



Higher Education and Research in India: an Overview

Alok Chakrabarti

Sitra Reports

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¹ This report is based on the materials obtained from the published websites of various organizations discussed here accessed in March 2007. It has been prepared under a contract from Sitra, the Finnish Innovation Fund. I thank Dr Vesa-Matti Lahti for his comments on an earlier draft.

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Contents

1	Introduction & Brief History	4
2	Institutional Framework for the Higher Education System	5
	Central Universities	6
	Deemed Universities	7
	State Universities	7
	Institutes of National Importance	9
	Post-Graduate Institutes for Management	10
	University Grants Commission	11
	The All-India Council of Technical Education	11
	Accreditation of Academic Institutions and Programs	12
	The Association of Indian Universities	14
	Research Institutions	15
	Indian Council of Agricultural Research	17
	Indian Council of Social Science Research	18
	Council of Scientific and Industrial Research	19
	Autonomous Science and Technology Institutions	19
3	Comments on the Problems and Issues Related to Higher Education in India	20
	Implication for Finnish Universities and Research Institutes	21
	Conclusion	23

1 Introduction & Brief History

Before we discuss the current higher education system in India, a brief historical background will be helpful to understand its institutional context. India has a very rich history dating back several millenniums. Knowledge was preserved and propagated through an oral tradition. In this context, the teachers set up 'residential schools' in their own homes. Students were to live with the teacher and his family and were expected to share the daily chores of the family. Sanskrit was the language of the educated and the texts were composed in this language. Most of the major modern languages in India are derived from Sanskrit.

During the rules of Buddhist kings belonging to the Mauryan dynasty in the third and second century BC India flourished with the establishment of institutions of learning. Taxila, now in Pakistan, became the seat of learning where scholars journeyed to learn and to be educated. Nalanda in eastern India became famous for the Buddhist University where several religious conclaves were held.

In the 10th century, India was invaded from the northwest and many founded their dynastic rule in India. Persian became the court language and the educated elites became conversant in Farsi and Arabic. The dual traditions of Sanskrit and Farsi education were kept alive till the colonization of India by the British. The British established schools to teach English and the sciences. In 1857 three universities were established in three metropolitan cities, Bombay (now Mumbai), Calcutta (now Kolkata) and Madras (now Chennai) following Oxford or Cambridge as models. Another university was established in 1887 in Allahabad.

These universities imparted education in the liberal arts and sciences. The main objective was to prepare people for careers in the civil service, legal profession and in medicine. The need for technical education was also felt by the British, who established the first industrial school attached to the Gun Carriage Factory in Guindy, Chennai, in 1842.

2 Institutional Framework for the Higher Education System

With this varied history of the higher education system, the current system is primarily modeled after the British system. However, some the technical institutions in engineering and management are modeled on the US system. The higher education system remains primarily the responsibility of the state governments, although the central government has taken the initiative in establishing and funding a few central universities and other institutions of national repute.

India has 14 major languages. Institutions of higher education use English as the medium of instruction for most courses, particularly in the technical fields, though the regional language remains a major cultural artifact that provides the cultural context.

The institutional framework of higher education in India is complex. There are several types of institutions: universities, colleges, institutions of national importance, post-graduate institutions and polytechnics. Only the universities are generally authorized to grant degrees. By special acts of Parliament, the institutions of national importance have been authorized to grant degrees. Post-graduate institutions and polytechnics can grant diplomas and are to be recognized by the All India Council of Technical Education.

Universities are of four types: state universities, central universities, deemed universities (aided and unaided), and private universities. Table 1 itemizes these different types of higher educational institutes in India.

Table 1 Types of Higher Educational Institutions in India

Type	No
Central Universities	20
State funded universities	217
Deemed universities	45
Private deemed universities	57
Private universities under state	5
Other private universities	10
Institutes of national importance	13

CENTRAL UNIVERSITIES

Usually, a university is established under the act of a State legislature. The State Government maintains control of the universities in many respects, although a central agency, the University Grants Commission provides bulk of the funding. Central Government has established 20 universities that are funded and controlled by it. Table 2 lists the Central Universities.

