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TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME OF GOVERNMENT OF INDIA

WORKING DOCUMENT FOR STATES AND INSTITUTIONS

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ABBREVIATIONS

ACA	ADDITIONAL CENTRAL ASSISTANCE
AEC	ATOMIC ENERGY COMMISSION
AG	ACCOUNTANT GENERAL
AICTE	ALL INDIAN COUNCIL FOR TECHNICAL EDUCATION
ASSOCHAM	ASSOCIATED CHAMBERS OF COMMERCE
BARC	BHABHA ATOMIC RESEARCH CENTRE
BHU	BANARAS HINDU UNVERSITY
BOG	BOARD OF GOVERNORS
BTE	BUREAU OF TECHNICAL EDUCATION
CAA&A	CONTROLLER OF AID ACCOUNTS & AUDIT
CAPART	COUNCIL FOR ADVANCEMENT OF PEOPLE'S ACTION & RURAL TECHNOLOGY
CII	CONFEDERATION OF INDIAN INDUSTRY
CPA	CENTRAL PROJECT ADVISOR
CSIR	COUNCIL FOR SCIENTIFIC & INDUSTRIAL RESEARCH
DEA	DEPARTMENT OF ECONOMIC AFFAIRS
DGS&D	DIRECTORATE GENERAL OF SUPPLIES & DISPOSALS
DOE	DEPARTMENT OF EXPENDITURE
DRDO	DEFENCE RESEARCH DEVELOPMENT ORGANISATION
DST	DEPARTMENT OF SCIENCE & TECHNOLOGY
DTE	DIRECTORATE OF TECHNICAL EDUCATION
EMIS	EDUCATIONAL MANAGEMENT INFORMATION SYSTEM
FICCI	FEDERATION OF INDIAN CHAMBER OF COMMERCE & INDUSTRY
GDP	GROSS DOMESTIC PRODUCT
GOI	GOVERNMENT OF INDIA
HRD	HUMAN RESOURCE DEVELOPMENT
IAMR	INSTITUTE OF APPLIED MANPOWER RESEARCH
ICAR	INDIAN COUNCIL FOR AGRICULTURAL RESEARCH
IIIT	INDIAN INSTITUTE OF INFORMATION TECHNOLOGY
IIITM	INDIAN INSTITUTE OF INFORMATION TECHNOLOGY & MANAGEMENT
IIM	INDIAN INSTITUTE OF MANAGEMENT
IISc	INDIAN INSTITUTE OF SCIENCE
IIT	INDIAN INSTITUTE OF TECHNOLOGY
IRG	INTERNAL REVENUE GENERATION
ISRO	INDIAN SPACE RESEARCH ORGANISATION
IT	INFORMATION TECHNOLOGY
ITC	INTERFACE TRAINING CENTRES
LIPMU	LEAD INSTITUTION PROJECT MANAGEMENT UNIT
LRDC	LEARNING RESOURCE DEVELOPMENT CENTRE
LRUC	LEARNING RESOURCE UTILISATION CENTRE
MHRD	MINISTRY OF HUMAN RESOURCES DEVELOPMENT
MIS	MANAGEMENT INFORMATION SYSTEM
MOF	MINISTRY OF FINANCE
MOU	MEMORANDUM OF UNDERSTANDING
NBA	NATIONAL BOARD FOR ACCREDITATION
NERIST	NORTH EASTERN INSTITUTE OF SCIENCE & TECHNOLOGY
NESCOM	NATIONAL ASSOCIATION OF SOFTWARE & SERVICES COMPANIES
NGO	NON-GOVERNMENT ORGANISATION
NI	NETWORK INSTITUTION
NIFFT	NATIONAL INSTITUTE OF FOUNDRY & FORGING TECHNOLOGY
NIPMU	NETWORK INSTITUTION PROJECT MANAGEMENT UNIT

NIT	NATIONAL INSTITUTE OF TECHNOLOGY
NITIE	NATIONAL INSTITUTE OF TRAINING IN INDUSTRIAL ENGINEERING
NPD	NATIONAL PROJECT DIRECTOR
NPE	NATIONAL POLICY OF EDUCATION
NPIU	NATIONAL PROJECT IMPLEMENTATION UNIT
NSC	NATIONAL SELECTION COMMITTEE
NTMIS	NATIONAL TECHNICAL MANPOWER INFORMATION SYSTEM
PFMS	PROJECT FINANCIAL MANAGEMENT SYSTEM
PHD	DOCTOR OF PHILOSOPHY
PMIS	PROJECT MANAGEMENT INFORMATION SYSTEM
PMR	PROJECT MANAGEMENT REPORT
PMU	PROJECT MANAGEMENT UNIT
PWD	PUBLIC WORKS DEPARTMENT
QA	QUALITY ASSURANCE
QA&M	QUALITY ASSURANCE & MONITORING
QIP	QUALITY IMPROVEMENT PROGRAM
R&D	RESEARCH & DEVELOPMENT
RBI	RESERVE BANK OF INDIA
RECs	REGIONAL ENGINEERING COLLEGE
SLIET	SANT LONGOWAL INSTITUTE OF ENGINEERING TECHNOLOGY
SPA	SCHOOL OF PLANNING & ARCHITECTURE
SPFU	STATE PROJECT FACILITATION UNIT
SSC	STATE SCREENING COMMITTEE
SWOT	STRENGTHS WEAKNESSES OPPORTUNITIES THREATS
TAPTEC	THRUST AREA PROGRAMS IN TECHNICAL EDUCATION
TIFAC	TECHNOLOGY INFORMATION FORECASTING & ASSESSMENT COUNCIL
TQM	TOTAL QUALITY MANAGEMENT
TTTI	TECHNICAL TEACHERS TRAINING INSTITUTE
UGC	UNIVERSITY GRANTS COMMISSION
UT	UNION TERRITORY

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CHAPTER-1

TECHNICAL EDUCATION IN INDIA: AN OVERVIEW

1.1 THE PRESENT SYSTEM

1.1.1 Since Independence in 1947, the technical education system has grown into a fairly large-sized system, offering opportunities for education and training in a wide variety of trades and disciplines at certificate, diploma, degree, postgraduate degree and doctoral levels in institutions located throughout the country. Even though the system boasts of institutions comparable to the best in the world, quality of education offered in the majority of institutions leaves much to be desired.

1.1.2 In the year 1947-48, the country had 38-degree level institutions with intake capacity of 2500; and 53 diploma level institutions with intake capacity of 3670. The intake for postgraduates was 70.

1.1.3 There was rapid expansion of the system in the next 20 years. By 1967-68, the number of degree level institutions had increased to 137 with intake capacity of 25,000; and for diploma to 284 institutions with intake capacity of 47,000.

1.1.4 In the next 10 years (in 1977), the system capacity increased only marginally to admit 30,000 students for degree courses, 60,000 for diploma courses and 6,000 for postgraduate courses.

1.1.5 The system capacity increased very rapidly in the next 20 years, with the major role being played by the private sector. The system by 1997 had 547 degree institutions with admission capacity of about 131,000; and 1100 diploma institutions with admission capacity of about 184,000. Admission capacity for postgraduate courses had been increased to 16,900. Out turn of PhDs were about 370 annually.

1.1.6 In the year 2000, the total size of the system had increased to 4146 institutions with approved intake capacity of 544,660. These include 838 engineering degree institutions with admission capacity of 232,000 students; and 1224 engineering diploma institutions with admission capacity of 188,000. Approximately, two-thirds of these institutions were in the private sector. Postgraduate education was being offered in 246 institutions with admission capacity of 21,460.

1.2 INSTITUTIONS OF IMPORTANCE

1.2.1 The States and Union Territories have played an important role in the development of technical education by establishing a large number of fully funded and aided technical institutions and by providing adequate policy support.

1.2.2 At the apex of the technical education system in India are the seven Indian Institutes of Technology (IITs) located at Mumbai, Delhi, Kanpur, Kharagpur, Chennai, Guwahati and Roorkee, established with the objective of imparting world-class education. These have been established by the Bureau of Technical Education (BTE) of GOI and are directly funded by it.

1.2.3 The IISc Bangalore was established to offer postgraduate education and to conduct research in various areas of basic sciences, engineering and technology. It is yet another world-class institution and is directly funded by the BTE.

1.2.4 The Indian Institutes of Management (IIMs) located in six cities (Ahmedabad, Bangalore, Calicut, Kolkata, Indore and Lucknow) are institutions of excellence established by the BTE with the objective of imparting high quality management education and training, conducting research and providing consultancy services in the field of management to various sectors of the Indian economy.

1.2.5 In the second tier are the 17 Regional Engineering Colleges (RECs). These have been established, one each in the major States, to meet the growing requirement of trained technical manpower for various developmental projects. On the basis of the recommendations of a High Powered Review Committee, GOI has renamed 7 RECs (Allahabad, Bhopal, Calicut, Jaipur, Nagpur, Rourkela and Silchar) as National Institutes of Technology (NIT) and declared them as deemed universities for ensuring high standards of education and research in these colleges on the pattern of IITs.

1.2.6 Over the years, the BTE has also established several other institutes for imparting quality education and conducting research in specialised areas. These include the Indian Institute of Information Technology (IIIT) at Allahabad; Indian Institute of Information Technology & Management (IIITM) at Gwalior; National Institute for Training in Industrial Engineering (NITIE) at Mumbai; National Institute of Foundry & Forge Technology (NIFFT) at Ranchi; Indian School of Mines at Dhanbad; Sant Longowal Institute of Engineering & Technology (SLIET) at Longowal; North-Eastern Institute of Science & Technology (NERIST) at Itanagar; School of Planning & Architecture (SPA) at New Delhi; and 4 Technical Teachers' Training Institutes (TTTIs) at Kolkata, Chennai, Bhopal and Chandigarh.

1.2.7 In addition to the above, there are a number of universities and deemed universities that have earned a name for themselves. These include Anna University in Chennai; Jadavpur University in Kolkata; Bengal Engineering College at Sibpur; Birla Institute of Technology at Pilani; Birla Institute of Technology & Science at Ranchi; Thapar Institute of Engineering & Technology, Patalia; Institute of Technology of BHU at Varanasi; Punjab Engineering College at Chandigarh; and Pune Engineering College at Pune.

1.3 ROLE OF AICTE IN DEVELOPMENT OF TECHNICAL EDUCATION

1.3.1 During post-war period, the Central Advisory Board of Education recommended that technical education be planned on All-India basis to ensure uniform and speedy growth for bringing about the necessary industrial development. Based on this recommendation, the All India Council for Technical Education (AICTE) was established in 1945 as an advisory body to survey the facilities for technical education in the country and to promote development in the field through a co-ordinated and integrated approach.

1.3.2 Till the 3rd Five-Year Plan, the AICTE had been very effective in playing its assigned roles and its recommendations were valued by both the central and state governments. During 1968, when it was noted that a large number of engineering graduates and diploma holders were unemployed due to a recession in industry and saturation in several development schemes, the AICTE decided to reduce intakes in the year 1968-69 from 25,000 to 18,000 at degree level and from 50,000 to 27,000 at diploma level. The position was reviewed in 1972, and in view of the anticipated demands, the admissions capacities were gradually restored to their earlier levels; the restoration was completed by 1976. The position was further reviewed in 1977 by a Working Group. The Group's recommendations, endorsed by the AICTE, stated that: (i) the then prevailing levels of annual admissions (6,000 to postgraduate courses, 25,000 to degree courses and 50,000 to diploma courses) were adequate to meet the likely demand up to 1987 and were therefore to be maintained; (ii) new technical education institutions and new courses should be started only on the basis of well-defined and well-established needs, (iii) the additional supply of technical manpower be met by improving efficiency and effectiveness of educational processes, and (iv) shifts and adjustments in the intake in various disciplines be made to cater to the emerging manpower requirements within the overall approved intake capacity.

1.3.3 Notwithstanding the above recommendations, some of the State Governments went on expanding technical education facilities, mainly in response to local aspirations and not always to meet any well-defined or well-established needs. The funding to States for technical education up to the Third Plan was based on specific AICTE recommendations. With change from the Fourth Plan onwards in the funding pattern of States to Block Grant, large number of private technical education institutions were permitted to be

established by the State Governments who paid scant regard to quality and standards. Government funded institutions started to suffer due to insufficient grants.

1.3.4 Concerned with the situation of unplanned growth in the number of institutions and declining standards in general, the character of AICTE was changed (through an Act of Parliament) from advisory to statutory. Among other functions and authority, it was vested with the authority to lay down norms and standards and to enforce the same; to promote quality; and to regulate the size of the technical education system based on well-established national needs.

1.4 MAJOR ISSUES IN TECHNICAL EDUCATION

1.4.1 Despite the efforts of the MHRD in implementing the National Policy on Education-1986 (revised 1992) and of the AICTE in regulating the technical education system and ensuring quality, several weaknesses have occurred in the system. Some of these are:

a) Due to multiple controls on the system, most institutions lack authority in matters of faculty appointments, student admissions, structure and content of programmes, student evaluation, and financial management;
b) Resource constraint combined with low resources utilisation efficiency;
c) Wastage of available resources in the form of high dropout and failure rates;
d) Poor quality and relevance of programme offerings due to infrequent revision of curricula; delays in the conduct of examinations and declaration of results; and
e) Low quality of teachers and severe teacher shortages in areas critical for enhancing economic competitiveness (an AICTE estimate puts the total teacher shortage at 4500 during the year 2000, and this figure is likely to increase to 5000 unless schemes are devised to induct industry personnel for teaching and a larger number of postgraduates join the teaching profession).

1.4.2 The informal sector forms an important component of Indian economy. Selected polytechnics are being provided with central assistance by the BTE to develop trained manpower in the informal sector of the economy and the local community. However, the ongoing efforts are not adequate to meet the requirements of the informal sector and the community.

1.5 GOI AND AICTE INITIATIVES FOR IMPROVING QUALITY OF TECHNICAL EDUCATION

1.5.1 For promoting quality in technical education, the AICTE has set up and activated several Boards of Studies and a National Board of Accreditation. Of the approximately 12,000 programmes in technical education (about 6,000 in engineering), about 500 have already been accredited. As accreditation is not mandatory at the present, not too many institutions are seeking accreditation. To increase the number of accreditation seekers, NBA has suggested certain disincentives for non-accredited programmes and institutions.

1.5.2 There are also at present several schemes that relate to quality improvement in technical education. These are:

- Quality Improvement Programme (QIP) for teachers
- Early Faculty Induction Programme
- Career Award and Doctoral Fellowships
- Emeritus Fellowship
- Visiting Professorship
- Seminar Grant
- R&D Grant
- TAPTEC
- Industry-Institute Interaction
- Grants for short-term courses (Summer and Winter School)
- Grants for establishing NANCE and QIP centres
- Technology Development Missions (Brief mentioned in **Annex 1.1**)
- Modernisation and Removal of Obsolescence

- Apprenticeship Training
- Programme for HRD in Information Technology
- Strengthening Postgraduate Education in Engineering and Technology

1.5.3 Professional bodies like Institution of Engineers, Institution of Electronics & Telecommunication Engineers, Institution of Mechanical Engineers; Council of Architecture, All India Management Association and Indian Society for Technical Education are also engaged in various ways in the development of quality technical education in the country.

1.5.4 For studying and improving the functioning of various institutions and programmes and critical examination of key system issues, GOI had set up various committees from time to time. Some of the reports of such committees set up in the recent past are:

a) Report of National Appraisal Committee on Scheme of Community Polytechnics (1996)
b) Mashelkar Committee Report on Regional Engineering Colleges (1998)
c) Rama Rao Committee Report on Post Graduate Education in Engineering and Technology (1998)
d) Swaminadhan Committee Report on Mobilisation of Additional Resources for Technical Education
e) India 2020 – a Vision for the New Millennium based on TIFAC Reports (1998)
f) National Policy Initiative in Technical Education (1998)
g) Indiresan Committee Report on Technical Teachers' Training Institutes (2000)
h) Policy Guidelines for Training Teachers of Polytechnics and Engineering Colleges (2000)
i) IT Advisory Committee Recommendations for Upgrading REC's to the Level of IIT's (2000)
j) Raju Committee Report on Networking of Engineering Institutions (2001)

1.5.5 An overview of the various GOI policies and the vision envisaged in Five Year Plans and recommendations of the various committees set up by GOI to improve the Science & Technology sector in the country are given in **Annex 1.1.**

1.5.6 During 1980s, Government of India (GOI) and the State Governments had felt an urgent need for revamping the technician education system in the country to make it demand-driven, with relevant courses in new and emerging technologies, with adequate infrastructure resources, competent faculty and effective teaching-learning processes. The GOI supported the State Governments through two World Bank assisted Technician Education Programmes, which helped to upgrade the system and benefited 531 polytechnics in 19 States and the UT of Pondicherry.

1.5.7 An expert group set up by MHRD in 1998 on Policy Initiatives for Technician Education recommended that due to rapid development in technology, significant and qualitative change in the requirement of technician engineering manpower has occurred. It can no longer be classified as a single type of position between craftsmen and engineers, as technicians are required to occupy multiple level positions to perform and manage activities on the shop floor and in the field.

1.5.8 A third Technician Education Programme is currently under execution. With World Bank assistance, in the States that had not been included in the earlier two projects.

1.5.9 The success of these projects has encouraged the GOI and the State Governments to seek similar external assistance for systemic transformation of the technical education system as a whole with primary focus on engineering education.

1.6 PLAN FOR EXPANSION AND QUALITY IMPROVEMENT

1.6.1 The AICTE has projected an increasing requirement for institutions and admission capacity over the next 15 years as given in Table-1.1 below:

Table- 1.1
Programmed Requirement of Engineering Institutions and Admission Capacity

Programmed Number of Institutions and Intake		2000	2005	2010	2015
Engineering Degree	Number of Institutions	838	1000	1200	1400
	Annual Intake	232,229	320,000	400,000	500,00
Engineering Diploma	Number of Institutions	1224	1300	1350	1400
	Annual Intake	188,300	225,000	255,000	290,000

1.6.2 To ensure quality in both the existing and the expanded technical education system, the National Board for Accreditation (NBA) has developed a scheme for accreditation of all existing and future programmes (**Table- 1.2**), and has in this regard suggested several incentives to encourage institutions to seek accreditation. It has also suggested to make accreditation compulsory.

Table- 1.2

Targets for Accrediting Technical Education Programmes

2000-01	2005	2010	2015
600 programmes	+ 15,000 programmes and monitoring of accredited programmes	+ 20,000 programmes and monitoring of accredited programmes	+ 25,000 programmes and monitoring of accredited programmes

1.6.3 To remove the existing weaknesses from the system, and to improve educational standards in all engineering education institutions, the GOI has developed a medium-term Programme for transforming the system by supporting institutions that are ready to undergo deep academic and non-academic reforms and to share their special characteristics with other institutions in network mode. The Programme envisages that over a period of time, all institutions would benefit through networking with better institutions and would institutionalise the improved academic and management practices.

1.6.4 The proposed Programme is described in detail in this document along with the methodology for its implementation.

CHAPTER 2

VISION, MISSION, AND OBJECTIVES FOR TECHNICAL EDUCATION

2.1 The Technical Education System in India has grown to covering more than 4000 institutions with an intake capacity of more than 500,000 students per year and offering courses at the diploma, graduate and post-graduate levels in most branches of engineering and technology, architecture, pharmacy, computer applications, and management. The ready employability of engineering graduates particularly in the areas of Computer Science & Engineering, Electronics & Communication Engineering, and Information Technology in the last few years have led to a large scale expansion of educational and training facilities in areas having both current and potential large demand.

2.2 The quality of education and training being imparted in the technical education institutions varies from excellent to poor, with some institutions comparing favorably with the best in the world and others suffering from different degrees of faculty shortages; infrastructure deficiencies; curricula obsolescence; lack of autonomy in academic, financial, administrative, and managerial matters; poor involvement in knowledge creation and dissemination, and poor interaction with community and economy.

2.3 Recognizing that skilled manpower of high quality can play a major role in economic development and in export of technology and services, and observing the growing demand for Indian professionals particularly in the area of software engineering in all parts of the globe including the highly developed countries, the GOI has decided to give very high priority to human resource development in engineering and technology.

2.4 To meet the aspirations of the people; the technical education planners have formulated the following Vision Statement:

"To develop and nurture a Technical Education System in the country which would produce skilled manpower of the highest quality comparable to the very best in the world and in adequate numbers to meet the complex technological needs of the economy; and would provide the nation a comparative advantage in the creation and propagation of innovative technological solutions and in the development of a technological capacity of the highest order, both for its application in economic development of the country and for becoming a major supplier of technology and technological services in the world".

The above vision statement is in perfect harmony with the India 2020:a Vision for the New Millennium, a document prepared by Technology Information Forecasting & Assessment Council and released to the nation by the Prime Minister on August 2,1996.

The Vision Statement has the following six main components:

a) To produce skilled manpower in sufficient numbers to meet the needs of the economy,
b) To ensure the highest quality of output from the technical education system comparable to the very best in the world,
c) To develop a comparative advantage in the creation and propagation of innovative technological solutions,
d) To develop national technological capacity of the highest order,
e) To use innovative technological solutions and technological capacity for economic development, and
f) To become a major supplier of technology and technological services in the world.

2.5 The above components of the Vision Statement could be converted into the following Mission /Goals:

a) To establish institutional mechanisms for ensuring proper linkages between the planning of technical education facilities and the market demand so that the system becomes demand-driven and meets the needs of the economy.
b) To increase gradually the number of institutions producing output of internationally accepted levels of quality.
c) To create an enabling environment that would encourage and support institutions' strife for excellence in the direction of their own strength and vision so that over a period of time they all reach international levels of quality.
d) To assist all institutions in overcoming deficiencies in infrastructure, teacher-competence, teaching-learning processes, and management so as to enable them to produce graduates at accepted levels of competence in knowledge, skills and attitudes.
e) To promote technological capacity building through technology innovation, research, design & development, and through active collaboration of all engineering institutions with Industry, and R&D organizations.
f) To develop quality manpower in areas of high international demand to give India a comparative advantage in international trading of services,
g) To promote optimal utilization of human and physical resources in the technical education system through networking of institutions.
h) To develop strong linkages between technical institutions and the community, including both formal and informal sectors of the economy, to promote a high rate of economic and technological growth.
i) To take affirmative action for increasing access of women, physically challenged, and economically deprived sections of society to technical education at all levels.
j) To make the teaching profession attractive so as to attract and retain manpower of high attainments in the profession.
k) To encourage private investment in establishing technical institutions of high quality in areas of high national and international demand.
l) To develop alternative modes of delivery including the distance mode, and computer-assisted and web-based learning systems to offer opportunities of skill and knowledge upgradation to students, working professionals, and all those who can benefit from such delivery systems.

The above mission statements are in conformity with the AICTE Mission statements given in the Technical Education Vision 2000-2015

2.6 Based on the Vision and Mission statements given above, one can now list the operational objectives for development of technical education system over the next decade. These include:

a) Setting up an Educational Information Management System for estimating skilled manpower requirements at all levels of expertise both for the Indian economy, and for giving India a comparative advantage in international trading of services.
b) Developing mechanisms to make available labor market signals of national and international business, and manpower demand data on-line to interested stake holders such as policy planners, government agencies, industry, parents, and students.
c) Developing inherent capacity in all engineering and technology institutions to chart their own plans for achieving excellence, based on their own strengths and their own perceived rate of implementation.
d) Identifying institutions that are performing creditably in education and training as well as in research and development and assisting them to become centers of excellence.
e) Promoting optimal utilization of human and physical resources by creating networks of institutions and permitting them to plan their growth on a joint cooperative basis thus enabling benefits of development initiatives to reach a large number of institutions.

f) Developing/strengthening quality assurance mechanisms at institutional, state and national levels so that only programmes of education and training which meet the desired quality are allowed to continue to be offered.

g) Strengthening the National Board of Accreditation of the AICTE for enabling it to complete accreditation of all existing programmes at an early date, to monitor quality of educational offerings on a regular basis and, to foster a culture of quality in the delivery of educational and training programmes.

h) Establishing policy framework to enable institutions of all types (government funded, government-aided, and private unaided) to enjoy academic, financial, administrative, and managerial autonomy as a means to achievement of higher levels of academic attainment, subject to guaranteed accountability for their actions and the quality of their output.

i) Promoting close interaction of institutions with local, national, and international industry through offer of consultancy and continuing education programmes for skill enhancement of existing employees, and the latter's assistance in curricula planning, training of students and teachers in industry, joint research and technology development programmes, and bringing industrial experience to the classroom.

j) Promoting active involvement with the informal sector of the economy in transfer of technology, enhancement of skills, and improvement of productivity.

k) Encouraging institutions to offer services to the community in the form of training of unemployed youth and adults in employable skills, and upgrading their technological services.

l) Identifying institutions and a group of experts to prepare web-based learning material and making them accessible to all who need them through Internet, both within and outside the country.

m) Expanding distance education and computer-assisted learning strategies and using them for upgradation of teaching competence, professional competence of industrial employees, and helping Indian industry to develop a high level of technological capacity.

n) Helping Indian Industry to compete in the global market place in offering of technology and services.

o) Introducing teaching and training programmes in selected institutions in areas of high current and potential demand such as information technology, bio-technology, materials engineering, nano-electronics, etc. for making India a reservoir and a leading supplier of technological skills.

p) Attracting students and scholars in large numbers from abroad on the reputation of providing quality education at reasonable costs.

2.7 The fulfillment of the wide-ranging objectives would need careful planning over a long period of time with regular monitoring to match achievements with the goals set up. As a first step the following could be given priority:

a) To increase gradually the number of technical institutions producing outputs of internationally accepted levels of quality,

b) To promote optimal utilisation of human and physical resources in the technical education system through networking of institutions and helping the network clusters to enhance the quality of education and training being imparted,

c) To establish policy framework to enable institutions to enjoy full autonomy as a tool for achieving excellence with guaranteed accountability for their actions,

d) To strengthen educational management and quality assurance systems to promote demand driven educational planning, quality monitoring, and quality assessment and grading of institutions,

e) To develop strong interactions between technical institutions and industry and between technical institutions and the community to promote building of technological capacity, upgradation of technological skills in both formal and informal sectors of the economy, and increase in employable skills of people in general.

Many of the other objectives could be dovetailed into the five mentioned above. The Technical Education Quality Improvement Programme of the GOI is an attempt to cater for the above five objectives.

CHAPTER 3

SECTOR CONTEXT AND RATIONALE

3.1 SECTOR CONTEXT

3.1.1 With India opening its doors to multinational corporations and the advent of globalization and technological advancement, the need for improvement of quality in Technical Education system in the country is acutely felt to meet the requirements of industry and to enhance its effectiveness, efficiency and outreach for societal development.

3.1.2 Though the GOI and State Governments have intervened to avoid obsolescence in facilities and infrastructure in the institutions through several schemes (modernization and removal of obsolescence; thrust area development; quality improvement programs, etc.), obsolescence of facilities and infrastructure continues to be experienced due to rapid changes in technologies and at times due to inadequacy of funding. The problem is aggravated by the absence of a system for regular maintenance of equipment and facilities. IT infrastructure is generally inadequate in institutions.

3.1.3 There are only the barest minimum laboratory facilities available in many of the institutions and consequently very little research activity is undertaken. In the absence of a culture for sharing of resources amongst institutions or with industries or R&D organizations, there is under utilization of resources and wastage.

3.1.4 Engineering degree institutions and polytechnics have not succeeded to any noticeable extent in developing linkages with industry and community and rendering service to them even though these are considered essential activities of all institutions.

3.1.5 Industry often finds engineering college graduates weak in professional practice, thus necessitating long duration on-job training for making them professionally useful. There is also a mismatch between student demand/ labor market needs and institutional output and training modalities. In certain fields there is an over supply of skilled manpower resulting in large-scale unemployment. At the same time, there is shortage of skilled manpower in certain critical fields that are vital for enhancing economic competitiveness.

3.1.6 There is a general decline in the quality of education due to two major reasons. The curricula offered by most degree institutions today are rigid and outdated and do not meet the needs of the labor market. Curriculum implementation is also poor.

3.1.7 The large scale and rapid increase in the number of degree and diploma level institutions during the recent past has led to an acute shortage of teachers in the technical institutions in general and in the newly introduced specialized disciplines in particular. Most of the teachers, due to lack of exposure to the recent advances in their fields, are unable to contribute to modernization of curricula.

3.1.8 Research and postgraduate education in engineering and technology is confined to approximately 200 institutions in the country. Nearly 50% of the seats approved for post-graduation in engineering and technology remain vacant and of the admitted students, only 70% complete the course. Regardless of the parent discipline, most of the postgraduate in engineering and technology are absorbed in the Information Technology industry. Research has also suffered and the small annual out turn of PhDs (about 400) appears to be declining. As a result, there is an acute shortage of teachers with postgraduate qualifications, let alone doctorate in engineering and technology.

3.1.9 Global demand for IT professionals is increasing. According to IT Task Force estimates, the Indian IT industry would reach a level of US $100 billion by 2008, of which US $ 50 billion would be for software export, US $ 30 billion for domestic software consumption

and US$ 20 billion for the hardware sector. To achieve the target level, availability of quality manpower in IT is most crucial.

3.1.10 India is not only lagging behind in the production of postgraduates and PhDs in IT but a good portion of those produced are not of the desired quality. Compared to 10,000 postgraduates and 800 doctorates produced in computer science per year in USA, the corresponding numbers produced in India are only 300 and 25. A Ministry of Information Technology report has indicated that only 30% of the out put of the IT supply sector is of quality acceptable for high level skills.

3.1.11 While the procedural (financial) audit, which is mandatory, is carried out in minute details, there is no systematic evaluation of institutional performance. There is no recognition or reward for good performance. There are no incentives for excellence. Also, feedback system from lower levels to higher ones, from students on courses taught, from employers (client system) and evaluation of teacher's performance is non-existent in most institutions.

3.1.12 There are wide variations between states and regions in the development of educational infrastructure. The southern and western states are well ahead in their capacities where as the eastern and northern states are lagging. Due to liberal policies, four states, namely Andhra Pradesh, Maharashtra, Karnataka and Tamilnadu have permitted establishment of private institutions, which admit 50% of the students on full fee payment basis. The quantitative increase also had its repercussion on the quality of technical education due to mushroom growth of self-financing private engineering colleges/polytechnics in the country, particularly in the Southern region.

3.1.13 Higher Education as a whole including the engineering education, is highly subsidized with 90% of operating costs in most public funded/ aided institutions coming from the Government. In spite of shortage of funds, the atmosphere to generate resources is mostly lacking due to deficit-financing method adopted by governments. Fee charged to students by most public institutions represent no more than a small fraction of the real costs, and are governed by limits fixed by the concerned governments.

3.1.14 While a few institutions in the private sector are utilizing the fee earnings and donations for providing high quality professional education, a large number of private institutions are being run on a commercial basis making significant savings by curtailing expenditure even on critical teaching and laboratory inputs.

Table 3.1
Percentage of Private Engineering Colleges with Savings from Fee Income

States	Savings as % of Fees Collected		
	Upto 20	21 to 50	More than 50
Karnataka	30%	20%	20%
Maharashtra	25%	43%	18%
Tamilnadu	21%	43%	7%

Source: India: Scientific and Technical Manpower Development in India. World Bank Document (Report No. 20416-IN), August 2000.

3.2 RATIONALE

3.2.1 It has been recognized that only by competing successfully in the globally interdependent world economy, can aspiration of Indians be met. For this to occur, production of technical manpower of international standards is a precondition.

3.2.2 For overall development of each state and the country as a whole, investment in technical education is a must. GOI and states have been investing to produce quality manpower. Private initiative has also come but only in those areas where substantial demand has arisen. Because of lack of investment from private providers in areas that are crucial for nation's development (but may not have easy returns, e.g., new and

emerging technologies, research etc.), public funding of technical education is necessary to develop manpower in the crucial areas of market demand.

3.2.3 Indian policy framework (NPE-1986 and revised in 1992) and planned investment for the last 50 years has resulted in production of internationally acceptable manpower through such institutions as the Indian Institutes of Technology, the Indian Institutes of Management, etc. However, because policies have not been implemented in the right spirit in all other institutions in the country, the overall picture considering all engineering and polytechnic institutions in the country is not encouraging. Efforts are needed to bring all these institutions to a high standard and improve the quality and responsiveness of the system as a whole.

