOSS)

Current Literature on Science of Science (CLOSS) was an internationally recognized abstracting/reviewing journal in the field of "Science Technology Studies" (STS) aiming at international readership of scientists, scholars, policy makers and planners was published by CSIR-NISTADS It was printed for Circulation/Exchange /Subscription purpose from 1972 to 2008 regularly "Science and Technology Studies in India" a special issue on Indian STS was brought out every year

The main objective of CLOSS was to report latest literature in the field of Science and Technology Studies (STS).. STS is a multifaceted discipline of widely scattered nature With a few dedicated journals to the STS , the literature is scattered over a broad spectrum of specialities and large number of institutes and publishers solely devoted to STS.. This paper shows the contribution of Current Literature on Science of Science Vol

33, No 3-4, March-April 2004 , a special issue on “Science and Technology Studies in India” to STS

### 3. SPINES CLASSIFICATION

The subject scope of CLOSS falls under the guidelines of UNESCO sponsored SPINES (Science Policy Information Exchange System) , to take into account the different theoretical, and practical approaches to policy making, management and applications in the field of Science and technology.

**Science Policy literature in CLOSS is classified in the following SPINES categories and Sub categories**

**Foundation of Science and Technology Policy Making (A00)** : Theory and Systematization of Science and Technology (A01); Philosophy and Ethics of Science and Technology (A02); History of Science and Technology (A03) ; Sociology of Science and Technology (A04); Economics of Science and Technology (A05); Politics of Science and Technology (A06); Creativity and Psycho-Sociology of Scientific Researchers (A07); Science Technology and Education (A08)

**Science and Technology Resources( B00):** Human Resources for Science and Technology (B01); Financial Resources for Science and Technology (B02); Scientific and Technological Information ( B03); Scientific and Technological Facilities and Equipment (B04); Institutional Resources for Science and Technology (B05); Other Resources and Constraints Influencing the Trends of S&T Policy (B06)

**Practice of Science and Technology Policy Making (C00)** : Elaboration , Implementation and Monitoring of National Science and Technology Policies (C01); Science and Technology Forecasting and Assessment (C02); Transfer, Diffusion and Implantation of Technologies (C03); Organisation and Management of Scientific and Technological Activities (C04) ; Legislation in Science and Technology (C05); International Cooperation in the Field of Science and Technology (C06)

**General Contents and Results of Science and Technology Plans, Programmes and Projects ( D00):** Fundamental Research and Sciences (D01); Agricultural R&D (D02); Industrial R&D (D03); Communication R&D (D04); Health R&D (D05) ;Environmental R&D (D06); Space R&D ( D07); Energy R&D (D08); Defence and Peace R&D (D09) ;Socio-Economic and Cultural R&D (D10); Multisectoral R&D and other Scientific and Technological activities (D11); Biotechnology (D12); Rural Development (D13); Transport R&D (D14)

**Table A: SPINES Classification**

SPINES Code	SPINES Category
A00	Foundation of Science And Technology Policy Making
B00	Science and Technology Resources
C00	Practice of Science and Technology Policy Making
D00	General Contents and Results of Science and Technology Plans , Programmes and Projects

### 4. JOURNALS COVERED

Following are the journals covered in the special issue on Science Technology Studies on India in in Current Literature on Science of Science Vol 33, No 3-4, March-April 2004

**Table B: List of Journals Covered in Current Literature on Science of Science Vol 33, No 3-4, March-April 2004**

S. No	Name of Journal
1	Agricultural Economics 2003, 29(1)
2	AI & Soc 2002, 16(1-2)
3	AIDS Care 2003, 15(2)
4	American Journal of Economics & Sociology 2003, 62(4)
5	Applied Economics 2003, 35(6), 35(7)
6	Applied Energy 2003, 76(1-3)
7	ASCI Journal of Management 2002, 31(1-2)
8	Biomass and Bioenergy 2003, 24(1), 25(5)
9	Canadian Journal of Development Studies 2003, 24(1)
10	Climatic Change 2002, 54(3)
11	Contributions to Indian Sociology 2002, 36(1-2)
12	Crop Protection 2003, 22(2)
13	CSI Communications 2002, 26(1)
14	Current Science 2002, 83(6); 2003, 84(9), 85(2), 85(7), 85(8)
15	Developing Economies 2003, 41(4)
16	Ecological Economics 2003, 46(3)
17	Economic and Political Weekly 2002, 37(27), 37(33);2003, 38(1), 38(3), 38(12-13), 38(14), 38(15), 38(17), 38(20), 38(21), 38(23), 38(25), 38(31), 38(43), 38(49)
18	Economische en Sociale Geografie 2003, 95(1)
19	Energy Economics 2002 24(5)
20	Energy Policy 2002, 31(4); 2003, 31(10), 31(11), 31(12), 31(14)
21	Engineering and Design 2003, 69(1-4)
22	Environment & Development Economics 2003, 8(3), 8(Part 2)
23	Environment & Urbanization 2003 , 15(1), 15(2)
24	Environment and Planning A 2002, 34(12)
25	Environmental & Resource Economics 2003, 24(1)
26	Environmental Ethics 2002, 24(3)
27	Food Policy 2003, 28(5-6)
28	Futures 2003 , 35(4), 35(5), 35(7)
29	Global Networks 2003, 3(2)
30	Health Policy & Planning 2003, 18(3), 18(4)
31	Health Policy 2003, 66(1)
32	IDS Bulletin 2003, 4(2)
33	IETE Technical Review 2002, 19(6), 20(2)

