

# Status of Higher Education in India : Recent advances in frontier areas

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Dr. A.P.J. Abdul Kalam :

Projected Vision 2020 –

“India as a Strong Democratic country”

By

“ Building upon the contributions of each individual citizen.”

Knowledge has always been a distinguishing characteristic of human beings in view of their unique capacity to formulate and continuously transmit knowledge one generation and location to another

Knowledge Society- has gained prominence due to advances in Technology and related Applications.

Knowledge Societies have to address issues about how information and ideas are to be created and,thereafter, adopted at an accelerating speed.

- Economic growth
- Improves quality of Life
- Sustainable for long time



## Issues to be addressed

**( Poverty, Gender discrimination, human rights and liberty, impact of Globalization, Environmental concerns, Skill Development)**

- Access
- Equity
- Quality
- Relevance

## **Growth of Higher Education System**

There were **20** Universities and **500** Colleges at the time of independence.

At present,

Universities and university-level institutions - **504**

State Universities - **243**

State Private Universities - **53**

Central Universities - **40**

Deemed Universities - **130**

Institutions of national importance  
established under Acts of Parliament - **33**

Institutions established under various  
State legislations - **5**

In addition, there are **25,951** Colleges

Including around **2,565** Women Colleges.

Out of **25,951** Colleges,

**7,362** Colleges (28%) have been recognized under Section 2(f) and

**5,997** Colleges (23%) under Section 12-B of the UGC Act, 1956.

**Total number of students enrolled:**

Universities and Colleges **136.42 lakhs**

- **16.69 lakhs** (12.24%) in University Departments and

- **119.73 lakhs** (87.76%) in affiliated colleges.

## Equity in Education: Gender Equity

Women constitute **48%** of the total population of India.

The principle of **gender equity** is enshrined in Indian Constitution in its preamble, fundamental rights, fundamental duties and directive principles and also reducing the **gender gap** in higher education is a focus area.

The enrolment :

**women students** - 56.49Lakhs constituting **41.40%** of the total enrolment (Of the total women enrolment, 14.72% women have been enrolled in professional courses. )

### States

-Highest in Goa (59%) and

-Lowest in Bihar (30%).

## Status of Women in Higher Education

There has been a phenomenal growth in a number of women enrolled in higher education since independence.

Women enrolment

- was less than **10%** of the total enrolment on the eve of independence

and

it has risen to **41.40%**.



## **Indira Gandhi Scholarship for Single Girl Child for pursuing higher and technical education**

-To support higher education through scholarships to such girls who happen to be the **only child in their families** and also to promote small family norms.

Girl students up to the age of 30 years at the time of admission of Postgraduate courses are only eligible.

The scholarship amount is @ Rs.2000/- p.m. for 20 months.

Rs.4.88 lakhs has been provided as scholarship to beneficiaries.

## **Construction of Women Hostels for Colleges**

## Capacity Building for Women Managers in Higher Education

The overall policy goal is to increase the participation of women in higher education management including in **faculty, administration and staff for better gender balance, to sensitize the higher education system through policies** and procedures which recognize gender equity and to involve women capable of becoming administrators for the qualitative development of higher education.

During XI Plan, three approaches are being followed, namely;

- To offer training programmes focused on increasing sensitivity to gender issues in respect of women managers
- To make capacity building a women's movement.
- To involve Vice-chancellors of the Universities or Principals of the concerned Colleges in the development of the programme.

**The capacity building is through activities like sensitization, awareness, motivation workshops, development and distribution of resource material, research stimulation workshops, management skill workshops etc.**

## **Social Group Equity**

### **Establishment of Equal Opportunity Cells (EOC) for SC/ST/OBC/Minorities**

The UGC has assisted institutions to establish "Equal opportunity Cells" to oversee the effective implementation of policies and programmes for disadvantaged groups and to provide guidance and counseling in academic, financial, social and other matters.

The Cell would also take up programmes to sensitize University/ Colleges on problems faced by Scheduled Caste (SC) and Scheduled Tribe (ST) categories in higher education.

One time grant of Rs.2.00 lakhs for establishing the office of Equal Opportunity Cells is being provided.