3.2.4 Recognizing the importance of technical education for national development, the country has committed itself to the development of quality technical manpower, and already taken several policy initiatives. These are:

a) National Technology Policy Statement (1983)
b) National Policy on Education-1986 (revised 1992)
c) Technology Policy Vision for India 2020 (1996)
d) National Policy Initiative for Technician Education (1998)
e) Information Technology Policy (2000)
f) India as Knowledge Superpower: Strategy for Transformation (2001)

3.2.5 Strategies for implementation of policy directions through transformation of the technical education system have been developed through the work of several committees. These include:

a) Mashelkar Committee Report on Regional Engineering Colleges (1998)
b) Rama Rao Committee Report on Post Graduate Education in Engineering and Technology (1999)
c) Indiresan Committee Report on Technical Teachers' Training Institutes (2000)
d) Draft Policy Guidelines for Training Teachers of Polytechnics and Engineering Colleges (2000)
e) IT Manpower Advisory Committee (2000)
f) Raju Committee Report on Networking of Engineering Institutions (2001)
g) Swaminadhan Committee Report on Mobilization of Additional Resources for Technical Education

3.2.6 There are several other initiatives planned. These are:

a) Mission on management of technical education
b) Upgrading Regional Engineering Colleges to National Institutes of Technology, and granting Deemed University status to some of them
c) Conducting national level competitive examination for admission to engineering colleges (this has already been initiated)
d) Expanding the role of Technical Teachers' Training Institutes to include staff development for engineering colleges
e) Encouraging private sector institutions to attain very high standards

Because of shortcomings in the system restricting production of quality manpower, the GOI has decided to reform and enable the system through systemic transformation supported by reforms in policies governing the functioning the technical education sub-sector. This is to be achieved through intensive drive for excellence in well-performing engineering colleges and some selected polytechnics to make the system much more demand driven, quality conscious and responsive to rapid economic and technological change occurring both at national and international levels. The system is planned to be reformed to not only address the needs of the organized sector of the economy but to also cover the needs of unorganized and rural sectors.

3.2.7 Through the well established policies, planned strategies and GOI and states vision of development for technical education system, the ground has been thoroughly prepared for the take-off stage which should bring in far reaching quality improvement in the technical education system. The Technical Education Quality Improvement Programme of the GOI would support ongoing efforts of the Central Government and State Governments in this direction.

3.2.8 The proposed Programme will focus on systemic transformation of the sub-sector to cover, among others, the following aspects:

a) Quality of education and hence the quality of engineers and technicians
b) Quality of faculty
c) Promoting research culture
d) Optimizing resource utilization
e) Interaction with and extending benefits to industry and community.
f) Development of management capacity of officials at national, state and institutional levels
g) Encouraging strategic partnerships with specialist organizations
h) Leveraging technology for quality enhancement and extending outreach
i) Empowerment of institutions with accountability
j) Enabling institutions to generate and retain finances
k) Enabling institutions to sustain gains from the Programme
l) Sustainable decision-making mechanisms

CHAPTER 4

PROGRAMME GOAL, STRATEGY AND IMPLEMENTATION

4.1 PROGRAMME GOAL

The Technical Education Quality Improvement Programme of Government of India (TEQIP), has been conceived in pursuance of the NPE-1986 (as revised in 1992). The Programme aims to upscale and support ongoing efforts of GOI to improve quality of technical education and enhance existing capacities of the institutions to become dynamic, demand-driven, quality conscious, efficient and forward looking, responsive to rapid economic and technological developments occurring both at national and international levels.

4.2 PROGRAMME OBJECTIVES

The broad objectives of the Programme as given below have been derived from the National Policy on Education (NPE-1986 as revised in 1992):

a) To create an environment in which engineering institutions selected under the Programme can achieve their own set targets for excellence and sustain the same with autonomy and accountability.
b) To support development plans including synergistic networking and services to community and economy of competitively selected institutions for achieving higher standards**.**
c) To improve efficiency and effectiveness of the technical education management system in the States and institutions selected under the Programme.

4.3 PROGRAMME STRATEGY

4.3.1 The strategy for transformation of selected institutions in the Technical Education System is to promote, with appropriate policy support and modern management systems at various levels, nodes of excellence in already well performing, competitively selected Lead Institutions in a phased manner and infusion of their special qualities throughout the system through bi-directional sharing of resources with competitively selected Network Institutions.

4.3.2 The Programme is to be implemented as a centrally coordinated, multi-state, long-term Programme of 10 years. Initially, the World Bank financial assistance would be sought only for the First Phase of 5 years. Based on an in-depth assessment during the course of implementation and the experience gained, assistance for a Second Phase, overlapping with the First Phase is to be negotiated. Similarly, a Third Phase could commence before the end of the Second Phase. Each successive Phase would be built on the experience gained in earlier Phase. Each Phase will have 2-3 selection cycles for selection of institutions.

4.3.3 Through this Programme well performing institutions will be developed into excellent institutions comparable to the best in the world as Lead Institutions and through networking with these institutions, performance of additional institutions in the network will be enhanced. It is expected that sub networks will evolve around the Programme institutions over a period of time, thereby diffusing the transformation effect on large part of technical education system.

4.3.4 The Programme also aims to enable some of the well performing polytechnics to offer, in addition to diploma programmes, Technician Degree Programmes in highly selected skill based areas in new and emerging technologies; specifically those areas not covered by engineering degree granting institutions.

4.3.5 Through this Programme the process of change is being introduced. The resultant of the change needs extensive exercise to manage the effect of the change within the

parameters of the objectives of the Programme. The effort would provide a flexible platform to well performing institutions to acquire excellence in specialised areas and emerge as world-class institutions.

4.3.6 The change management requires standardisation of various academic and non-academic processes. Under the Programme various committees may be constituted to undertake the task of developing standard procedures for various reforms. Through an information portal created in NPIU/one of the Lead Institutions, standard procedures for various reforms will be disseminated to all institutions in the country.

4.3.7 The Programme also aims to enable selected polytechnics to offer Technician Degree Programmes in highly selective areas **(See details at Annex 4.1)**.

4.3.8 It is expected that sub-network will evolve around the Programme institutions over a period of time, thereby diffusing the transformation effect throughout the entire technical education sub-sector.

4.4 PROGRAMME IMPLEMENTATION

4.4.1 The broad approach to Programme implementation will comprise of the following 4 key activities:

a) The States and BTE of MHRD wishing to sponsor institutions will need to establish their eligibility by meeting the prescribed criteria and issuing orders related to these criteria (***for details see Chapter- 6***). It is expected that the States wishing to participate in the Programme would have established their eligibility well before the first cycle of the First Phase of the Programme. Those unable to do so could establish their eligibility for participation in subsequent cycles of the First Phase or even in subsequent Phases of the Programme.

b) Institutions (only from eligible states and at (a) above and those that are centrally funded) wishing to participate in the Programme as Lead or Network Institution will be required to meet the prescribed criteria, form cluster, and develop composite proposals for entering into a national competition for grants.

c) Systems would be developed, studies undertaken and specialised training carried out to enhance the overall capability of the technical education management system (***see Chapter-5 for details***).

d) Structures for management and monitoring of the Programme would be established in each participating State and at the Central level (***see Chapter- 8 for details***)

4.4.2 Selection of institutions for financial assistance will be made in 2-3 cycles during each Phase and will be carried out through a transparent competitive process. The provision of selections in cycles has been made keeping in view that all potential institutions (and even States) may not be ready as soon as the Programme starts.

4.4.3 In any one cycle, the selection process will be a two-step process. The first step will involve short listing of: (a) potential and eligible Lead Institutions and (b) potential and eligible Network Institutions (both from eligible States only; see Chapter-7) based on their Eligibility Applications. The second step will involve final selection of clusters of institutions (groups formed between eligible and short listed Lead and Network Institutions) based on Composite Proposals developed by each competing cluster. The full selection process is detailed in Chapter-7.

Institutions that could not establish their eligibility in a cycle would be free to make improvements and re-apply for their eligibility in a subsequent cycle.

4.4.4 Financial requirements of institutions could vary based on their pursuit of excellence for which details will be available in their respective institutional proposals. The overall financial estimate of the programme is given in chapter 9. Also, institutions may require expenditure over differing periods (a maximum of 5 years or less). Justification for financial requirements in any case must be provided by institutions in terms of the

tasks and developments that will require funds. No rigid boundaries for financial requirements will be laid in the Programme. However, the planning and expenditure of finances has to be done on a rational basis.

4.4.5 Institutions that have participated in any Programme-Phase and propose to advance further in their strive for excellence would be free to seek grants through competition in any subsequent Phase.

4.4.6 Institutions already participating in the Programme could, with the consent of the sponsoring agencies (State Government/BTE) and the National Programme Director, upgrade their proposals for achieving higher targets and better outcomes and also for expanding coverage of their activities, and seek additional funding. Such institutions would have already demonstrated highly satisfactory performance in their project implementation.

4.4.7 Depending upon their capacity, Lead Institutions already participating in a Programme could, with the consent of the sponsoring agencies (State government/BTE) and the National Programme Director, include in their network additional institutions from the national list of eligible Network Institutions.

4.4.8 The following types of educational institutions will be eligible for participation in the Programme:

(a) Government funded, government aided and private unaided institutions engaged in conducting degree, postgraduate and doctoral programmes in engineering disciplines. The term institution here includes stand-alone colleges, deemed universities (Technological), universities (Technological), and constituent colleges, Departments and Faculties of universities.

(b) Government funded, government aided and private unaided polytechnics institutions engaged in conducting diploma, and post/advanced diploma programmes in engineering disciplines. Polytechnics could be stand-alone institutions or be constituents of universities/deemed universities.

4.4.9 The following educational institutions will not be eligible for participation in the Programme:

a) IISc, IITs, IIITMs. IIITs.
b) Institutions offering degree, postgraduate and doctoral programmes in non-engineering disciplines.
c) Institutions offering diploma, post/advance diploma programmes in non-engineering disciplines.

4.4.10 An indicative list of activities related to the Programme components that could be funded under the Programme is given below.

a) Restructuring of undergraduate (UG) and postgraduate (PG) programmes
b) Introduction of new UG and PG programmes in emerging technology areas
c) Curriculum development
d) Faculty and staff development
e) Equipment for modernization and new laboratories
f) Learning resources procurement and development
g) Research and development (R&D)
h) Improvements in existing buildings
i) Services of consultants and resource institutions
j) Hardware and software for electronic networking
k) Services to community and economy
l) Research studies
m) Salaries of key additional staff
n) Consumables and operation & maintenance expenditure

4.4.11 The following activities will not be eligible for funding in the programme

a) Creation of new institutions
b) Starting of new courses in traditional disciplines without innovativeness
c) Large scale civil works
d) Education Management Information System (EMIS),
e) National Board of Accreditation (NBA)
f) Resource institutions

CHAPTER 5

PROGRAMME DESCRIPTION

The Programme funding would be through two distinct modes under two Programme Components. All activities under sub-components namely, Promotion of Academic Excellence; Networking of Institutions for Quality Enhancement and Resource Sharing; Enhancing Quality and Reach of Services to Industry and Economy; and Institutional Level System Management Capacity Improvement are covered in **Programme Component-I: Institutional Development** and would be funded on competitive basis.

All activities under **Programme Component-II: System Management Capacity Improvement** (at the Central and State levels) would be funded on the investment proposals.

The following sections describe the underlying concepts for each of the 3 sub- components under **Programme Component I: Institutional Development**.

5.1 SUB-COMPONENT (i) PROMOTION OF ACADEMIC EXCELLENCE

Excellence is a multifaceted ideal, involving aspects of relevance, quality, efficiency and equity in differing mixes as suited to different circumstances, and hence excellence is expected to take many different forms. Institutions are likely to have differing visions of excellence and hence differing resource requirements for the attainment of their decided goals.

Plan for achievement of excellence could be focused at the whole institution or a Department or even a programme, which has already reached a high level of achievement, through exercise of autonomy in such activities as faculty development, modernization of training facilities and physical infrastructure, reforms in curricula and student performance assessment, reforms in governance and management, and creating an ambience for innovation and creativity. This concept of excellence should be the leading light to all institutions.

Autonomy of institutions to manage their own affairs is a pre-requisite in their pursuit for excellence. **(See AICTE Guidelines on Autonomy at Annex 5.1)**

Some of the parameters that are expected to contribute to achievement of excellence are detailed below.

5.1.1 Equipment and Facility Improvement

The quality of education and training is affected by sufficiency and quality of equipment and facilities available for teaching-learning, as well as the ambience of the learning environment. Over the years, obsolescence of equipment and instructional facilities has occurred in most institutions, both due to changes in technology as well as emerging technologies. Laboratories and computer centers in particular need modernization, as it would be especially difficult to correlate theoretical courses with experimental work and problem solving experimentation in the absence of up-to-date modern facilities. Also, programmes offerings in emerging areas will require acquisition of equipment and setting up of new laboratories. The overall outcome of this thrust will be to enhance productivity of engineering education by improving the quality and efficiency of the teaching-learning process.

5.1.2 Faculty and Staff Development:

Faculty is the most important component of the educational system, and hence developing faculty and staff competence must be given the highest priority:

a) Development of capacity for planning curricula to suit current and anticipated labor market requirements for both existing courses and new ones that might be introduced,
b) Use of innovative instructional methods and approaches,
c) Designing and developing learning resources,
d) Managing systemic reforms like institutional autonomy, programme flexibility, interaction with industry and community, developing appropriate cost recovery systems, improving utilization of institutional resources, and the management of institutions,
e) Managing corporate schools, production centers and entrepreneurship,
f) Employment generation and transfer of technology,

g) Undertaking research for creation of new knowledge and new technologies and undertaking consultancy projects for industry and community,
h) Undertaking research studies for determining institutional outcomes and impact from various academic and development services provided and also for the design of remedial strategies in educational processes,
i) Industrial exposure,
j) Qualification enhancement of teachers,
k) Attitudinal change, and
l) Programme management.

The training of staff may cover areas like:

a) Exposure to industrial technology and processes,
b) Laboratory and workshop instruction,
c) Maintenance of laboratory and workshop equipment and computer centers,
d) Upkeep of institutional services,
e) Computer usage, and
f) Office automation.

5.1.3 **Curricular Improvements**

The importance of periodically updating and improving curricula in short cycles needs to be appreciated by all institutions. Regular, data and information based, labor market orientation of educational offerings becomes an important dimension of systemic transformation. The labor market to be considered may envelop industry, field agencies, R&D organizations, government departments, and entrepreneurial opportunities, both within India and abroad.

Curricula should incorporate problem solving skills, design skills, communication skills, entrepreneurial skills, information processing, creative and innovative thinking, skills related to managing people at work, multi-skilling, learning-to-learn skills, positive attitudes, work ethics, appreciation of environment management, product and process quality, safety practices, etc.

Innovations in curriculum development like competency-based-curricula, provision of self-learning, problem solving projects for community and industry, training in industry, sandwich programs, learning by research, course flexibility, etc., may be adapted by institutions.

5.1.4 **Curriculum Implementation**

Curricula need to be implemented in an effective manner in classroom and laboratory to maximize student learning. One important consideration is the introduction of variety in the learning process. This will reduce classroom monotony and make learning a challenging and worthwhile activity. Training of teachers in the use of a variety of instructional methods is an important prerequisite. In this context, variety can be enhanced by the introduction of planned student visits to industry, planned student training in industry, expert lecturers from industry and field, student problem

solving projects, student self learning, and the use of media in classrooms. Curricula must provide for learning variety.
The importance of continuous assessment lies in making it congruent to student learning and providing feedback to the student about learning as frequently as possible. Feedback can be followed by remedial instruction, which can be on a one to one basis. Also to be considered are counseling cells which can help students with learning difficulties and in selecting optional streams of specialization.

Curriculum implementation should be subjected to peer review and student feedback with a view to affecting improvements in implementation and for identification of faculty training needs.

Collaboration and interaction with industry to enhance student learning is a vital process. The students would be able to learn of the practical application of new technologies in industry. Using the industry as a learning location should find a place in every curriculum. Students should also be encouraged to learn from projects and service activity for the community. This learning segment is virtually absent in most institutions.

Service to the community can occur in the form of research for community profiling and social assessment, offering maintenance services on simple devices, adapting and developing technologies for rural applications, Shramdan (donation of manual labor), undertaking special development projects and helping rural industry and enterprises to operate successfully.

5.1.5 **Course Flexibility**

The concept of course flexibility based on multi-level entry for students, credit acquisition and the provision of learning options for students has been successfully tried out in the two already completed Technician Education Programmes. Many institutions practice this reform. However, flexibility in programs has to be extended to many other institutions, which still adhere to rigid course structures.

The preference for four-year programs for degree students results in considerable learning repetition and wastage of time for several entrants. Continuing education pass outs or part time pass-outs are rarely given any credit exemption in regular courses.

An attempt must be made to conceive of a system in which entrants with different backgrounds are given credit exemptions, students can learn at their own pace through accumulation of credits, and student interests in specific subjects and topics are encouraged. Such practices will make curricula and learning much more student friendly and acceptable. Institutions should experiment with course flexibility patterns.

5.1.6 **Student Evaluation**

Currently due to regulations of affiliating Universities and Boards of Technical Education, student assessment also follows a rigid pattern. Excessive importance is given to end-of-semester or year-end examinations, while continuous assessment of students is overlooked. In fact, if continuous assessment is well designed to include regular tests, laboratory work, assignments, student self-learning, student training in industry, student problem solving projects and other forms of student practices, it will encourage continuous learning and regular feedback to students. Added to this, institutions may conceive of assessment designs for competency development, and adherence to good practices in the field of service to industry and community, research activity, use of safety practices, environmental concerns and, leadership and group work. Assessment of students should be much more comprehensive and regular than is carried out currently. The importance of terminal assessment may be reduced in both regular and continuing education programs.

5.1.7 **Learning Resources**

Classroom teaching can be reinforced by the use of a variety of media. Institutions in their proposal may propose development of simple learning resources like transparency sets, slides, workbooks and training packages. More complex resources like video-films, multimedia and CAI packages can be got developed from resource institutions or procured from the market. Other forms of learning resources which require attention by all institutions are laboratory manuals, learning packages and packages specific for the development of competencies. Student self-learning should be promoted and encouraged. Teachers should be trained in developing these learning resources. Learning resources development may be considered as an important activity by Lead Institutions, which should accordingly establish Learning Resources Development Centers (LRDC) or Education Technology Cells.

Institutions should consider establishing Learning Resources Utilization Centers (LRUCs). Currently, many institutions have some form of facility for student and teacher usage of specific visual learning resources. Much more needs to be done in this area. Institutions should create facilities to store these resources, provide ready access to teachers and students, and acquire and install appropriate hardware for classroom projection and self-learning from audio-visual resources.

Provision of Internet, campus networking and networking between institutions needs to be considered for enhancing access to and sharing of learning resources available in a cluster. This would reduce duplication of learning resources, and permit students and staff to easily access resources from institutions within and outside the cluster. Lead Institutions may in particular consider establishment of digital libraries.

Institutional libraries may be modernized and computerized. These may be strengthened to meet the requirements of students, research work, consultancy work, industries and the community. Institution may plan for training library staff in modern library management practices.

5.1.8 **Interaction with Industry**

It has been well realized and recognized that the development of technical education can only be accelerated with the involvement of industry. Numerous meetings and conferences on this issue have been conducted in connection with the already completed Technician Education Programmes. Both the National Policy on Education (1986) and the National Policy Initiative for Technician Education stress the importance of industry involvement.

The Confederation of Indian Industry (CII) has been instrumental in promoting interaction of industry with institutions in all the regions of the country. In spite of the recently observed enhancement in interaction, much more needs to be done in many institutions. A great concern is the underemployment of pass outs and long periods of apprenticeship and probation by industry, especially the private sector which provides the major share of employment opportunities. Pass-outs from many technical institutions still take more than one year to obtain gainful employment. There are numerous cases of substitution of one level of technical manpower by another. In addition, under-employment is specifically visible in many private and public sector industries, and long periods of apprenticeship and probation are practiced by many industries. In brief, the importance of making educated technical manpower productive at the earliest after passing out has yet to be realized in many industry locations.

Tracer studies on employment of pass-outs have been undertaken by organizations like the Institute of Applied Manpower Research (IAMR). These studies have confirmed many of the deficiencies mentioned in the earlier paragraph. It is important that all institutions promote tracer studies of their pass-outs so that employment, career progression and income on employment of pass-outs can be traced on a continuing basis and remedial action initiated wherever necessary.

While in the recent past, contributions by industry to curriculum development have been commendable, there is room for improving these contributions. It is reported that the views of industry with regard to curricular requirements are often vague and ambiguous. Secondly, not much information about the labor market is easily available from industry. Information that is available is often unreliable. It is in this context that Industry has to play a more intensive and proactive role.

Industry does pay for many of the services utilized and contributes to income generation by institutions. This has become substantial in polytechnics and engineering colleges located in large cities with industrial estates in the proximity. Notable success has yet to be achieved by most of the technical institutions located in smaller towns.

A National policy to promote industry-institute-interaction is already available. The CII and Federation of Indian Chambers of Commerce and Industry (FICCI) are amenable to promoting interaction and partnership. Institutions may set up Industry--Institution-Interaction Cells, which would be specifically responsible for promoting and nurturing interaction and partnership with industry. A well-trained and experienced Training & Placement Officer may head the Cell. Institutions may consider the caretaker industry concept with support of the CII.

Services from institutions to industry could include:

a) Continuing education programs for industry personnel,
b) Problem solving projects and consultancies on industrial products, services and processes,
c) Testing and calibration services,
d) Designing training software for industry,
e) Training customers of industry,
f) Designing or substituting training centers of industry, and
g) Production center for outsourced components.

Contributions from industries to institutions could include:

a) Participating in curriculum design, curriculum implementation, student assessment, training of students, exposing students to new technologies, and providing experts for certain instructional sessions,
b) Providing opportunities for student groups to undertake problem-solving projects.
c) Participating in such bodies as the Board of Governors, Academic Council, Boards of Studies, Faculty Recruitment Committees, etc,
d) Assisting institutions in establishing new laboratories, providing literature on new technologies, and offering their shop floors as substitutes for laboratories,
e) Training teachers and staff in new technologies and processes,
f) Providing industrial training to students,
g) Collaborating in sandwich programme offerings,
h) Investing in creation of Interface Training Centers (ITC) or finishing schools,
i) Involving institutions on sole or collaborative basis in R&D activities, and
j) Utilizing institutional resources (manpower and physical) for industrial manpower training.

5.1.9 **Research**

A culture of undertaking research and consultancy must spread among institutions. Expertise and research infrastructure of resource institutions could be utilized to build capacity for research in several ways. All institutions, specially the Lead Institutions, are expected to initiate research activities and build their own capacity for research.

5.1.10 **Distance Education**

Some institutions may, with the help of resource institutions, propose to establish distance education programs in their area of specialization. They can target both regular and continuing education students through this mode. With the networking that is planned under the Programme, the outreach of the institutions would be enhanced and can be used to promote distance education. The advantages from continuing and distance education are primarily related to value addition so that the beneficiaries can be redeployed to more productive roles and jobs.

5.1.11 **Development of Management Capacity at Institutional Level**

Academic Excellence cannot be achieved in the true sense without the use of sound and innovative management practices. Development of management capacity at institutional level is of utmost importance to help institutions to attain and sustain excellence. At institutional level, the Programme will support the following activities:

a) Training of heads of institutions and senior faculty in management.
b) Improvement in quality and efficiency of institutional management
c) Development of processes of self-renewal
d) Institutional web site contributing towards Educational MIS.

Training of heads of institutions and senior faculty in management may include Visioning; Governance; Exercising autonomy; Participative management; Financial management; Educational innovations; Other management related issue such as strategic planning etc.

Improvement in quality and efficiency of institutional management: Some institutions may try for ISO 9000 certification. Others may adopt TQM in education as philosophy and work towards achieving Total Quality Management. Institutional excellence cannot be achieved until administration efficiency is also improved. It is expected that institutions will use IT in a big way for administration and management, cut down bureaucratic practices and embrace modern office concepts supported by big leap in office automation. Present bottom heavy staff structure (in some institutions faculty to staff ratio is as high as 1:5) will give way to leaner structures and a practice of outsourcing for support services.

Development of Processes for Self-Renewal: An axiomatic feature of the environment we live in is that change will occur. Organizations have to adapt constantly to changes or face the consequences of decline. Social, political, economic, technological and natural environmental changes require new strategies and methods of working. It is therefore imperative that conscious efforts are made by an institution to evolve processes which enable it to review periodically its objectives, goals, policies, processes and programs to respond better to environmental changes, market opportunities and competitive compulsions and also foster an internal environment that promotes innovation and experimentation. Such a self-renewing culture is essential for promoting and sustaining excellence.

Institutional web site Contributing Towards EMIS: There is a dire need for a comprehensive information system of technical education in the country for improved planning and decision making by managers of education, and making available institutional information to parents, their wards, and the general public. Towards this end, each institution will be required to host a website providing data about itself on various aspects and to also provide data as required by the operators of EMIS. The website may include such information as:

a) Courses and facilities in the institution.

b) Institutional performance profile including a wide range of data on student response to courses, interaction with industry and community, student academic performance records (averages, trends, quantities), institutional cost recovery

patterns, services rendered by the institution to the outside world, employment of pass-outs and their probable income from different employing agencies (including past records), special academic services and innovations offered by the institution, special facilities for the disadvantaged and the women, the experience and qualifications of teachers and staff, and outstanding academic efforts by the faculty.

c) Avenues available to students for studies at graduate, postgraduate, doctorate, diploma, advanced diploma and technician degree levels.

d) The special competencies and academic experience possessed by the students, the nature of projects and industrial training undertaken by them.

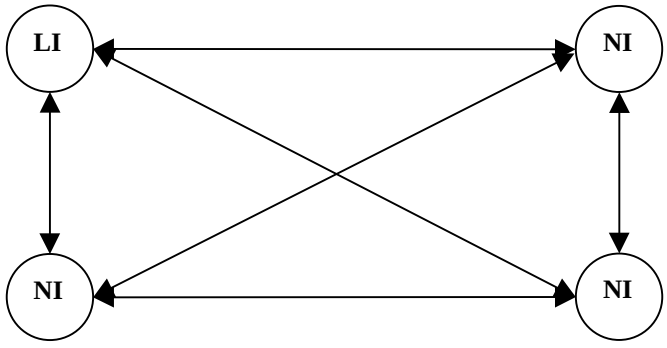
e) Important fiscal parameters such as unit cost of training, fee structure, scholarships and fellowships, IRG, welfare expenses per student, etc.

f) Equipment and facilities available for resource sharing.

5.2 PROGRAMME SUB-COMPONENT (ii) - NETWORKING OF INSTITUTIONS FOR QUALITY ENHANCEMENT AND RESOURCE SHARING

Though excellence is sought for the entire technical education sub-sector, but in view of the large number of institutions and the constraints on human, physical and financial resources, the only viable path to achievement of the ultimate objective is to develop a critical mass of Lead Institutions and to diffuse benefits of their excellence throughout the system by developing synergistic networks between them and neighboring institutions.

Two types of networking are proposed under the Programme. The first type of networking will be a formal network (bi-directional resource and expertise sharing to be detailed and costed in institutional proposals) between Lead and Network Institutions preferably in the neighborhood. Such networks could be established between technological/ technical universities, deemed universities, university departments, university colleges, stand-alone colleges and polytechnics. All institutions in this network will be funded under the Programme. The second type of networking (non-formal network) will be between Programme institutions and R&D organizations, CSIR laboratories, IITs, foreign institutions/ universities/ agencies/ organizations, industry, community, another Lead Institution or institution from another network etc. Funds for activities under such network will be provided to the institutions under operation and maintenance but no direct funds will be provided to the institutions/organizations with whom the selected institutions form the non-formal network. Both types of networks will be governed by MOUs. Networking must ensure bi-directional flow as shown in Fig. 5.1.



LI = Lead Institution
NI = Network Institutions
⟶ = Flow of Networking Benefit

Fig. 5.1. Model for Networking

Networking among Lead and Network Institutions may consist of extensive electronic linkages like Internet connectivity, online transmission facility and provision for interactive learning. In other words, students from a NI would be in a position to draw upon all expertise, knowledge and facilities possessed or developed by other Network Institutions. In addition, if one of the Network Institutions itself is networked with other institutes of higher learning and research establishments and industry, all educational resources available with these agencies can be accessible to the Network Institutions. It is contemplated that library facilities, information and learning resources can flow through the network.

Some examples of sharing of expertise and resources through networking are given below. However, networking offers countless opportunities and ways for optimal utilization of resources.

5.2.1 Academic Sharing

Academic innovations like curricular improvements can be carried out jointly by Network Institutions or curricula developed by one Network Institution can be adopted by other institutions. Also, information exchange on curricular issues, new technological or educational developments world wide, new classroom innovations, etc. can be shared amongst the network partners. Electronic bulletin boards for problem solving, book reviews, etc. can be created for network. Students could have guidance from faculty of other Network Institutions through e-mail, etc.

5.2.2 Credit Transfer and Carry Over of Credits

Institutions should establish rules for credit transfer and carry over of credits. For example, a student from one institution can join another institution for study of some subjects and the credits so earned at the other institutions can be carried over/ transferred to him/her at his/her parent institution.

5.2.3 Staff Development

Lead and Network Institutions can carry out/ facilitate staff development for the whole cluster. Staff development need not be at one location; different Network Institutions can organize staff development programmes for the whole cluster.

5.2.4 Human Resources

Human resources can be shared among Network Institutions. This may include exchange of faculty and supporting staff, training of faculty and staff at one location, joint developmental projects and researches, etc.

5.2.5 Learning Resources and Library

Learning resources developed at one institution can be made available to other Network Institutions. Libraries of institutions can be networked so that all the Network Institutions can access each other's libraries. Different institutions can subscribe to different expensive journals, which can then be shared among all Network Institutions.

5.2.6 Physical Resource Sharing

Network Institutions may allow use of their hostels for students of other institutions pursuing industrial training, etc. Similarly other facilities like laboratories, computer center, expensive equipment can be shared among Network Institutions.

5.2.7 Expertise

Network Institutions should share their professional and managerial expertise amongst themselves. For example, an institution that is close to a cluster of

industries and has good relations with them can arrange for industrial training of students and faculty from other institutions.

5.2.8 Joint Ventures

Network Institutions can promote joint ventures. For example, they can start joint projects, researches and consultancies.

5.2.9 Mechanism

Above mentioned are a few examples of sharing of resources. Institutions could expand the concept to include many more activities. Institutions in their proposals should provide detailed mechanisms and areas of networking. One option that can be used is creation of Networking Cell in each institution and a network facilitator at Lead Institution, which would ensure flow of networking benefits in the network.

5.3 PROGRAMME SUB- COMPONENT (iii) - ENHANCING QUALITY AND REACH OF SERVICES TO INDUSTRY AND ECONOMY

Among the defining characteristics of technical education is the achievement of a dynamic and deeply organic relationship between an institution and its surrounding community and economy, involving many different types of interaction. Institutions of technical education should be responsive to the shifting needs of their immediate environment. The pivotal role of technical education system in facilitating and expediting the process of economic and industrial development of the country is well recognized. There is no doubt that we need to apply more science and technology in our rural/ community development efforts. Technical education institutions can serve in various ways both the formal and informal segments of the economy (industry, services and agriculture) and the local community, whether rural or urban, and in turn derive benefits for their students and faculty by undertaking studies, projects, and researches, and by mobilizing local resources for themselves from doing so. Services that can be rendered will vary across different classes of institutions.

5.3.1 Services to industry (formal sector)

Many engineering colleges and polytechnics have been providing services to industries. However, this should become a reality for all institutions participating in the Programme. Also, the scale and variety of services need to be enhanced, as it will also help in revenue generation for the institutions.

Some of the strategies that may be included by institution in their proposals are:

Services from institutions to industry could be:

a) Continuing education for industry personnel.
b) Problem solving projects and consultancies on industrial products, services and processes.
c) Testing and calibration services.
d) Designing training software for industry.
e) Training customers of industry.
f) Designing or substituting training centers of industry.
g) Production center for outsourced components.