34	Indian Journal of History of Science 2002, 37(3);2003, 38(1), 38(3), 38(4)
35	Indian Journal of Regional Science 2003, 35(1)
36	Industrial Herald 2003, 38(6)
37	Information Society 2003, 19(2)
38	Information Technology & Libraries 2003, 22(1)
39	Interdisciplinary Science Reviews 2003, 28(1)
40	International Congress Series 2003, 1240(10)
41	International Journal of Geographical Information Science 2003, 18(1)
42	International Journal of Geriatric Psychiatry 2003, 19(2)
43	International Journal of Information Technology and Management 2002, 1(1)
44	International Journal of Operations & Production Management 2003, 23(11-12)
45	International Journal of Technology Management 2002, 23(6); 2003, 25(1-2), 25(3/4)
46	International Journal of Technology Transfer and Commercialisation 2002, 1(1/2)
47	Journal of Development Economics 2003, 73(2)
48	Journal of Educational Planning and Administration 2002, 16(3)
49	Journal of High Technology Management Research 2002, 13(1)
50	Journal of Indian School of Political Economy 2002, 14(4)
51	Journal of Information Science 2002, 28(2)
52	Journal of Public Health Medicine 2002, 24(3)
53	Journal of Rural Development 2003, 22(1), 22(2), 22(3), 22(4)
54	Journal of Scientific & Industrial Research 2003, 62(1-2), 62(5), 62(6), 62(8)
55	Korean Journal of Defense Analysis 2003, 15(1)
56	Kurukshetra 2003, 51(9)
57	Marine Policy 2003, 28(3)
58	Nuclear Instruments and Methods in Physics Research 2003, 212(12)
59	Pranjana 2002, 5(2)
60	Productivity 2003, 44(1), 44(2)
61	Psychologia 2002, 45(3)
62	Public Health 2003, 118(2)
63	Reproductive Health Matters 2002, 10(19), 10(20); 2003, 11(21)
64	Research Observer 2002, 17(2)
65	Research Policy 2003, 32(6)
66	Science & Engineering Ethics 2003, 9(3)
67	Scientometrics 2003, 57(1)
68	Social Science & Medicine 2002, 56(2), 56(5); 2003, 57(1), 57(9)
69	Society & Natural Resources 2003, 16(4)
70	Space Policy 2003 19(3)
71	Studies in History 2002, 18(1)
72	Technological Forecasting & Social Change 2002, 69(4); 2003, 70(8)
73	Technovation 2002, 22(7), 22(8); 2003, 23(1), 23(2), 23(7)
74	Telecommunications Policy 2003, 27(5-6)
75	The European Journal of Development Research 2002, 14(1)
76	The Indian Mining & Engineering Journal 2003, 42(6)
77	The International Information & Library Review 2003, 35(2-4)

78	The International Journal of Human Resource Management 2003, 14(4)
79	The Journal of Development Studies 2003, 39(6)
80	Utilities Policy 2003, 11(2)
81	Vikalpa 2003, 28(1-2)
82	Wheat in Punjab 2003, 44(1)
83	World Development 2002, 30(8); 2003, 31(1), 31(11), 31(12)
84	World Patent Information 2003, 25(2)
85	Yojana 2003, 47(2), 47(3), 47(6)

## 5. DISTRIBUTION PATTERN OF VARIOUS FORMS OF STS IN CLOSS

**Table 1 : No of Abstracts , Journals, Descriptors, authors and available Indian addresses of contributing Authors**

Various forms of STS Literature	Total Count
No of abstracts of papers	199
No of journals covered	85
No of descriptors used	543
No of authors contributed	324
Available Indian addresses of the contributing authors	77