## **Establishment of Residential Coaching Academy for SC/ST/ Minorities and Women in Universities and Colleges**

To establish residential coaching academics in Universities and Colleges,

- To run schemes of 'Coaching for students at UG/ PG level',
- Coaching for students to prepare for **National Eligibility Test (NET)**.
- Coaching for students for entry in services covered under Central and State Governments'.
- The aim of these schemes is **to prepare students for NET**

and

**All India & State Civil Services examinations and UG/ PG level examinations.**

**Post-Doctoral Fellowship for SC/ST and Women**

**Post-Graduate Scholarships for SC/ST students in professional courses**

## Quality and Excellence

### Autonomous Colleges

To improve the quality of under-graduate Education by delinking colleges of quality from the affiliating structure and to promote the concept of autonomy in affiliated colleges, UGC has been regularly supporting potential colleges by providing grants.

Autonomous colleges have the freedom to:

- determine and prescribe its own courses of study and syllabi and restructure and redesign the courses to suit local needs;
- prescribe rules for admission in consonance with the reservation policy
- evolve methods of assessment of students performance, the conduct of examinations and notification of results;
- use modern tools and technology to achieve higher standards and better quality.

The autonomy granted is institutional and covers all academic courses in such institutions at present or at a later stage.

All colleges including engineering colleges under section 2 (f)

➤ aided,

➤ unaided,

➤ partially aided and

self-financing, which are declared fit to receive grants under section 12-B - are eligible to apply for autonomous status.

## Universities with Potential for Excellence

To achieve excellence in teaching and research, UGC has been assisting identified Universities for granting the status of "University with Potential for Excellence".

Jawaharlal Nehru University (JNU),  
Hyderabad,  
Madras,  
Pune  
Jadavpur  
North Eastern Hill University (NEHU),  
Madurai Kamraj, ,  
Mumbai and  
Calcutta  
Universities were given the status.



## Colleges with Potential for Excellence

To achieve excellence mainly in teaching and inculcate the research culture, UGC has initiated the scheme of "Colleges with Potential for Excellence" (CPE).

The scheme intends to identify potential colleges across the country and to support them financially to improve their academic/physical infrastructure, adopt innovation in teaching, modern methods and learning/evaluation, and to enhance the quality of the learning and teaching process by introducing a flexible credit based modern academic system.

The colleges which are 10 years old or more and accredited by National Accreditation and Assessment Council (NAAC) are eligible for the status of CPE. Preference will be given to autonomous colleges.

During 2009-10, as many as 149 colleges have been identified under the scheme.

Till date, 246 colleges have been accorded CPE status.

## Special Assistance Programme (SAP)

The main objectives of the Special Assistance Programme (SAP) are:-

- To identify and support university departments that have the potential to undertake quality teaching and research in various educational disciplines including allied disciplines.
- Programme to be relevant to societal needs and have society and industry interaction.
- To make research a catalyst for good teaching and introduction of new courses relating to identified thrust areas.
- To enhance infrastructural facilities to utilize the output of research for the development of the nation and society.
- To train and create quality human resource in the identified thrust areas.
- To search for newer /generic areas, its promotion and nurturing.

## **Academic Staff Colleges**

As many as **66** Academic Staff Colleges (ASC) have been set up in the university system for conducting specially designed **Orientation Programmes of four weeks duration for newly appointed teachers and Refresher Courses of three weeks duration for in-service teachers.**

15 universities and specialized institutions have been identified as UGC-Refresher Course Centres (UGC-RCC).

## Inter University Centres

The UGC establishes autonomous Inter-University Centres within the university system under section 12(ccc) of the UGC Act.

The objectives for setting up these centres are:

- To provide common advanced centralized facilities/services for universities which are not able to invest heavy investment in infrastructure and other inputs.
- To play a vital role in offering the best expertise in each field to teachers and researchers across the country.
- To provide access for research and teaching community to the state-of-the-art equipment and excellent library facilities which are comparable to international standards.

The Nuclear Science Centre at New Delhi (Inter University Accelerated Centre) was the first research centre established in 1994.

As of today, six Inter University Centres are functioning within the university system.

## **Centres of National facilities**

Besides the Inter-University Centres, UGC has also created Centres of National Facilities **for serving as resource centres** which are financed by it.

Four Centres of National Facilities namely,

Western Regional Instrumentation Centre, Mumbai (Maharashtra),

MST Radar Centre, Tirupati (AP),

Indian Institute of Advanced Studies, Shimla (H.P.)

and

Crystal Growth Centre, Anna University, Chennai are functioning at present.