5.3.2 Services to informal sector and community

The nation has invested its precious resources in the technical education system and an equally large amount in scientific research with the hope that these would usher a new age of science and technology in India. Technical education system has so far been fulfilling the role of producing technical manpower for the organized industrial and service sectors. Informal sector of the economy employs 93% of the work force and produces 50% of the Gross Domestic Product (GDP). Productivity of work force in

the informal sector is currently low. It is pegged at approximately one-thirteenth of the productivity of the formal sector work force. According to one estimate if the productivity of informal sector workforce is brought up to one-fourth of the formal sector, GDP growth rate will become 12% per annum. Therefore, for a balanced development of the country, quality of manpower for all sectors, organized as well as unorganized, needs to be improved by the technical education system. Also, by enhancing its social relevance, the technical education system could play a vital role in bringing about the desired transformation in the rural and urban areas.

A majority of the engineering colleges and polytechnics in the country do offer services to the community/ informal sector though on a very marginal scale. The Direct Central Assistance Scheme of "'community polytechnics" has encouraged more than 600 polytechnics to support the community around polytechnics and offer technical/support services. Important services offered by these institutions to the community are skill development courses and continuing education programs. Some institutions have also assisted in transfer of appropriate technologies to rural areas, and provide support services through their technical service centers. In brief, interaction between community and institutions does exist though the scale of interaction is marginal in many institutions.

Informal sector of the economy is present in every industrial sector. It is present both in rural and urban sectors and both in Hi-tech and Low-tech enterprises. Being establishments endowed with technological expertise in a district or region or the state, engineering colleges and polytechnics can play a much greater role in the development of the community. This goal needs to be pursued with greater vigor. Institutions can help informal sector by:

a) Technology infusion,
b) Developing management capacity in informal sector, and
c) Knowledge and skills upgradation of persons working in informal sector.

Polytechnics and engineering colleges possess adequate technological expertise to render highly relevant services in adequate measure. The main impediments to achievement of full success in their endeavor have been:

a) The involvement of only a small group of faculty from the institution in community service, leading to small scale and limited interventions.
b) The Cupertino of the community in their own development.

Both these impediments can be overcome by strengthening institutions better community development and by involving institution as a whole including students in community services. The community development cell can, from the needs identified in community profiling, ensure that all or most of the technologies possessed by the institution are put to use. Through appropriate approaches participatory social assessment, community needs could be assessed and a partnership developed between the community and the institution.

Institution can promote student participation in community service by providing incentives like giving credits for the services rendered. Service to community could also be linked to increments and promotion criteria for the faculty.

Some of the activities that may be included by institutions in their proposal are:

a) Undertaking social assessment and community profiling studies for the community around the institutions.
b) Getting a validation from the community for the identified needs which can be fulfilled by the institution within the ambit of technology and expertise available within the institution.
c) Periodic monitoring and assessment of services provided to community.

d) Continuing education for community/ informal sector that may lead to wage-employment/self-employment and income generation.
e) Development of management capacity in the informal sector.
f) Infusion of useful technologies to enhance productivity of informal sector/ community, and for a better quality of life.
g) Providing technical support services, advice and guidance to the community as and when required.

Institutions can also be informally networked with community polytechnics/ NGOs/ other State agencies/ community service centers of the Ministry of Agriculture, Krishi Vigyan Kendras of ICAR, Agricultural Universities, etc. that have exposure and experience of community services. Another strategy could be to provide credits to students for doing community services and carrying out projects based on community problems.

5.3.3 Mechanism

Institutions in their proposal should provide details of the services to be provided, mechanisms for interaction with community and economy, and targets to be achieved. A Community Cell could be created in each institution for promoting interaction and partnership with community and economy. Institutions should ensure, through suitable mechanisms, involvement of the whole institution in interaction with community and economy.

5.4 PROGRAMME COMPONENT II – SYSTEM MANAGEMENT CAPACITY IMPROVEMENT

Reforms of the depth and breadth envisioned in the Programme will depend for their success upon creation of an entirely different culture of management both within individual institutions and within governmental agencies that will guide and support them. Also, planning and management of systemic transformation will require a variety of technical support services such as research, consultancy, training, etc. for design, implementation and monitoring of the Programme. The sub-components of this Programme component are discussed below:

While funds for the other Programme components will be given on a competitive basis, funds for this component will be on fixed grant basis.

At the technical education system level, the Programme will support the following activities:

a) Training of policy planners, managers and administrators from governments, government bodies,
b) Research studies in technical education,
c) Resource Institutions, and
d) Programme Management Structures at National & State levels.

5.4.1 Training of policy planners, managers and administrators

Training programs and study tours within India and abroad would include the following:

a) Educational planning and management
b) Systems of technical education in other countries
c) Innovations and management of change
d) Economics of education etc.

5.4.2 Research studies in technical education

Researches on various aspects of technical education are equally important for reform of policies, and management practices and need much more attention than provided currently. One of the important aspects for research is the technical education system and its operation. Very little sponsored research occurs in this field. Data generated on the effect of management and educational processes on the outcome and impact of the system is not available for use in introducing remedial measures, making additional policy interventions and improvements, and as a support to innovative actions. The impact of various innovations attempted in technical education have rarely been charted and studied. Competent institutions can undertake such research assignments.

The second significant aspect, which is currently ignored, is the relatively low attraction for self-employment. The average response is hardly 2-3% in the country, while opportunities are in plenty in the organized and informal sectors. The reasons for low preference for self-employment as compared to wage employment and the high magnitude of failures in entrepreneurial ventures remain relatively unknown. Researches to determine critical success factors in self-employment, and strategies to promote these factors need to be addressed urgently if a higher proportion of students is to undertake entrepreneurial ventures.

The third aspect is on the effect and impact of technology and technology transfer to society. Not much is known on this aspect.

It is expected that 5 to 6 seminars/workshops/ researches will be carried out each year under this sub-component. The details of proposed Educational Research Studies is given in **Annex 5.2.**

5.5 Tribal Development Plan (TDP)

5.5.1 A separate document containing Tribal Development Plan has been prepared by NPIU, which contains schedule of activities supporting the policies of the Central and State Governments regarding SC/ST/OBC. These activities are mandatory for each selected institution to be carried out during the course of Programme implementation. The monitoring of TDP is planned at institutional and State levels. The monitoring and evaluation benchmark of TDP are given in **Annex 5.3**. All participating States have indicated their willingness to implement the provisions of the TDP and each participating institution will undertake activities that are in line with those listed in TDP. The institutional proposals will have an elaborated description of activities planned under TDP.

CHAPTER 6

ELIGIBILITY OF SPONSORING AGENCIES

6.1 As stated earlier, only the institutions sponsored by the eligible agencies will be considered for participation in the Programme. This conditionality is considered essential for ensuring that the institutions as selected are able to function in a highly supportive (and not restrictive) environment to achieve their vision. In this context, it is required under the Programme that the States/BTE, in order to be eligible, must agree to meet certain criteria and confirm their commitment to meet the criteria through an agreement/MOU with the GOI.

6.2 The criteria to be met for eligibility by sponsoring agencies are:

a) To sponsor Government funded and aided, and private unaided engineering institutions that meet the prescribed eligibility criteria for participation in the Programme through open competition.
b) To accept results of open competition for selection of Lead and Network Institutions by a National Committee.
c) To support both academic and non-academic reforms to be carried out in the selected institutions.
d) To provide the agreed required financial support to the selected institutions and seek reimbursement as per norms.
e) To provide funds to private institutions in accordance with an agreed mechanism for loan repayment by institutions.
f) To accord and sustain full academic, financial, managerial and administrative autonomy to the selected Lead Institutions.
g) To accord full financial, managerial and administrative autonomy to selected Network Institutions.
h) To permit the selected institutions to increase recovery of the cost of education from students.
i) To change pattern of fund releases to block grant basis.
j) To permit the selected institutions to generate, retain and utilize the generated revenue.
k) To permit selected institutions to establish Corpus Fund, Staff Development Fund, Depreciation/Renewal Fund (for equipment replacement) and Maintenance Fund (for maintenance of equipment and buildings) and issue guidelines for proper management of these funds.
l) To permit total participation of the institutions (all staff and students) in community and industry service.
m) To formulate a policy for enabling institutions to fill all teaching and staff vacancies.
n) To continue supporting needy students as per current Government policy and practice.
o) To agree to implementation of the provisions of Tribal Development Plan as envisaged under the Programme.

6.3 The eligible sponsoring agencies will develop appropriate orders in respect of items (c) to (m) well before the competitive selection process starts.

6.4 A Report of a Committee constituted to suggest Mechanism of funding private institutions is given at **Annex- 6.1**

CHAPTER 7

SELECTION OF INSTITUTIONS: PROCEDURE AND CRITERIA

Selection of institutions during each cycle in the First Phase of the Programme will be carried out through a two-step process. In the first step, eligibility of applicant institutions would be determined at State/BTE level, separately for Lead and Network Institutions. In the second step, final selection of clusters of institutions, based on their Composite Proposals, would be made at the national level through a competitive process.

The major activities involved in the entire process would include: (a) determination of eligibility of institutions to be Lead/Network Institutions at State/BTE level; (b) preparation of a national list of all eligible Lead and Network Institutions by NPIU and its announcement; (c) formation of clusters between Lead and Network Institutions and development of Composite Proposals; (d) evaluation of all eligible Composite Proposals and final selection of clusters at the national level and announcement of results of selection. The entire selection process is expected to be completed in 110-120 days from the date of announcing the start of the Programme. Suggested contents of MOU between MHRD and Centrally sponsored institution is given at **Annex 7.1** and that between Programme state and institution is given at **Annex 7.2**.

The entire selection procedure is described in the following sub-sections.

7.1 IDENTIFICATION OF ELIGIBLE LEAD AND NETWORK INSTITUTIONS

7.1.1 On behalf of the NPD, the NPIU will announce, through advertisements in major national dailies, the start of the Programme and invite submission of Eligibility Application from institutions from eligible States/UTs. The advertisement will contain a list of eligible States. Institutions would be advised to submit their Eligibility Application in duplicate for being considered as Lead or Network Institutions in one of the two prescribed formats **(for engineering degree institutions Annex 7.3 and for polytechnics Annex 7.4)** to the office of the respective State Secretary of engineering education after carrying out self-assessment. Institutions in the central sector will submit their proposals to the BTE in MHRD. The institutions would be further advised to download the advertisement, the Guide Document containing proposal formats, and other details from the MHRD/NPIU website.

7.1.2 Each format for Eligibility Application (**Annexes- 7.3 and 7.4**) has 2 parts. Part-A deals with the conditions of eligibility that are to be necessarily met by the applicant institutions. **Institutions not able to meet the eligibility conditions will be disqualified**. Part-B contains institutional performance criteria with benchmarks. Achievement of institutions in meeting the benchmarks will be evaluated through a system of scoring which is stated in the proposal format.

7.1.3 Simultaneous to issue of advertisement, the NPD will inform each eligible State about the start of the Programme and the first selection cycle.

7.1.4 The State/ BTE will appoint a Screening Committee (compositions and broad functions of screening committees are attached at **Annex 7.5**) consisting of following members for verifying the veracity of statements made in the Eligibility Applications and authenticating the same.

At State level

- Secretary incharge of engineering education — Chairperson
- One eminent educationist with background in engineering education
- One eminent industrialist
- Director incharge of engineering education — Member Secretary

At BTE level

- Joint Secretary incharge of engineering education Chairperson
- One ex-Director of an IIT
- One eminent industrialist
- Divisional Head in BTE Member Secretary

7.1.5 The quorum of meeting will be 3. The Committee may meet in several sittings.

7.1.6 The Screening Committee will scrutinize the applications for veracity of statements and score each application following the scoring method and related guidelines given in the application formats. Institutions scoring 75% or more of the maximum expected score should only be considered for Lead Institution role; those scoring between 50-75% should be considered for Network Institution; those scoring less than 50% should be asked to improve their performance status and re-apply in another cycle.

7.1.7 The States/BTE should prepare 3 lists of institutions: one for recommended Lead Institutions, one for recommended Network Institutions, and one institutions not recommended for consideration for either Lead or Network status. These lists shall be forwarded to the NPIU along with details of recommendations and one copy of each proposal received. The lists shall reach the NPIU by the announced date.

7.1.8 NPIU will ensure that the Eligibility Applications received are displayed on its website and also the selection results in different cycles.

7.2 FORMATION OF CLUSTERS AND PREPARATION OF COMPOSITE PROPOSALS

7.2.1 On behalf of the NPD, the NPIU will examine the recommendations of the State Governments/ BTE, compile national lists of: (a) eligible Lead Institutions and (b) eligible Network Institutions, and inform the names of the institutions to the States/UTs and such lists will be available on the NPIU website. The State/UTs and Institutions would advised to form clusters and to prepare Composite Proposals as per a prescribed format (being developed by NPIU).

7.2.2 The institutions will choose their partners from within and outside the States of their location. It will also enable eligible Network Institutions from the States, which have no eligible Lead Institution to approach an eligible Lead Institution in another State for possible networking.

7.2.3 Institutions will form clusters in consultation with their sponsoring agencies.

7.2.4 NPIU will announce the dates and places for organisation of 3-day Guidance Workshops for Preparation of Composite Proposals, in which besides provision of guidance for preparation of Composite Proposals, the participants would also be made aware of procedures for procurement and reimbursement, audit requirements, project reporting (FMS); reporting, monitoring and review; etc. The due date for submission of Composite Proposals will be announced in the Workshop.

7.2.5 Composite Proposal for each cluster will consist of individual proposals of Lead and Network Institutions. The common element in these proposals will be the activities under networking. Proposal of each Network Institution will under this sub-component detail the bi-directional flow of benefits between the Lead Institution and itself, and give the related activities and action plans. The proposal of Lead Institution will sum the bi-directional benefits, activities and action plans.

7.3 EVALUATION OF COMPOSITE PROPOSALS AND SELECTION OF INSTITUTIONS

7.3.1 All Composite Proposals are to be forwarded by the respective Governments. Each Composite Proposal must be accompanied by Orders from each sponsoring agencies

(for Lead and Network Institution) in compliance with the eligibility requirements for States listed in Chapter-6. Composite Proposals without these orders would be considered ineligible for competition.

7.3.2 NPIU will check completeness of proposals and eligibility for competition. Incomplete and otherwise ineligible Composite Proposals would be returned to the concerned Government along with a statement of reasons. Proposals so returned could be improved and resubmitted in another cycle for competition.

7.3.3 The NPIU, through evaluation committees (composition and broad functions of evaluation committee are attached at **Annex 7.6**) constituted the prior approval of NPD, will get each Composite Proposal evaluated to assess: (a) how well performing the institution has been in the past; (b) quality of proposal in terms of vision and the proposed strategies and action plans to realise the vision; (c) action plans in response to eligibility conditions; (d) proposed activities and action plans for each of the sub-component; (e) plans for sustaining gains from the Programme etc.

7.3.4 Evaluation committees will score each Composite Proposal on the basis of a set and prefixed criteria (being developed by NPIU) and prepare evaluation reports for consideration of the National Selection Committee (NSC). Composition and broad functions of NSC are attached at **Annex 7.7**. Based on the recommendations of the National Selection Committee, scores and reports of Evaluation Committee, the NPIU on behalf of the NPD will prepare a ranked list of Composite Proposals.

7.3.5 The Union Minister for Human Resources Development will constitute a National Selection Committee (NSC) for selecting Composite Proposals for funding. It would be composed as below:

a) Secretary, Department of Secondary and Higher Education, MHRD - Chairperson
b) One ex or present Director of an IIT
c) Three eminent experts from different professional organisations (such as ex or present chairman/director of CSIR, DST, BARC, DRDO, AEC, ICAR, etc)
d) Two industrialists
e) National Programme Director - Member Secretary

7.3.6 The NSC will consider the scores, evaluation reports and ranking carried out and prepare another ranked list of Composite Proposals based on their judgment of how best the proposals fit into Programme objectives and help India in its drive towards global competitiveness. The NSC may also require, prior to its final selections in a cycle, visits to be made by NPIU evaluation committees to institutions. It may also call for presentations to be made by Lead Institutions. The exact procedure for its working would be decided by the NSC in its first meeting to be organised soon after Programme commencement date.

7.3.7 The NSC would prepare a final ranked list of Composite Proposals.

7.3.8 For each institution in the ranked list, the NPIU would carry out rationalization of proposed fund requirements through discussion with representatives of each institution. Decisions of rationalization will be minuted and a record maintained by the NPIU. For this purpose the NPIU will take assistance of technical and financial experts approved by NPIU.

7.3.9 Based on the final ranked list, the NPD will allocate funds (the rationalized amounts) to institutions in order of merit.

7.3.10 In case all the First Phase, Programme funds do not get allocated during the first cycle itself, then selections would be continued during subsequent cycles till all the funds get allocated.

7.3.11 To allow sufficient time to institutions to implement their institutional projects, all selections in 2-3 cycles for the First Phase are planned to be completed within 12 months from Programme starting.

7.4 MECHANISM OF WEEDING OUT NON-PERFORMING INSTITUTIONS

7.4.1 Weeding out non-performing institutions is a complex process as it involves critical decision making on part of Programme authorities. The process of selection of the States and institutions is competitive in nature. Only those States with high degree of commitment and preparedness have been selected to participate in the Programme. In these States already well performing institutions are to be selected who have to undergo a rigorous exercise of competitive selection. The Programme design encourages each State and Institution to attain its self defined vision and goals. Therefore, it is unlikely that an institution will perform poorly and will need to be weeded out of the Programme. The Programme design is such that the release of funds is linked to performance thereby giving timely signals of non-performing institutions.

7.4.2 However, the effort of the Programme authorities will be to make all efforts to remedy situations, which may lead to non-performance of the States and institutions. Remedial actions will be taken in such a manner so as to bring back the defaulting State or institution on track. If required, the defaulting State/institutions would be offered guidance and support from NPIU, experts and resource institutions.

7.4.3 If a situation does not improve and the problem persists for a long time affecting Programme objectives, the State would be advised to withdraw from the Programme or institution would be withdrawn in such a manner that the loss to other institutions in the cluster is minimal.

CHAPTER 8

PROGRAMME MANAGEMENT AND MONITORING

8.1 INTRODUCTION

8.1.1 The needs for management of this Programme are sound policy formulation, transparent and fair selection procedures, autonomy in functioning at all levels combined with accountability, quick decision making, strict performance monitoring and learning from experience.

8.1.2 The various management functions that need to be performed for successful implementation can be categorized into 5 broad categories:

a) Policy issues,
b) Selection of institutions
c) Facilitation and Coordination,
d) Implementation, Monitoring and Control, and
e) Quality assurance.

8.1.3 The major functions included in the above categories would include:

a) Policy Issues

- Policy formulations
- Critical decision making
- Determination of eligibility of sponsoring agencies
- Selection of Composite Proposals for funding
- Fund allocation for selected institutions and other Programme activities
- Giving specific directions for implementation of various activities
- Coordination with various Central and State Government departments and the funding agency

b) Selection of Institutions

- Invitation of Eligibility Applications and Composite Proposals
- Determination of eligibility of institutions and formation of network clusters
- Evaluation and final selection of Composite Proposals

c) Facilitation and Coordination

- Information flow
- Removing impediments
- Releasing funds
- Advising on implementation issues
- Implementation of components and subcomponents

d) Implementation Monitoring and Control

- Programme implementation monitoring
- Financial monitoring
- Infrastructure development monitoring
- Control of all implementation activities

e) Quality Assurance

- Output quality control
- Outcomes determination

- Impact analysis
- Bi-annual and mid-term reviews and corrective action

8.1.3 The following table gives an overview of the key functions of different Programme Management Structures, which are briefly described in the following sections:

Table 8.1 Management Structures and their Functions

Management Function Responsibility Level	Guidance and Direction	Policy Issues	Selection Process	Facilitation and Co-ordination	Implementation Monitoring and Control
National	NSC	NPD	• NPD for final selection of institutions in network clusters • NPIU for assisting in the selection process	NPIU	NPIU
State	SSC	Secretary	SPFU for determination of eligibility of institutions and formation of clusters	SPFU	SPFU
Institutional	BOG	BOG	--	--	LIPMU and NIPMU

NSC—National Steering Committee
BOG—Board of Governors of the institution
NPIU—National Programme Implementation Unit
LIPMU—Lead Institution Programme Management Unit
SSC—State Steering Committee
NPD—National Programme Director/Directorate
SPFU—State Programme Facilitation Unit
NIPMU—Network Institution Programme Management Unit

Note: While internal quality monitoring will be the responsibility of each institution, SPFU and NPIU will carry out this function with the assistance of external experts at State and National level respectively.

8.2 NATIONAL LEVEL PROGRAMME MANAGEMENT STRUCTURES

There will be 3 structures at the National level—National Steering Committee, National Programme Directorate and the National Programme Implementation Unit. Their functions and structure are described below:

8.3 National Steering Committee

(a) Composition

The Committee is to have combined experience and wisdom in various fields, and knowledge of national and global development needs. Accordingly, the following composition is suggested:

a) Union Minister of Human Resource Development* - Chairperson
b) Secretary, Department of Secondary Education &Higher Education, MHRD
c) Chairman/Vice-Chairman of the University Grants Commission (UGC)
d) Chairman/Vice-Chairman (AICTE)
e) Principal Advisor Education, Planning Commission
f) Director General, Council for Scientific & Industrial Research (CSIR)
g) One from Chiefs of DST/ISRO/AEC (by rotation**)
h) One Chairman CII/FICII/ASSOCHAM (by rotation**)
i) Chairman, NASSCOM
j) One Director of an IIT, (by rotation**)
k) One Director of an IIM (by rotation**)
l) Two State Secretaries from participating State (by rotation**)
m) Director-General, CAPART
n) Secretary, Department of Biotechnology
o) Joint Secretary & FA (MHRD)
p) Two Eminent Technical Education Experts
q) National Programme Director Member Secretary

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* The Minister may decide to nominate a Chairperson to represent him/her
** Rotation every two years

(b) Meetings

The Committee will meet at least twice a year.

(c) Functions

The broad functions of Steering Committee would among others include to amend/modify/change/replace/add any provisions reflected in this document within the overall Programme Agreement for the benefit of the Programme at any time during the implementation of the Programme, provide guidance and direction, suggest strategies for maximising achievement of Programme goal of systemic transformation and weeding out of non-performing States and Institutions etc. If the directions of the Steering Committee require amendment in any part of Programme Agreement, the same will be informed to the World Bank for making suitable modifications.

(d) Schedule

The notification for constitution of the Committee will be issued by NPD after declaration of effectiveness of the Programme.

8.4 National Programme Implementation Unit (NPIU)

8.4.1 The NPIU will work under the guidance of the NPD duly appointed by the Ministry of Human Resource Development of the rank of Joint Secretary. The broad functions of NPD will be to take policy and critical decision, including decisions related to selection

of States and Institution, Programme fund management, liaison with funding agency, monitoring, review and evaluation of Programme implementation.

8.4.2 The existing structure of NPIU will be strengthened within one month of Programme negotiation with IDA.

(a) **Objective**

The NPIU is facilitating, implementing, coordinating and monitoring body created by MHRD at National level.

(b) **Location**

NPIU will be located at an appropriate location in Delhi or around.

(c) **Structure**

The NPIU will be headed by a Central Programme Advisor (CPA). The structure of the NPIU will comprise of certain functional Cells to undertake various activities including a Procurement Cell supported by Procurement Consultants. Each Cell of NPIU will be headed by a Specialist supported by required staff and consultants.

(d) **Functions**

Broadly the NPIU will assist NPD in:

i) Ensuring successful and timely implementation of the Programme

ii) Designing, planning and developing the Programme, prepare the required documentation and create awareness among States and Institutions

iii) Negotiation with the World Bank, preparation of State Reports and institutional Composite Proposals and selection process in all cycles of the First Phase of the Programme.

iv) Setting up Committee for Screening of Eligibility Application for Central level Institutions and National Screening Committee for all Institutions and organizing their meetings.

v) Organizing meetings of Evaluation and Sub Evaluation Committees for evaluation of Composite Proposals.

vi) Facilitating/organising management development programmes, foreign study tours and foreign fellowships programmes and training of officials in Programme Implementation including Financial Management, Procurement etc.

vii) Liaisoning with the Central Government Ministries/Departments, States and the funding agency

viii) Organising educational research studies.

ix) Monitoring Programme activities and review progress regularly through Joint bi-annual and Mid-term Reviews.

x) Assuring Quality of Technical Education through Programme implementation for the entire Programme.

xi) Facilitate and ensure implementation of policy reforms

xii) Create awareness amongst institutions about the Programme

xiii) Ensure adequate and timely fund flow to the institutions.

xiv) Facilitate institutions in their interaction with industry and community, and provide guidance for enhancing services to community and economy.

xv) Train procurement related officials of SPFU and Institutions and carryout procurement of large value equipment during the first year of the Programme and monitor procurement of goods during the Programme period.

xvi) Receive and compile audit reports of each centrally sponsored institution and prepare reimbursement claims based on inputs from the institutions and conduct efficiency, quality and reforms related audits.

xvii) Check, verify and forward all reimbursement claims to CAA&A.

xviii) Monitor the implementation of TDP in all Programme Institutions

8.5 STATE LEVEL PROGRAMME MANAGEMENT STRUCTURE

8.6 State Level Steering Committee

(a) **Composition**

The Committee is to have combined experience and wisdom in various fields, and knowledge of State, national and global development needs. Accordingly, the following composition is suggested:

a) Minister dealing with Technical/Engineering Education - Chairperson
b) Secretary dealing with Technical Education
c) Chairman /Vice-Chairman of the State Council dealing with Technical/Engineering Education
d) One Vice Chancellor of the Technical/Affiliating Universities in the State
e) One Chairman of the State Chapter of CII/FICII/ASSOCHAM by rotation
f) Secretary State Dept. of Finance
g) Two Eminent Technical Education Experts
h) Head of SPFU Member Secretary

(b) **Meetings**

The Committee will meet at least twice a year.

(c) **Functions**

The broad functions of State Level Steering Committee would among others include providing guidance and direction, suggest strategies for maximising achievement of Programme goal of systemic transformation.

8.7 State Programme Facilitation Unit

8.7.1 The six selected States under the first cycle of the First Phase of the Programme have created basic infrastructure needed to carry out preparatory activities for the Programme for which Government Orders have also been released. The States are in the process of creating a full-fledged State Level Programme Management Structures called State Programme Facilitation Unit (SPFU). Such structure will be in place within one month of Programme negotiation with IDA.

8.7.2 The SPFUs are the counterpart Programme Management Structure of NPIU. The SPFU is directly under the control and supervision of Secretary In-charge of Technical Education in the State.

(a) **Objective**

The SPFU will provide support to the Secretary in-charge of technical education in facilitating, implementing, coordinating and monitoring the Programme in the State.

(b) **Location**

The SPFUs are located at State Capitals except Himachal Pradesh, which is located at Sunder Nagar.

(c) **Structure**

The SPFU will be headed by a State Programme Advisor (SPA). The structure of the SPFU will comprise of 4 functional Cells to undertake various Programme activities. Each Cell of SPFU will be headed by a senior officer and the cells will be provided with adequate support staff. The functions of each cell are broadly defined below:

i) Programme Cell will be responsible for eligibility determination of institutions, facilitating formation of network clusters and getting Composite Proposals developed by Lead and Network Institutions, and successful operation of networks. It will monitor compliance by institutions with policy reforms, and take necessary actions for ensuring compliance. This cell will periodically monitor implementation of individual institutional projects, and achievement of physical targets. The cell will also ensure that all Government Policies and Provisions for the disadvantaged groups are implemented.

ii) Quality Assurance Cell will specifically monitor action plans in respect of academic excellence sub-component, conduct external quality audits, and encourage institutions to seek and obtain accreditation. This cell will liaison with the NBA.

iii) Finance Cell will be concerned with fund management, issues related to fund flow, statutory audits and reimbursement claims.

iv) Procurement Cell will carryout procurement of large value equipment if required by the institutions during the first year of the Programme and regularly monitor procurement of goods through agreed procedures.

(d) **Broad Functions of SPFU**

a) Ensure adequate and timely fund flow.
b) Create awareness among all institutions about the Programme
c) Assist State Secretary in formation of various Committees, such as State Level Steering Committee, Screening Committee and facilitate their work
d) Facilitate formation of Lead and Network Institutional clusters among eligible institutions and preparation and development of Composite Proposals
e) Facilitate and ensure implementation of policy reforms
f) Organise State level Steering Committee meetings and take its guidance in smooth implementation of the Programme
g) Facilitate institutions in their interaction with industry and community, and provide guidance for enhancing services to community and economy.
h) Monitor and review progress at State level regularly and through Joint bi-annual and Mid-term Reviews.
i) Receive and compile State-wise audit reports, and prepare reimbursement claims based on inputs from institutions and conduct efficiency, quality and reforms related audits.
j) Implement agreed mechanism of funding and repayment of loan to private institutions.
k) Carry out procurement of large value equipment during the first year of the Programme and monitor procurement of goods during the Programme period.

l) Assure Quality of Technical Education through Programme implementation
m) Ensure implementation of TDP among Programme Institutions

8.8 MANAGEMENT STRUCTURE AT INSTITUTIONAL LEVEL

8.8.1 Each Lead and Network Institution will have 2 management structures: the Board of Governors (or Governing Council or Managing Committee) and Programme Management Unit (for Lead Institutions, Lead Institution Programme Management Unit (LIPMU); and for Network Institutions, Network Institution Programme Management Unit (NIPMU). The details of structures, functions etc of these units will be given in the proposals of the institutions.

8.9 Board of Governors (BOG)

(a) **Composition**

For implementing managerial autonomy, each institution will establish its own BOG. Each BOG would be headed by an eminent Industrialist/Educationist with adequate representation from other stakeholders. Sample of Memorandum of Association (MOA) and rules of the recently renamed RECs as National Institute of Technology is appended as **Annex 8.1**.

(b) **Meetings**

The BOG will preferably meet once every 3 months.

(c) **Functions**

The major functions of the BOG would, among others include:

i) Taking all policy decisions and overall management of Institutions
ii) Form, supervise, guide and approve proposals of various committees such as Academic Committee, Finance Committee, Building and Works Committee and Purchase Committee etc.
iii) Reviewing project implementation progress and giving guidance for achieving project goals and targets
iv) Developing strategies for creating the ambience for excellence
v) Suggesting measures for enhancing reach and effectiveness of services to community and industry
vi) Ensuring institutional accountability and compliance with policy reforms.
vii) To oversee proper utilization of fund and submission of regular reimbursement claims
viii) Ensure implementation of TDP in the institution

8.10 Institutional Programme Management Units

Each Lead and Network Institution will create a Programme Management Unit in its own premises.

(a) **Composition**

Lead Institution Programme Management Unit/Network Institution Programme Management Unit (LIPMU/NIPMU) will be headed by the Principal/Head of the institution. The exact composition will vary from institution to institution and will depend upon the institutional project design. However, each Unit will solely comprise of institute faculty and staff.

(b) **Functions**

The overall responsibility for implementation of Institutional project will be that of the LIPMU/NIPMU, which will be assisted by various cells assigned with work related to:

(a) major groups of institutional development activities (academic excellence, networking services to community and economy, tribal development plan etc.) (b) procurement of goods, civil works and services, (c) financial management, (d) Programme implementation monitoring (e) conduct of quality and efficiency audit of educational processes and institute functioning; and evaluating institute's performance in the exercise of autonomy with accountability, and in complying with policy reforms.

8.11 PROGRAMME MONITORING, REVIEW AND EVALUATION

8.11.1 The primary responsibility for monitoring individual institutional projects will lie with the SPFUs and the NPIU and of joint review with the GOI and the external funding agency. The monitoring and evaluation will be based on the action plans prepared by each institution and a set of key performance indicators.

8.11.2 Self-monitoring by each Programme institution will be an essential component of project implementation activities; its exact mechanisms will be spelt out by each institution in its proposal.

8.11.3 Focus of monitoring and evaluation will be on 4 key project aspects:

a) Implementation of reforms by institutions
b) Achievements in Programme Sub-components
c) Procurement of resources and services
d) Utilization of financial allocations

8.11.4 The tools for monitoring and evaluation would be:

a) Institutional progress reports and internal quality and efficiency audit reports,
b) Visits by SPFUs and NPIU,
c) FMRs having quantitative information on expenditures and financial targets,
d) State Programme progress reports,
e) Research studies and external quality and efficiency audit reports, and
f) Interactions with stakeholders such as students, industry, teachers, employers and community representatives.