## 6. DISTRIBUTION PATTERN OF ABSTRACTS IN CLOSS

Following are the detailed distribution of papers in different categories and sub categories of SPINES classification in CLOSS

**Table 2 : Distribution of abstracts in different categories of SPINES Classification in CLOSS**

SPINES Code	SPINES Category	No of abstracts
A00	Foundation of Science And Technology Policy Making	30
B00	Science and Technology Resources	12
C00	Practice of Science and Technology Policy Making	59
D00	General Contents And Results of Science and Technology Plans	98
Total no of abstracts		199

**Table 3: No of abstracts in the category Foundation of Science and Technology Policy Making (A00)**

Subcategory	SPINES Code	No of abstracts
History of Science and Technology	A03	12
Sociology of Science and Technology	A04	02
Economics of Science and Technology	A05	13
Science Technology and Education	A08	03

**Table 4: No of abstracts in the category Science and Technology Resources( B00)**

Subcategory	SPINES Code	No of abstracts
Scientific and Technological Information	B03	5
Institutional Resources For Science and Technology	B05	5
Other Resources and Constraints Influencing The Trends of S&T Policy	B06	2

**Table 5: No of abstracts in the category Practice of Science and Technology Policy Making ( C00)**

Subcategory	SPINES Code	No of abstracts
Elaboration , Implementation And Monitoring of National Science and Technology Policies	C01	14
Science and Technology Forecasting and Assessment	C02	4
Transfer, Diffusion and Implantation of Technologies	C03	9
Organisation And Management of Scientific and Technological Activities	C04	24
Legislation in Science and Technology	C05	7
International Cooperation in The Field of Science and Technology	C06	1

**Table 6 : No of abstracts in the category General Contents and Results of Science and Technology Plans Programmes and Projects ( D00)**

Subcategory	SPINES Code	No of abstracts
Agricultural R&D	D02	22
Industrial R&D	D03	5
Information Technology and Communication R&D	D04	5
Health R&D	D05	16
Environmental R&D	D06	20
Space R&D	D07	2
Energy R&D	D08	15
Socio- Economic and Cultural R&D	D10	1
Biotechnology	D12	5
Rural Development	D13	7

**Table 7: Available addresses of contributing authors**

1	Adm Staff Coll India Hyderabad 500082 Andhra Pradesh India
2	Agricultural College and Research Institute, Tamil Nadu Agricultural University, Madurai 625 104, India
3	Agricultural Engineering College & Research Institute
4	Aligarh University, India
5	Allahabad University, Allahabad 211002, India
6	Andhra University, Visakhapatnam - 530003, Andhra Pradesh, India.

7	Anna University, Chennai, India
8	Applied Sciences, Solar Energy Unit, Sri Aurobindo Ashram, Pondicherry 605002, India
9	Archaeological Survey of India, Homi Bhabha Visva Bharati Santiniketan
10	Berhampur University, Bhaija Bhiar, Berhampur - 760 007.
11	CBABM and CEO Helix Genomics Pvt. Ltd.
12	Central Agricultural Research Institute, Port Blair, Andaman & Nicobar Islands.
13	Council of Scientific and Industrial Research, Human Resource Development Group, New Delhi – 110 012
14	Ctr Dev & Human Rights, Q1-A, NewDelhi 110016, India
15	Ctr Dev Studies, Prasanthnagar, Ulloor, Thiruvananthapuram 695011, Kerala.
16	Dangoria Charitable Trust, 1-7-1074 Musheerabad, Hyderabad- 500020
17	Dayalbagh Educ Inst, Fac Social Sci, Dept Psychol Agra 282005 Uttar Pradesh India
18	Defence Research & Development Organisation (DRDO), B Wing, Sena Bhawan, New Delhi 110 011, India
19	Department of Scientific and Industrial Research, Government of India, Technology Bhawan, New Mehrauli Road, New Delhi 110016, India
20	DRDO, Lucknow Road, Timarpur. Delhi 110 054, India.
21	FRHS, Ahmedabad, Gujarat, India
22	Ganita Bharati Academy, R-20 Ras Bahar Colony, Jhansi-284003.
23	GB Pant Inst Himalayan Environm & Dev, Himachal Unit Mohal Kullu 175126 HP India
24	Gokhale Institute of Politics and Economics, Pune.
25	Govt. Model H.S. (Residential) School, Barwani-451551
26	Gulbarga Univ, Dept Lib & Informat Sci Gulbarga Karnataka, India
27	IARI, New Delhi
28	ICAR Research Complex for Eastern Region, Patna, Bihar
29	IIMB, Bannerghatta Road, Bangalore 560076, India
30	India habitat Centre, Lodi Road, New Delhi – 110003, India
31	Indian Institute of Management Bangalore, Bannerghatta Road, Bangalore, 560 076, India
32	Indian Agr Res Inst, Div Agr Econ New Delhi 16, India
33	Indian Council Med Res, Reg Med Res Ctr, Div Epidemiol SE Rly Project Complex Post Bhubaneswar 751023 Orissa India
34	Indian Inst Management, Ctr Management Agr Ahmedabad 380015 Gujarat
35	Indian Inst Management, Fac HRM Indore 452012 India
36	Indian Institute of Forest Management, Bhopal,. M.P
37	Indian Institute of Management Calcutta, Joka, Diamond Harbour Road, Kolkata.
38	Indian Institute of Management, Lucknow.
39	Indian Institute of Plantation Management, Bangalore, Karnataka, India
40	Indian Institute of Science, Bangalore 560012, India
41	Indian Institute of Technology, Kanpur - 208 016, India.
42	Indian Institute of Technology, Kharagpur, West Bengal - 721302.