## Faculty Improvement Programme (FIP)

- Enhancing the academic and intellectual environment in the institutions by providing faculty members with enough opportunities to pursue research and also to participate in seminars/conferences/workshops for updating their research and pedagogy skills.
- The main objectives are to provide an opportunity to the teachers of Universities and Colleges to pursue their academic/research activities leading to the award of M.Phil/Ph.D. degree,
- To provide an opportunity to young faculty members to spend a short period of two weeks to two months at institutions of their choice for a better academic exposure.

Permanent teachers who are of not more than 45 years of age with at least a second class Masters degree with minimum of 55% marks and having at least 3 years of teaching experience on the date of submission of the application for the award of teacher fellowship are eligible

## **Bilateral Exchange Programmes**

UGC has been implementing the provisions of Bilateral Exchange Programmes in the field of higher education between India and various other foreign countries.

During 2009-10, UGC had Cultural and Educational Exchange Programmes with **44 countries**. UGC had hosted the visit of **45 foreign scholars** from various countries and arranged for their programmes at different institutions in India.

A total of **85 Indian scholars** had been deputed abroad under different exchange programmes during the reporting period. 15 foreign delegations from **Malawi, Australia, UK, Kuwait, USA, Hungary, Canada, Oman, China, Czechoslovakia and Nepal** have visited UGC for various purposes relating to higher education.

# Research Awards /Projects/ Fellowships/Scholarships

## Major and Minor Research Projects

To promote excellence in research in universities and colleges in all disciplines, UGC provides financial support to permanent teachers whether working or retired. **Research projects may be under taken by an individual teacher or a group of teachers.** Superannuated teachers, up to age of 70 years, can also receive assistance under the scheme. The quantum for assistance for a

Research project is as follows:-

- Major Research Project in Sciences including Engineering and Technology, Medical,Pharmacy, Agriculture etc. - Rs.12.00 lakhs
- Major Research project in Humanities, Social Science, Languages, Literature, Arts, Law and allied disciplines - Rs.10.00 lakhs
- Minor Research Project in any discipline - Rs.2.00 lakh



## **Research Workshops, Seminars and Conferences**

Financial assistance to Universities and Colleges is provided by UGC for organizing programmes such as Research Workshops, Seminars and Conferences, both at the national and international level. UGC also provides financial assistance to Indian National Science Congress, Indian Social Science Congress for the same purpose.

## **Research Fellowships (JRFs) for Foreign Nationals**

## **Junior Research Fellowships (JRFs) for Indian Nationals**

Under this scheme, students / research scholars who have qualified national level tests conducted by the UGC/UGC-CSIR/ SET are awarded fellowships to pursue research leading to M.Phil./ Ph.D. degrees in various disciplines.

The number of JRFs to those who have qualified the National Eligibility Test (NET) has been increased from **500 to 1000** in the case of UGC NET fellowships and

**300 to 600** in the case of CSIR-UGC NET fellowships.

## **Research Fellowships in Sciences for Meritorious Students**

The objective of the scheme is to provide an opportunity to meritorious candidates **to undertake advanced studies and research leading to Ph.D. degrees in Sciences.**

The candidates who have been registered for Ph.D. in Science subjects in Universities with Potential For Excellence (UPE)/ Centres with Potential with Excellence (CPE)/ Centres of Advanced Studies (CAS) and Departments of Special Assistance identified by UGC under the Special Assistance Programme (SAP) are eligible.

## Relevance and Value Based Education Area Studies Programme

The main objectives of the programme are to promote holistic understanding of the area with its cultural, social, economic and strategic specificities

To promote alternative paradigm of area studies from the perspective of post-colonial societies,

To contribute towards Indian perspectives of the region and issues,

To provide critical input to the policy makers particularly in India's economic, strategic and political interest, to bring knowledge of regions of the world to the core of intellectual disciplines, to conduct research to promote inter regional comparative perspective. UGC has been providing financial assistance to 46 Centres in 25 Universities for the above purpose.

# Introduction of Career Oriented Courses in Universities and Colleges

The objective of the scheme is to **introduce career and market-oriented, skill enhancing add-on courses**. At the end of the courses, the students are awarded **Certificate/Diploma/Advanced Diploma** in an **add-on** orientation course along with the conventional degree in Science, Arts and Commerce.

UGC provides financial assistance to the tune of **Rs.7 lakhs per course** as one time Seed Money in the Humanities and Commerce streams and Rs.10 lakhs per course for five years in the science stream.