8.12 MONITORING

8.12.1 Implementation of Reforms by Institutions

Consequent to policy reforms effected by States, Programme institutions are expected to carry out several reforms in academic practices, in the way institutions are administered and managed, and in the management of finances. Action plans for carrying out the reforms will be a part of project proposals. The reforms to be carried out may, among others, include:

a) Introduce flexibility in all programme offerings,
b) Introduce reforms in student performance evaluation,
c) Establish the practices of student-evaluation of teachers' performance and teacher counselling,
d) Provide incentives to teachers for participating in continuing education programs, consulting services, services to community and economy, and for securing sponsored research & development projects,
e) Establish a system for recognizing merit in and outstanding performance of teachers,
f) Offer service packages that would attract and retain good quality teachers,
g) Establish a system for maintaining record of graduates and conducting regular tracer studies,
h) Establish decentralized management and administrative systems with participation of all stake holders,

i) Establish a Corpus Fund for development activities; a Staff Development Fund for supporting critical staff development activities; a Depreciation Fund for modernization of teaching and training facilities; and a Maintenance Fund for upkeep of equipment and physical infrastructure; and to frame rules for utilization of these funds;
j) Institute measures for increasing recovery of cost of education;
k) Institute practices for maximizing utilization of resources and reducing wastage; and
l) Institute practices for regular audit of academic quality and financial efficiency, and implementation of improvement measures.

The reforms listed above would be monitored through bi-annual institutional reports submitted to SPFUs; and verification of the same by SPFUs through external reforms-assessment audits (**see Chapter-12**) The auditors may evaluate progress/achievement on each of the above items on a 3 or 5-point scale.

Progress in implementation of the above reforms in institutions supported by the State would constitute an important component of State reports to be submitted for bi-annual reviews. The NPIU will, based on these State reports, present a State-wise performance report with analysis and suggest remedial actions required, if any, and present the same during reviews.

8.12.2 Achievements in Programme Components

All Programme institutions would be involved in implementation of the 4 components, but according to action plans developed to meet their individually identified goals for excellence/improved performance. The monitorable parameters related to Academic Excellence, Networking and Services to Community & Economy are not expected to be identical between institutions; the targets to be achieved within each parameter are also expected to vary substantially between institutions. The Key Performance Indicators are listed in the **Annex 8.2.** These indicators are to be derived from several measurable sub indicators that may be elaborated and redefined based on implementation experience.

8.12.3 Procurement of Resources and Services

Implementation of project components will involve procurement of physical resources (civil works, equipment, vehicles, furniture and learning resources), appointment of key additional staff and use of consultant services in quantities determined in accordance with institutional action plans. Year-wise targets for each physical resource, additional staffing and consultant service would be set by institutions in their development plans and costed. Monitoring of the targets would be carried out at institutional, SPFU and NPIU levels.

8.12.4 Utilization Financial Allocations

Financial monitoring will relate to expenditures under various pre-defined categories and corresponding annual targets. Financial Management Reports (FMRs) are given in **Annex 8.3**.

8.13 PROCEDURES FOR MONITORING

8.13.1 LIPMU and NIPMU will monitor the Programme activities on day-to-day basis in their respective institutions, and present progress reports to their respective Board of Governors highlighting areas requiring guidance. The focus of monitoring at institutional level will be both on reforms and targets.

8.13.2 SPFU will consolidate the progress made at the State level quarterly and feed information to Secretary (Technical Education) in the State and to the NPIU. SPFU will also facilitate resolution of issues requiring State level attention.

8.13.3 NPIU will consolidate the progress made in all Programme institutions bi-annually, identify crucial areas including policy issues that are holding up progress of implementation and feed the information to the NPD.

8.13.4 The NPIU under the chairmanship of NPD will hold periodical review meetings with the officials of the SPFU and selected institutional heads.

8.13.5 The GOI will undertake joint bi-annual reviews with the external-funding agency in which all Programme States would participate. These reviews will help identify problem areas and suggest remedial actions to be taken at different levels.

8.13.6 A joint mid-term review will also be undertaken by GOI with the external agency to assess Programme progress and consider revised institutional development plans with new targets along with monetary allocations. The review would also take decisions regarding institutions that have not shown satisfactory performance.

CHAPTER 9

PROGRAMME FUNDING AND ACCOUNTING

9.1 DETAILED FINANCING PLAN

9.1.1 The Programme will be mainly implemented in the State sector; however, Central sector funding will be limited to centrally funded institutions and NPIU (including research studies and services of resource institutions).

9.1.2 There will be two types of funding available under the Programme -- competitive grants and investment grants. Competitive grants will be available to competitively selected cluster of institutions for the Programme component of Institutional Development.

9.1.3 The investment grant will be given to Programme management structures at the Central and State levels (NPIU and SPFU). The funds will be used for Management Capacity Improvement at the Central and State levels and conducting research studies and services by resource institutions.

9.1.4 The institutional level management structures (LIPMUs and NIPMUs) will form part of the institutional proposal, and will thus be funded out of competitive grants under the component Institutional Development. The institutional proposal will include details of Management Capacity Development at institutional level. The Lead and Network Institutions under the Programme will indicate their fund requirements in their respective proposals in relation to their pursuit of excellence. However, there are no fixed limits for it.

9.1.5 The estimated funding for various institutions and structures during the First Phase of the Programme is as below:

(Rs. In Million)

(a)	Lead Engineering Institutions	9000
(b)	Network Engineering Institutions	5450
(c)	Polytechnics (Lead and Network Institutions)	750
(d)	SPFUs	150
(e)	NPIU, Research Studies, Services of Resource Institutions	150
	Total	15500

9.1.6 The detailed financing plan for the First Phase is reflected in the tables below:

Cost Table (Programme Yearwise)

Rs. in Million

Component / Category		Year 1	Year 2	Year 3	Year 4	Year 5	Total
Programme Component - 1: Institutional Development (Competitive Funding)							
1	Promotion of Academic Excellence	920.488	2,964.187	3,557.025	3,229.375	1,185.675	**11,856.750**
2	Networking of Institutions	137.925	444.125	532.950	483.850	177.650	**1,776.500**
3	Services to Community & Economy	121.587	391.688	470.025	426.775	156.675	**1,566.750**
TOTAL (A)		**1,180.000**	**3,800.000**	**4,560.000**	**4,140.000**	**1,520.000**	**15,200.000**
Programme Component - 2: System Management Capacity Improvement (Non-Competitive Funding)							
I	Goods	3.250	8.125	8.125	6.500	6.500	**32.500**
II	Books & LRs	0.550	1.375	1.375	1.100	1.100	**5.500**
III	Consultancies	3.200	8.000	8.000	6.400	6.400	**32.000**
IV	Trainings, fellowships & workshops	5.000	12.500	12.500	10.000	10.000	**50.000**
V	Salary	7.700	15.400	15.400	19.250	19.250	**77.000**
VI	Operation & Maintenance	10.300	20.600	20.600	25.750	25.750	**103.000**
TOTAL (B)		**30.000**	**66.000**	**66.000**	**69.000**	**69.000**	**300.000**
GRAND TOTAL (A+B)		**1,210.000**	**3,866.000**	**4,626.000**	**4,209.000**	**1,589.000**	**15,500.000**

Cost Tables - Central Institutions & NPIU, Research Studies & Resource Institutions

Rs. in Million

Component / Category		Year 1	Year 2	Year 3	Year 4	Year 5	Total
Programme Component - 1: Institutional Development (Competitive Funding) - Central Institutions							
1	Promotion of Academic Excellence	191.138	659.437	791.325	732.075	263.775	**2,637.750**
2	Networking of Institutions	30.100	103.250	123.900	114.450	41.300	**413.000**
3	Services to Community & Economy	21.262	74.813	89.775	83.475	29.925	**299.250**
TOTAL (A)		**242.500**	**837.500**	**1,005.000**	**930.000**	**335.000**	**3,350.000**
Programme Component - 2: System Management Capacity Improvement (Non-Competitive Funding) - NPIU, Research Studies & Resource Institutions							
I	Goods	0.800	2.000	2.000	1.600	1.600	**8.000**
II	Books & LRs	0.200	0.500	0.500	0.400	0.400	**2.000**
III	Consultancies	2.500	6.250	6.250	5.000	5.000	**25.000**
IV	Trainings, fellowships and workshops	1.500	3.750	3.750	3.000	3.000	**15.000**
V	Salary	3.500	7.000	7.000	8.750	8.750	**35.000**
VI	Operation & Maintenance	6.500	13.000	13.000	16.250	16.250	**65.000**
TOTAL (B)		**15.000**	**32.500**	**32.500**	**35.000**	**35.000**	**150.000**

Cost Tables - State Level Institutions & SPFUs							
							Rs. in Million
Component / Category		**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
Programme Component - 1: Institutional Development (Competitive Funding) - State Level Institutions							
1	Promotion of Academic Excellence	729.350	2,304.750	2,765.700	2,497.300	921.900	**9,219.000**
2	Networking of Institutions	107.825	340.875	409.050	369.400	136.350	**1,363.500**
3	Services to Community & Economy	100.325	316.875	380.250	343.300	126.750	**1,267.500**
TOTAL (A)		**937.500**	**2,962.500**	**3,555.000**	**3,210.000**	**1,185.000**	**11,850.000**
Programme Component - 2: System Management Capacity Improvement (Non-Competitive Funding) – SPFUs							
I	Goods	2.450	6.125	6.125	4.900	4.900	**24.500**
II	Books & LRs	0.350	0.875	0.875	0.700	0.700	**3.500**
III	Consultancies	0.700	1.750	1.750	1.400	1.400	**7.000**
IV	Training, fellowships and workshops	3.500	8.750	8.750	7.000	7.000	**35.000**
V	Salary of Key Staff	4.200	8.400	8.400	10.500	10.500	**42.000**
VI	Operation & Maintenance	3.800	7.600	7.600	9.500	9.500	**38.000**
TOTAL (B)		**15.000**	**33.500**	**33.500**	**34.000**	**34.000**	**150.000**

9.2 PROGRAMME FINANCIAL MANAGEMENT SYSTEM

9.2.1 For the centrally supported institutions and the NPIU, funds will be budgeted under identifiable budget line item in the Ministry of Human Resource Development (MHRD). On approval of the budget by the Parliament, MHRD will release annual fund requirements in three to four instalments to the institutions as grant. The transfer of funds will be through cheque/draft. The institutions will maintain a separate bank account (PLA account) for the Programme funds. For NPIU, MHRD will release funds in three to four instalments.

9.2.2 For State supported institutions and SPFUs, funds will be allocated in the budgets of the concerned Departments of the respective State Governments. On approval of the budget by the legislature, the State Governments will allocate and release funds in three to four instalments as grant to the institutions and SPFU. The transfer of funds will be through cheque/draft. The SPFU and institutions will maintain a separate bank account for the Programme funds. The funds to private institutions will be on lend by the respective State Governments as loan. A Report of the Committee on Suggested Mechanism of Funding Private Institutions is appended at **Annex 6.1**. The States may adopt/fine tune the suggested mechanism or evolve an alternative mechanism

that is viable, workable and mutually acceptable between the States and the Private Institutions.

9.3 Flow of Funds

9.3.1 The Programme funds to the institutions will be released in three to four installments each year on the basis of a Memorandum of Understanding (MOU) between the States and the institutions, which will contain the terms and conditions of the grants/loan. The first installment will not be more than 20% of the grant/loan amount and will be based on the committed expenditure as per the annual plan. Further installments will be released on the receipt of utilization status. Each subsequent installment will be released on utilization of 70% of the amount of the previous installments. This would ensure smooth flow of funds to the institutions and will avoid accumulation of funds at the institution level.

9.4 Programme Funding

9.4.1 Funding pattern of institutions under the Programme has been conceived as one of the reforms to be introduced in the Technical Education System. Each of the institutions selected under the Programme will be funded for its non-plan expenditures through Block Grant scheme (An Extract of the Report of the Expert Committee on Review of Funding Pattern of IITs – April 2002 (MHRD) is appended as **Annex 9.1**. The Programme States may consider the recommendations of the Committee and develop the mechanism of the Block Grant Funding for the non-plan funds for the institutions under the Programme). Whereas the normal plan funds will be continued as per their existing norms & procedures. The Programme funds will be released as additionality over normal plan funds.

9.4.2 For the central institutions and NPIU the BTE has already made a provision of Rs. 9000 Million in the Tenth Plan and for Rs. 450 Million in the annual plan 2002-2003.

9.4.3 All 6 States selected to participate in the Programme have made adequate provision in their Tenth Plan as well as a token provision in their annual plan 2002-2003 since the number of institution, which may get selected as Lead, and Network Institutions is not known. However upon selection of the institutions and their proposed fund requirements, the State will allocate funds by making appropriate provision in BE or RE in the year of selection of the institutions.

Schedule of Disbursement

Programme Component/Expenditure Category		Programme Cost (Rs. in Million)	Bank Financing Percentage
I	Institutional Development	15050	80%
	System Management Capacity Improvement		
II	Goods	40	100% of foreign expenditure, 100% of local expenditure (ex-factory cost) and 80% of local expenditures for other items procured locally
III	Books & LRs	8	100%
IV	Consultancies	57	80%
V	Trainings, fellowships and workshops	65	100%
VI	Incremental Operating Costs	280	80% until December 31, 2004, 65% until December 31, 2006 and 25% thereafter
	Total Programme Cost	**15500**	

9.5 Programme Accounting

9.5.1 To ensure a transparent and accurate accounting system, the following actions are required:

a) Separate books of accounts and record of fund flow for the Programme funds will be maintained by each management structure at institutional, State and National levels i.e. by LIPMU, NIPMU, SPFU, and NPIU. Each of these management structures will maintain standard Books of Account (Cash Book, Bank Book, Journal, Ledgers, etc.).
b) The institutions will follow the applicable statutory procedures for maintaining accounts. However, records of expenditure incurred under the Programme will be kept separately for claiming reimbursement.
c) There are well-defined components and expenditure categories for the purpose of claiming reimbursement under the Programme. Proper linkages will have to be established between the accounting head and the components/categories of expenditure.
d) To ensure transparency in the system, accurate records will be kept at LIPMU, NIPMU, SPFU, and NPIU. These records will have to be supported by documents/vouchers, etc. in order to establish accuracy and authenticity of expenditures.
e) Financial reports generated from the above accounting system will be comparable to Programme allocations, yearly budgets, forecasting and utilization of funds relating to physical and academic achievement as targeted under the Programme.

9.6 Internal Checks And Controls

9.6.1 All the institutions to be funded under the Programme would be well performing institutions. Annual report containing audited accounts and audit report of all centrally funded institutions under the Programme will be laid on the table of both Houses of Parliament within a specified time frame of nine months from the date of closing of the financial year. Similarly, all State funded institutions will lay their accounts on the table of their respective Legislative Assembly.

9.6.2 The process of laying of audited annual accounts is very rigorous. The administrative Ministry/Department is required to review the reports and prepare a Review Statement and Delay Statement (explaining the reasons of delay, if any). These are required to be approved by the Minister In-charge and laid along with the Audited Accounts Reports. A Parliamentary Committee on Papers Laid on the Table conducts a detailed examination of these documents. It ensures the sound internal control mechanism at the institution level.

9.6.3 In addition, internal control mechanism at institutional, State and National levels i.e. by LIPMU, NIPMU, SPFU, and NPIU would include the following:

a) Establishment of appropriate budgeting systems
b) Regular monitoring of actual financial performance with budgets and targets
c) Monitoring of physical and financial progress
d) Establishment of procedures and systems for ensuring standard internal control such as checking of expenditures, appropriate documentation, levels of authorization, periodic bank reconciliation and physical verification

9.6.4 For the purpose of proper checks and control at the institutional level, the institutions will ensure the following:

a) Maintain basic day-to-day transactions on a regular basis in separate registers and ledgers.
b) Generation of Trial balance, reconciliation statements, receipts and payment, income and expenditure statements.

c) Comparison of Statement of expenditure with the annual budgetary allocations, Programme components and categories of disbursement.

d) Periodic checks on delay of payments on the pending bills and an immediate corrective action to be taken by LIPMU/NIPMU/SPFU and NPIU

e) A finance committee at the institution level for yearly physical verification of assets independently.

9.7 Financial Reporting

9.7.1 The Quarterly Financial Management Report (FMR) will include

a) Comparison of budgeted and actual expenditure and analysis of major variances.

b) In case the disbursement is converted to FMR based, additional FMRs on (a) Withdrawals (b) Cash Forecast (c) Procurement Management for major contracts (d) Physical progress would have to be generated.

9.7.2 The formats are attached at **Annex 8.3**. Programme Financial Statements and FMRs will be generated manually.

9.7.3 In addition to the above, monthly statements of expenditure as per expenditure category/Components showing the allocations, current and cumulative expenditures at institutional, State and National levels i.e. by LIPMU, NIPMU, SPFU, and NPIU will be prepared.

9.8 Review And Analysis

a) The Financial Reports will be reviewed by LIPMU/ NIPMU/BOG/ SPFU/NPIU/State Government/BTE. Each review will focus on physical and academic progress in the Programme, and make recommendations for future course of action to be taken by the institution.

b) The LIPMU/NIPMU will ensure the correctness and reliability of financial data by comparing with the previous reports. The discrepancies found at the NPIU level will be referred to SPFU for reconciliation.

c) Wherever delays occur in the reimbursement claims or the error/mistakes are noted, the same will be communicated to the concerned SPFU to take corrective measures by the NPIU.

In addition a quarterly review of the financial controls of the institutions and SPFUs will be conducted by NPIU.

9.9 Staffing and Training

9.9.1 Finance cell of NPIU will be headed by a qualified finance professional as Financial Management Specialist. The specialist will be assisted by a qualified accountant designated as Accounts Manager. The Financial Management Specialist will be responsible for establishment of the agreed financial management arrangements, providing timely financial reports, facilitating smooth and timely flow of funds and providing overall guidance in respect of financial management issues including monitoring of expenditures, audit and internal control to SPFUs and the participating institutions.

9.9.2 At SPFUs, a Finance Coordinator who will be assisted with adequate support staff will head the finance function. He will be responsible for providing timely consolidated financial reports to the State authorities and the NPIU, monitoring of expenditures, providing overall guidance to the institutions, facilitating smooth flow of funds to all institutions and conduct of timely audit and ensuring consolidation of reimbursement claims.

9.9.3 At the institutional level a senior staff will be designated as in charge of the accounts function for the Programme funds. He will be responsible for complying with the disbursement procedures, financial reporting requirements, monitoring of Programme expenditures and audit. Accounts personnel to work exclusively on the Programme will be identified.

9.9.4 Entire financial staff under the Programme at institutional, State and National levels would be given training on financial management, and reimbursement procedures, etc.

9.10 Operation Manual

9.10.1 An Operations Manual to enable the participating institutions, SPFUs, and NPIU to properly manage finances and report the same is under preparation. It will contain guidelines for accounting, procurement, financial reporting, audit, reimbursement, etc. The manual will essentially be on the same lines as the operation manuals prepared earlier by NPIU for Technician Education Programmes.

9.10.2 It is not possible to finalize the manual at this stage as the disbursement categories and percentages, procurement of Civil Works, Goods and Services thresholds limits and procedures, etc. would be decided and frozen during the negotiations. The same will be finalized by December 2002.

CHAPTER 10

REIMBURSEMENT PROCEDURE AND AUDIT

10.1 External Assistance and Reimbursement Procedure

10.1.1 The Programme is an externally assisted project and attracts the provisions of GOI policies in respect of externally assisted projects. Relevant extract from the External Assistance Manual of Ministry of Finance, GOI is given below:

a) Under externally assisted projects, the external assistance received from various multilateral and bilateral agencies is passed on by GOI to the States as Additional Central Assistance (ACA) on the same terms and conditions as Central Assistance for State Plans. These are different from the conditions at which external assistance is received from various multilateral/bilateral agencies. For States not falling under the special category status, assistance is given in 30:70 mix of grant and loans. With effect from 1st April 2001 a loan with 20years maturity period will carry a rate of interest of 12%. Further, half of it carries a grace period of 5 years.

b) All external-aid disbursed by external agencies to GOI is first received by the Central Government in the Ministry of Finance (MOF), Department of Economic Affairs (DEA), office of Comptroller of Aid Accounts and Audit (CAA&A). The fund flow process in case of Central and State Sector Programme is as below:

Central Sector Programmes

In case of Central Ministry/Department implemented projects, the external aid takes the following route:

Based on Programme provision, the Ministry spends money on the project

↓

Ministry sends claims for reimbursement to CAA&A. (In the Programme central institutions will submit their reimbursement claims to NPIU with intimation to BTE. BTE within 15 days indicate to NPIU any inconsistency)

↓

CAA&A arranges reimbursement from the external agencies, which gets into the Central budget as a receipt.

State Sector Programmes

For the projects implemented by the State Govt. departments, the external assistance follows the route given below:

State Government makes budget provisions for the project

↓

State Finance Department authorizes the implementing Department by releasing funds.

↓

The Departments concerned makes payments and sends the reimbursement claims to CAA&A

↓

CAA&A scrutinizes the claims and forwards application to External Agency

↓

The External Agency reimburses CAA&A after examining the claims. CAA&A advises Programme Management Unit (PMU) in DEA about receipt of funds

↓

The PMU advises Plan Finance-I of the Department of Expenditure (DoE) to release funds in the form of ACA to the States.

↓

Plan Finance – I authorizes Chief Controller of Accounts, Ministry of Finance to effect the transfer of funds.

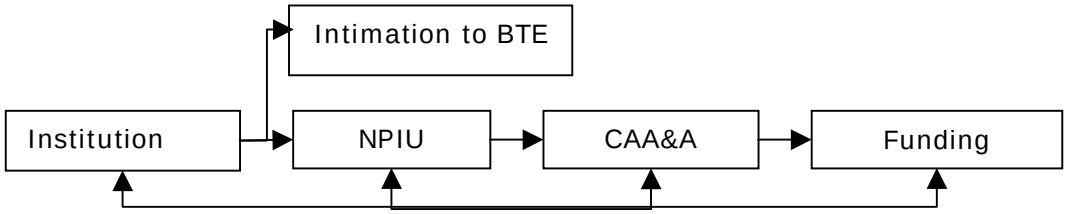
↓

The Chief Controller of Accounts advises the RBI Central Account Section, Nagpur to debit the Central Government Account and credit the State Government Account for the amount.

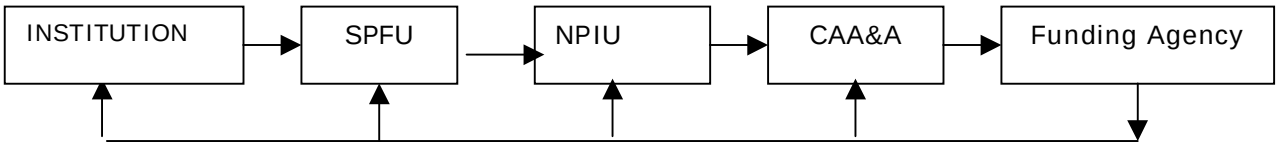
c) The States initially incur expenditure on externally aided projects and thereafter claim reimbursement from GOI. In order to prevent any adverse effect on Programme implementation by the States due to fund constraints and for expeditious utilization of external aid, a system of advance release of ACA is available up to 25% of the budgetary provision which is released by the Department of Expenditure on advice from the Department of Economic Affairs in the first month of a financial year. The States subsequently adjusts this against the reimbursement claim during the last 3 to 4 months of the financial year.

d) The disbursement will be made in the traditional system (reimbursement with full documentation and against statement of expenditures). Under the traditional system of claiming disbursement, the Programme implementing agencies initially incurs the expenditure and then reimbursement is claimed by way of reimbursement claims. The reimbursement claims constitutes three parts:

1. Withdrawal Application
2. Summary Sheets
3. Documents such as invoices, bills, payment receipts, etc.



Flow of Reimbursement Claims for Centrally funded Institutions



Flow of Reimbursement Claims for State-funded Institutions

10.1.2 All State level institutions will send their claims to the SPFU and the Central institutions will send their claims to NPIU. SPFU after the scrutiny will send the claims to the NPIU, which will forward the same after necessary checks and verification to CAA&A for claiming disbursement every quarter. The Financial Coordinator at SPFU and Finance In-charge at the institutional level will be responsible for preparing quarterly claims and the Head of the Institution will ensure timely submission of these claims for the purpose of disbursement. CAA&A will examine these claims and take appropriate action for claming disbursement from the World Bank. CAA&A will provide information on periodic disbursement status to NPIU, and the States.

10.2 Audit Arrangements under the Programme

10.2.1 All accounts maintained by the institutions in respect of funds released under the Programme would be audited as per existing agreed audit procedure(s).

10.2.2 A firm of Chartered Accountants empanelled with or acceptable to the Comptroller & Auditor General of India / State AG will audit accounts of NPIU and SPFUs. The Terms of Reference (TOR) for such audit are attached at **Annex 10.1**.

10.2.3 The audit at SPFU level will include audit of Statement of Expenditure (SOE), and the Programme accounts. The SPFU will be required to maintain the records of SOE and the Programme accounts separately to enable the auditor to carry out necessary checks and verification effectively. Further if the auditor feels necessary, they can audit the Programme accounts of the institutions.

10.2.4 The SPFU will be required to submit to the NPIU a consolidated audit certificate within four to five months of the closure of financial year i.e. by July/August every year and the same will be forwarded to the World Bank. For this purpose the institutions are required to furnish all documents / records to the auditors to facilitate timely audit.

10.2.5 A firm of Chartered Accountants will audit the Centrally funded institutions. Central institutions will submit their audit report to NPIU within four to five months of closure of financial year i.e. July/August every year. For this purpose the institutions are required to furnish all documents / records to the auditors to facilitate timely audit.

10.2.6 NPIU will consolidate the audit reports received from the Central institutions. This consolidation will focus on checking the arithmetical accuracy of the reports.

10.2.7 The World Bank will receive only eight audit reports (audit report of NPIU, 6 reports from SPFUs, and a consolidated audit report of the centrally funded institutions) through the NPIU within six months after close of financial year i.e. by September every year.

10.2.8 The Audit Reports will be unqualified and in the proforma prescribed. A sample proforma is given at **Annex 10.2.**

CHAPTER 11

PROCUREMENT OF CIVIL WORKS, GOODS AND SERVICES

11.1 SCHEDULE OF PROCUREMENT

11.1.1 The procurement of civil works, goods and services will occur at the institutional level under the Programme Component-I (Institutional Development). The details of requirement including the cost of civil works, goods and services for each institution will be reflected in the Proposals of the institutions and will vary from proposal to proposal as per their individual needs in pursuit of excellence.

11.1.2 The participating institutions will, among others, form four working committees namely, Academic Committee, Building and Works Committee, Finance Committee and the Procurement Committee. These Committees will function under the supervision of the BOG of the institution and these Committees will seek approvals on all institutional project related procurements and activities from the BOG.

11.1.3 The procurement of civil works and goods shall be carried out as per the "Guidelines for Procurement under IBRD Loans and IDA Credits published by the World Bank in January 1999" with medications as agreed to with GOI and for services "Guidelines for Selection and Employment of Consultants by World Bank Borrowers published by the World Bank in May 2002". The limits of procurement of various goods, civil works and consultant services shall be applicable as per the details contained in the legal agreements.

11.2 Civil Works

11.2.1 The Programme does not envisage large scale civil works but has provision to meet essential requirements of developmental plans of institutions for acquiring excellence.

11.2.2 Three types of activities under civil works are envisaged: (a) construction of buildings as extensions, b) refurbishing of the existing infrastructure and c) improvement of facilities.

11.2.3 Each institution will be required to create a special Cell in their institution to undertake the responsibility of civil works comprising of faculty from Civil Engineering Department or hire a consultant for undertaking the civil works in consultation with the SPFU.

11.2.4 Majority of civil works (construction of buildings) are expected to be below Rs. 15 Million and the same could be undertaken following the recommendations of the Building and Works Committee duly approved by the BOG of the institution.

First Cycle

The tentative schedule for major civil works (buildings) for the institutions selected in the first cycle of the First Phase of the Programme is as below:

Preliminary drawings	-	March 2003
Working drawings	-	April 2003
Bidding documents Approval	-	May 2003
Commencement of Construction	-	June 2003

Second Cycle

The tentative schedule for the institutions selected in the second cycle of the First Phase of the Programme is as below:

Preliminary drawings	-	November 2003
Working drawings	-	December 2003
Bidding documents Approval	-	January 2004
Commencement of Construction	-	March 2004

11.3 Procurement of Goods:

11.3.1 The institutions under the Programme have large-scale procurement of goods for:

a) Modernization of existing facilities like library, multi media, learning resources, hardware and software for computer centers, e-library, book bank for SC/ST etc;

b) Modernization of existing laboratories and workshops

c) Setting up new labs and workshops for introduction of courses in high and emerging technology areas for graduate, post-graduate and doctoral programmes;

d) Research and development for industry and community, faculty research and national and international collaborative works;

e) Educational technology items such as books, learning resources of various kinds, national and international journals and periodicals, software, simulation exercises, special learning packages, video conferencing set ups;

f) Networking;

g) Communication with other organizations including internet facility etc; and

h) Reprography and documentation, office equipment

i) Student amenities and facilities etc.

(a) **Equipment**

All institutions selected under the Programme will be responsible for procurement of equipment for their projects.

Since the selection of institutions is competitive in nature, the exact requirements of equipment and its value cannot be determined at this stage. The procurement of equipment will be made on the recommendations of the institutional Purchase Committee duly approved by the BOG. NPIU will have a special Procurement Cell supported by Specialists / Consultants whose responsibility will be to advise the selected institutions on procurement related issues. The participating States have experience of procurement through agreed procedures and their capabilities have been recognised and appreciated in the ICR of Tech Ed I and II. The NPIU has the experience of guiding procurement in Tech Ed I, II, and III. These capabilities of NPIU and SPFUs will be utilised in carrying out large size procurement if the need arises during the first year of the Program.

Intensive efforts will be made by NPIU and through other procurement training agencies in the country to train the Program officials at the SPFU and institutional levels to undertake large size procurements.

After one year of implementation of the Programme, the situation would be reviewed to determine the procurement capacities of the institutions and the need for hiring a Procurement Agency at the National level. The National Steering Committee in this regard will take appropriate decisions.

(b) **Furniture**

All institutions, SPFU and NPIU will purchase furniture from local sources and would follow prescribed Procedures. The value per contract will not exceed Rs 2.5 Million.

(c) **Vehicle**

All institutions, SPFU and NPIU will purchase vehicle through prescribed procedure and DGS&D Rate Contract where applicable. The value per contract will not exceed Rs 2.5 Million.

(d) **Books and LRs**

Books, journals, books for the book bank for SC/ST students, Learning Resources, Multimedia packages, E-libraries journals and books, software, simulation software etc. will be purchased through prescribed procedure. The value per contract will not exceed Rs 2.5 Million.

(e) **Training**

The officials dealing with procurement in the Programme institutions and SPFU will be given training on basic procurement procedures by Procurement Cell of NPIU to undertake procurement for immediate requirement of the Programme. Further detailed training programmes for the officials of the institutions, SPFU, and NPIU will be organized through nationally reputed institutions/ organizations.

11.3.2 Suggested action plan for Procurement of Goods is as below:

First Cycle

The procurement of goods through other methods is likely to begin immediately after the commencement of the Programme. Tentative schedule for procurement of equipment for the institutions selected in the first cycle is as below:

Preparation of specifications	March 2003
Preparation of tender documents	April 2003
Floating of tender inquiries	April 2003
Opening of tenders	May 2003
Finalisation of bids	June 2003
Signing of contract	July 2003
Supply of goods	October 2003

Second Cycle

Tentative schedule for procurement of major equipment for the institutions selected in the second cycle is as below:

Preparation of specifications	November 2003
Preparation of tender documents	December 2003
Floating of tender inquiries	December 2003
Opening of tenders	January 2004
Finalisation of bids	February 2004
Signing of contract	March 2004
Supply of goods	June 2004

11.4 Services

11.4.1 The Programme is of a special nature wherein support and services of a variety of consultants would be needed in order to achieve the goals of the Programme and the excellence, which the institutions would acquire.

11.4.2 Several activities under the Programme would be carried out with the help of resource institutions. These would include, training and fellowship programmes, conducting research studies and implementation of several academic activities.

11.4.3 The Programme envisages appointment of Local and Foreign Consultants (individuals) for the above purposes. The cost of services to be hired by the institutions under Programme Component-I cannot be reflected here. However, the total cost of services for Programme Component-II is estimated at Rs. 57 Million. Both firms if required, and individuals (experts) for various services will be hired on competitive basis.