Table 2 List of Central Universities

Aligarh Muslim University, Uttar Pradesh
 Assam University, Assam
 Babasaheb Bhimrao Ambedkar University, Uttar Pradesh
 Banaras Hindu University, Uttar Pradesh
 Central Agricultural University, Manipur
 Indira Gandhi National Open University
 Jamia Milia Islamia, Delhi
 Jawaharlal Nehru University, Delhi
 Mahatma Gandhi Antarrastriya Hindi Vishwavidyala, Maharashtra
 Manipur University
 Maulana Azad National Urdu University
 Mizoram University
 Nagaland University
 North eastern Hill University, Meghalaya
 Pondicherry University, Pondicherry
 Tezpur University, Assam
 University of Allahabad, Uttar Pradesh
 University of Delhi
 University of Hyderabad, Andhra Pradesh
 Visva Bharati, West Bengal

DEEMED UNIVERSITIES

Deemed universities are unique in India. Prior to independence, several private autonomous institutions of higher education and learning were developed in India. The Education Commission headed by Dr Radhakrishnan (a noted philosopher and the second President of India) recommended in 1948 that these institutions should be recognized appropriately. Accordingly, the Government of India made a provision under the UGC Act of 1956, Section 3, to recognize some deemed institutions to be universities. The objective was as follows: "If institutions which for historical or other reasons were not universities, yet were doing the work of high standard in specialized academic fields comparable to that done at a university then the granting to these institutions the status of universities would enable them to further contribute to the cause of higher education thereby mutually enriching the institution and the university system." To qualify for being a deemed university it was required that, "the institution should generally be engaged in teaching programs and conducting research in chosen fields of specialization which were innovative and of very high academic standards at the Master's and research levels. It should also have a greater interface with society through extramural extension and field-action related programs."

In recent years there has been a significant growth of deemed universities. Only 29 deemed universities were recognized from 1956 to 1990. But after 1990, there have been 63 new deemed universities, excluding the regional engineering colleges that were given the degree granting powers.

STATE UNIVERSITIES

Universities chartered under the state legislatures have been founded at various times. The number of universities in a state depends on the population as well as resources available to the states. Table 3 shows the distribution of universities by state in India.

Table 3 List of States with No. of State Universities

State	No	State	No
Andhra Pradesh	12	Maharashtra	16
Arunachal Pradesh	1	Manipur	1
Assam	3	Meghalaya	1
Bihar	3	Mizoram	0
Chandigarh	1	Nagaland	1
Chhatisgarh	2	Delhi	2
Goa	1	Orissa	3
Gujarat	4	Pondicherry	1
Haryana	3	Punjab	3
Himachal Pradesh	1	Rajasthan	8
Jammu and Kashmir	2	Tamil Nadu	16
Jharkhand	1	Tripura	1
Karnataka	8	Uttar Pradesh	14
Kerala	4	Uttarakhand	4
Madhya Pradesh	7	West Bengal	7

Most of the state universities have colleges affiliated with them. Colleges provide undergraduate education. Universities manage and conduct the undergraduate qualifying examinations and the granting of degrees. Universities conduct courses at post-graduate level awarding Masters Degrees. The doctoral program in a typical university is very much like that in the United Kingdom where little emphasis is put on course work and is based solely on the dissertation written under the guidance of an approved “guide” or professor.

Table 4 shows the distribution of accredited colleges by state. The number varies according to the population as well as resources available to the states.

Table 4 List of States with Accredited Colleges

State	No	State	No
Andhra Pradesh	142	Maharashtra	942
Arunachal Pradesh	5	Manipur	6
Assam	192	Meghalaya	7
Bihar	34	Mizoram	8
Chandigarh	13	Nagaland	2
Chhatisgarh	25	Delhi	0
Goa	14	Orissa	116
Gujarat	50	Pondicherry	6
Haryana	150	Punjab	95
Himachal Pradesh	18	Rajasthan	96
Jammu and Kashmir	23	Tamil Nadu	218
Jharkhand	18	Tripura	4
Karnataka	448	Uttar Pradesh	74
Kerala	141	Uttaranchal	25
Madhya Pradesh	83	West Bengal	119

INSTITUTES OF NATIONAL IMPORTANCE

Institutes of national importance are the crown jewels of higher education and research in India. These are autonomous bodies outside the control of the University Grants Commission that controls the governance of universities. These institutions have different funding structures, and their own curricula, academic calendar and compensation system for the faculty. Admission to these institutions is highly competitive. All the IITs (Indian Institute of Technology) are categorized in this group. Table 5 provides the list of these institutions.