Such assistance is for a period of 5 years for the conduct of the courses. The Colleges/Universities can be assisted for a maximum of three courses.

## Special Studies on Social Thinkers and Leaders

The scheme is aimed to acquaint teachers and students in universities and colleges with the thoughts and actions of great thinkers and social leaders and to involve them in research studies so that the society is reconstructed based on moral, ethical and spiritual foundations necessary for a non-violent social order. So far, as many as 191 Study Centres have been approved and established. These include:

- Gandhian Studies Centres – 61
- Ambedkar Studies Centres - 55
- Buddhist Studies Centres – 32
- Aurobindo Studies Centres – 6
- Nehru Studies Centres – 28
- Guru Nanak Dev Studies Centres – 3
- Swami Vivekanand Studies Centres – 2
- Dr.Zakir Hussain Studies Centres – 2
- K.R.Narayanan Studies Centres – 1
- Indira Gandhi Studies Centres - 1

## Human Rights Education

The programme of Human Rights Education has three components namely, (a) Human Rights and Duties, (b) Human Rights and Values and (c) Human Rights and Human Development. The objectives of the programme are :

- to humanize and democratize all power relations through restructuring of rights and duties.
- To create awareness and commitment to values where the individualistic self-interest is properly reconciled and the collective and common good.
- To search for universal values in a globalizing but fragmented world .
- To promote and sustain the values like pluralism, respect for all religions,, scientific temper, open mind, public reasoning etc.
- To promote and enforcement of rights and to envision rights approach to development by the States.

The financial assistance is made available for running foundation/certificate/diploma/undergraduate/ post-graduate courses, for conducting seminars/symposia /workshops and also for publication of books and journals on human rights education.

# Integration of Information and Communication Technologies

## Digital Repository in Universities and Colleges

Electronic access to scholarly literature through **internet in all areas of learning** to the University Sector in India is provided under the programme, which is fully funded by the UGC. All Universities which come under the UGC's purview are members of the programme, and the programme is being gradually extended to all eligible colleges as well. The programme is coordinated and executed by **Information and Library Network (INFLIBNET) Centre**, Ahmedabad.

The programme covers all fields of learning relevance to Universities including Arts, Humanities and Social Sciences, Physical and Chemical Sciences, Life Sciences, Computer Sciences, Mathematics and Statistics.

At present, **157 Universities** have been covered under the programme.



## New Initiatives of UGC

### Operation '**Faculty Recharge**' : A UGC Initiative For Augmenting the Research and Teaching Resources of Universities

The intent is to strengthen high quality research in science related disciplines at internationally competitive level and promote innovative teaching in the universities through induction of fresh talent, at all levels of academic hierarchy, in selected departments/centers. The new inductees will be selected through a nationally conducted competitive process and placed as Lecturers/Readers/Professors. To impart distinct identity to these specially selected faculties, a prefix 'UGC' will be added to each of these categories. It is to be ensured that individuals with exceptional creativity, zeal and commitment to research and teaching will be selected.

The 'faculty recharge' initiative offers an effective mechanism to address the problem in some ways and should provide a unique opportunity to the universities aspiring to upgrade and reinvigorate faculty resources in their science related departments.

For implementation, Jawaharlal Nehru University has been selected for setting a Faculty Recharge Cell. The Cell shall identify 40 Professors, 80 Associate Professors and 80 Assistant Professors on all India basis for training.

## **Budget for the year 2009-2010**

The University Grants Commission (UGC) has been allocated the general plan budget of **Rs.3439.95 crores** for the year 2009-2010, which is distributed under the following eight broad sectors of XI Plan.

## **Government Initiatives - (XIth Plan)**

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- Increasing capacity of existing IITs & IIMs by 200%
- Strengthening of existing polytechnics
- 1000 new polytechnics – 300 by State Govt, 300 in PPP mode, 300 by Pvt. Sector.
- 50,000 Skill Development Centres.
- National Education Mission through ICT
- Incentivising State Govt. for expansion / upgradation of existing and new universities/professional institutions.
- Greater public and the private sector interface in Higher and Technical education
- Foreign collaborations, bilateral agreements & opening doors for quality foreign education providers