CHAPTER 12

QUALITY ASSURANCE

12.1 Quality assurance has become an essential feature of all product and system development in engineering and technology as it ensures satisfaction of at least the minimum quality standard for the product when in use, with variations in quality of individual units in batch or mass production kept to the absolute minimum. Assurance of quality requires total control of quality starting from the material used in manufacture, the process employed, the fabrication, the assembly, testing and validation of design specifications, packaging, marketing and sales, and includes even after sales customer support services. Total quality management (TQM), ISO 9000, Zero Defect system, etc. have come into prominence in the last decade to satisfy customers that enough care has been used in the design and manufacture of the product or system concerned so that it would give satisfactory service over its life period.

12.2 The quality assurance mantra has gradually been extended to the services sector including education and the public today expects educational systems to ensure that quality of educational services offered meets the required benchmark.

12.3 The objectives of Quality Assurance in the educational system are:

a) To ensure that the output of the System meets the desired and declared characteristics,
b) To ensure that all components of the educational system, including human resources, educational infrastructure, and educational processes satisfy the specified quality benchmarks for producing the desired output,
c) To satisfy the public in general that the quality of education and training offered is of the right national/international standard,
d) To assist management in taking the right decisions on investments in procuring human and physical resources appropriate to the quality level desired, and
e) To satisfy the policy planners that human resource development is on the right track and is meeting the aspirations of the people and the needs of the economy.

12.4 The instruments to be used for measuring satisfaction of the above objectives include

a) Accreditation of courses and institutions,
b) Continual quality monitoring and grading,
c) Periodic review by external expert agency,
d) Achievements of alumni through tracer studies,
e) Impact of institutional outputs on the system and the community, and
f) National and International recognition.

12.5 The Indian Technical Education System is very large and consists of more than 4000 institutions having an admission capacity of more than 500,000 students per year. and offering courses at diploma, degree, postgraduate and doctorate levels. For ensuring and monitoring quality in such a large system, a three-tier structure would be needed at the individual institution level, the State level, and the National level.

12.6 At the Institute level the quality assurance cell would keep a strict internal watch on the following:

a) Regularity of academic sessions and conduct of programs,
b) Attendance during lecture, tutorial, and laboratory classes,
c) Class tests and assignments on schedule,
d) Fair and transparent student evaluation mechanisms,
e) Curricula being properly planned and implemented,
f) Students' involvement in research and, innovative and creative activities,
g) Opportunities for taking part in regional/national design competitions,

h) Training in problem solving, information collection and processing, environmental impact analysis, and in acquiring communication skills (both oral and written) and, entrepreneurial ability,
i) Harmonious interaction between students and faculty, faculty and management, and students and management,
j) Grievance redressing and academic/personal counseling mechanisms.

12.7 At the State level the quality assurance actions required are:

a) External monitoring of educational processes in all the technical education institutions in the State,
b) Coordinating teacher development programs for all institutions,
c) Planned upgrading of infrastructure facilities,
d) Offering incentives to institutions for their quality initiatives,
e) Analyzing impact of States' technical education system on society,
f) Setting up external review missions to assess quality of education and training being imparted in individual institutions,
g) Taking corrective actions on the basis of review reports, and
h) Independent quality grading of institutions at the State level for encouraging competition among them and for public knowledge.

12.8 At the National level the quality assurance mechanism would include:

a) Setting benchmarks for output quality parameters at all levels,
b) Specifying output characteristics including knowledge, skills, and attitudes,
c) Accrediting institutions and courses of study,
d) National grading of institutions for competition among them and for public knowledge,
e) Setting up mechanisms for periodic review of all institutions,
f) Monitoring international norms for accreditation and adopting those that are relevant, and
g) Adapting to technological advances worldwide.

12.9 In developing a viable and efficient quality assurance mechanism, it is essential to establish benchmarks for all the components of the technical educational system. The major human resources components are the students, the teachers, the supporting staff, administrators and management personnel. The educational infrastructure components are the buildings and services, the classrooms, the laboratories and workshops, library, equipment for teaching and training, computing and communication facilities, access to internet and intranet, software for computer assisted learning, playgrounds, cafeteria, hostels, leisure rooms, staff rooms, and facilities for extra curricular activities. The educational process components are the curricula; lecturing, tutoring, and laboratory and workshop training activities; evaluation systems and grading; industrial and community attachment and service; field work; problem solving and consultancy activities; research and creation of new knowledge; innovative assignments, etc. The quality assurance system should not only establish benchmarks for all components but also monitor performance against the set benchmarks. For human components, emphasis would have to be both on the desirable input as well as the output characteristics; for infrastructure components on upgradation of facilities; and for educational processes on relevance, efficiency and effectiveness.

12.10 The proposed TEQIP would strengthen the current quality assurance mechanism available at the National level in the form of the National Board of Accreditation of the AICTE. It would also assist States to set up quality assurance and monitoring (QA&M) cells in the Directorates of Technical Education under the direct supervision of the State Boards of Technical Education. All Programme institutions would also have quality-monitoring cells as part of their Programme Implementation Units. The quality monitoring reports could be integrated with other implementation reports and forwarded to the State QA&M cell which would integrate the reports at the State level along with reports on its own independent quality monitoring activities and forward

the same to the NPIU which would have an independent QA division This QA division would integrate all monitoring reports including those received from the NBA for the perusal of the National Programme Director and for taking corrective measures where necessary for the success of the Programme.

12.11 Quality assurance is thus seen to be a major activity in which the Center and the States have a significant role to play in ensuring that the investments in education, both through public and private initiatives, are meeting the objectives of educational development. Since human resource development is considered a key instrument for economic progress, quality of technical education and training becomes a dominant parameter in assessing the Country's capacity in meeting the aspirations of its people and providing them with the needed technological services, both timely and efficiently. The intellectual and skill capital of the population could be harnessed for social, economic, and technological transformation of society. The reputation of providing high quality education and training would make the output of the system compete favourably with their counterparts from other parts of the world and thus help mobility and acceptability of Indian professionals for jobs anywhere in the world and Indian Industry for successfully trading in technological services.

TECHNICAL EDUCATION IN FIVE YEAR PLANS

First three Five Year Plans were devoted to expansion of Technical Education in order to meet growing need for technical personnel in the industry and developing service sectors. Fourth Five Year Plan onwards, the efforts were devoted on improving quality and standards of Technical Education. During the Eighth Five Year Plan the emphasis was laid on modernization and upgrading of infrastructure; quality improvement, responding to new industrial policy and consequent interaction between institutions, industry and R & D organizations; resource mobilization; institutional development; flexibility in curriculum design and delivery, institutional governance and promotion of excellence in technical institution at diploma and degree levels.

Achievements during Eighth Five Year Plan were noteworthy. Nearly 900 laboratories were modernized; 600 projects were undertaken by institutions in crucial technology areas; more than 50000 professionals from industry were imparted training in technical institutions; schemes of resource mobilisation became operational in central institutions; fee structure was rationalized and the target for post graduate admission increased. During this Plan, AICTE launched a number of developmental schemes and prime institutions like IITs and IISc undertook consultancy projects and challenging assignments under technology development missions.

The focus of the Ninth Plan was to shape and support the technical education system to cope with the new challenges and dimensions emerging out of liberalization of economy, rapid industrialization and advent of Panchayati Raj.
The emphasis of the Ninth Plan is on following four dimensions:

- Sustaining and consolidating the infrastructures and initiatives with visible gains developed during the Eighth Plan and expanding the scope of such infrastructures for additional gain.

- Strengthening systems of management and governance at all levels, networking between institutions and developing effective new linkages.

- Introducing new and innovative schemes which shall enhance the vibrancy of the system and help it conform to the emerging demand of industrial growth in terms of new technologies as well as quality enhancement and

- Expand the base of research amongst technical institutions to effectively tackle the industrial problems related to product, process and technology development and also the manpower need.

During the Ninth Plan significant achievements have been made in developing strong linkages between institutions and industries, particularly through technology development missions and these institutions are able to generate internal resources. The institutions were able to modernization their laboratories and other infrastructure through direct central assistance. AICTE launched Early Faculty Induction Programme to attract talented engineering graduates towards teaching profession by providing them postgraduate training at premier institutions. The engineering colleges also kept pace to some extent with advancement and changes in engineering and technology and upgraded their infrastructure facilities; revision of curricula; launching of new Programmes in emerging thrust areas and forging links with industry.

1.1 The X Plan framework includes:

a. Expansion of the scheme of Technology Development Missions and its coverage to other institutions like RECs

b. Increase in student intake in IITs and other selected institutions to meet the increasing demand for quality technical manpower in IT and other related areas
c. Modernization of Libraries, Laboratories & Workshops
d. Introduction of electronic classrooms with video conferencing facility & state of art computer facilities to institutions
e. Strengthening of IIIT, Allahabad and IIITM, Gwalior to be fully operational
f. Strengthening of Regional Engineering Colleges to World class institutions
g. Launching of a National Education System for Testing (NEST)
h. Improvement in Post Graduates Education in Engineering & Technology
i. Development of a comprehensive information system for technical education
j. Enhanced emphasis on value education in technical and professional education
k. Technician Education Project for the State/UT not covered under earlier two Projects
l. Schemes for training and retraining of teachers
m. Development of Information Technology Education
n. Networking among institutions, with industries and other organizations
o. Quality assurance and certification
p. Improving Quality and Quantity of Research in Technologies and Technical Education
q. Flexibility by introducing MPECs in degree and diploma Programmes
r. Granting autonomy to institutions
s. Increasing technical education opportunities for weaker and disabled sections of society
t. Development of informal sector through technical institutions and
u. Removal of regional imbalances

2. National Policy on Education

During the last five decades there has been phenomenal expansion of technical education facilities in the country since it is one of significant components of human resource development spectrum. Since independence efforts were made to cater to this sector of economy with a vision, however, the first policy document was prepared in 1968.

The NPE, 1986 laid down specific guidelines for the qualitative and quantitative development and management of education sector; manpower assessment and technical education forecasting; developing and sustaining linkages among concerned agencies; measures to achieve increased cost effectiveness and generation of resources through various means. It envisaged the involvement of the nation as a whole in assuming the responsibility of providing the resource support for education. “The logical corollary of this proposition is that an ethos of cost-effectiveness and accountability should permeate every part of the education system. To say the least, unplanned proliferation of sub-standard institutions should stop here and now; Programmes should cease to be driven by budgets and instead should stress processes and outcomes; efficiency should be rated not by ability to consume budget and demand more but by performance and delivery. All this calls for extra-ordinary attention to the management of education that is often neglected. …… Reforms of management in its entirety should be the first and foremost task of the education community.” (Programme of Action 1992).

National Policy on Education 1986, as modified in 1992 further recognizes that “the general formulations incorporated in the 1968 policy did not, however, get translated into a detailed strategy of implementation, accompanied by the assignment of specific responsibilities and financial and organizational support. As a result, problems of access, quality, quantity, utility and financial outlay, accumulated over the year, have now assumed such massive proportions that they must be tackled with utmost urgency.”

The same document also states that “Education in India stands at the crossroads today. Neither normal linear expansion nor the existing pace & nature of improvement can meet the needs of the situation.”

2.1 The Policy States:

- Education is a unique investment in the present and future, education will be treated as a crucial area of investment for national development and survival,

- In higher education in general, and technical education in particular, steps will be taken to facilitate inter-regional mobility by providing equal access to every Indian of requisite merit, regardless of his / her origin,

- Special measures will be taken to establish network arrangements between different institutions in the country to pool their resources.

- Autonomous colleges will be helped to develop in large numbers until the affiliating system is replaced by a freer and more creative association of universities with colleges, autonomy and freedom will be accompanied by accountability.

- Networking system will be established between technical education and industry, R&D institutions, Programmes of rural and community development, and with other sectors of education with complementary characteristics.

- Institutions will be encouraged to generate resources using their capacities to provided services to the community and industry.

- Special attention will be paid to the promotion and strengthening of the technology base in newly emerging and frontier areas such as information and materials sciences, electronics and bio-technology.

- Building of Centres of excellence will be encouraged.

- The quality and efficiency of the technology generation and delivery systems will be continuously monitored and upgraded. All of this calls for substantial financial investments and also strengthening of the linkages between various sectors (industry, educational institutions, R&D organisations, governmental machinery).

2.2 Post NPE / POA Developments

1. As per Annual Report 1998-99 of Ministry of Human Resource development it was felt that IITs and IISc should concentrate on technology assessment and forecasting to determine futuristic approaches and emerging trends in science and technology. As a result, projects in seven generic areas of strategic significance, namely Food Processing Engineering (FPE), Integrated Design Competitive Manufacturing (IDCM), Photonic Devices and Technologies (PDT), Energy Efficient Technologies (EET), Communication Networking and Intelligent Automation (CNIA), New Material (NM) and Genetic Engineering and Biotechnology (GEB) are being implemented in Mission mode by five IITs and IISc, Bangalore.

   For implementation and coordination of the scheme, a National Steering Committee and Mission Management Boards have been constituted.
   In Mission Management Boards involvement of various participating agencies has been ensured. As a result, the Mission mode approach adopted in the scheme has proved to be a lead example for establishment of industry institute interaction.

2. The IIMs located at Ahmedabad, Kolkata, Banglaore and Lucknow have established Research Centres to cater to the needs of non-corporate and under managed sectors such as Energy, Health, Education, Agriculture and Rural Development etc.

3. A Programme of Centres of Excellence in RECs was initiated during 1993-94 to improve standards of teaching, research and other activities of RECs.

4. The UK-India RECs project was initiated to strengthen technical education in India through assistance to eight RECs in four technical themes i.e. Design, Energy, Information Technology and Materials Engineering in April 1994. Through this project the selected RECs have gained exposure to advanced technological aspects, improved teaching methodologies, updated curriculum at undergraduate and graduate levels. Efforts have been made through this project of enhance industry institute interaction and interaction among RECs. Improvement in library facilities and other equipment has been brought about.

5. All India Council of Technical Education (AICTE) was set up in 1945 as an advisory body in the MHRD and was given a statutory status under the AICTE Act in 1987. The council now functions with an independent secretariat through various Boards of Studies and Regional Committees.

6 Through Indian Society for Technical Education the scheme for upgrading the skills of working professionals was initiated.

7 A scheme of Industry-Institute-Interaction for developing closer interaction between technical institutions and industry was started. Under this scheme, industrial foundation at IIT, Delhi was also established.

8 Through technical institutions a scheme for entrepreneurship development among non-corporate and unorganized sectors was also launched.

9 A scheme for restructuring the curriculum development centres was launched for effecting development of need based curricula.

10 The scheme of Modernization and Removal of obsolescence and Thrust Areas of Technical Education was further strengthened to lay greater emphasis on covering more institutions. Efforts were directed towards modernization of laboratories, workshops and teaching processes and introducing new and emerging areas in engineering and technologies.

11. Two separate Review Committees were formed to review IIMs and TTTIs to assess their present status and impact so as to give them new direction and thrust.

12. National Expert Committee reviewed the scheme of community Polytechnics to determine its effectiveness, impact and coverage on the socio-economic upliftment and poverty alleviation. Number of Community Polytechnics was also substantially increased.

13. Under the amended Apprentices Act, additional vocational subjects were included in order to provide training for the 10+2 vocational students.

14. A massive project was launched to strengthen and upgrade polytechnic system in capacity, quality and efficiency in 17 states and two Union Territories covering more than 530 polytechnics with the total cost of Rs 2100

crores. The projects were implemented in two phases from 1990-1999 with the World Bank assistance.

15. Another project to strengthen and upgrade polytechnic system in 6 North Eastern states, UT of Andaman and Nicobar Islands and Jammu & Kashmir is currently in progress. This is also being implemented with the World Bank assistance.

3. Important Committees

The summary outcomes of prominent Committees formed for policy reforms in the technical education system is given below:

3.1 Mashelkar Committee on Regional Engineering Collages (1988)

A High Power Review Committee was set by MHRD to take a close look at the performance and the state of health of RECs. The committee made significant recommendations as to how the character and administration of RECs should be transformed to respond to the changing context not only to maintain their eminence, but also to be trendsetters in their field. Some of the important recommendation of the committee are:

- Administrative autonomy through independent Board of Governors.
- Academic autonomy through Deemed University status, with substantial freedom in terms of academic administration, faculty recruitment, faculty empowerment, etc., similar to that of the IITs
- The Block Grant scheme, currently provided to the IITs, should also be made available to the RECs.

3.2 Inderesan Committee on intake of students in RECs.:

The committee was constituted to examine the issue of increase in student intake in engineering disciplines in the RECs from the academic session 1998-99 and also to look into the additional requirement of equipment, laboratories, space, lecture room, additional hostel seats etc for the increased strength. On the basis of the recommendation of this committee student intake has been increased in various discipline in 15 RECs.

3.3 Rama Rao committee Report on Post Graduate Education in Engineering and Technology (1998):

The committee was set up to analyze the current state of postgraduate education and research in Tech Education and to recommend steps to bring about the desired changes. The Committee presented its recommendations under six headings: (a) Master's Degree and PG. Diploma Programmes; (b) Faculty Development; (c) Doctoral Programmes and Advanced Research; (d) Vital support services; (e) Goals and estimated financial inputs and; (f) Funding sources.

Major Recommendations of the Committee:

- Duration of Master's Degree Programme be increased to 21 months of which ten months or two semesters should be devoted to Master's project and dissertation;
- National Coordination Board of GATE be expanded to ensure better planning and smoother operation of GATE.

- A clear policy to close down or restructure obsolete Master's degree Programmes is called for.

- A special effort required to correct regional imbalances in sanctioned capacity and output of the graduates.

- Every college and academic institution in the country must make it a mission to help development of their own faculty. Quality Improvement Programme (QIP) should be vigorously promoted.

- There is urgent need to promote doctoral Programmes and advanced research in the fields of engineering and technology.

- A centre for dissemination of library information, to be called National Centre for Engineering Information to be set up.

3.4 Indiresan Committee Report on Technical Teachers Training Institutes (November 2000):

The committee was set up to review the Programme and activities of TTTIs in fulfillment of its objectives and provide focus for the future to suggest directions for future development of TTTIs to cope with the challenges of technical education due to impact of information technology, autonomy and changes in industry in the new millennium. Some of the important recommendations of the committee are:

1. There is need to look into the infrastructure facilities and expertise available at the TTTIs and find ways & means to optimally utilize these facilities.

2. Ways must be found to meet the training cost, expand scope of TTTI activities by including engineering college system and also to fund institutions substantially so that research activities, development of instructional materials in modern communication technology formats, improvement of instructional processes are possible.

3. Considering shortage of faculty in polytechnics, modular pattern may be more suitable for training large number of teachers. TTTIs should adopt this approach.

4. TTTIs should offer Programmes in distance learning mode of training to cover more courses and larger number of teachers; they should also start working on areas like should also start working on areas like web-based learning for their training Programmes.

5. TTTIs should undertake systemic research to provide research impact for development of education systems & their management.

3.5 Raju Committee Report on Operational Strategies Networking of RECs & Engineering Institutions (2001):

The committee was set up to draft operational strategies for networking of RECs and IITs in order to promote Excellence in Technical Education in the country. The report states that the success of outcomes of the networking between RECs and it is strongly dependent on; number of pre-requisites such as governance, structure, and administrative and academic autonomy of the RECs etc.

The Committee Recommended:

- Exclusive fund be created for promoting the networking activities between the RECs and the IITs

- Faculty of IITs/IISc should be encouraged to spend time at the RECs for joint academic activities; special incentives e.g. deputation, due recognition, honoraria should be provided

- A special scheme should be initiated for REC faculty for up grading their qualifications

- Centres of Excellence for centres of relevance and excellence should; be set up to create research infrastructure and research culture in RECs.

3.6 India 2020 – vision for the New Millennium, based on TIFAC Reports (1998):

Technology Information Forecasting and Assessment Council (TIFAC), a registered society under the Department of Science and Technology of the Government of India had conducted a major national exercise with the involvement of experts from academic institutions, R&D laboratories, Government, Industry and users to determine a long-term vision for India. This exercise conducted during 1994-95 resulted in 25 detailed reports called "Technology Vision for India 2020". These reports cover sixteen key sectors. The recommendations related to engineering, science and technology that emerged out of this exercise briefly are:

- India should become a developed nation by 2020.

- India should capitalise on the agricultural strengths to establish a major value adding agro food industry based on cereals, milk, fruit and vegetables, to generate domestic wealth. Also make India a major exporter of value added agro food products. Agro food industry and distribution systems should absorb a number of persons rendered surplus from increasingly productive and efficient agriculture.

- A number of engineering industries and service businesses to grow around the agro food sector.

- India to capitalise on its vast mineral wealth to emerge as a major techno industrial global power in various advanced and commercial materials, steel titanium, aluminum, rare earths etc.

- Indian chemical industry to be transformed into a global, technological innovator, clean processes and specialty chemicals, and new drugs and pharmaceuticals. A major business should be created in natural products. Vast bio-diversity should be transformed into wealth of the people and nation through selective technological interventions. Indian marine resources are to be transformed into economic strength.

- There is to be a resurgence of the engineering industry – machine tools, textiles, foundry, electrical machinery and transport equipment. India has to become a net exporter of technology in these areas by 2010, and a world leader in embodied software for manufacturing and design, and also a key contributor in the field of flexible manufacturing.

- India should emerge as a global leader in the services sector with its vast skilled human resource base being its core strength. The services will range from the simple to the most sophisticated using emerging digital and communication revolution. The services sector is not to be a money-spinner but will employ a good proportion of people, often in self-employment, with abilities ranging from simple to super skills.

- India needs to pay more attention to economic areas and to employment generation. Attention should also be given to strategic sectors. The confluence

of civilian and defense technologies is leading to a "dual use" of most new technologies though these new technologies may appear costly in the short run, their mastery is needed in India to become an economic power. Some Indian laboratories and industries have an excellent base in these technologies like in the areas of materials, electronics, propulsion, and simulation among others. Missions to strengthen these areas focused on dual use capabilities is necessary. In other words, a generic technology common to defense and civilian applications needs to be developed on a commercial scale. It is therefore necessary to draw Indian industry into these hi-tech areas for design, development, production and fabrication, marketing, and post sale services. Export in these areas need to be promoted.

- Many recent technological inventions help to reach "health services to all". Sensors and information technology are making it possible for access of special attention to even remote areas (tele medicine). A short-term rapid action should attend to tele medicine requirements.

- In order to achieve the vision, crucial action needs to be taken to ensure accelerated growth of infrastructure – energy, quality electrical power, roads, waterways, airways, tele communication, ports etc. Several short term and unconventional measures need to be taken. Rural connectivity is crucial if the boom in agriculture and agro food sector is to be fully utilised. Information technology can lead to the possibility of establishing advanced world-class industries and business in villages. Highly creative in software, information technology and design can be done in a rural environment, which has good facilities and connectivity. Further, well-connected rural areas can become Centres for Excellence for value added exports or vigorous domestic business besides giving the country food and related products. In addition, biotechnology and bio fertilizer production units can be started in rural areas, the underline condition is excellent connectivity. Given the devolution of power to panchayats, they can play a major role in this development.

- The Community Polytechnic Scheme of the Government of India has matured considerably since its inception about 30 years ago. The two reviews of the scheme (by Kalbag and Luther Committees) have resulted in the suggestions of some changes in the scheme in order to improve its effectiveness. In the light of the National Policy on Education (1986) and the TIFAC futures document, income generation and enhancement of productivity of people engage in the tertiary or unorgainsed sector and the utilisation of specific technologies in rural areas are factors to be emphasised in technical and scientific manpower development. Incorporation of strategies to realise these goals have been considered in the Community Polytechnic sub-component of the Third Project.

The National Policy on Education, 1986 had expressed the need for technical manpower studies and information. The TIFAC document emphasises the necessity for developing technical manpower in consonance with employment and new technology requirements. In addition a quantum improvement in the quality of decision making in the Technical Education System at all levels has been recognised as imperative. All these requirements emphasize the early development of a comprehensive information system, which can assist managerial decision-making and can provide a concept of labour market needs.

3.7 Technology Mission

A National Mission for Technology Education has recently been set up by the Government for the purpose of increasing the number of highly trained professionals in Information Technology and other areas of Engineering and Management with the following terms of reference:

i) To lay down policy for expansion of highest quality of Technical and Management Education in the country,
ii) To plan for a very substantial expansion in the Technical Manpower, particularly in new and emerging areas, keeping in mind the requirements of the growing Indian economy,
iii) To develop India as an internationally acclaimed Technical and Management Centre,
iv) To ensure balanced regional development of Technical and Management education in the country,
v) To promote PG Education and Research in higher technical institutions,
vi) To take a holistic view and adopt a convergent approach in the implementation of various on-going programmes,
vii) To oversee different initiatives of the Government like

- Upgradation of technical professional institutions,
- Accreditation,
- Quality Assurance

3.8 National Policy Initiative

National Policy Initiative in Technician Education (1998): The major initiatives recommended were:

- Shifting decision making to institutional level
- Generation of additional resources
- Developing Centres for Excellence (CFEs) and Indian Polytechnic Institutes (IPIs)
- Faculty and staff recruitment, retention and development
- Information resources and services
- Raising the status of polytechnic passouts
- TTTIs are resource institutions

TECHNICIAN DEGREE PROGRAMME

1.1 Introduction:

An Expert Group set up by the MHRD in 1998 on Policy Initiatives for Technician Education observed that due to rapid developments in technology, significant and qualitative changes in the requirement of technician engineering manpower has occurred. Technicians are now required to occupy multiple level positions to perform and manage activities on the shop floor and in the field.

Under the Project, it has been decided to allow well-performing polytechnics to offer technician degree courses in selected new and emerging technology areas, while continuing to offer the existing diploma and post-diploma programmes. This effort will equip technicians with knowledge and skills required for performing multiple functions in their jobs.

1.2 Rationale:

The technical manpower spectrum of the industry in our country has traditionally been a 3-tier structure- engineer, technician and craftsman. It has now been recognized that the distinctiveness of the three bands has lost its significance in the present economic and industrial scenario. The conventional 3-tier structure is gradually giving way to the 2-tier structure as automation and information technologies are percolating in the industrial systems.

In one tier of this structure are the skilled workers and in the other, there are the degree/ diploma engineers performing functions complimentary to each other. The diploma holders are performing quality management functions in the field and at the shop floor including routine design and communication with the customers. The rapid advancement and changes in the world of work have extended the technician level positions both horizontally and vertically.

1.3 Salient features of the proposed programme:

- The proposed courses shall be credit-based, flexible and modular with provision of multiple entry to satisfy the requirements of diploma holders in various engineering disciplines.
- The normal duration for completion of the course is to be designed as 3 years (6 semesters) such that parity in total course duration exists between the technician degree holders after diploma (10+3+3 = 16 years) and the degree holders after higher secondary (12+4 = 16 years).
- The quality of the passouts of 3-year technician degree programme will be at the same level as that of the passouts of conventional 4-year degree programme, particularly in respect of acquired knowledge, skill and attitude in new and emerging areas of technology.
- Admission to the proposed Technician Degree Programme would be open only to working professionals sponsored by the industries
- The polytechnics in consultation with industries will work out specific Technician Degree Programmes or the courses may be determined from actual job surveys.
- The Teaching-Learning strategy will be industry oriented and practice-based and will focus on project-oriented study. ‘Practice School type instruction including internship in industry, (as by BITS, Pilani), may also be adopted
- The courses will have enough flexibility and scope for offering diversified modules catering to the needs of specific category of industries.

AICTE GUIDELINES ON THE SCHEME OF AUTONOMOUS DEPARTMENT / INSTITUTION / CENTRES / SCHOOLS WITHIN THE UNIVERSITY SET UP

1 NEED FOR AUTONOMY

The working group set up by the Ministry of Education in 1978 had recommended grant of autonomy to institutions on a selective basis to enable them to respond more effectively to the changing needs of the society. These recommendations were endorsed by the AICTE.

The Ministry of Human Resource Development's document "Challenge of Education – A Policy Perspective (1985)" highlighted the need for strengthening the autonomy of Colleges and Universities. National seminars on New Education Policy held at Madras, Bangalore, Delhi and Calcutta have also laid emphasis on granting autonomy to the Colleges and Departments in the Universities.

The National Policy on Education 1986, emphasising on the need for autonomy states, vide para 5.28, the creation of autonomous departments within universities on selective basis will be encouraged. Autonomy and freedom will be accompanied by accountability Para 5.32 of the National Policy on Education also states that "an effort will be made to encourage setting up of national research facilities within the university system with proper forms of autonomous management."

The Education Commission (1964-66) had also recognized the need for autonomy within a University. Further, the Gajendragadkar Commission (1971) had recommended grant of autonomy to the teaching departments or other units that are under the direct control of the University. The UGC, in 1987, in its policy frame had also emphasized the need to decentralize authority and confer autonomy to university departments, to avoid delay, to create dynamic system and to promote innovation and reforms.

Various centers/institutes have come into being in universities, to look after specific R&D or interdiscipline extension or other Community oriented activities etc. Such centers/institutes often have special needs that require a functioning and approach different from the usual ones in a University. The rigidity of working procedures and centralized control may not be conducive to the efficient functioning of such centers for accomplishing their tasks. Granting Autonomy may facilitate flexible approach in decisions making and promote decentralized administration, which are conducive for better functioning.

Further, there is an urgent need for autonomy for the departments/centers within the university to enable teachers and students to try innovations, utilize creative talent, improve upon standards of education and research and to quickly respond to academic and social needs. The teachers and students view the system of autonomous departments/centers within the University set-up as a joint pursuit of scholarship and excellence.

2 OBJECTIVE OF AUTONOMY

The prime objective would be to enable various units within the university system to grow to their full stature as centers of excellence, thereby starting the process of restoring the center of gravity of academic pursuits to the University systems.

The development of autonomous Technical Schools/Institutes/ Centres/Departments (hereinafter to be referred to as Technical Department) within the university system should provide freedom to:

- prescribe rules for admission on merits, in conformity with the reservation policy of the AICTE/University;
- determine their own courses, curricula, methods of education and training in pursuit of excellence;
- evolve methods of evaluation, conduct examinations and finalise results for declaration;
- enter into collaborative arrangements for purposes of curriculum development, teaching, research and consultancy/extension education with other institutions of higher learning and industries organisation wherever need be;
- evolve administrative and financial arrangements with a view to encourage experimentation and to cut down delays in decision making processes for the sake of effective teaching and research including completion of time-bound projects which may otherwise be delayed on account of centralised decision by the university bodies, keeping intact the overall policies of the AICTE/University; and
- take steps to expedite the recruitment of faculty and the project staff provision of infrastructure and instructional facilities needed for the system.

The autonomous status will have inbuilt process of the department's accountability to the AICTE/University concerned for good performance.

3 CRITERIA FOR IDENTIFICATION OF TECHNICAL SCHOOL/INSTITUTES /CENTRES/DEPARTMENTS FOR GRANT OF AUTONOMY

The autonomy is intended to be a means for the departments to achieve higher standards and greater creativity rather than a reward for good performance during the past. Following factors need to be kept in view while granting autonomous status:

a. Accreditation of Institute/Centre/Department is a pre-requisite
b. Academic record and potential of the department
c. Academic attainments of the faculty
d. The mode of selection of students and teachers viz. whether such selection is without regard to caste, creed or social class.

The departments may apply for autonomous status to the AICTE, giving the following information:

i. Teaching programmes;
ii. List of research projects;
iii. List of publications;
iv. A note on significant achievements in teaching and research;
v. Contributions to the extension education programme of the university;
vi. Staff strength, awards and other recognitions received by the staff; and
vii. Other features which might strengthen the claim of the department for autonomous status.

Grant of autonomy shall be lined with the quality of the institution vis-à-vis its status of accreditation. However, requests of autonomy from institutions of quality shall be entertained on case-to-case basis till such time that the accreditation becomes fully operational.

4 CONFERMENT OF AUTONOMOUS STATUS

The university itself with the approval of the AICTE will confer the autonomous status on a department within a university. Where the University Act and/or the statues restrict the powers of the university for allowing autonomous status to a department within the university, necessary amendments in them may be got made. While granting autonomy, the university has to ensure that the management structure of the autonomous department should be such that it gives a lot of participation to academics along with responsibility.