Table 5 List of Institutions of National Importance

All India Institute of Medical Sciences, New Delhi
Daksina Bharti Hindi Prachar Sabha, Chennai
Indian Institute of Technology, Delhi
Indian Institute of Technology, Chennai
Indian Institute of Technology, Kharagpur
Indian Institute of Technology, Mumbai
Indian Institute of Technology, Kanpur
Indian Institute of Technology, Guwahati
Indian Institute of Technology, Roorkee
Indian Statistical Institute, Kolkata
National Institute of Pharmaceutical Education and Research, Mohali
Post Graduate Institute of Medical Education and Research, Chandigarh
Sri Chitra Tirunal Institute of Medical Sciences and Technology, Tiruvanthapuram

POST-GRADUATE INSTITUTES FOR MANAGEMENT

In the early 1960s, the Central Government started introducing management education in India. Two Indian Institutes of Management (IIM) were established with the collaboration of Harvard University and Massachusetts Institute of Technology in 1962, one in Ahmedabad³ and the other in Calcutta. At present there are six IIMs, one each in Ahmedabad, Bangalore, Calcutta, Indore, Kozikode and Lucknow. Admission to these institutes is highly competitive. The successful candidate is 1 among 100 applicants.

IIMs do not have the authorization to award degrees. They award post-graduate diplomas. The doctoral programs at IIMs also do not award PhDs, but the graduates are called “Fellows”.

Since management education has become very popular, most universities offer MBA degrees. There are a large number of post-graduate Institutes that offer a post-graduate diploma in management. Such institutes are recognized by the All India Council of Technical Education. The only exception is the Indian School of Business (ISB) located in Hyderabad. It was recently founded in collaboration with the Kellogg School of Management at the Northwestern University, the Wharton School at the University of Pennsylvania, and the London Business School. ISB is funded by private sources with McKinsey Company being the main champion. The cost of education at ISB is quite high and is equivalent to the cost of an MBA degree in most universities in the US.

3 The author is a graduate of the first batch of students.

UNIVERSITY GRANTS COMMISSION

The Government of India recognized the need for a central agency for disbursing funds to various universities. Accordingly, the University Grants Commission was constituted in 1952. UGC was made a statutory body of the Central Government by an act of Parliament “for the coordination, determination and maintenance of standards of university education in India.” The mandate of the UGC is:

- Promoting and coordinating university education
- Determining and maintaining standards of teaching, examination and research in universities
- Framing regulations on minimum standards of education
- Monitoring developments in the field of collegiate and university education; disbursing grants to the universities and colleges
- Serving as a vital link between the Union and state governments and institutions of higher learning
- Advising the Central and State governments on the measures necessary for improvement of university education.

THE ALL-INDIA COUNCIL OF TECHNICAL EDUCATION⁴

Technical education in India contributes a major share to the overall education system and plays a vital role in the social and economic development of India. In India, technical education is imparted at various levels such as: craftsmanship, diploma, degree, post-graduate and research in specialized fields, catering to various aspects of technological development and economic progress.

The beginning of formal Technical Education in India can be dated back to the mid-19th Century. The major policy initiatives in the pre-independence period included the appointment of the Indian Universities Commission in 1902, the issue of the Indian Education policy resolution in 1904 and the Governor General’s policy statement of 1913 stressing the importance of Technical Education. The establishment of the Indian Institute of Science in Bangalore, the Institute for Sugar, Textile and Leather Technology in Kanpur, the National Council of Education in Bengal in 1905 and the Industrial Schools in several

4 Information in this section has been taken from the website of AICTE, accessed in March 2007.

provinces marks the dawn of the technical education in India in the early twentieth century

The All-India Council for Technical Education (AICTE) was set-up by the Government of India in November 1945 as a national level Apex Advisory Body to survey the national facilities for technical education and to promote their development in a coordinated and integrated manner. To ensure this and as stipulated by the National Policy of Education (1986), AICTE was vested with statutory authority for planning, formulation and maintenance of norms and standards, quality assurance through accreditation, funding in priority areas, monitoring and evaluation, maintaining parity of certification and awards and ensuring coordinated and integrated development and management of technical education in the country.