# 14 WORLD CLASS UNIVERSITIES

Locations has been finalised as under

- |                          |   |               |
|--------------------------|---|---------------|
| 1. Maharashtra           | - | Pune          |
| 2. West Bengal           | - | Kolkata       |
| 3. Tamil Nadu            | - | Coimbatore    |
| 4. Karnataka             | - | Mysore        |
| 5. Andhra Pradesh        | - | Vishakapatnam |
| 6. Gujarat               | - | Gandhinagar   |
| 7. Rajasthan             | - | Jaipur        |
| 8. Bihar                 | - | Patna         |
| 9. Madhya Pradesh        | - | Bhopal        |
| 10. Kerala               | - | Kochi         |
| 11. Punjab               | - | Amritsar      |
| 12. Orissa               | - | Bhubaneshwar  |
| 13. Uttar Pradesh        | - | Greater NOIDA |
| 14. North Eastern Region | - | Guwahati      |

# ESTABLISHMENT OF 370 NEW DEGREE COLLEGES

- 373 districts having GER lower than the national average identified by the UGC.
- Out of 373 districts, 11 districts have lower than 3% GER, 79 districts have GER between 3.1 to 6% and 143 districts have GER between 6.1 to 9%.
- 140 districts have a GER above 9% but below the national average.
- 91 districts proposed to be covered on priority as they have less than 4 colleges per 1 lakh of student population.
- The above 373 districts also have 88 districts having a high minority concentration.

## OTHER MAJOR INITIATIVES PROPOSED IN HIGHER EDUCATION

- A new scheme for incentivising State Govts for expansion and starting of new institutions of Higher Education proposed.
- Under this Centrally Sponsored Scheme, GOI will give one third of the capital cost of establishing new institutions or expansion by the State Govts.
- Rs. 7000 crore provided in XI Plan for this scheme.

# IITs and IISERs

- 7 IITs at present
- XI Plan envisages 8 New IITs
- Three new IITs - in Bihar, AP and Rajasthan
- To set up other 5 IITs in Himachal Pradesh, Orissa, Punjab, Madhya Pradesh and Gujarat.
- State Government is being requested to offer land, free of cost for opening the new IITs.
- Upgrade Engineering College of BHU as IIT.
- States to propose 2/3 alternative locations of 500 to 600 acres of land free of cost with good air, rail and road connectivity.
- IISERs, Pune ,Kolkata, Mohali,Thiruvananthapuram, and Bhopal



# Polytechnics

- Ratio of Diploma to Degree level seats in India – roughly 1:2, while it should be 3:1 or even higher.
- Unlike Engineering Colleges, only about 15 to 20% of Polytechnics in Private Sector.
- XI Plan envisages establishment of one Polytechnic in each of the 200 Districts not having one at present.
- Ministry has proposed at least 1000 Polytechnics in XI Plan
  - 300 in Govt. Sector
  - 300 in PPP
  - 400 in Private Sector

# DETAILS OF THE NEW INSTITUTES PROPOSED TO BE SETUP NORTHERN STATES

State	Higher & Technical Institutes	Educationally Backward Districts	Districts not having any Polytechnic
J & K	1 IIM, 1 CU	11	18
Punjab	1 IIT, 1 IISER, 1 CU, 1 WCCU	13	
Haryana	1 CU, 1 IIM	7	
Himachal Pradesh	1 IIT, 1 CU	4	5
NCT of Delhi	A South Asian Univ under SAARC is likely to come up		3
Uttar Pradesh	1 WCCU, 1 IIT	39	13
Uttarakhand	1 IIM, 1 CU	2	

# DETAILS OF THE NEW INSTITUTES PROPOSED TO BE SETUP WESTERN STATES

State	Higher & Technical Institutes	Educationally Backward Districts	Districts not having any Polytechnic
Rajasthan	1 IIT, 1 NIT, 1 CU, 1 WCCU	30	1
Gujarat	1 IIT, 1 CU, 1 WCCU	20	4
Maharashtra	1 WCCU	7	4
Madhya Pradesh	1 IISER, 1 SPA, 2 CU (incl.1 IGTU), 1 WCCU	39	12
Chhattisgarh	1 CU,1 IIM	15	9
Goa	1 CU		
Dadra & N.H. (UT)	-	1	
Daman & Diu (UT)	-	2	