The right of autonomy may not be conferred once for all. The exercise of rights on conferment of autonomous status by a department will, however, have to be continuously earned and deserved. The status of autonomy may be granted initially for a period of 5 years but a review should be undertaken after 3 years by the university with the help of a committee to be constituted for the purpose. The committee may comprise academic experts as follows:

a. One nominee from AICTE
b. One nominee of the parent university
c. One nominee of the UGC
d. One Head of an autonomous department to be nominated by AICTE

During the course of time, if the AICTE/University has convincing evidence about the misuse of the autonomy and/or of decline of standards of teaching, examination and research, it shall be open to the AICTE/University to have the working of the autonomous department reviewed through an expert committee before revoking the autonomous status.

Such an Expert Review Committee should consist largely of experts from outside the university, including a UGC nominee.

5 FUNCTIONING OF AUTONOMOUS DEPARTMENTS

The primary tasks of a department are to provide teaching to conduct research and to participate in the consultancy/extension education programmes of the university. These are academic affairs. The financial and administrative arrangements within the department are only to help accomplish efficiently the primary tasks. In order to look after the academic affairs, financial matters and administrative arrangements each department will have:

1. A Head of the department who in the case of a School/Institute/Centre may be called ‘Director’
2. Governing/Department Council, as a statutory apex body responsible for all academic, financial affairs of the School/Institute/Centre/Department
3. Academic Committee

In addition a department may have the following committees to help and assist the Head of the Department/Director for smooth functioning of the department:

1. Administrative Committee
2. Finance Committee

In case, a school is established by combining a few technical Departments or equivalent to department which will be converted into statutory body in a university, the departments so combined need not have separate Department Council and Academic Committee.

Head of the Department

a. The Head of the Department (or the Director), to be appointed in accordance with the rules/procedures/statutes of the university, will be the principal academic and executive officer responsible for smooth and efficient functioning of the department in pursuit of the objectives. He will exercise such powers as may be delegated to him by the University/Syndicate/Executive Council and the Governing/Department Council. In case of an emergency, the Head of the Department may also be authorized to take such appropriate action, in consultation with the appropriate committee, in anticipation of the approval of the Governing/Department Council and then report the matter to it for ratification.

Governing / Department Council

A. This will be a statutory body, responsible for all academic financial and other administrative affairs of the department. The university shall abide by its decisions.

(i) **School / Institute / Centre**

The composition of the Governing Council and the Department Council may be as under:

Governing Council (for a school/institute/centre)

1. Chairman Vice Chancellor of the University; or an eminent Engineer/Technologist/Manager/Scientist/Educationist as his nominee.
2. 6 Members Three faculty members of the School/Institute/Centre

Two eminent Engineers/Technologists/ Managers/Scientists/ Educationists/expert from related subjects, from outside the School/Institute/Centre; one nominee of the UGC.

3. Member Secretary Director of the School/Institute/Centre

(ii) **Department Council (for a university department)**

The University Executive Council may approve the constitution of the Department Council giving representation to all categories of teachers in the Department/Centre. The Executive Council may, however, not make any change in the case of any existing Department Council(s) if it/they have been giving excellent performance. While for the large departments, the following pattern for composition of Department Council may be adopted, the composition of Department Council could appropriately be different for smaller departments.

COMPOSITION

i. Head of the Department
ii. Upto two professors by rotation in order of seniority]

iii. Upto two readers by rotation in order of seniority
iv. Upto two lecturers by rotation in order of seniority
v. Coordinator/Director of a major research programme
vi. Teacher incharge of sub-disciplines within the department by rotation in order of seniority
vii. Upto four experts, two from within the discipline concerned and two from other related disciplines to be nominated by the Department Council;
viii. Immediate past Head of the Department

Where there is Rotation of headship, their term will be co-terminus with the term of the Head of the Department

ix. Teacher likely to take over as Head of the Department

The size of the Department council should ordinarily not exceed 12.

B. The Registrar, Finance Officer and the Dean, Academic Affairs of the university may be special invitees without any voting right. In addition, the Director/Head of the Department may with the approval of the Vice Chancellor, invite and other expert to the meetings for consultation. Such invitees shall not have voting rights.

C. Term of the Members

The terms of the members nominated from outside school/institute/centers/department may be three years while it may be two years in respect of members from within the school/institute/centre/department

D. Meetings

Ordinarily, the Governing/Department Council may meet at least twice a year but in the event of urgency, a meeting may be called by the Vice Chancellor as and when required. 50% of the total membership of the Council will form quorum at a meeting and also 50% of the total membership may requisition a meeting for discussing any matter related to the functioning of the department.

E. Functions of the Council

As a statutory body responsible for the academic, financial and administrative affairs of the departments, it will overview the educational, research and extension programmes of the department and give direction and focus so that these programmes be continued at a high level of quality thereby enabling the department to attain and maintain excellence.

Academic Committee

A. i. The committee shall, subject to the approval of the Governing/Department Council, frame course curricula, syllabi and lay down regulations for instructional methodology/evaluation of students conduct of examinations.

ii. Make regulations regarding admission of students, subject to reservation policy of the University.

iii. Lay down procedure for collaboration with other institutions of higher learning or industries.

iv. Develop new courses/programmes of study.

v. Suggest institution and award of scholarship, fellowship, and medals.

vi. Identify thrust areas for research, extension programme and Industry Institute Interaction.

vii. Assist and provide guidance for the development of teaching, research and Industry Institute Interaction programmes.

B. The Academic Committee shall consist of all the faculty members of the department. The Vice-Chancellor of the University shall be the Chairman of the Academic Committee while the Head of the Centre/Institute/School will be Member Secretary.

Committees

The Administrative, Finance and the Academic Affairs Committee (s) shall consist of Head of Department as Chairman and such other members as may be approved from amongst the faculty members and administrative staff, by the Governing/Department Council provided that one member of each of the Committees shall be member of the Governing/Department Council. A faculty member who is a member of the Governing/Department Council shall not be a member of more than one Committee. Further the Finance Committee shall have a rep. Of State Govt. and Academic Affairs shall have 2-3 reps. Of the Universities.

The Committee (s) shall help and advise the Head of Department in respective matters for the conduct of the day-to-day business of the department. The decisions shall be:

- Executed by the Head of the Department
- Ratified by the Governing/Department Council

Records of Meetings

The record of the business transaction by the Governing/Department Council, the Academic Council and other Committees of the department, shall be maintained properly. Copies of the minutes of the meetings of the Governing/Department Council and the Academic Committee shall be forwarded to the University office for information.

Personnel

a. The Governing/Department Council shall make assessment of manpower requirements for academic, administrative and supporting job requirements. The vacancies arising on retirement, resignation and/or promotion of staff would provide an opportunity to review subject wise staff strength in the department.

b. To begin with the University shall provide to the department administrative staff in the rank of Deputy Registrar and/or Assistant Registrar to act ad administrative Officer and Bursar. In addition, the University may also provide such other office and supporting staff as may be necessary.

c. The University based on the recommendations of the Governing Council will do appointments of permanent faculty and staff. The selection committees shall however be as prescribed by the University.

A committee consisting of the Principal investigator and 2 professors of the department will do appointment of research fellows and research associates under the projects.

The administrative committee of the department will do appointment under the common programmes.

6 Finances

The University shall fund the department. In addition, the department will raise its own funds from other sources such as UGC, DST, CSIR and other funding agencies. The department shall be competent to accept funds from private organisations, industries and philanthropists and international organisations. The funds/resources thus generated should be utilized for the development of the dept. and should not be set off against the block grant.

The block grant for the department excluding the salaries of the faculty and other staff will be transferred in four equal installments to the Head of the Department who will be empowered to issue cheques for all contingent recurring and non-recurring expenditure. Salaries will be paid directly by the University.

The funds obtained from funding agencies for the projects will also be transferred to the Head of the Department who will draw and disburse money for expenditure as per the recommendations of the Principal Investigator.

However, the AICTE may provide financial assistance on case-to-case basis for automation and improvement of the management efficiency depending upon the availability of funds and this money shall not be used for creation of posts, payment of salary to any staff or for paying honorarium to existing staff to meet normal contingency requirement or to subsidise examination expenses.

The University will audit all accounts of the department.

7 RELATIONSHIP OF AUTONOMOUS DEPARTMENT WITH UNIVERSITY

a. Examination and awards of degree/diploma

The autonomous department/centre will evaluate and conduct examinations of the students admitted to the department after the prescribed academic requirements are completed. The degree/diploma to such of the candidates as have been found eligible and qualified by the University and names of the department/centre may be inscribed on the degree/diploma.

b. Other facilities including residences

The staff and the students admitted in the department to different programmes of study will get centralized facilities of residential accommodation, hotel, sports, medical and libraries etc. as staff and students of the University. Autonomy is an important step in pursuit of excellence and this implies creation of conditions not only with regard to function within the university but also living which makes it necessary to attract staff and students on all India basis. It is necessary to emphasize the importance of specific provision of residential accommodation and hostel for autonomous departments.

8 MONITORING, EVALUATION AND ACCOUNTABILITY OF AUTONOMY

Each department with the approval of its Departmental Council will constitute appropriate mechanism to evaluate its own academic performance, improvement in standards, successful working of the autonomy and of the rules and regulations framed by the Department Council on different matters. The department will, as

usual, send annual report on its activities concerning academic and other matters for consideration of University Academic Council and/or Executive Council/Syndicate and its inclusion in the University report. The University may in consultation with the Governing/Department Council, like to study and assess performance of the department as per provision in this scheme.

PROPOSED EDUCATIONAL RESEARCH STUDIES

S.No.	STAGE	PROJECT COMPONENT	POTENTIAL RESEARCH STUDIES
1	Pre-Project Stage <u>Objectives</u> * Determine the existing status of various parameters of academic excellence, networking, service to community & economy & management capacity * Provide data to design interventions *Formulate policies conducive for introducing interventions in the existing system	A. Academic Excellence	1.1 Study of Engineering Entrance Test Scores as predictors of success in Engineering Degree Programmes 1.2 Relevance and effectiveness of curricula of various degree programmes as perceived by graduates and their employers 1.3 Employment status of graduates from degree level institutions and perceptions of employers 1.4 Effectiveness of instructional processes used in degree institutions. 1.5 Benchmarking of educational processes and practices 1.6 Adequacy and degree of utilization of physical, human, information and financial resources in degree institutions 1.7 Design models and mechanisms for industry institute interaction,
		Networking	1.8 Design models and mechanisms for networking among institutions
		Service to Community & Economy	1.9 Design model for services to community and economy.
		Development of Management Capacity	1.10 Critical study of management structures and processes at the state level and institutional level in relation to their efficiency and effectiveness. 1.11 Critical study of management policies in autonomous and non-autonomous degree level institutions 1.12 Critical evaluation of education policy at the national level 1.13 Cost Benefit Analysis 1.14 Design of sustainability plan

Note: Research studies undertaken at this stage would provide a base for formulating policies conducive to introducing change in the existing system

S.No.	STAGE	PROJECT COMPONENT	POTENTIAL RESEARCH STUDIES
2	During Implementation of the Project <u>Objectives</u> * Monitor progress of implementation of various components of the Project * Identify problems faced in implementation *Take correctives	Academic Excellence	2.1 Study of implementation and reactions of stake holders (students, teachers, administrators, policy makers etc.) towards initiatives undertaken
		Networking	2.2 Extent of networking and benefits accrued to networked institutions.
		Services to community and economy	2.3 Identification of needs of various target groups. 2.4 Technology feasibility studies 2.5 Reactions of beneficiaries towards services rendered by institutions.
		Management Development Capacity	2.6 Improvement in job performance of trained personnel 2.7 Reactions of stakeholders towards autonomy
3	Post-Project Stage <u>Objectives</u> *Determine change in the parameters of various components of the Project * Summative evaluation of the Project in terms of relevance, efficiency, effectiveness, impact and sustainability * To study the impact of various Project components on the system	Academic Excellence	3.1 Study of Engineering Entrance Test Scores as predictors of success in Engineering Degree Programmes 3.2 Relevance and effectiveness of curricula of various degree programmes as perceived by graduates and their employers 3.3 Employment status of graduates from degree level institutions and perceptions of employers 3.4 Effectiveness of instructional processes used in degree institutions. 3.5 Benchmarking of educational processes and practices

S.No.	STAGE	PROJECT COMPONENT	POTENTIAL RESEARCH STUDIES
	* Design interventions for change *Formulate policies to sustain the gains of the Project	Networking Service to Community and economy Development of Management Capacity	3.6 Adequacy and degree of utilization of physical, human, informational and financial resources in degree institutions 3.7 Impact of components of academic excellence on quality of instruction in the engineering institutions. 3.8 Impact of networking on the various sub- components of technical institutions 3.9 Effect of transfer of technology on quality of life of people in a selected area. 3.10 Impact of training on the employability and quality of life of the trained personnel 3.11 Impact of continuing education programmes on the job performance of Industrial personnel and organizational effectiveness 3.12 Impact of initiatives undertaken for development of management capacity on efficiency and effectiveness of institutions. 3.13 Case studies of institutions excelled in various components of the Project.

TRIBAL DEVELOPMENT PLAN - MONITORING AND EVALUATION BENCHMARKS

A. Reporting Mechanism

a) All States and the institutions selected under the Programme, will continue to extend privileges available as per the statutory provisions through various schemes related to SC/STs and monitor the same at the State and institutional levels.

b) The States selected under the Programme will sponsor Research Studies in the areas of Social Policy, Social Development and Social Welfare. The finding of such studies would be used for evolving further interventions at implementation level.

c) The SC/ST Cells in the Programme institutions will regularly report its activities to the BOG of the institution and an Annual Report of their activities will be submitted to the State Governments and NPIU.

d) The SPFUs and NPIU will also compile an Annual Report indicating progress of various schemes for SC/ST under the Programme.

B. Suggested Evaluation Questions

1. Intake: Is the SC/ST quota for students and faculty and staff being filled?

2. Is the number of dropouts in an institution / programme decreasing?

3. Number of students graduating/ passing out the course (to assess quality improvement of students).

4. Number of years taken to complete the course.

5. Placement of students: Follow up on career track of SC/ST graduates to ascertain if students are being able to market themselves without further use of reservations etc.

C. Monitoring and Evaluation Indicators

Monitoring	**Indicators**	**Data/ service to be maintained by**
▪ SC/ST intake by category and gender ▪ Intake of SC/ST faculty	Intake data for each year	Institution
Performance	Final grades on completion of programme	Institution
Completion	No. of years taken by dropout to complete a course	Institution
Employment	– Placement record of SC/STs – at end of degree/diploma programme. – Public /Private /Not employed (Part of Tracer study)	Training and Placement Cell of the Institutions

Monitoring	**Indicators**	**Data/ service to be maintained by**
Social Integration	▪ Student Orientation ▪ Counseling provision ▪ Functioning of SC/ST cell	▪ Institution to organize ▪ Monitoring by SPFU and NPIU,
Financial Aid	No. of students receiving financial aid	Institution

REPORT OF THE COMMITTEE ON SUGGESTED MECHANISM OF FUNDING PRIVATE INSTITUTIONS

The NPD constituted a Committee comprising of the following members to recommend a mechanism of funding Private Institutions under the Programme.

a)	Principal Secretary (Technical Education), Uttar Pradesh	Chairman
b)	Secretary Technical Education, Madhya Pradesh	Member
c)	Commissioner and Director Technical Education, Andhra Pradesh	Member
d)	Director (Technical Education), Maharashtra	Member
e)	Director (Technical Education), Haryana	Member
f)	Representative of Private Institution	Member
g)	Administrative Officer NPIU	Member Secretary

The Committee recommended the following:

i) Reimbursement Procedure: Initially, the institutions may put their own money for incurring expenditure on the project components and claim reimbursement from the State. The State would ensure reimbursement to the institutions within one month. The concerned State Government may offer the loan and the modalities of reimbursement claim may be worked out mutually between the State and the institution. Separate records may be maintained at the State level for the private institutions.

ii) The loan may be recovered from the tuition fee collected from the students by the State Government.

iii) The assets acquired from loan would be mortgage to the State Government till the loan and interest is recovered. In addition to this, if the State Government feels that additional security is required for the amount provided for other activities under the project, the State may seek the same depending upon the loan amount disbursed from time to time. The modalities for seeking such securities may be mutually agreed between the State Government and the Private Institution.

iv) The period of moratorium may be 3 years after the final disbursement of loan. The entire loan would be recovered within 7 years after the moratorium period

v) The State may consider providing the interest rate on such loans attractive to encourage private institutions to participate in the Programme

vi) The State may also consider making provision for advance of the first instalment of the approved allocation for the first year of the project as reflected in the proposals of private institutions, if the institution so requests. The terms and conditions of such an advance may be agreed between the State and the Institution.

The above are only recommendations. The States may adopt/fine tune the above mechanism or evolve an alternative mechanism that is viable, workable and mutually acceptable between the States and the Private Institutions.

SUGGESTED CONTENTS OF MEMORANDUM OF UNDERSTANDING

BETWEEN

MINISTRY OF HUMAN RESOURCE DEVELOPMENT (MHRD) AND CENTRALLY SPONSORED INSTITUTION

The Memorandum of Understanding is made on the _____ Day of the month of _____ between the MHRD and_____(name of institution)_____.

Where as

(a) The Government of India has secured an IDA Credit from the World Bank an amount equivalent to US $ _____ Million for purpose of financing expenditure under the Technical Education Quality Improvement Programme.

(b) In pursuance of NPE 1986 as revised in 1992 both MHRD and the Institution_____ agree to implement all academic and non-academic reforms as committed under the Programme;

(c) The MHRD has agreed to carry out its part of the Programme and cause the _____(name of institution) to carry out such part of the Programme with due diligence and efficiency in conformity with appropriate administrative, financial and educational practices and provide or cause to be provided, promptly as needed, the funds, facilities, services and other resources and required for the Programme;

(d) The National Project Implementation Unit has been duly constituted by MHRD to facilitate implementation of the Programme activities;

NOW THEREFORE the MHRD (hereinafter referred to as the first party) and the _____(name of institution) (hereinafter referred to as the second party) hereby agree as follows:

1. PROCEDURE FOR SANCTIONING GRANT:

(a) The first party from out of its own budget will provide funds towards the approved project cost of the second party for each year.

(b) The funds will be released by cheque/draft in 3 to 4 installments between the first and fifth day of the months _____every year for the duration of the Programme period

(a) The first installment will not be more than 20% of the grant/loan amount and will be based on the committed expenditure as per the annual plan. Further installments will be released on the receipt of utilization status. Each subsequent installment will be released on utilization of 70% of the amount of the previous installments.

(c) The MHRD allows the institution to retain the interest accrued if any out of the Programme funds and use the same for institutional development activity.

2. OBLIGATION OF THE SECOND PARTY

The Second party shall:

(a) Comply with the terms and conditions governing the release of funds by the first party;

(b) Follow TEQIP guidelines and procedures prescribed by Government of India for implementation of the Programme in pursuance of obligations set forth or referred to in the Programme Agreements;

(c) Follow procedures for procurement of civil works, goods and equipments and consultancy services required for implementation of the Programme as set forth in the Programme Agreement;

(d) Institute satisfactory arrangement for opening and operation of bank accounts for flow of funds from the MHRD to _____ (name of the institution)

(e) Establish financial management system as mentioned in the Operations Manual such as providing details of procurement of civil works, goods and equipments and consultancy services and other items as mentioned in the institutional project proposals.

3. OBLIGATIONS OF THE FIRST PARTY

The first party shall;

(a) Make available to the second party requisite funds in a prompt and timely manner to enable the second party to undertake the activities; and

(b) Render or arrange to render such technical assistance and guidance as may be needed by the Second party for an effective and efficient implementation of the Programme.

4. ACCOUNTING, FINANCING AND AUDIT ARRANGEMENTS

(a) The second party shall maintain a separate account and record of the Programme funds received from the first party and render annual accounts and utilization certificate for the funds released as per the mechanism indicated above;

(b) The second party shall also furnish to the first party at regular intervals reimbursement claims in the prescribed form for seeking reimbursement towards eligible expenditures, in accordance with the procedures as mentioned in the Operations Manual;

(c) The accounts of the _____ (institution) shall be audited as indicated in the Operations Manual. The audited accounts along with a copy of the audit report shall be furnished to the first party every year as per the schedule indicated in the Operations Manual; and

5. REPORTING OBLIGATIONS

The second party shall submit to first party all reports and documents relating to progress of the Project, Accounts, Audit, Procurement, Disbursement and Annual

Work Plan, as specified in the Operations Manual and at such frequency as may be required by the First Party.

6. INTERPRETATION

The Decision of Secretary (Education), Department of Secondary Education and Higher Education, MHRD in regard to interpretation of any clause in this MOU will be final and binding on both the parties.

7. SETTLEMENT OF DISPUTES

The two parties to this MOU agree to act in good faith and in a spirit of mutual understanding and accommodation to facilitate the achievement of goals set under the Programme.

In WITNESS WHERE OF the Parties hereto have caused this MOU to be signed in their respective names as of the day and year first above written.

Principal,

FOR AND BEHALF OF _____
(Name of the Institution_____)

For and on Behalf of

Department of Secondary Education and
Higher Education, MHRD

Witness 1_____
Witness 2_____

SUGGESTED CONTENTS OF MEMORANDUM OF UNDERSTANDING

BETWEEN

PROGRAMME STATE AND INSTITUTION

The Memorandum of Understanding is made on the _____ Day of the month of _____ between the State of _____ acting through the Department of Technical Education and_____(name of institution)_____.

Where as

(a) The Government of India has secured an IDA Credit from the World Bank an amount equivalent to US $ _____ Million for purpose of financing expenditure under the Technical Education Quality Improvement Programme.

(b) In pursuance of NPE 1986 as revised in 1992 both State_____ and the Institution_____ agree to implement all academic and non-academic reforms as committed under the Programme;

(c) The State of _____ has agreed to carry out its part of the Programme and cause the _____(name of institution) to carry out such part of the Programme with due diligence and efficiency in conformity with appropriate administrative, financial and educational practices and provide or cause to be provided, promptly as needed, the funds, facilities, services and other resources and required for the Programme;

(d) State Project Facilitation Unit has been duly constituted within Department of Technical Education to facilitate implementation of the Programme activities;

NOW THEREFORE the State of _____ (hereinafter referred to as the first party) and the _____(name of institution) (hereinafter referred to as the second party) hereby agree as follows:

1. PROCEDURE FOR SANCTIONING GRANT:

(b) Funds towards the approved project cost of the second party for each year will be provided by the first party from out of its own budget.

(c) The first party shall release funds to the second party in three/four installments during each year of the Programme in a timely manner for the anticipated expenditures of the second party for implementation of eligible activities;

(d) The funds will be released by cheque/draft in 3 to 4 installments between the first and fifth day of the months _____every year for the duration of the Programme period

(e) The first installment will not be more than 20% of the grant/loan amount and will be based on the committed expenditure as per the annual plan. Further installments will be released on the receipt of utilization status. Each subsequent installment will be released on utilization of 70% of the amount of the previous installments.

(f) The State allows the institution to retain the interest accrued if any out of the Programme funds and use the same for institutional development activity.

2. OBLIGATION OF THE SECOND PARTY

The Second party shall:

(a) Comply with the terms and conditions governing the release of funds by the first party;

(b) Follow TEQIP guidelines and procedures prescribed by Government of India for implementation of the Programme in the _____State in pursuance of obligations set forth or referred to in the Programme Agreements;

(c) Follow procedures for procurement of civil works, goods and equipments and consultancy services required for implementation of the Programme as set forth in the Programme Agreement;

(d) Institute satisfactory arrangement for opening and operation of bank accounts for flow of funds from the State to _____ (name of the institution)

(e) Establish financial management system as mentioned in the Operations Manual such as providing details of procurement of civil works, goods and equipments and consultancy services and other items as mentioned in the institutional project proposals.

3. OBLIGATIONS OF THE FIRST PARTY

The first party shall;

(a) Render or arrange to render such technical assistance and guidance as may be needed by the Second party for an effective and efficient implementation of the Programme.

4. ACCOUNTING, FINANCING AND AUDIT ARRANGEMENTS

(a) The second party shall maintain a separate account and record of the Programme funds received from the first party and render annual accounts and utilization certificate for the funds released as per the mechanism indicated above;

(b) The second party shall also furnish to the first party at regular intervals reimbursement claims in the prescribed form for seeking reimbursement towards eligible expenditures, in accordance with the procedures as mentioned in the Operations Manual;

(c) The accounts of the _____ (institution) shall be audited as indicated in the Operations Manual. The audited accounts along with a copy of the audit report shall be furnished to the first party every year as per the schedule indicated in the Operations Manual; and

5. REPORTING OBLIGATIONS

The second party shall submit to first party all reports and documents relating to progress of the Project, Accounts, Audit, Procurement, Disbursement and Annual Work Plan, as specified in the Operations Manual and at such frequency as may be required by the First Party.

6. INTERPRETATION

The Decision of Secretary (Education), Department of Technical Education, Government of _____, in regard to interpretation of any clause in this MOU will be final and binding on both the parties.

7. SETTLEMENT OF DISPUTES

The two parties to this MOU agree to act in good faith and in a spirit of mutual understanding and accommodation to facilitate the achievement of goals set under the Programme.

In WITNESS WHERE OF the Parties hereto have caused this MOU to be signed in their respective names as of the day and year first above written.

Principal,

FOR AND BEHALF OF _____
(Name of the Institution_____)

For and on Behalf of
Department Of Technical
Education, Government of _____

Witness 1_____
Witness 2_____

ELIGIBILITY APPLICATION FOR LEAD / NETWORK INSTITUTIONS (ENGINEERING INSTITUTIONS OTHER THAN POLYTECHNICS)

1. Status Sought **Lead / Network**

2. Institutional Identity

a) Name of the Institution

b) Year of Establishment

c) Name of the Head of the Institution

d) Postal Address

e) E-mail address (es)

f) Office Telephone Numbers with STD Code

g) Residential Telephone of Head of the Institution with STD Code

h) Fax Number with STD Code

Part A: Willingness Declaration

1. **Accreditation**

(a) For inclusion in the Programme, institutions should either have accredited programmes or should have applied for accreditation to the NBA of the AICTE.

Please give following details:

(i) Date of application submission:----------

(ii) Name of courses for which accreditation applied for: 1----------

2----------

3----------

4----------

5----------

(iii) Status of accreditation process:----------

Note: **Institutions that have not applied for accreditation will not be allowed to participate in the Programme**.

(a) The Institution declares its willingness to comply with the eligibility criteria as below: (Please write Yes or No as appropriate. A blank will be taken as No)

S. No.	Eligibility Criteria	Response Yes / No
1	To accept academic autonomy with accountability as granted	
2	To accept full financial autonomy with accountability	
3	To accept full managerial autonomy with accountability	
4	To accept full administrative autonomy with accountability	
5	To participate in all 3 sub-components of the Institutional Development component, namely Promoting Academic Excellence, Networking, Service to community and economy.	
6	To increase recovery of cost of education from students	
7	To accept non-plan funding on block grant basis (*not applicable to unaided institutions*)	
8	To establish distinct Corpus Fund, Staff Development Fund, Depreciation / Renewal Fund and Maintenance Fund from the revenue generated and savings and to accept Central/State guidelines for utilization of these funds	
9	To accept the results of the enunciated process for award of competitive grants	
10	To institute positive measures for securing participation of faculty and students in providing service to community and economy	
11	To implement the Tribal Development Plan as envisaged under the Programme	

Note: Institutions intending to be a Lead Institution will be required to have autonomies as stated above by the time they get selected under the Programme

Part B: Academic Attainment

1. The table below lists parameters for judging academic attainment of applicant institutions. The given benchmarks values for each parameter indicate the minimum expected level of attainment. Applicant institutions are expected to meet or even exceed these values.

2. Level of attainment for each parameter would be evaluated as below:

   a) Zero marks for attainment less than the benchmark value
   b) Two marks for attainment equalling the benchmark value
   c) Three marks for exceeding the benchmark value
   d) Zero marks for a NO answer
   e) Two marks for a YES answer

3. The theoretical maximum possible score is 68.

4. Applicant institutions may fall short of some benchmarks, meet some and exceed some.

5. To be eligible for the status of a Lead Institution, an applicant institution must score 51 or more marks.
6. To be eligible for the status of a Network Institution, an applicant institution must score at least 34 marks.

7. Applicant institutions scoring less than 34 marks will be considered ineligible for the current selection cycle. Such institutions may after improvements re-apply for eligibility in a subsequent cycle.

8. Institutions are strongly advised to make a self-assessment of their eligibility before submission of Eligibility Application.

S.No.	Academic Attainment Parameters	Benchmark Value	Institutional Response	Marks Scored
1	No. of UG programs in Engineering	6		
2	No. of PG programs in Engineering	4		
3	Staff student ratio (based on faculty members in position)	1:15		
4	Percentage of faculty members with Ph.D. degrees in Engineering	20%		
5	Regular professors amongst the faculty (as % of total faculty strength)	10%		
6	Regular Asst. Professors amongst the faculty (as % of total faculty strength)	20%		
7	No. of research publications in Engineering in the last 3 years	0.1 x N *		
8	No. of titles in the Library	15000		
9	No. of Indian journals in Engineering	5 per each programme (UG and PG)**		
10	No. of International journals in Engineering	5 per each PG programme **		
11	No. of computers (Pentium III or better)	1 for every 50 students		
12	No. of PhDs produced in the institution	10		
13	No. of sponsored research projects completed in the last three years	10		
14	Total designs/fabrications (non-routine, precision accessories, etc.) in the last three years (Identify them)	5		
15	No. of consultancy assignments completed in the last three years	10		
16	No. of continuing education programs (of 3-day of duration or longer)	25		
17	No. of faculty members who are referees of International journals?	2		
18	No. of faculty members who have served on national committees	4		

** N= Number of faculty in position.*

*** It refers to total number of journals, for example, if an institution has 8 UG programmes and 7 PG programmes, benchmark for Indian journals (Criterion no. 9) will be (8+7) x 5 = 75 Journals. Similarly, benchmark for International Journals (Criterion no. 10) will be 7 x 5 = 35 Journals.*

S.No.	Parameter	Institutional Response (Yes/No)	Marks Scored
1	Are any of the conducted programs accredited?		
2	Does the institution have academic autonomy?		
3	Does the institution have managerial and administrative de-centralization?		
4	Is there a scheme of "sabbatical leave" for faculty members?		
5	Is there a regular teacher evaluation by students?		
6	Are the faculty members given study leave (with full salary and allowances)?		
7	Are the faculty members sponsored to attend national and/or international seminars and conferences?		

Exceptional Cases

The cases of certain institutions offering only a few specialized courses, or of a University Department running only a few courses in only one or two disciplines are exceptional, and have to be treated separately based on the merits of the case.

ELIGIBILITY APPLICATION FOR LEAD / NETWORK POLYTECHNICS

1. Status Sought **Lead / Network**

2. Institutional Identity

a) Name of the Polytechnic

b) Year of Establishment

c) Name of the Head of the Polytechnic

d) Postal Address

e) E-mail address (es)

f) Office Telephone Numbers with STD Code

g) Residential Telephone of Head of the Polytechnic with STD Code

h) Fax Number with STD Code

Part A: Willingness Declaration

1 Accreditation

(a) For inclusion in the Programme, institutions should either have accredited programmes or should have applied for accreditation to the NBA of the AICTE.

Please give following details:

(i) Date of application submission:----------

(ii) Name of courses for which accreditation applied for:

1----------

2----------

3----------

4----------

5----------

(iii) Status of accreditation process:----------

(b) The polytechnic declares its willingness to comply with the eligibility criteria as below: (Please write Yes or No as appropriate. A blank will be taken as No)

S. No.	Eligibility Criteria	Response Yes / No
1	To accept very significant academic autonomy with accountability	
2	To accept full financial autonomy with accountability	
3	To accept full managerial autonomy with accountability	
4	To accept full administrative autonomy with accountability	
5	To participate in all 3 sub-components of Institutional Development component, namely Promoting Academic Excellence, Networking, Service to community and economy.	
6	To increase recovery of cost of education from students	
7	To accept non-plan funding on block grant basis (*not applicable to unaided institutions*)	
8	To establish distinct Corpus Fund, Staff Development Fund, Depreciation / Renewal Fund and Maintenance Fund from the revenue generated and savings and to accept Central/State guidelines for utilization of these funds	
9	To accept the results of the enunciated process for award of competitive grants	
10	To institute positive measures for securing participation of faculty and students in providing service to community and economy	
11	To implement the Tribal Development Plan as envisaged under the Programme	

Part B: Academic Attainment

1. The table below lists parameters for judging academic attainment of applicant polytechnics. The given benchmarks values for each parameter indicate the minimum expected level of attainment. Applicant polytechnics are expected to meet or even exceed these values.