The AICTE Bill was introduced in both the Houses of Parliament and passed as the AICTE Act No. 52 of 1987. The Act came into force with effect from 28 March 1988. The statutory All India Council for Technical Education was established on 12 May 1988 with a view to proper planning and coordinated development of technical education system throughout the country, the promotion of qualitative improvement of such education in relation to planned quantitative growth and the regulation and proper maintenance of norms and standards in the technical education system and for matters connected therewith.

The purview of AICTE (the Council) covers programs of technical education including training and research in Engineering, Technology, Architecture, Town Planning, Management, Pharmacy, Applied Arts and Crafts, Hotel Management and Catering Technology etc. at different levels.

ACCREDITATION OF ACADEMIC INSTITUTIONS AND PROGRAMS

There are two primary accreditation bodies involved in the accreditation of academic institutions and programs. AICTE has established the autonomous body the National Accreditation Board. NAB was set up “to periodically conduct evaluation of Technical Institutions or Programs on the basis of guidelines, Norms and Standards specified by it and to make recommendations to it, AICTE or to the Council, or to the Commission or to the other bodies, regarding recognition or de-recognition of the institution or program.” All technical programs must be approved by the AICTE, but not all programs are accredited by AICTE. Approval of AICTE for new Institutions or for starting new programs is based on:

- Credibility of Institutional Management and the Program providers
- Assurance of Compliance to AICTE Norms and Standards
- Prior approval by the State Government and University or other competent authority
- Market sensitivity of program output, to avoid imbalance in supply of qualified manpower.

Accreditation of the Institutional Programs by NBA is based on:

- Availability of potential for sustaining and improving upon assessment criteria
- Recognition by all stakeholders like the end-users, institutional products and the community at large
- Demonstrated capability of the institution and program to adhere to the qualitative criteria of Accreditation
- Assessment by peer groups of NBA experts through a visit to the institution and making relevant recommendations to the NBA.

The National Assessment and Accreditation Council (NAAC)⁵ is an autonomous body established by the University Grants Commission (UGC) of India to assess and accredit institutions of higher education in the country. It is an outcome of the recommendations of the National Policy in Education (1986) that laid special emphasis on upholding the quality of higher education in India.

The system of higher education in India has expanded rapidly during the last 50 years. Despite the built-in regulatory mechanisms that ensure satisfactory levels of quality in the functioning of higher education institutions, there have been criticisms that the country has permitted the mushrooming of institutions of higher education with fancy program and substandard facilities and consequent dilution of standards. To address the issues of deterioration in quality, the National Policy on Education (1986) and the Plan of Action (POA-1992) that spelt out the strategic plans for the policies, advocated the establishment of an independent national accreditation body. Consequently, the NAAC was established in 1994 with its headquarters in Bangalore.

The vision of the NAAC is to make quality the defining element of higher education in India through a combination of self and external quality evaluation, promotion and sustenance initiatives.

The mission statements of the NAAC aim at translating the NAAC's vision into reality, defining the following key tasks of the organization:

5 The materials are from the website of UGC accessed in March 2007

- To arrange for the periodic assessment and accreditation of institutions of higher education or units thereof, or specific academic program or projects
- To stimulate the academic environment for promoting the quality of teaching and learning and research in higher education institutions
- To encourage self-evaluation, accountability, autonomy and innovations in higher education
- To undertake quality-related research studies, consultancy and training program
- To collaborate with other stakeholders of higher education for quality evaluation, promotion and sustenance.

Guided by its vision and striving to achieve its mission, the NAAC primarily assesses the quality of institutions of higher education that volunteer for the process, using an internationally accepted methodology.