# DETAILS OF THE NEW INSTITUTES PROPOSED TO BE SETUP SOUTHERN STATES

State	Higher & Technical Institutes	Educationally Backward Districts	Districts not having any Polytechnic
Andhra Pradesh	1 IIT, 1 WCCU	11	
Karnataka	1 CU, 1WCCU	21	
Tamil Nadu	1 IIM, 1 WCCU, 1 CU	27	
Kerala	1 WCCU, 1 NIT (Up grd. of cochin Univ.)	20	
PUDDUCHERY	-	1	
A & N (UT)	-	2	2
L'dweep (UT)	-	1	

# DETAILS OF THE NEW INSTITUTES PROPOSED TO BE SETUP EASTERN STATES

State	Higher & Technical Institutes	Educationally Backward Districts	Districts not having any Polytechnic
BIHAR	1 IIT, 1CU, 1WCCU	25	27
JHARKHAND	1 IIM, 1 CU,	12	11
ORISSA	1 IIT, 1 CU,	18	11
WEST BENGAL	1 WCCU	17	2

**DETAILS OF THE NEW INSTITUTES PROPOSED TO BE  
SETUP  
NORTH - EASTERN STATES**

<b>State</b>	<b>Higher &amp; Technical Institutes</b>	<b>Educationally Backward Districts</b>	<b>Districts not having any Polytechnic</b>
ASSAM	1 WCCU	12	13
MEGHALAYA		5	4
MIZORAM		7	6
MANIPUR			2
TRIPURA		2	3
NAGALAND		1	8
ARUNANCHAL PRADESH		12	14
SIKKIM	-	4	2

# OPEN & DISTANCE LEARNING

## National Education Mission through ICT

- Network each department of 398 university level institutions and each of 18000 colleges through broadband connectivity.
- 100 premier institutions working as Knowledge hubs to be connected with 1 Gbps bandwidth.
- Make available high quality e-text books, e-reference books, e-research papers and e-content in different languages from KG to PG, free of cost to genuine learners.
- State Governments to share 30% of the cost of providing broadband connectivity.

# MHRD

Dept. of Higher Education

UGC

AICTE

ICAR

Dental Council of India

Bar Council of India

NCTE

Central Council of  
Homeopathy

MCI

Rehabilitation Council  
of India

Indian Nursing Council

PCI

Council of Architecture

Central Council for  
Indian Medicine

Distance Education  
Council

State Councils of  
Higher Education



# National Assessment and Accreditation Council (NAAC)

- National Assessment and Accreditation Council (NAAC) is an autonomous institutions established by the University Grants Commission in 1994 NAAC's responsibility is to **assess and accredit institutions of higher education** that volunteer for the process, based on prescribed certain criteria.
- NAAC's process of assessment and accreditation involves the preparation of a self -study report by the institution, its **validation** by the peers and final decision by the Council.
- **122 universities and 2486 colleges/ institutions have been accredited** by NAAC so far.

# Role of Central Government in Education

- **Central Government** is responsible for major policy relating to higher education in the country.
- It provides grants to the UGC and establishes central universities in the country.
- Presently there are 40 Central Universities in the country.
- The Central Government is also responsible for declaration of Educational Institutions as 'Deemed to be University' on the recommendation of the UGC.
- There are 130 Institutions which have been declared as Deemed to be Universities by the Govt. of India as per Section of the UGC Act, 1956.

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# Role of State Governments in Education

- **State Governments** are responsible for establishment of **State Universities(296) and colleges**, and provide plan grants for their development and non-plan grants for their maintenance.
- The **Central Advisory Board of Education (CABE)** is created for coordination and cooperation between the Union and the States
- Special Constitutional responsibility of the Central Government: The Constitution gives exclusive Legislative Power to the Central Govt. for co-ordination and determination of standards in Institutions of higher education or research and scientific and technical institutions.

# Inter University Centers (IUCs)

- Nuclear Science Centre, New Delhi - Accelerator oriented research
- IUC for Astronomy and Astrophysics, Pune -State-of-the-art instrumentation for Astrophysics
- Inter – University Consortium for DAE facilities, Indore -Use of facilities of Department of Atomic Energy
- Information and Library Network (INFLIBNET) Ahmedabad - Networking of libraries through electronic media
- Consortium for Educational Communication (CEC) New Delhi -To disseminate Countrywide program through television
- National Assessment & Accreditation Council (NACC) Bangalore - To assess and accredit public & Private institutions of higher learning

# New Initiatives

- **Vocationalization at the First Degree Level**

Under the scheme, a university / college could introduce one to three vocational courses in **35** identified subjects.