2. Level of attainment for each parameter would be evaluated as below:

   a) Zero marks for attainment less than the benchmark value
   b) Two marks for attainment equalling the benchmark value
   c) Three marks for exceeding the benchmark value
   d) Zero marks for a NO answer
   e) Two marks for a YES answer

3. The theoretical maximum possible score is 52.

4. Applicant polytechnics may fall short of some benchmarks, meet some and exceed some.

5. To be eligible for the status of a Lead Polytechnic, an applicant polytechnic must score 39 or more marks.

6. To be eligible for the status of a Network Polytechnic, an applicant polytechnic must score at least 26 marks.

7. Applicant polytechnics scoring less than 26 marks will be considered ineligible for the current selection cycle. Such polytechnics may after improvements re-apply for eligibility in a subsequent cycle.

8. Polytechnics are strongly advised to make a self-assessment of their eligibility before submission of Eligibility Application.

S. No.	Academic Attainment Parameters	Benchmark value	Institutional Response	Marks Scored
1	No. of diploma programs in Engineering	6		
2	No. of post/advanced diploma programs in Engineering	2		
3	Staff student ratio (based on faculty members in position)	1:18		
4	Number of titles in the library	7000		
5	Number of Indian journals/technical periodicals in Engineering	25		
6	No. of computers (Pentium III or better)	1 for every 50 students		
7	Total designs/fabrications (non-routine, precision accessories, etc.) in the last 3 years (Identify them)	15		
8	Number of tailor-made courses for industries in the last 3 years	12		
9	No. of consultancy assignments completed in the last 3 years	10		
10	No. of continuing education programs (of 3-day of duration or longer)	50		
11	Internal revenue generated in the last 3 years	Rs. 1.5 Million		
12	No. of faculty members who have served on national/ state committees	4		

S.No.	Parameter	Institutional Response (Yes/No)	Marks Scored
1	Are any of the conducted programs accredited?		
2	Does the institution have academic autonomy?		
3	Does the institution have managerial and administrative de-centralization?		
4	Is there a Production Center in the polytechnic?		
5	Is there a regular teacher evaluation by students?		
6	Are the faculty members given study leave (with full salary and allowances)?		

S.No.	Parameter	Institutional Response (Yes/No)	Marks Scored
7	Are the faculty members sponsored to attend national seminars and conferences?		
8	Is there a Community Polytechnic Center/Cell?		

Exceptional Cases

The cases of certain polytechnics offering only a few specialized courses have to be treated separately based on the merits of the case.

COMPOSITION AND BROAD FUNCTIONS OF SCREENING COMMITTEES

(a) For screening Eligibility Applications of State sponsored institution

- Secretary in-charge of Engineering Education — Chairperson
- One eminent educationist with background in Engineering education
- One eminent industrialist
- Director in-charge of Engineering Education — Member Secretary

Broad Functions

- Screening eligibility applications from the point of view of the claims made
- Verifying correctness of the data and information
- Scoring the application based on the criteria
- Preparing a rank order of Lead and Network Institutions on the basis of scores
- Identifying ineligible institutions and record their short comings

(b) For screening Eligibility Applications of Centrally sponsored institutions

- Joint Secretary In-charge of Engineering Education — Chairperson
- One ex-Director of IIT
- One eminent industrialist
- Divisional Head BTE — Member Secretary

Broad Functions

- Screening eligibility applications from the point of view of the claims made
- Verifying correctness of the data and information
- Scoring the application based on the criteria
- Preparing a rank order of Lead and Network Institutions on the basis of scores
- Identifying ineligible institutions and record their short comings

(c) National Screening Committee for screening Eligibility Applications of all institutions

- National Project Director — Chairperson
- One Director of IIT
- One eminent educationist
- One eminent industrialist
- CPA – NPIU — Member Secretary

Broad Functions

- Checking the scoring of applications
- Preparing a rank order of Lead and Network Institutions on the basis of scores of all eligible applications from selected institutions
- Identifying ineligible institutions and record their short comings

COMPOSITION AND BROAD FUNCTIONS OF EVALUATION COMMITTEE (FOR EVALUATION OF COMPOSITE PROPOSALS)

The Evaluation Committee will have certain members common from the National Selection Committee in order to maintain continuity.

1.	National Project Director	Chairperson
2.	One ex or present Director of IIT	
3.	One eminent expert from different professional Organizations (such as ex or present/director of CSIR, DST, BARC, DRDO, AEC, ICAR, etc)	
4.	One industrialist	
5.	One Institutional Financial Management expert	
6.	Engineering Education experts (relevant to the proposals – numbers to be decided by the NPD)	
7.	Central Project Advisor– NPIU	Member Secretary

Broad Functions

- Evaluating Composite Proposals of the selected institutions from the point of the claims made
- Evaluating the Composite Proposal based on the evaluation criteria and guidelines
- Verifying and check the information provided in the Proposals
- Visiting institutions to verify the facts stated in the Proposals
- Preparing a rank order of the clusters to be funded under the Programme
- Providing information to the National Selection Committee

The composition of the Sub Evaluation Committees will be as below:

1.	Institutional Management Expert	Chairperson
2.	One Engineering Education Expert	
3.	One Institutional Financial Management Expert	
4.	One industrialist	
5.	Senior NPIU Officer	Member Secretary

COMPOSITION AND BROAD FUNCTIONS OF NATIONAL SELECTION COMMITTEE (NSC)

The Union Minister of Human Resource Development will constitute a National Committee for selecting Composite Proposals for funding. It would be composed as below:

1.	Secretary, Department of Secondary Education and Higher Education, MHRD	Chairperson
2.	One ex or present Director of IIT	
3.	Three eminent experts from different professional Organizations (such as ex or present/director of CSIR, DST, BARC, DRDO, AEC, ICAR, etc)	
4.	Two industrialists	
5.	National Project Director	Member Secretary

Broad Functions

- The NSC will consider the scores, evaluation reports and ranking carried out by Evaluation Committee
- Select the Institutional Clusters based on judgment of its members of how best the proposals fit into Programme objectives and help India in its drive towards global competitiveness.
- The NSC would prepare a final ranked list of Composite Proposals.

[ ] NATIONAL INSTITUTE OF TECHNOLOGY SOCIETY
MEMORANDUM OF ASSOCIATION

Whereas the [ ] Regional Engineering College, [ ] is to be declared as National Institute of Technology, [ ], it is declared as [ ] National Institute of Technology, [ ]

1. Name

The name of the Society shall be [ ] National Institute of Technology Society, [ ] herein after referred to as "the Society".

The name of the Institute will be [ ] National Institute of Technology, [ ], herein after referred to as "the Institute".

2. Office

The Registered Office of the Society shall be situated at [ ]

3. Definitions

In this Memorandum of Association, hereafter referred to as MOA, unless the context otherwise requires:

(a) "AICTE" means the All India Council of Technical Education set up under the AICTE Act, 1987
(b) "Board" in relation to the institute, means the "Board of Governors"
(c) "Central Government", means, the "Government of India"
(d) "Chairman", means, the "Chairman of the Board/Society"
(e) "Council", means, he Council established under sub-section (1) of section 27
(f) "Director", mean, the "Director" of the Institute
(g) "Registrar", means, the "Registrar" of the Institute
(h) "Rules" and "Regulation", means, the "Rules" and "Regulations" of the Institute
(i) "Senate", means, the "Senate" of the Institute
(j) "Society", means, the "[ ] National Institute of Technology Society, [ ]
(k) "UGC" means University Grants Commission set up under the UGC Act, 1956

4. Objects and Functions of the Society

(1) The objects and function of the society shall be to establish and carry on the administration and management of the "[ ] National Institute of Technology, [ ]", herein after referred to as the "Institute".
(2) The Society may delegate all or any of its power to the Board of Governors of the Institute. The Board may in turn delegate it to any of the Committee or Committee constituted by it or to any officer of offices of the Society.
(3) To frame the first Rules of the Institute
(4) To delegate such powers as are provided in MOA, Rules & Regulations.

5. Power of the Institute

(a) To provide for instruction and research in such branches of engineering and technology, management education, sciences and arts, as the Institute may think fit, and for the advancement of learning and dissemination of knowledge in such branches;
(b) To hold examinations and grant degrees, diplomas, certificates and other academic distinctions or titles as may be required;
(c) To institute and award fellowships, scholarships, exhibitions, prizes and medals;
(d) To fix, demand and receive fees and other charges;
(e) To establish, maintain and manage halls and hostels for the residence of students;
(f) To supervise and control the residences and regulate the discipline of students of the institute and to make arrangements for promoting their general welfare and cultural corporate life;
(g) To provide for the maintenance of units of the National Cadet Corps for the students of the Institute;
(h) To create academic and other posts with the prior approval of the Central Government and to make appointments thereto (except in the case of the Director);
(i) To frame, alter, modify or rescind Rules with the prior approval of the Central Government;
(j) To deal with any property belonging to or vested in the Institute in such manner as the Institute may deem fit for advancing the objects of the Institute
Provided that the Institute shall not dispose of in any manner any immovable property without prior approval of the Central Government;
(k) To receive gifts, grants, donations or benefactions from the Government and to receive bequests, donations and transfers of movable or immovable properties from testators, donors or transferors, as the case may be;
(l) To cooperate with educational or other institutions in any part of the world having objects wholly or partly similar to those of the institute by exchange of teachers and scholars and generally in such manner as may be conducive to their common objects and
(m) To do all such things as may be necessary, incidental or conducive to the attainment of all or any of the objects of the Institute.

6. Institute Open to All

(1) The Institute shall be open to persons of either sex and of whatever race, creed, caste or class, and no condition shall be imposed as to religious belief or profession in admitting or appointing members, students, teachers or workers or in any other connection whatsoever.
(2) No bequests, donation of transfer of, any property shall be accepted by the Institute, which in the opinion of the Council involves conditions or obligations opposed to the spirit and object of this section.

7. Power to Review and Hold Enquiries

(1) The Central Government may appoint one or more persons to review the work and progress of the Institute and to hold enquiries into the affairs thereof and to report thereon in such manner as it may direct.
(2) Upon receipt of any such report, the Central Government may take such action and issue such directions as it consider necessary in respect of any of the matters dealt with the report and the Institute shall be bound to comply with such directions.

8. Authorities of the Institute

The following shall be the authorities of the Institute, namely;

- A Board of Governors
- A Senate;
- A Finance Committee
- A Building & Works Committee
- Such other authorities as may be declared by the Rules to be the authorities of the Institute.

9. Board of Governors

The Board of Governors the Institute shall consist of the following persons, namely:

(a) The Chairman: An Eminent Technologist / Engineer/ Industrialist/Educationist to be nominated by the Central Government.
(b) Nominee of the Ministry of Human Resource Development, Government of India
(c) Nominee of the Department of Higher/Technical Education, Government of [ ].
(d) Head of another Technical Institution in the Region or an eminent technologist nominated by the Central Government.
(e) Director of Indian Institute of Technology, [in the region] or his nominee
(f) Nominee of the UGC not below the rank of a Deputy Secretary
(g) Nominee of the AICTE not below the rank of an Advisor
(h) An alumnus of the Institute from amongst alumni in Education/Industry to be nominated by the Board of Governors
(i) Two representatives representing large, medium and small scale industries to be nominated by the Central Government
(j) One Professor and One Associate Professor of the Institute by rotation
(k) Director of the Institute – ex officio Member Secretary

10. Term of Office of Members of Board of Governors

(1) Save as otherwise provided in this section, the terms of office of the Chairman or any other member of the Board shall be five years from the date of his nomination by the Central Government.
(2) The term of office of an ex-officio member shall continue so long as he holds the office by virtue of which he is a member.
(3) The term of office of a member nominated under Clause (d), (h) & (i) of clause 8 shall be five years from the first of January of the year in which nominated and the term of office of a member nominated to fill a casual vacancy shall continue for the remainder of the term of the member in whose place he has been nominated.
(4) Notwithstanding anything contained in this section, an out going member shall, unless the Council otherwise directs, continue in office until another person is nominated as a member in his place.
(5) The member of the Board shall be entitled to such allowances, if any, from the Institute as may be provided in Rules but no member other than the persons referred to in clauses (j) and (k) of section 8 shall be entitled to any salary by reason of this sub-section.

11. Powers of the Board of Governors

(1) The Board of the Institute shall be responsible for the general superintendence, direction and control of the affairs of the Institute and shall exercise all the powers of the Institute not otherwise provided for by this MOA, the Rules and the Bye-laws, and shall have the power to review the act of the Senate.

(2) Without prejudice to the provisions of subsection (1), the Board of the Institute shall:

(a) Take decisions on questions of policy relating to the administration and working of the Institute;
(b) Institute courses of study at the Institute;
(c) Make the Rules with the prior approval of the Central Government;
(d) Institute and appoint persons to academic as well as other posts of the Institute;
(e) Consider and modify or cancel bye-laws
(f) Consider and pass resolutions on the annual report, the annual accounts and the budget
(g) Estimates of the Institute for the next financial year as it thinks fit and submit them to the Central Government together with a statement of its development plans;
(h) Exercise such other powers and perform such other duties as may be conferred or imposed upon it by this MOA or the Rules.

(3) The Board shall have the power to appoint such committees as it considers necessary for the exercise of its powers and the performances of its duties as defined under this MOA.

12. The Senate

The Senate of the Institute shall comprise of the Director of the Institute, who shall be the ex officio Chairman of the Senate and such other members as may be laid down in the Rules. Subject to the provisions of this MOA the Rules and the Regulations, the Senate of the Institute shall have the control and general regulation, and be responsible for the maintenance of standards of instruction, education and examination in the Institute and shall exercise such other powers and perform such other duties as may be conferred or imposed upon it by the Rules.

13. Chairman of the Board of Governors

(1) The Chairman of the Board shall preside over the meetings of the Board and at the Convocations of the Institute.
(2) It shall be the duty of the Chairman to ensure that the decisions taken by the Board are implemented.
(3) The Chairman shall exercise such other powers and perform such other duties as may be assigned to him by this MOA or the Rules.

14. Director of the Institute

(1) The Director of the Institute shall be appointed by the Central Government for a term of five years.
(2) The Director shall be the principal academic and executive officer of the Institute and shall be responsible for the proper administration of the Institute and for imparting instructions and maintenance of discipline therein.

(3) The Director shall submit annual reports and accounts to the Board.
(4) The Director shall exercise such other powers and perform such other duties as may be assigned to him by his MOA or the Rules or Regulations.

15. Registrar

(1) The Registrar of the Institute shall be appointed on such terms and conditions as may be laid down by the Rules and shall be the custodian of records, the common seal of the Institute and such other property of the Institute as the Board shall commit to his charge.
(2) The Registrar shall act as the Secretary of the Senate, and such Committees as may be prescribed by the Rules.
(3) The Registrar shall be responsible to the Director for the proper discharge of his functions as decided by him from time to time.
(4) The Registrar shall exercise such other powers and perform such other duties as may be assigned to him by this MOA/the Rules/the Director.

16. Funds of the Institute

(1) The Institute shall maintain a Fund to which shall be credited:

(a) all moneys provided by the Central and State Governments
(b) all fee and other charges received by the Institute;
(c) all moneys received by the Institute by way of grants, gifts, donations, benefactions, bequests or transfers; and
(d) all moneys received by the Institute in any other manner or from any other source.

(2) All moneys credited to the fund of any Institute shall be deposited in such Banks or invested in such manner as the Institute may, with the approval of the Central Government, decide.
(3) The fund of the Institute shall be applied towards meeting the expenses of the Institute including expenses incurred in the exercise of its powers and discharge of its duties under this MOA.

17. Accounts and Audit

(1) The Institute shall maintain proper accounts and other relevant records and prepare an annual statement of accounts, including the balance-sheet, in such form as may be prescribed by the Central Government in consultation with the Comptroller and Auditor-General of India.
(2) The accounts of the Institute shall be audited by the Comptroller and Auditor-General of India and any expenditure incurred by him in connection with such audit shall be payable by the Institute to the Comptroller and Auditor-General of India.
(3) The Comptroller and Auditor-General of India and any person appointed by him in connection with the audit of accounts of the Institute shall have the same rights, privileges and authority in connection with such audit as the Comptroller and Auditor-General of India has in connection with the audit of the Government accounts, and, in particular, shall have the right to demand the production of books, accounts, connected vouchers and other documents and papers and to inspect the offices of the Institute.
(4) The accounts of the Institute as certified by the Comptroller and Auditor-General of India or any other person appointed by him in this behalf together with the audit report thereon shall be forwarded annually to the Central Government and that Government shall cause the same to be laid

before each House of Parliament as per procedure laid down by the Central Government.

18. In-Service and Retirement Benefits

The Institute shall constitute for the benefit of its employees, including the Director in such manner and subject to such conditions as may be prescribed by the Rules, such in-service/retirement benefits as it may deem fit.

19. Appointments

All appointment of the staff of the Institute, except that of the Director, shall be made in accordance with the procedure laid down in the Rules by :

(a) The Board, for the post of lecturer and above for the academic staff or for those posts in the non-academic staff that have the maximum of the scale of the pay equal to or more than that of the maximum of pay scale of the lecturer.
(b) By the Director, in other cases

20. Rules

(1) The powers and functions of authorities and officers other than those mentioned in the MOA shall be determined by the Rules.
(2) All teaching at the Institute shall be conducted by or in the name of the Institute in accordance with the Rules and Regulations made in this behalf.
(3) Subject to the provisions of this MOA the Rules may provide for all or any of the following matters, namely:

(a) The formation of departments of teaching;
(b) The fees to be charges for courses of study in the Institute and for admission to the examinations of degree and diplomas of the Institutes as prescribed by the Central Government.
(c) The Institution of fellowship, scholarship, exhibitions, medals and prizes;
(d) The terms of office and the method of appointment of officers of the Institute;
(e) The qualification of teachers of the Institute in accordance with the requirements prescribed by the Central Government;
(f) The classification, the method of appointment and determinati9on of the terms and conditions of service of, teachers and other staff of the Institute;
(g) The constitution of in-service and the retirement benefits of the teachers, officers and staff;
(h) The constitution, powers and duties of the authority of the Institute;
(i) The establishment and maintenance of halls and hostels;
(j) The Conditions of residence of students of the Institute and the levying of fees for residence in the halls and hostels and of other charges;
(k) The allowances in the form of sitting fees to be paid to the Chairman and members of the Board;
(l) The authentication of the orders and decisions of the Board;
(m) The meeting of the Board, the Senate, or any Committee, the quorum as such meeting and the procedure to be followed in the conduct of their business;

(n) Any other matter which by this MOA is to be or may be prescribed by the Rules.

(4) The first Rules of each Institute shall be framed by the Society with the prior approval of the Central Government.

(5) The Board may, from time to time, make new or additional Rules or amend or repeal any of the Rules provided that every new Rules or addition to the Rules or any amendment or repeal of a Rule shall require the prior approval of the Central Government. The Central Government may give its assent or withhold assent or remit it to the Board for consideration.

(6) A new Rules or a Rule amending or repealing an existing Rule shall have no validity unless it has been assented to by the Central Government.

21. Regulations

(1) Subject to the provisions of this MOA and the Rules, the regulations of the Institute may provide for all or any of the following matters, namely;

(a) the admission of the students to the Institute

(b) the courses of study to be laid down for all degrees and diplomas of the Institute;

(c) the conditions under which students shall be admitted to the degree or diploma courses and to the examinations of the Institute, and shall be eligible for degrees and diplomas;

(d) the conditions of award of the fellowships, scholarships, exhibitions, medal and prizes;

(e) the conditions and mode of appointment and duties of examining bodies, examiners and moderators;

(f) the conduct of examinations;

(g) the maintenance of discipline among the academic and non-academic staff and the students of the Institute, and

(h) any other matter which by this MOA or the Rules is to be or may be provided for the Regulations.

(2) All regulations shall be framed by the Board of Governors and shall have effect from such date as it may direct. The Board shall also have power by resolution to modify or cancel any such regulations and such regulations shall from the date of such resolution stand modified accordingly or cancelled, as the case may be.

(3) No regulation shall be made affecting the condition of residence, health or discipline of students, admission or enrolment of students, conditions, mode to appointment or duties of examiners or the conduct or standard of examinations or any other course of study without consulting the Senate.

22. Council of National Institutes of Technology

(1) With effect from such date as the Central Government may specify in this behalf, a central body to be called the Council will be established.

(2) The Council may consist of the following members

(a)	Minister of HRD, Government of India.	Chairman
(b)	Education Secretary, Ministry of HRD, GOI	Member
(c)	Principal Advisor (Edu), Planning Commission	Member
(d)	Secretary, Dept of Sci & Technology , GOI	Member
(e)	Director General, CSIR	Member
(f)	Special Secretary/Additional Secretary/ Educational Advisor (T), MHRD, GOI	Member
(g)	Chairman UGC	Member
(h)	Chairman AICTE	Member
(i)	Financial Adviser, Ministry of HRD, GOI	Member

(j)	Two Chairmen of the Boards of the Institutes (By rotation)	Member
(k)	Five Directors of the Institutes (by rotation)	Member
(l)	One Director of IIT (By rotation in alphabetic order)	Member
(m)	Two Secretaries of Higher/Technical Education from states where NITs are located (by rotation)	Member
(n)	Two persons from Industry nominated by the Central Government	Member
(o)	Joint Secretary (Technical Education)/ Joint Educational Adviser (T) Ministry of HRD, Government of India	Member - Secretary

(3) The term of office of a member of a council under sub-clause (j), (k), (l), (m) and (n) shall be three years from the date of his nomination.

(4) Notwithstanding anything contained in this clause an out-going member shall, unless the Central Government otherwise directs, continue in office until another person is nominated as a member in his place.

(5) The members of the Council shall be paid such travelling and sitting allowance by the Central Government as may be determined by the Central Government but no member shall be entitled to any salary.

(6) The Chairman of the Council shall preside over the meetings of the Council and shall exercise such other powers and perform such other duties as are assigned to him by the MOA.

(7) The Central Government may make Rules to enable the Council to carry out the functions and powers assigned to it and for any matter related to or incidental to the functioning of the Council.

23. Powers and Functions of the Council

(1) It shall be the general duty of the Council to co-ordinate the activities of all the Institutes.

(2) It shall specifically perform the following functions, namely:

a. to advise on matters relating to the duration of the courses, the degrees and other academic distinctions to be conferred by the Institutes, admission standards and other academic matters;
b. to advise the Central Government on policy regarding cadres, methods of recruitment and conditions of service of employees, institution of scholarships and freeships, levying of fees and other matters of common interest;
c. to advise the Central Government, if so required, in respect of any function to be performed by it under this MOA or otherwise on the working of the Institutes; and
d. to perform such other function as are assigned to it by or under this MOA.

24. Miscellaneous

(1) No act of the Council, or any Institute or Board or Senate or any other body set up under this MOA or the Rules, shall be invalid merely by reason of:

(a) any vacancy in, or defect in the constitution thereof, or
(b) any defect in the election, nomination or appointment of a person acting as a member thereof, or
(c) any irregularity in its procedure not affecting the merits of the case.

(2) The income and property of the Institute, howsoever derived, shall be applied towards the promotion of the objectives as set forth in this Memorandum of Association.

(3) No portion of the income and property of the Institute shall be paid or transferred directly or indirectly by way of profit, to the persons, who at any time, or have been members of the Institute or to any of them, provided that nothing herein contained shall prevent the payment in good faith or remuneration to any member thereof or other person in return for any service rendered to the Institute or for travelling, halting and other similar charges.

(4) If any difficulty arises in giving effect to the provisions of this MOA, the Central Government may make such provisions or give such direction not inconsistent with the purposes of this MOA, as appears to it to be necessary or expedient for removing the difficulty.

25. Transition Provisions

Notwithstanding anything contained in this MOA,

(a) the Board of Governors of the Instituted functioning as such immediately before the commencement of this MOA shall continue to so function until a new Board is constituted for the Institute under this MOA, but on the constitution of a new Board under this MOA, the members of the Board holding office before such constitution shall cease to hold office;

(b) the College Council existing before the commencement of this MOA shall be deemed to be the Senate constituted under this MOA until a Senate is constituted under this MOA for the Institute.

(c) Until the first Rules and the Bye-laws are made under this MOA, the Rules and Bye-laws of the [ ] Regional Engineering College, [ ] as in force immediately before the commencement of this MOA shall continue to apply to the Institute, in so far as they are not inconsistent with the provisions of this MOA.

NATIONAL INSTITUTE OF TECHNOLOGY

[RULES]

1. Short Title

These Rules may be called the ( ) National Institute of Technology ( ) Rules

2. Definitions

(a) 'Council' means the Council of the Institute;
(b) MOA means the ( ) National Institute of Technology, ( ) MOA 2001;
(c) 'Society' means the ( ) National Institute of Technology Society, ( )
(d) 'Chairman' means the Chairman of the Board
(e) 'Director' means the Director of the Institute;
(f) 'Registrar' means the Registrar of the Institute;
(g) 'Central Government' means the Government of India;
(h) 'State Government' means the Government of ( )
(i) 'Institute' means Institute known as ( ) National Institute of Technology, ( ) incorporated under the Societies Registration Act 1860;
(j) 'Senate' means the Senate of the Institute;
(k) 'Finance Committee' means the Finance Committee of the Institute;
(l) 'Building and Works Committee' means the Building and Works Committee of the Institute;
(m) 'Authorities' , 'Officers' and 'Professors' respectively mean the authorities, officers and professors of the Institute;
(n) 'Board' means the Board of Governors of the Institute;
(o) 'Regulations' means the Regulations of the Institute.

3. The Board

(1) The bodies entitled to nominate or elect representatives on the Board shall be invited by the Director to do so within a reasonable time nor ordinarily exceeding eight week from the date on which such invitations are issued by him. The same procedure shall be followed for filling casual vacancies on the Board;
(2) The Board shall ordinarily meet four times during a calendar year;
(3) Meetings of the Board shall be convened by the Chairman either on his own initiative or at the request of the Director of or a requisition signed by not less than three members of the Board;
(4) Five members shall form quorum for a meeting of the Board.
Provided that if a meeting is adjourned for want of quorum, it shall be held on the same day in the next week, at the same time and place, or to such other day and such other time and place as the Chairman may determine, and if at such a meeting, a quorum is not present within half an hour from the time appointed for holding a meeting, the members present shall be a quorum.
(5) All questions considered at the meetings of the Board shall be decided by a majority of the votes of the members present including the Chairman. If the votes be equally divided, the Chairman shall have a second or casing vote;

(6) The Chairman, if present, shall preside at every meeting of the Board. In his absence the members present shall elect one from amongst themselves to preside at the meeting;

(7) A written notice of every meeting shall be sent by the Director to every member at least three weeks before the date of the meeting. The notice shall state the place and the date and time of the meeting.
Provided that the Chairman may call a special meeting of the Board at short notice to consider urgent special issues to be clearly stated in the notice for the meeting;

(8) The notice may be delivered either by hand or sent by registered post at the address of each members as recorded in the office of the Board and if so sent shall be deemed to be duly delivered at the time at which notice would be delivered in the ordinary course of post;

(9) Agenda shall be circulated by the Member Secretary of the Board to the members at least ten days before the meeting;

(10) Notices of motions for inclusion of any item on the agenda must reach the Member Secretary of the Board at least one week before the meeting. The Chairman may, however, permit inclusion of any item for which due notice has not been received;

(11) The ruling of the Chairman in regard to all questions of procedure shall be final

(12) The minutes of the proceedings of a meeting of the Board shall be drawn up by the Director and circulated to all members of the Board present in India. The minutes along with any amendment suggested shall be placed for confirmation at the next meeting of the Board. After the minutes are confirmed and signed by the Chairman, they shall be recorded in a minutes book which shall be kept open for inspection of the members of the Board and the Council at all times during the office hours;

(13) If a member of the Board fails to attend three consecutive meetings without leave of absence from the Board he shall cease to be a member of the Board.

4. Authentication of Orders and Decisions of the Board

All orders and decisions of the Board shall be authenticated by the signature of the Director or any other person authorized by the Board in this behalf.

5. The Senate

(1) The Senate of the Institute shall consist of the following persons namely:

(a) The Director, ex-officio, who shall be the Chairman of the Senate;
(b) The professors (including Professor of Training and Placement) appointed or recognized as such by the Institute for the purpose of imparting instruction in the Institute;
(c) Deans, Heads of the Departments, Centres, Schools or divisions other than Professors;
(d) Chief Warden
(e) Three persons, not being employees of the Institute, to be nominated by the Chairman in consultation with the Director from among educationists of repute; and
(f) Not more than Six other members for their special knowledge appointed by the Chairman after consultation with the Director for such period as may be specified by the Chairman;

(2) Subject to the provisions of the MOA, the Senate shall have the power to:

(a) frame and revise curricula and syllabi for the courses of studies for the various Departments;

(b) make arrangements for the conduct of examinations; appoint examiners, moderators, tabulators and the like;

(c) declare the result of the examinations or to appoint Committee or Officers to do so and to make recommendations to the Board regarding conferment or grant of degrees, diplomas and other academic distinctions;

(d) appoint ADVISORY Committees or Expert Committees or both the Departments of the Institute to make recommendation on academic matters connected with the working of the Department; the Head of the Department concerned shall act as convenor of such Committee;

(e) appoint Committees from amongst the members of the Senate, other teachers of Institute and experts from outside to advise on such specific academic matters as may be referred to any such Committee by the Senate;

(f) consider the recommendations of the Advisory Committee attached to various departments and that of Expert and other Committee and take such action (including the making of the recommendation to the Board) as circumstances of each case may require;

(g) make periodical review of the activities of the Departments and take appropriate action (including the making of recommendation to the Board);

(h) supervise the working of the Library

(i) promote research within the Institute and acquire reports on such research from the persons engaged thereon;

(j) provide for the inspection of the classes and the Halls of Residence in respect of the instruction and discipline therein, supervise the co-curricular activities of the students of the Institute and submit reports thereon to the Board;

(k) award stipends, scholarships, medals and prizes and make other awards in accordance with Bye-laws and such other conditions as may be attached to the awards;

(l) make recommendation to the Board with regard to (i) the creation of posts on the Academic Staff and abolition thereof, and (ii) the emoluments and duties attached to such posts.

(3) The Senate shall meet as often as necessary but not less than four times during a calendar year.

(4) Meetings of the Senate shall be convened by the Chairman of the Senate either on his own initiative or on a requisition signed by not less than 50% of the members of the Senate. Requisition meeting shall be a special meeting to discuss only those items of agenda for which requisition is made. The requisition meeting shall be convened by the Chairman of the Senate on date and time convenient to him within 15 days of the notice given for such requisition;

(5) One third of the total number of members of the Senate shall form a quorum for a meeting of the Senate

(6) The Director if present shall preside at every meeting of the Senate. In his absence, the senior-most of the Professors present shall preside at the meting;

(7) A written notice of every meeting together with the agenda shall be circulated by the Registrar to the members of the Senate at least a week before the meeting. The Chairman of the Senate may permit inclusion of any item for which due notice could not be given;

(8) Notwithstanding the provisions of the MOA, the Director may call an emergency meeting of the Senate at short notice to consider urgent special issues;
(9) The ruling of the Chairman of the Senate in regard to all questions of procedure shall be final
(10) The minutes of the proceedings of a meeting of the Senate shall be drawn up by the Registrar and circulated to all members of the Senate present in India provide d that any such minute shall not be circulated if the Senate consider such circulation prejudicial to or not in the interests of the Institute; The minutes along with amendments, if any suggested, shall be placed for confirmation at the next meeting of the Senate. After the minutes are confirmed and signed by the Chairman of the Senate, they shall be recorded a minute book which shall be kept open for inspection of the members of the Senate, the Board and the Council at all times during office hours.