THE ASSOCIATION OF INDIAN UNIVERSITIES

The Association of Indian Universities is a voluntary organization of all Indian universities. The purposes of AIU are:

- To serve as an Inter-University Organization
- To act as a bureau of information and to facilitate communication, co-ordination and mutual consultation among universities
- To act as a liaison between the universities and the Government (Central as well as the State Governments) and to cooperate with other universities or bodies (national or international) in matters of common interest
- To act as the representative of universities of India
- To promote or to undertake such programs as would help to improve standards of instruction, examination, research, textbooks, scholarly publications, library organization and such other programs as may contribute to the growth and propagation of knowledge
- To help universities to maintain their autonomous character
- To facilitate the exchange of members of the teaching and research staff
- To appoint or recommend where necessary a common representative of the Association at any Conference, national or international, on higher education
- To assist universities in obtaining recognition for their degrees, diplomas and examinations from other universities, Indian as well as foreign
- To undertake, organize and facilitate conferences, seminars workshops, lectures and research in higher learning

- To establish and maintain a sports organization for promoting sports among Member-Universities
- To establish and maintain an organization dealing with youth welfare, student services, cultural programs, adult education and such other activities as are conducive to the betterment and welfare of students or teachers and others connected with universities
- To act as a service agency to universities in whatever manner it may be required or prescribed
- To undertake, facilitate and provide for the publication of newsletters, research papers, books and journals.

Recognition by AIU is important for many post-graduate autonomous institutions.

RESEARCH INSTITUTIONS

The institutional framework for research and development in India can be divided into two broad categories: defense and civilian. In the latter category there are five major apex bodies that are responsible for research and development in these fields:

1. Indian Council of Medical Research
2. Indian Council of Agricultural Research
3. Indian Council of Social Science Research
4. Council of Scientific and Industrial Research
5. Tata Institute of Fundamental Research.

The Indian Council of Medical Research (ICMR), ⁶New Delhi, the apex body in India for the formulation, coordination and promotion of biomedical research, is one of the oldest medical research bodies in the world.

As early as 1911 the Government of India set up the Indian Research Fund Association (IRFA) to sponsor and coordinate medical research in the country. After independence, several important changes were made in the organization and the activities of the IRFA. It was re-designated in 1949 as the Indian Council of Medical Research (ICMR) with a considerably expanded scope of functions. The ICMR is funded by the Government of India through the Ministry of Health and Family Welfare.

The Council's research priorities coincide with the national health priorities, such as the control and management of communicable diseases, fertility

6 Materials are from ICMR website accessed in April 2007.

control, maternal and child health, control of nutritional disorders, developing alternative strategies for health care delivery, containment within safety limits of environmental and occupational health problems; research on major non-communicable diseases such as cancer, cardiovascular diseases, blindness, diabetes and other metabolic and hematological disorders; mental health research and drug research (including traditional remedies). All these efforts are undertaken with a view to reduce the total burden of disease and to promote the health and well-being of the population.

The Governing Body of the Council is presided over by the Union Health Minister, and is assisted in scientific and technical matters by a Scientific Advisory Board comprising eminent experts in different biomedical disciplines. The Board is assisted by a series of Scientific Advisory Groups, Scientific Advisory Committees, Expert Groups, Task Forces, Steering Committees etc. which evaluate and monitor different research activities of the Council.

The Council promotes biomedical research in the country through intramural as well as extramural research. Over the decades, the Council has expanded the base of extramural research and its strategies.

Intramural research is carried out currently through the Council's (a) 21 Permanent Research Institutes/Centers, which are mission-oriented national institutes located in different parts of India and address themselves to research on specific areas such as tuberculosis, leprosy, cholera and gastro-intestinal diseases, viral diseases including AIDS, malaria, kala-azar, vector control, nutrition, food & drug toxicology, reproduction, immuno-hematology, oncology, medical statistics, etc. and (b) 6 Regional Medical Research Centers which address regional health problems, and also aim to strengthen or generate research capabilities in different geographic areas of the country.

Extramural research is promoted by ICMR through (i) Setting up Centers for Advanced Research in different research areas around existing expertise and infrastructure in selected departments of Medical Colleges, Universities and other non-ICMR Research Institutes. (ii) Task force studies, which emphasize a time-bound, goal-oriented approach with clearly defined targets, specific time frames, standardized and uniform methodologies, and often a multicentric structure. (iii) Open-ended research on the basis of applications for grants-in-aid received from scientists in non-ICMR Research Institutes, Medical colleges, Universities etc. located in different parts of the country.

In addition to research activities, the ICMR encourages human resource development in biomedical research through (i) Research Fellowships (ii) Short-Term Visiting Fellowships. (iii) Short-Term Research Studentships. (iv) Various Training Programs and Workshops conducted by ICMR Institutes and Headquarters.