- **Autonomous Colleges**

**138** colleges have been functioning as autonomous colleges in eight states in the country.

- **National Eligibility Test (NET)** is being conducted by the UGC since 1989 for eligibility for lectureship. Eight State level Tests have been accredited at par with NET.

# Indian Institutes of Management

- The Indian Institutes of Management (IIMs), established by the Government of India, are the ace business schools in the country
- The IIMs located at Ahmedabad, Calcutta, Bangalore, Lucknow, Indore and Kozhikode (Calicut) are institutions of excellence.
- The IIM, Calicut commenced its academic session from 1997-98, the IIM, Indore began its academic programme from 1998-99, a new one is coming up at Shillong soon.
- The IIMs conduct Post-Graduate Diploma Programmes in Management (equivalent to MBA), Fellowship Programmes in Management Development and Organisation-based Programmes as well as carry out research and consultancy for the industry.

# Indian Institutes of Technology

- The Indian Institutes of Technology (IITs) need no introduction either in India or abroad.
- The Institutes were set up by the Government of India as '**Institutions of National Importance**' and almost all reputed international academic benchmarks have given them high rating.
- They teach technology at UG, PG and doctoral level and carry out basic and applied research in pure and applied sciences.
- The IITs are funded by the Ministry of Human Resource Development and their policy matters are decided by a nodal monitoring body headed by the Minister for Human Resource Development.
- There are 7 IITs located at Bombay, Delhi, Kanpur, Kharagpur, Madras, Guwahati --- and Roorkee.

# National Institutes of Technology

- **17** Regional Engineering Colleges (RECs) were established from 1959 onwards in each of the major states with Center-State co-operation with major Central govt. funding
- While all the 17 colleges offer degree courses in various branches of engineering and technology, 14 have facilities for postgraduate and doctoral programs.
- The Ministry of Human Resource Development (MHRD) has converted the RECs (13 out of 17) into NITs by changing their administrative structure and granting them Deem University status.



# Few trends

- American Interest in **Indian Education is growing rapidly**
- American universities, while expanding their global reach, **want to explore the potential in the fast growing Indian education market.**
- There is also an urgent need in India to meet the **rising demand for higher education.**
- Since the law in India is still vague on how foreign educational institutions can operate, foreign Universities are cautious in their approach
- Most American institutions are opting to join hands with existing Indian institutions

## Few trends cont....

- Lots of bilateral cooperation has been established between premier management institutes in India and USA.
- There is also trend to teach American MBA students courses on doing business in India
- There were 131 foreign educational institutions operating in India in 2005, most of them offering vocational courses.
- California State University
- Carnegie Mellon University
- Cornell University
- Kellogg School of Management
- Rice University
- Saint Joseph's University
- Temple University
- The Wharton School

# Frontier areas and developments

Significant achievements have been made in the areas of nuclear and space science, electronics and defence.

The government is committed to making S&T an integral part of the socio-economic development of the country. India has the **third largest scientific and technical manpower in the world**; the Council of Scientific and Industrial Research runs 40 research laboratories that have made some **significant achievements**.

In the field of **Missile Launch** Technology, India is among the **top five** nations of the world.

## **Atomic Energy**

India's nuclear energy programme is the development and use of nuclear energy for peaceful purposes such as power generation, applications in agriculture, medicine, industry, research and other areas. The country is self-reliant and has mastered the expertise covering the complete nuclear cycle from exploration and mining to power generation and waste management. Accelerators and research and power reactors are now designed and built indigenously. The sophisticated variable energy cyclotron at Kolkata and a medium-energy heavy ion accelerator 'pelletron' set up recently at Mumbai are national research facilities in the frontier areas of science.

Currently eight nuclear stations are producing eight billion kilowatt of electricity. Four more nuclear power stations are planned. The new nuclear reactors are designed in India. The peaceful nuclear programme also includes producing radioisotopes for use in agriculture, medicine, industry and research.

## Space

The Indian Space Research Organisation (ISRO), under the Department of Space (DOS), is responsible for research, development and operationalisation of space systems in the areas of satellite communications, remote sensing for resource survey, environmental monitoring, meteorological services, etc. DOS is also the nodal agency for the Physical Research Laboratory, which conducts research in the areas of space science, and the National Remote Sensing Agency, which deploys modern remote-sensing techniques for natural resource surveys and provides operational services to user agencies. India is the **only Third World Country** to develop its own remote-sensing satellite.