43	Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, Pashan, Pune, India 4110 008.
44	Indian Journal of Regional Science, Kolkata.
45	Indian National Science Academy, Bahadur Shah Zafar Marg, New, Delhi, 110 002, India
46	Indira Gandhi Institute of Development Research, Goregaon (East), Mumbai 400 065, India
47	Institute for Integrating Learning in Management, New Delhi.
48	Institute of Economic Growth, University of Delhi,
49	Institute of Informatics and Communication, University of Delhi, New Delhi – 110007.
50	Institute of Social and Economic Change (ISEC) Nagarbhavi, Bangalore 560072
51	ISAC Satellite Centre, Bangalore 560017, India.
52	Jadavpur University, Kolkata 700 032, India.
53	Jawaharlal Nehru University, New Delhi 110067
54	Malaviya Reg Engn Coll, Dept Mech Engn, Jawahar Lal Nehru Marg, Jaipur 302017, Rajasthan.
55	Ministry of Rural Development, Krishi Bhavan, New Delhi 110001
56	Muffakham Jah Coll Engn & Technol, Rd3, Hyderabad 500034, Andhra Pradesh
57	National Chemical Laboratory, Pune, 411008
58	National Council for Cement and Building Materials, New Delhi
59	National Institute of Ocean Technology, IIT Campus, IIT, Madras.
60	National Institute of Rural Development, Rajendra nagar, Hyderabad 500030
61	National Institute of Science Technology and Development Studies, New Delhi - 110012.
62	National Institute Rural Development, Hyderabad
63	National Institute of Mental Health & Neurosci, Dept Psychiat, Bangalore 560029, Karnataka, India.
64	ONGC, Ahmedabad – 380005, India
65	Panjab University, Chandigarh 160014, India;
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69	Sree Chitra Tirunal Inst Med Sci & Technol, Achutha Menon Ctr Hlth Sci Studies, Trivandrum 695011, Kerala, India
70	Strategic Management of Technology, Administrative Staff College of India, Bella Vista, Hyderabad, 500 082, India
71	Tata Energy Res Inst Darbari Seth Block, Habitat Pl, Lodhi Rd New Delhi 110003, India;
72	Technical Education Department, 412-E, Shivaji Nagar, Pune 411016
73	University of Delhi
74	Vigyan Bhawan Annexe, Maulana Azad Road, New Delhi 110011, India
75	Vikram Sarabhai Space Centre, Trivandrum 695 022, India
76	VISION-IPR, 103 B Senate, Lokhandwala Township, Akurli Road, Kandivli East, Mumbai 400101, India;
77	Xavier Institute of Social Service, Ranchi

## 7. CONCLUSION

Current Literature on Science of Science (CLOSS) was an internationally recognized abstracting/reviewing journal in the field of "Science Technology Studies" (STS) and was aiming at international readership of scientists, scholars, policy makers and planners. Publications brought out by scientists and patents obtained by them broadly indicate the output of S&T. This study maps the various aspects of science technology society studies as covered in the special issue of CLOSS on "Science and Technology Studies in India" Vol 33, No 3-4, March-April 2004 Total 199 abstracts, 85 journals, 543 descriptors, and 324 authors contributed to this special issue on "Science Technology Studies on India".

## REFERENCES

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- [2] India Science Report 2010 (Published by CSIR-NISTADS)
- [3] SPINES Thesaurus: A Controlled and structured vocabulary of information processing in the field of Science and Technology for development Vol 1, 1988