For retired medical scientists and teachers, the Council offers the position of Emeritus Scientist to enable them to continue or take up research on

specific biomedical topics. The Council also awards prizes to Indian scientists, in recognition of significant contributions to biomedical research. At present, the Council offers 38 awards, of which 11 are meant exclusively for young scientists (below 40 years).

In the context of the changing public health scene, the balancing of research efforts between different competing fields, especially when resources are severely limited, is a typical problem encountered in the management of medical research, particularly in developing countries. Infectious diseases and excessive population growth have continued to constitute the major priorities to be addressed in medical research throughout the last several decades. In addition to tackling these issues, in recent years research has been intensified progressively on emerging health problems such as cardiovascular diseases, metabolic disorders (including diabetes mellitus), mental health problems, neurological disorders, blindness, liver diseases, hearing impairment, cancer, drug abuse, accidents, disabilities etc.. Research on traditional medicine/herbal remedies was revived with a disease-oriented approach. Attempts have been made to strengthen and streamline Medical Informatics and Communication to meet the growing demands and needs of the biomedical community. The Council is alert to new diseases and new dimensions of existing diseases, as exemplified by the rapid organization of a network of Surveillance Centres for AIDS in different states of India in 1986.

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

ICAR is the apex body for coordinating research in the area of agriculture, poultry, fisheries and dairy. It has 47 research institutes that are dedicated to train and research in their respective fields. The list of institutes under ICAR can be found from <http://www.icar.org.in/icar15.html>.

A total of 38 agricultural universities have been established in different parts of the country, including a Central Agricultural University for the north-eastern hills. In addition the Indian Agricultural Research Institute, New Delhi, the Indian Veterinary Research Institute, Izatnagar (Bareilly), the National Dairy Research Institute, Karnal and the Central Institute of Fisheries Education, Bombay, have the status of deemed universities.

The agricultural education system in the country offers degree programs in 11 specific disciplines: agriculture, veterinary science, agricultural engineering, forestry, home science, dairy technology, fisheries, sericulture, marketing, banking and co-operation, horticulture and food science with a total intake of about 11,000 students. It also offers postgraduate programs in more than 55 fields of specialization with a total intake capacity of about 5,000 students. Under the human resource development program the council offers about

1,200 scholarships and fellowships from the undergraduate to post-doctoral levels. Special fellowships are also offered for socially and economically weaker groups.

INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH

The Indian Council of Social Science Research (ICSSR) was established in 1969 by the Government of India to promote the research of social sciences in the country. The Council aims to:

- Review the progress of social science research and give advice to its users
- Sponsor social science research programs and projects and administer grants to institutions and individuals for research in social sciences
- Institute and administer scholarships and fellowships for research in social sciences
- Indicate areas in which social science research is to be promoted and adopt special measures for development of research in neglected or new areas
- Give financial support to institutions, associations, and journals engaged in social science research
- Arrange for technical training in research methodology and to provide guidance for research
- Coordinate research activities and encourage programs for interdisciplinary research
- Develop and support centers for documentation services and supply of data
- Organize, sponsor, and finance seminars, workshops and study groups
- Undertake publication and assist publication of journals and books in social sciences
- Advise the Government of India on all matters pertaining to social science research as may be referred to it from time to time, and take such measures generally as may be necessary from time to time to promote social science research and its utilization.

The Indian Council of Social Science Research is at present assisting 27 Research Institutes and 6 Regional Centers in different regions in India. The list of the Research Institutes can be found at: http://www.icssr.org.in/rcri_institute_main.htm.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

The Council of Scientific & Industrial Research (CSIR), the premier industrial R&D organization in India, was constituted in 1942 by a resolution of the then Central Legislative Assembly. It is an autonomous body registered under the Registration of Societies Act of 1860. CSIR aims to provide industrial competitiveness, social welfare, a strong Science and Technology base for strategic sectors and the advancement of fundamental knowledge.

Scientific research and development activity in CSIR has to be directed toward the development of technologies and applications that maximize the overall benefits for India. CSIR's Mission statement thus is:

To provide scientific industrial research and development that maximizes the economic, environmental and societal benefit for the people of India.