## Electronics

Application of electronics in areas such as agriculture, health and service sectors has also been receiving special attention. For upgrading the quality of indigenously manufactured products, a series of test and development centers and regional laboratories have been set up. These centers for electronic design and technology help small and medium electronics units. A number of R&D projects have been initiated to meet the growing requirements of the industry

## Ocean Technology

India has sent 13 scientific research expeditions to Antarctica since 1981, and has established a permanently manned base, **Dakshin Gangotri**. A second permanent station, an entirely indigenous effort, was completed by the eighth expedition. The objective is to study the **ozone layer** and other important constituents, optical aurora, geomagnetic pulsation and related phenomena. By virtue of its scientific research activities, India acquired Consultative Membership of the Antarctic Treaty in 1983 and acceded to the Convention on the Conservation of Antarctic Marine Living Resources in July 1985. India is also a member of the Scientific Committee on Antarctic Research, and has played a significant role in adopting a Minerals Regime for Antarctica in June 1988.

A National Institute of Ocean Technology was set up for the development of ocean-related technologies. It is also responsible for harnessing resources of the coastal belts and islands.

# Biotechnology

A Department of Biotechnology was created in 1986. Recently, the Biotechnology Consortium India Ltd. was set up. It will play the role of a catalyst in bridging the gap between research and development, industrial and financial institutions. Some of the new initiatives taken include developing techniques for gene mapping, conservation of biodiversity and bio-indicators research, special biotechnology programmes for the benefit of the scheduled castes and scheduled tribes and activities in the area of plantation crops.

The areas which have been receiving attention are cattle herd improvement through embryo transfer technology, in vitro propagation of disease resistant plant varieties for obtaining higher yields, and development of vaccines for various diseases.

## **Council of Scientific and Industrial Research (CSIR)**

CSIR was established in 1942, and is today the premier institution for scientific and industrial research. It has a network of 40 laboratories, two cooperative industrial research institutions and more than 100 extension and field centers. The council's research programmes are directed towards effective utilisation of the country's natural resources and development of new processes and products for economic progress. It is now playing a leading role in the fulfillment of the technology missions evolved by the Government

### **Drinking Water**

A Technology Mission on Drinking Water and Related Water Management has been constituted to cover the residual problem villages and provide potable water at 40 liters per capita per day, and 70 liters per capita per day in desert areas inclusive of 30 liters for cattle. The mission is tackling the problem through 55 mini-missions in project districts and countrywide problem-oriented sub-missions. A Village Level Operation and Maintenance (VLOM) pump called India Mark-II has been developed and is being exported to 40 countries.

# Irrigation

To carry improved technologies to farmers, a National Pulse Development Programme, covering 13 states, was launched in 1986. Efforts to boost pulse production were augmented further by the Special Food Production Programme. In 2001-02, pulse production was 13.52 million tonnes. With some states offering more than the statutory minimum price, sugar cane production also received a boost, and in 2001-02 a record 292.2 million tonnes was registered. As efforts continued to increase the irrigation potential in the country, the last 40 years saw the gross irrigated area reach 85 million hectares. Flood forecasting has become an important activity over the years. Over 500 hydrological stations collect and transmit data through 400 wireless stations for issuing forecasts for 157 sites. About 5,000 forecasts are issued in a year with 94 percent accuracy. The country also receives international support, with the World Bank as a primary source, for developing its water resources. International cooperation is also envisaged in setting up a National Centre for Information on Water and Power. As there is a broad seismic belt in the country, particularly along the Himalayan, and the Kutch region and parts of Maharashtra, a scheme is being evolved to collect all data on seismic activity at various dam sites.



## Fisheries

Fish production achieved an all-time high of 5.6 million tonnes at the end of 2001-02. Programmes that have helped boost production include the National Programme of Developing Fish Seeds, Fish Farmers' Development Agencies and Brackish Water Fish Farmers' Development Agencies. The Central Institute of Fisheries Nautical and Engineering Training trains the necessary manpower. To diversify fishing methods and introduce processed fish products on a semi-commercial scale, an Integrated Fisheries Project has been launched. A National Fisheries Advisory Board has also been established.

## Food processing industry

A new seeds policy has been adopted to provide access to high-quality seeds and plant material for vegetables, fruit, flowers, oilseeds and pulses, without in any way compromising quarantine conditions. Initiatives have been taken to encourage private sector investment in the food processing industry.