Industry has a wider connotation than mere manufacturing. Industry encompasses any human activity that transforms the inputs to outputs of value to society. Thus, industry would even encompass agriculture in addition to services. The underlying emphasis is that R&D to be pursued by CSIR provides traceable and tangible benefits to the economic, environmental or societal welfare systems.

CSIR has laboratories in biological sciences, chemical sciences, engineering sciences, information sciences and physical sciences. Altogether there are 39 different laboratories or centers in different places in India. The list of these (and their web addresses) can be found at http://www.dsir.nic.in/a_report/english/2004-05E/7-annex8-9-e-0405.pdf

AUTONOMOUS SCIENCE AND TECHNOLOGY INSTITUTIONS

There are also a number of autonomous research institutions under the Department of Science and Technology. The list of those can be found at http://dst.gov.in/autonomous/autonomous_index.htm

3 Comments on The Problems and Issues Related to Higher Education in India⁷

The World Bank study has identified the following issues related to the higher education in India:

- a. Over-centralization and lack of autonomy and accountability
- b. Resource constraints and wastage
- c. Poor quality and relevance in many institutions
- d. Difficulties in retention of Science and Technology personnel in education
- e. Poor technology and infrastructure support
- f. Limited access and regional disparity.

Except for the IITs and IIMs, the educational institutions are subjected to the control of several organizations at the state and the central government levels. In certain instances the educational institutions and their student bodies have come under the influence of politics. In such cases politics instead of merit has often influenced admissions to these institutions. This has had significant impact in the quality of education at many institutions.

⁷ World Bank Report No. 20416-IN: Scientific and Technical Manpower Development in India August 30 2000

IMPLICATION FOR FINNISH UNIVERSITIES AND RESEARCH INSTITUTES

India provides considerable opportunities for collaboration with the universities and research institutes in Finland. Institutions in the UK and Australia are actively seeking stronger linkage with Indian institutions for participating in the education sector. Anglo-American institutes have a longer history of working with India and thus are the favorite destinations for many Indians. In this respect Finnish institutions may face some challenges in building relationships.

Based on discussions with the academic leaders in Finland, it seems that Finnish universities have two objectives in collaborating with Indian institutes. One is to access the pool of talented Indian students and to attract them to join Finnish universities. Institutes in the US and UK depend heavily on foreign students in their doctoral programs. The second objective is to pursue joint or collaborative research with Indian scientists and technical personnel.

The most logical places to look are the National Institutes of Technology for recruitment of students from India. There are seventeen such Institutes in different parts of India. These institutes were established originally as Regional Engineering Colleges along the lines of IIT and then were upgraded to the status of National Institutes of Technology. Although NITs are less prestigious than IITs, they are excellent technical institutions and are excellent institutions from where the Finnish Universities can recruit potential graduate students. Companies such as IBM have formed collaborative centers in some of the NITs. IITs and NITs have uniformity of standards in their curricula and admission processes.

Universities can also be good sources for talented students. However, the problem is the major variations in the quality of the universities. The accreditation processes used by the various agencies are not based on the assessment of the output. Moreover, the standards of the admission processes vary. Finally, the quota system imposed by the government creates another level of ambiguity in judging the quality of a graduate from a university. It would be good idea to use some internationally recognized tests such as GRE or GMAT as well as TOEFL for admission purposes.

By using proactive measures Finnish universities may be able to attract students from the IITs and Indian Institute of Science. Graduates from these institutes are generally in high demand both in the corporate sectors as well as in prestigious universities in the US. IIT graduates have fared very well in the US in the corporate and the academic sectors.

Some guidelines in evaluating an institution, other than IITs, the Indian Institute of Science, and NITs, for developing collaborative relationship for recruitment of students are as follows:

1. NAAC ranking: A or AA should be the acceptable rank
2. Research record of the faculty should be examined
3. Admission processes used for admitting students should also be considered.

For developing research relationships, one should look into the capability of the institution. IITs and IISc are, of course, among the best institutions to have research collaboration. However, these institutes are also sought by other universities in the US and UK. The best way to develop the linkages will be through personal contacts with the individual faculty members of the respective universities. The US has the Fulbright program and the UK has established the Commonwealth Scholarship. These programs have helped foster exchange of scholars. Sitra, the Finnish Innovation Fund has recently developed a fellowship program that can be a great stimulus for developing such academic linkage with India.

In the technical and engineering fields, for example the following universities/institutions have an excellent reputation:

1. Delhi College of Engineering, New Delhi
2. VJ Technical Institute, Mumbai
3. University Department of Chemical Technology, Mumbai
4. Thapar University, Patiala
5. Jadavpur University, Kolkata
6. University of Pune, Pune
7. Birla Institute of Technology and Science, Pilani.

In the area of fundamental science, the following institutions are eminent:

1. Tata Institute of Fundamental Research, Mumbai
2. Saha Institute of Nuclear Physics, Kolkata
3. Indian Association for Cultivation of Science, Kolkata.

Some of the universities have developed areas of competency that may be of interest to Finnish universities. For example, Thapar University in Patiala has specialized in paper technology and associated environmental issues.

To identify universities for social sciences, it is suggested that the Finnish institution should work for example with the Indian Council of Social Science Research (ICSSR). ICSSR will be able to help build contacts with appropriate faculty and institutions. Research in social sciences could be politically controversial. The Government of India has guidelines for approving only certain types of research in the social sciences. Therefore, working through ICSSR will be helpful in terms of identifying problems that can meet with approval by the

government. In the area of social and economic sciences at least the following institutions have excellent reputation:

1. Delhi School of Economics, New Delhi
2. Jawaharlal Nehru University, New Delhi
3. Tata Institute of Social Sciences, Mumbai
4. Indian Statistical Institute, Kolkata.

In the field of management, there exist several good institutes that offer post-graduate diplomas in business administration, equivalent to an MBA degree. However, very few of them are engaged in any credible research activities. The following institutions have developed good track record of research and publication:

1. Indian Institute of Management, Calcutta
2. Indian Institute of Management, Ahmedabad
3. Indian Institute of Management, Lucknow
4. Management Development Institute, Gurgaon
5. Indian Institute of Foreign Trade, New Delhi.

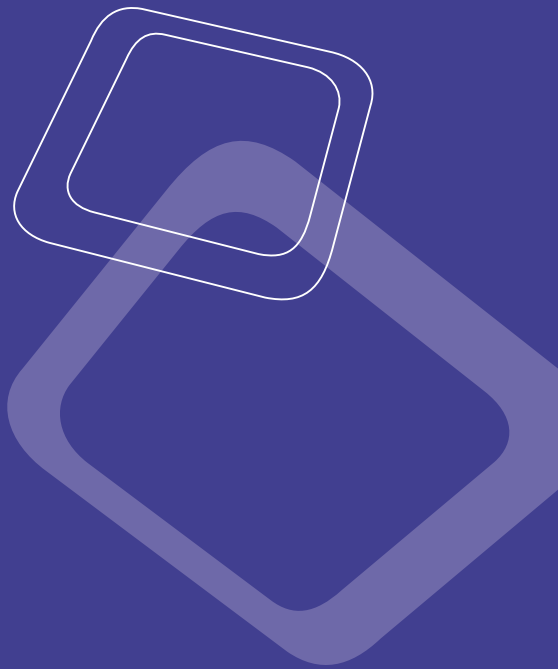
CONCLUSION

In this report, we have attempted to provide a brief overview of the educational system in India. The intended audience is Finnish policy makers, universities and other agencies. Since India and Finland have few historical ties, it would need some concerted effort by both countries to develop productive collaboration.

Although the modern education system in India is based on the Anglo-American tradition, there is a great variety of institutional systems in higher education. Government plays a dominant role not only in providing funds for education but also in the administration and control of these institutions. It is not uncommon that institutions may be facing dictums from various entities that are at times confusing and contradictory. Any foreign organization trying to build a relationship with these institutions must not be daunted by such ambiguities and must work with them patiently.

We have attempted to identify various institutions of repute in India that can be excellent candidates for further consideration by Finnish institutions.

India provides considerable opportunities for collaboration for Finnish universities and research institutions. However, India has a great variety of institutional systems in higher education and there are also major variations in the quality of the universities. This report provides an overview of the educational system in India and lists potential cooperation partners for Finnish institutions. The report is produced by Sitra's (the Finnish Innovation Fund) India Programme and authored by professor Alok Chakrabarti.



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