6. The Finance Committee

(1) The Finance Committee shall consist of the following persons namely:

(a) The Chairman, ex-officio, who shall be the Chairman of the Committee;
(b) Two persons nominated by the Central Government;
(c) Two persons nominated by the Board from amongst its members; and
(d) The Director, ex-officio
(e) The Registrar, ex-officio Member Secretary

(2) The Finance Committee shall examine and scrutinize the annual budget of the Institute prepared by the Director and make recommendations to the Board; give its views and make its recommendations to the Board either on the initiative of the Board or of the Director, or on its own initiative on any financial question affecting the Institute;
(3) Finance Committee shall meet at least twice a year, preferably before the meeting of the BOG.
(4) Three members of the Committee shall form a quorum for a meeting of the Committee
(5) The Chairman, if present, shall preside over the meeting of the Committee. In his absence, the confirmation of the minutes applicable to the meetings of the Boards shall , so for as may be, followed in connection with the meeting of the Finance Committee.
(6) The provisions in these Rules regarding notices of the meeting, inclusion of items in the agenda and conformation of the minutes applicable to the meetings of the Boards shall, so for as may be, followed in connection with the meeting of the Finance Committee;
(7) A copy of the minutes of every meeting of the Committee shall be sent to the Board
(8) All financial proposals will be routed through the Finance Committee prior to being placed before the Board

7. Building and Works Committee

(1) Building and Works Committee shall consist of the following persons namely:
(a) The Director, ex-officio, who shall be the Chairman of the Committee;
(b) One person nominated by the Central Government;

(c) One person nominated by the Board from amongst its members; and
(d) The Registrar, ex-officio Member Secretary
(e) Dean, Planning & Development
(f) Nominee of the CPWD or the PWD (Civil Wing)
(g) Nominee of the CPWD or the PWD (Electrical Wing)

(2) This Committee shall perform the following functions and have the following powers:

(a) It shall be responsible under the direction of the Board for construction of all major capital works after securing from the Board the necessary administrative approval and expenditure sanction;
(b) It shall have the power to give the necessary administrative approval and expenditure sanctions for all construction work and work pertaining to maintenance and repairs, within the grant placed at the disposal of the Institute for the purpose;
(c) It shall cause to be prepared estimates of cost of building and other capital work, minor works, repair, maintenance and the like;
(d) It shall be responsible for making technical scrutiny as may be considered necessary by it
(e) It shall be responsible for enlistment of suitable contractors and acceptance of tenders and shall have the power to given direction for departmental works where necessary
(f) It shall have the power to settle rates not covered by tender and settle claims and disputes with contractors

(3) This Committee shall perform such other functions in the matter of construction of building and development of land for the Institute as the Board may entrust to it from time to time;
(4) In emergent cases the Chairman of this Committee may exercise the powers of the Committee. Such cases shall be reported by him to this Committee and the Board at the next meeting of this Committee and of the Board;
(5) This Committee shall meet as often as necessary but at least twice a year
(6) Three members shall form a quorum for a meeting of this Committee
(7) The provisions in these Rules regarding notice of meeting, inclusion of items in the agenda and confirmation of the minutes applicable to the meeting of the Board shall, so far as may be, be followed in connection with meeting of the Board of this Committee;
(8) A copy of the minutes of every meeting of this Committee shall be sent to the Board

8. The Chairman

(1) The Chairman shall have the power to send members of the Staff of the Institute for training or for a course of instruction outside India subject to such t terms and conditions as may be laid down by the Board from time to time;
(2) Contract of service between the Institute and the Director shall be in writing as set out in Schedule ‘A’ and be expressed to be made in the name of the Institute, and every such contract shall be executed by the Chairman but the Chairman shall not be personally liable in respect of anything under such contract.

9. Travelling Allowance

Members of the Board and other authorities of the Institute and members of the Committees constituted under the MOA or these Rules or appointed by the Board and other authorities other than Government employees and employees of the Institute shall be entitled to travelling allowance and daily allowance for attending the meeting of the authorities and their Committees as laid down by the Board from time to time.

10. The Director

(1) Subject to the budget provisions made for the specific purpose, the Director shall have the power to incur expenditure in accordance with the procedure as may be laid down by the Board from time to time;
(2) The Director shall have the power to employ technicians on short-term contracts basis within the overall budgetary allocation of the Institute and with the approval of the Finance Committee;
(3) The Director shall have the power to send members of the staff for training or for a course of instruction inside India subject to such terms and conditions as may be laid down by the Board from time to time;
(4) The Director shall have the power to sanction, remission or reduction of rents for building rendered wholly or partially unsuitable;
(5) The Director shall have the power to sanction temporary allocation of any building for any purpose other than that for which it was constructed
(6) The Director shall have the power of a Head of Department for purposes of Rules in the Account Code, the Fundamental and Supplementary Rules and other Rules of the Government in so far as they are applicable or may be made applicable to the conduct of the business of the Institute
(7) If for any reason the Registrar is temporarily absent for a period not exceeding one month, the Director may take over or assign to any member of staff of the Institute, any of the functions of the Registrar as he deems fit. Provided that if any time the temporary absence of the Registrar exceeds one month, the Board may, if it thinks fit, authorize the Director to take over or assign the function of the Registrar as aforesaid, for a period exceeding one month
(8) All contracts for and on behalf of the Institute except the one between the Institute and the Director shall when authorized by a resolution of the Board passed in that behalf be in writing and be expressed to be made in the name of the Institute and every such contract shall be executed on behalf of the Institute by the Director, but the Director shall not be personally liable in respect of anything under such contract
(9) The Director may, during his absence from headquarters, authorize one of the Deans or the senior most Professor present, to sanction advances for travelling allowance, contingencies and medical treatment of the Staff and sign and countersign bills on his behalf and authorize him for assuming such powers of Director as may be specifically delegated to one of the Deans or the senior most Professor present by him in writing
(10) The Director may, at his discretion, constitute such Committees as he may consider appropriate
(11) In the event of the occurrence of any vacancy in the office of the Chairman by reason of his death, resignation or otherwise or in the event of the Chairman being unable to discharge his functions owing to absence, illness or any other cause, the Director may discharge the functions assigned to the Chairman under Rule 8.
(12) The Director, with the approval of the Board delegate any of his powers, responsibilities and authorities vested in him by the MOA and Rules to one or more members of academic or administrative staff of the Institute.

11. Classification of Members of the Staff of the Institute

Except in the case of employees paid from contingencies the members of staff of the Institute shall be classified as Academic Staff, Technical Staff and Administrative and other staff.

12. Appointments

(1) All posts at the Institute shall normally be filled by advertisement but the Board shall have the power to decide on the recommendations of the Director that a particular post be filled by invitation or by promotion from amongst the member of the staff of the Institute;

(2) While making appointments, the Institute shall make necessary provisions for the reservation of posts in favour of the Scheduled Caste and Tribes in accordance with the decision of the Central Government

(3) Selection Committee for filling post under the Institute (other than the post on contract basis) by advertisement or by promotion from amongst the members of staff of the Institute shall be constituted in the manner laid down below namely:

(a) In the case of all teaching/scientific staff in the scale of the post lecturer and above, the Selection Committee shall consist of:

i.	Director	Chairman
ii.	One nominee of the Central Government	Member
iii.	Two experts as nominees of the Board	Members
iv.	One expert nominee of the Senate	Member
v.	Head of the Department concerned	Member

(In place of one of the nominees of the Board, if the post for which selection is being made is lower in status than the occupied by the Head of the Department.)

(b) In the case of non-teaching posts and scientific staff below the scale of the post of lecturer, the Selection Committee shall consist of:

i.	Director	Chairman
ii.	One nominee of the Central Government	Member
iii.	Two experts as nominees of the Board	Member
iv.	Registrar	Member

(If the post for which selection is being made is lower in status than the occupied by the Registrar. For the post f Registrar and equivalent there shall one more nominee of the Board)

v.	Head of the Department concerned	Member

(For posts within the Academic Departments.)

(4) In the absence of the Director, any member of the staff of the Institute who is appointed to perform the current duties of the Director shall be the Chairman of the Selection Committees in the place of the Director.

(5) Where a post is to be filled up by invitation, the Chairman may, at his discretion, constitute such ad-hoc Selection Committees, as circumstances of each case may require

(6) Where a post is to be filled by promotion from amongst the members of the Institute or temporarily for a period not exceeding twelve months, the Board shall lay down the procedure to be followed.

(7) Notwithstanding anything contained in these Rules, the Board shall have the power to make appointments of persons trained under “approved” programmes in such manner as it may deem appropriate. The Board will maintain a schedule of such “approved” programmes

(8) If the post is to be filled by advertisement, the terms and conditions of the post shall be advertised by the Registrar and all applications received within the date specified in the advertisement shall be considered by the Selection Committee. It may for sufficient reasons consider any application received after the date so specified.

(9) The Selection Committee shall examine the credentials of all persons who have applied and may also consider other suitable names suggested, if any, by a member of the Selection Committee or brought otherwise to the notice of the Committee. The Selection Committee may interview any of the candidates as it thinks fit and shall at the discretion of its Chairman cause a written test or tests to be held for all or some of the candidates as the Chairman may think fit, and shall make its recommendations to the Board or the Director as the case may be, the names of the selected candidates being arranged in order of merits

(10) No act or proceeding of any Selection Committee shall be called in question on the ground merely of the absence of any member or members of the Selection Committee provided that if any meeting of the Selection Committee is found necessary, the Registrar shall give notice of the meeting to the members of the Committee at least a fortnight before the date of the meeting

(11) Unless otherwise provided for under these Rules, a Selection Committee constituted for the purpose of making recommendations for appointment to a post shall be eligible to exercise its functions in relation to that post until the time appointment is made

(12) Candidates selected for interview for a post under the Institute may be paid such travelling allowances as may be determined by the Board from time to time in this behalf

(13) All appointments made at the Institute shall be reported to the Board at its next meeting.

13. Terms and conditions of service of employees of the institute

Every person employed by the Regional Engineering College immediately before these Rules coming into being shall hold office or service in the corresponding Institute by the same tenure, at the same remuneration and upon such terms and conditions and with same rights and privileges as to pension, leave, gratuity, provident fund and other matters as he/she would have held if the Rules were not changed and shall continue so unless and until his/her employment is terminated or until such tenure, remuneration and terms and conditions are altered by further change in MOA/Rules.

14. Appointment on Contracts

(1) Notwithstanding anything contained in these Rules, the Board may in special circumstances appoint an eminent person on contract for a period not exceeding 5 years, with a provision of renewal for further period, provided that every such appointment terms thereof, shall be subject to the prior approval of the Central Government. All such appointments shall be made by the respective Selection Committee unless the Central Government issues directions to the contrary.

(2) Notwithstanding anything contained in these Rules, the Central Government shall appoint an eminent person as Director on contract for a period not exceeding 5 years, with a provision for renewal for further

periods provided that every such appointment and terms thereof shall be subject to the prior approval of the Central Government.

15. Departments

The Institute shall have the following Departments/Centres:

_____

_____

Provided that in addition the Board may establish or abolish one or more Departments/Centres on the recommendations of the Senate and with the prior approval of the Central Government.

KEY PERFORMANCE INDICATORS

Programme Goal and Objectives	Key Performance Indicators Outcome / Impact Indicators
To upscale and support ongoing efforts of GOI to improve quality of technical education and enhance existing capacities of the institutions to become dynamic, demand-driven, quality conscious, efficient and forward looking, responsive to rapid economic and technological developments occurring both at national and international levels. The Programme Objectives are: i) To create an environment in which engineering institutions selected under the Programme can achieve their own set targets for excellence and sustain the same with autonomy and accountability. ii) To support development plans including synergistic networking and services to community and economy of competitively selected institutions for achieving higher standards. iii) To improve efficiency and effectiveness of the technical education management system in the States and institutions selected under the Programme. These objectives will lead to: Support production of high quality technical professionals through reforms in Technical Education System in order to raise productivity and competitiveness of the Indian economy.	– Improved employment rate and earnings of graduates from participating institutions. – Increased cooperation and resource sharing between institutions. – Improved internal efficiency of the Technical Education System. – Increased involvement of institutions with community. – Improved planning and management of Technical Education System to make it demand driven and forward looking.
Output from each Component	**Output Indicators**
Component 1: Institutional Development A. Promotion of Academic Excellence in Institutions	– Increased number of high quality graduates in relevant and cutting-edge technologies – Increased number of postgraduates/research scholars in engineering – Increased professional outputs (publications, products, designs, patents, etc) from participating

B. Networking of Institutions for Quality Enhancement and Resource Sharing C. Enhancing Quality and Reach of Services to Community and Economy	institutions – Number of joint research, design and development projects, consultancies, training programmes, etc., conducted by participating institutions – Increased revenue generation from outreach programmes and services (as percentage of annual recurring expenditure)
Component 2: System Management Capacity Improvement Establishment/strengthening of programme management structures Research and training in education planning and management	– Increased access to technical training for socially disadvantaged groups and unemployed youth Cost and time efficient implementation of competitive funding process Increased availability of well trained system/institution managers

FINANCIAL MANAGEMENT REPORT (FMR)

Technical Education Quality Improvement Programme of Government of India

Use of Funds by Component/Expenditure Category for the Quarter Ending

_____

Rs. In Million

Component/Category		Actual		Planned		Variance	
		Current Quarter	Cumulative	Current Quarter	Cumulative	Current Quarter	Cumulative
Programme Component - 1 : Institutional Development (Competitive Funding)							
1	Civil Works						
2	Goods*						
3	Books & LRs						
4	Consultancies						
5	Trainings, fellowships and workshops						
6	Incremental Operating Expenses						
Total							
Programme Component - 2 : System Management Capacity Improvement (Non-Competitive Funding)							
I	Goods*						
II	Books & LRs						
III	Consultancies						
IV	Trainings, fellowships and workshops						
V	Incremental Operating Expenses						
Total							

* Goods includes Equipment, Furniture & Vehicles

Technical Education Quality Improvement Programme of Government of India

Cash Forecast for Quarter ending .....

Rs. In Million

Disbursement Category		Cash requirement for the next first Quarter ending	Cash requirement for the next second Quarter ending	Total Cash requirement for six months ending	100% Govt. Financed Expenditures	Government & World Bank financed expenditures	World Bank eligible %	World Bank Eligible Cash requirement for the six months ending
Sl. No.	Particulars	1	2	3 = 1+2	4	5	6	7 = 5 X 6
Programme Component - 1 : Institutional Development (Competitive Funding)								
1	Civil Works							
2	Goods*							
3	Books & LRs							
4	Consultancies							
5	Trainings, fellowships and workshops							
6	Incremental Operating Expenses							
Total								
Programme Component - 2 : System Management Capacity Improvement (Non-Competitive Funding)								
I	Goods*							
II	Books & LRs							
III	Consultancies							
IV	Trainings, fellowships and workshops							
V	Incremental Operating Expenses							
Total								

* Goods includes Equipment, Furniture & Vehicles

Technical Education Quality Improvement Programme of Government of India

Withdrawal for Quarter ending .....

In Million

Disbursement Category		Eligible % age	Expenditure incurred during the Quarter (Rs.)	Eligible Expenditure for reimbursement during Quarter (Rs.)	Expenditure incurred during the Quarter (USD)	Eligible Expenditure for reimbursement during Quarter (USD)	Total Bank Disbursement To-date	Bank Credit
Programme Component - 1 : Institutional Development (Competitive Funding)								
1	Civil Works							
2	Goods*							
3	Books & LRs							
4	Consultancies							
5	Trainings, fellowships and workshops							
6	Incremental Operating Expenses							
Total								
Programme Component - 2 : System Management Capacity Improvement (Non-Competitive Funding)								
I	Goods*							
II	Books & LRs							
III	Consultancies							
IV	Trainings, fellowships and workshops							
V	Incremental Operating Expenses							
Total								

* Goods includes Equipment, Furniture & Vehicles

Technical Education Quality Improvement Programme of Government of India

Procurement Progress Report of Works & Goods as on ……..……..……..

(For Contracts Valued at US $ 1,00,000 and above)

Sl. No.	Description of Works	Estimated Cost	Method of Procurement	Design Completion Date	Bid Document Preparation Date	Banks NOC date	Bids Invitation date	Bids Opening date	Contract Award decided (Date /Value/ Currency)	Bank's NOC Contract Award Date	Contact Signed Date	Contract No.	Name & Address of Contractor	WBR No.	Date of Completion of Contract	Expenditure Incurred to date

Technical Education Quality Improvement Programme of Government of India

Programme Target Achievements as on .....

Sl. No.	Programme Targets	Physical Targets				Amount Spent (Rs.)			
		Planned	Achieved	Variance	Remarks	Planned	Achieved	Variance	Remarks

AN EXTRACT OF THE REPORT OF THE EXPERT COMMITTEE ON REVIEW OF FUNDING PATTERN OF IITS – APRIL 2002 (MHRD)

(The Programme States may consider the recommendations of the Committee and develop the mechanism of the Block Grant Funding for the non-plan funds for the institutions under the Programme)

Introduction

Central Government provides Non-Plan and Plan grants to the IITs. Non-Plan grants are provided to meet expenses on account of pay and allowances, pension, departmental operating expenses, minor equipment, library, estate maintenance, electricity and water charges, student amenities, hospital and transport, scholarship, subsidies and contingencies.

Plan grants are provided to IITs for infrastructure renewal for existing programs and activities or for infrastructure creation for starting new programmes and increase student numbers.

As a part of overall Government strategy to reduce public expenditure, Government has been insisting on zero-based budgeting and early implementation of the Recommendations of the Expenditure Reforms Commission (ERC).

There is rich international experience on shift from incremental funding to formula based funding for academic activities in higher education institutions all over the world. Formula based funding is essentially an extension of zero based budgeting that the Government is committed to implement. Internationally, most research funds are distributed selectively to higher education institutions on competitive basis. Student numbers have been increased in many higher education systems at marginal costs much less than the average cost. In UK, Government statisticians have computed marginal cost per student at 30% of the average cost. By using lever of reducing marginal costs, UK has increased its higher education enrolments very substantially in recent years.

Non-Plan Funding

A Block Grant System for Non-plan funding for IITs (also IIMs and IISc, Bangalore) was introduced from the year 1993-94 onwards. This was aimed at addressing problems with net deficit funding (gap-filling approach) that had disincentives for internal resource generation and to reduce expenditure. Its objectives were:

(1) To infuse economy in operations, achieve higher level of efficiency and reduce administrative expenditure.

(2) To bring an *end to steady increase in non-plan grants* on annual basis.

(3) To promote Internal resource generation.

(4) To provide greater financial autonomy - by allowing interest income from corpus to be utilized to advance Institute's interests and to meet crucial gaps.

(5) To provide greater autonomy in internal administration.

(6) To facilitate higher level of activity consistent with country's integration with the global economy.

Its main components were:

- Base level (with base level at RE of 92-93 plus ten percent)
- Allow Endowment fund for creation of corpus (Expectation were that IITs would have a corpus of Rs.200-250 Million or even higher level)
- Transfer of non-plan savings and all revenue receipts to corpus.
- Matching grants - For Savings, revenue receipts and donations.
- Force Majeure for steep increase in DA and unforeseen expenses.
- Greater autonomy in internal administration with only constraints on pay scales and number of Group A posts.

However, there were some aberrations in the existing system. In view of the aberrations and taking into consideration the new policy environment, need for greater clarity in funding of IITs is strongly felt. Keeping these in view, following recommendations are made:

(1) From a uniform level of funding with little variation for historical rather than academic reasons, non-plan funding for IITs should be *formula based with outcome focus*. Broad principle should be that *similar activities are funded at similar rates and any variations should be based on sound and justifiable reasons*.

(2) The portion of the *corpus created from Non-Plan savings and interest thereon should be utilised for further development* of the IIT system. Within the broad framework provided by the Council and the Government, the IITs should be at liberty to use these funds according to their own perspective plan. This could be for renewal of existing infrastructure or creation of new one or even for new campus development. New campuses should be at a manageable distance from the existing campuses and within the vicinity of the industrial clusters as far as possible. Science & Technology Entrepreneurship Parks (STEPs) could also be planned.

(3) The Government should make unambiguous commitment in explicit and clear terms that the financial support to the IITs at levels required would continue to be available for all time to come. IITs should not suffer from a sense of insecurity.

(4) There is need for greater thrust on generation of income from other sources. *Matching grants* have fulfilled their initial objective of encouraging internal resource generation. These need not be continued now.

(5) Under the formula based funding, IITs could continue to have corpus fund. The Institutes would however be encouraged to use interest income from the corpus to meet crucial gaps and enjoy greater financial autonomy within the broad parameters laid down for the purpose.

(6) *Tuition fees* for core programs should not be seen as a source of income. Tuition fees should be revised periodically keeping both the capacity to pay and cost of education in view. Increases in tuition fees should be accompanied with suitable schemes of *scholarships and free-ships* for weaker sections of society to promote equity. There should be more scholarship schemes including high value scholarships for truly outstanding students in PG / Research programs. Greater flexibility should be provided to the IIT system both for determining tuition fees and instituting scholarships within the above broad parameters for promoting equity through cross-subsidization and for providing special thrust to PG Education and Research.

(7) IITs should be provided greater autonomy in their internal administration within overall formula based block grants subject to the following constraints:

- The Pay scales in the Institutes will be as approved by the IIT Council from time to time.

- The number of Group A post in the Institutes will not be changed without the prior approval of the Government.

- The pay scales of the Heads of the Institutes (e.g. Directors) and one level below will not be changed without Government approval.

It is felt that formula for Non-Plan funding should be primarily based on the volume of activity in these Institutes, which in turn would be in direct proportion to the student numbers in core programs. Accordingly, 90 % of the non-plan grants could be based on student numbers. Post-graduate student numbers and doctoral student numbers are counted at a rate of 1.5 and 2.5 respectively in view of greater activity generated by the PG and research programs and to provide thrust to PG education and research in the IIT system. Part-time students may be counted at the rate of 0.5 Full-Time Equivalent (FTE) per student.

Research activities in the IITs are generated either as a result of sponsored research or research work as a part of doctoral and post-graduate thesis and project work or generic research conducted by the faculty on their own initiatives. Since the funding for sponsored research is on competitive basis either through Ministry of HRD, Ministry of Science & Technology or other agencies, therefore, non-Plan grants to support sponsored research are not proposed. However, funds for infrastructure development to support sponsored research are recommended. Further, the Expert Committee recommends that the faculty salaries in proportion to time spent by faculty on sponsored projects should come from the organization sponsoring research. This would provide the IITs a cushion to further development of research activities. Research outcomes from doctoral and post-graduate programmes are already factored in by counting their numbers @ 1.5 and 2.5 respectively. To meet recurring expenditure on generic research, five percent non-Plan grant is proposed on generic research outcome based on number of patents and publications (other than outcome of sponsored research). Though, this works out to be substantial (Rs.30 – 40 Million per annum), however, some members felt that higher priority be given to research. It was therefore decided that this could suitably adjusted based on present and the desirable level of recurring expenditure on research activities (other than sponsored research). The Expert Committee noted that consultancy has to be self-sustaining activity and need not be provided recurring grant, however it should be factored in while providing performance-based plan grants. It noted that consultancy should be taken up without comprising on their core functions of teaching research and academic administration.

In addition to the core programs (undergraduate, post-graduate, integrated and doctoral programs), Institutes also run full-time or part-time mainly short-duration programs for working professionals. These are mainly on self-sustaining basis. Therefore they need not be provided non-plan grants. This should however be a parameter for performance for allocation of plan funds.

Finally, a 5% non-plan grant is proposed on institutional factors such as huge campus size, its location, infrastructure bottlenecks, large number of departments and faculties etc.

Ideally, optimum unit cost should be computed and student numbers (in FTEs) be multiplied with this for the purpose of giving grants. Punnaya Committee and Pyalee Committee have given suggestions for activity based unit cost calculations in the higher education system in the country. As per these suggestions, process of computing optimum unit cost may be initiated. The unit cost should be revised every two years. Meanwhile, we may take actual Non-Plan expenditure (other than transferred to corpus) during 2001-2002 and divide it by student numbers (in FTEs) to reach a average cost figure for fixing grants during the initial years. Pension liabilities should not be included in the formula based non-plan grant and should be met by the Government as per actual.

Non-Plan Funding Formula

- Based on Student Numbers: 90 % (In terms of Full-Time Undergraduate Equivalents - FTE with multiple of 1.5 for Postgraduate students, 2.5 for Doctoral students and 0.5 for part-time student)
- Based on Generic Research Output: 5%* (Based on patents / publications other than outcome of sponsored research)
- Based on Other Considerations: 5% (Campus size, its location and infrastructure bottlenecks, large number of departments / faculties.

* To be adjusted in course of time consistent with higher thrust for research.

In course of transition from present ad hoc system of funding to formula based funding, we may see that in some IITs, formula based non-plan grants is substantially lower than the actual grant during the last year. In such cases, a programme of migration of such institutions to bring them within tolerance band may be chalked out either by reducing their grant or increasing student numbers over a period of time.

Funding Procedure

Each IIT should prepare its long-term perspective plan with annual milestones. Each year IIT may submit details of their achievement over the previous year and plans and projections for the next year. With the parameters above and taking into consideration their capacity to use funds, the Central Government within the overall allocation for the IIT system may fix the IIT-wise non-plan and plan grants. Release of funds should be made in three installments in forty percent in the April, forty percent in the month of October and balance twenty percent in the month of January each year as provided in the block grant scheme.

Within the budget allocated, the Institute should be totally free to allocate the budget internally in accordance with the perceived needs / priorities of the IIT in that year. It is however desirable that even IITs have objective criterion with outcome focus for devolution of funds to its different units to *promote internal efficiency*. All this would require a major change in mindset to improve the size and quality of deliverable output for a given input resource giving flexibility in its allocation to various currently perceived priorities in the Institute.

Based on the parameters for formula based funding, a Memorandum of Understanding (MOU) should be drawn up each year as conceived by the Expenditure Reforms Commission (ERC). This agreement should be constructed in broad terms. This would bring in greater accountability and would result in overall systemic efficiency. This would encourage Institutes to curtail non-essential expenditure, reduce non-academic work force, recruit only when it is absolutely essential without taking their freedom to create and fill-up new positions if absolutely required. In short, this would facilitate in implementation of the recommendations of the ERC.

The Committee recommends adoption of this approach for inter-se allocation of Plan and non-Plan grants between the IITs from the current year (2002-2003) itself. It expects that this would bring in healthy competition between the IITs enabling the Government to enable the system to achieve nationally desirably goals.

SAMPLE TERMS OF REFERENCE FOR THE AUDIT OF PROJECT FINANCIAL STATEMENTS
(and Accompanying SOE and SA Where Applicable)

Objective

The objective of the audit of the Project Financial Statement (PFS) is to enable the auditor to express a professional opinion on the financial position of [_____] project at the end of each fiscal year and of the funds received and expenditures for the accounting period ended mm/dd/yy, as reported by the PFS, [as well as an opinion on the Statement of Expenditures].

The project accounts (books of account) provide the basis for preparation of the PFS and are established to reflect the financial transactions in respect of the project, as maintained by the project-implementing agency [_____].

Scope

The audit will be carried out in accordance with International Standards of Auditing, and will include such tests and controls, as the auditor considers necessary under the circumstances. In conducting the audit, special attention should be paid to the following:

(a) All external funds have been used in accordance with the conditions of the relevant financing agreements, with due attention to economy and efficiency, and only for the purposes for which the financing was provided. Relevant financing agreements are (----name of loan agreement);
(b) Counterpart funds have been provided and used in accordance with the relevant financing agreements, with due attention to economy and efficiency, and only for the purposes for which they were provided;
(c) Goods and services financed have been procured in accordance with the relevant financing agreement;
(d) All necessary supporting documents, records, and accounts have been kept in respect of all project ventures [including expenditures reported via SOEs or SAs]. Clear linkages should exist between the books of account and reports presented to the Bank.
(e) Where Special Accounts have been used, they have been maintained in accordance with the provisions of the relevant financing agreement.
(f) The project accounts have been prepared in accordance with consistently applied International Accounting Standards and give a true and fair view of the financial situation of the project mm/dd/yy and of resources and expenditures for the year ended on that date.

Project Financial Statements

The Project Financial Statements should include

(a) A Summary of Funds received, showing the World Bank, project funds from other donors, and counterpart funds separately;
(b) A Summary of Expenditures shown under the main project headings and by main categories of expenditures, both for the current fiscal year and accumulated to date; and
(c) A Balance Sheet showing Accumulated Funds of the Project, bank balances, other assets of the project, and liabilities, if any.

As an annex to the Project Financial Statements, the auditor should prepare a reconciliation between the amounts shown as "received by the project from the World Bank" and that shown as being disbursed by the Bank. As part of that reconciliation, the auditor should indicate the mechanism for the disbursement, i.e. Special Accounts, Statements of Expenditures, or direct reimbursement,

Statements of Expenditures

In addition to the audit of the PFS, the auditor is required to audit all SOEs used as the basis for the submission of withdrawal applications. The auditor should apply such tests and controls, as the auditor considers necessary under the circumstances. These expenditures should be carefully compared for project eligibility with the relevant financing agreements, and with reference to the Staff Appraisal Report for guidance when considered necessary. Where ineligible expenditures are identified as having been included in withdrawal applications and reimbursed against, these should be separately noted by the auditor. Annexed to the Project Financial Statements should be a schedule listing individual SOE withdrawal applications by specific reference number and amount. The total withdrawals under the SOE procedure should be part of the overall reconciliation of Bank disbursements described above.

Special Accounts

In conjunction with the audit of the Project Financial Statements, the auditor is also required to audit the activities of the Special Accounts associated with the Project. The Special Accounts usually comprise

- Deposits and replenishments received from the Bank
- Payments substantiated by withdrawal applications
- Interest that may be earned from the balances and which belong to the borrower; and
- The remaining balances at the end of each fiscal year.

The auditor must form an opinion as to the degree of compliance with the Bank's procedures and the balance of the Special Account at year-end. The audit should examine the eligibility and correctness of financial transaction during the period under REVIEW and fund balances at the end of such a period, the operation and use of the SA in accordance with the financing agreement, and the adequacy of internal controls for this type of disbursement mechanism.

For this project, the Special Accounts are referred to in [cite references] of the relevant financing agreements. Special Accounts statements and the auditor's report should with the Project Financial Statements.

Audit Opinion

Besides a primary opinion on the Project Financial Statements, the annual audit report of the Project Accounts should include a separate paragraph commenting on the accuracy and propriety of expenditures withdrawn under SOE procedures and the extent to which the Bank can rely on SOEs as a basis for loan disbursement. The financial statements, including the audit report, should be received by the Bank no later than [three to six] months after the end of the accounting period to which the audit refers. The auditor should submit the report to the borrower's designated agent rather than to any staff member of the project entity. The agent should then promptly forward two copies of the audited accounts and report to the Bank.

Management Letter

In addition to the audit reports, the auditor will prepare a " management letter,' in which the auditor will:

(a) Give comments and observations on the accounting records, systems, and controls that were examined during the course of the audit;

(b) Identify specific deficiencies and areas of weakness in systems and controls and make recommendation for their improvement;

(c) Report on the degree of compliance of each of the financial covenants on the financing agreement and give comments, if any, on internal and external matters affecting such compliance;

(d) Communicate matters that have come to attention during the audit which might have a significant impact on the implementation of the project; and

(e) Bring to the borrower's attention any other matters that the auditors considers pertinent.

General

The auditor should be given access to all legal documents, correspondence, and any other information associated with the project and deemed necessary by the auditor. Confirmation should also be obtained of amounts disbursed and outstanding at the Bank [and of amounts disbursed under [specify other donor, loan or grant, if any]. Bank Task Managers can assist in obtaining these confirmations.

It is highly desirable that the auditor becomes familiar with a copy of the Bank's Guidelines on Financial Reporting and Auditing of Projects Financed by the World Bank, which summarizes the Bank's financial reporting and auditing requirements. The auditor should also be familiar with the Bank's Disbursement Manual. Both documents will be provided by the Task Manager.

MODEL AUDIT REPORT
Unqualified Opinion
(for Project Financial Statement Including SOE)

Addressee *

Introductory Paragraph

We have audited the accompanying financial statements of the [_____] Project [financed under World Bank Loan No. _____/IDA as of December 31, 20XX [indicate any other additional years necessary] for the year(s) then ended. Our responsibility is to express an opinion on these financial statements based on our audit.

Scope Paragraph

We conducted our audit in accordance with International Standards on Auditing [or relevant national standards or practices, and/or World Bank guidelines]. Those Standards and/or World Bank guidelines require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

A Opinion Paragraph

In our opinion, the financial statements give a true and fair view of the Sources and Application of Funds** of _____ Project for the year ended December 31, 20XX, in accordance with [indicate International Accounting Standards or relevant national standards. Add “financial position” at December 31, 20XX where a balance sheet is required]

In addition, (a) with respect to SOEs, adequate supporting documentation has been maintained to support claims to the World Bank for reimbursements of expenditures incurred; and (b) which expenditures are eligible for financing under the Loan/Credit Agreement [Ln/Cr. _____].

[Name and Address of Audit Firm]
[date – Completion Date of Audit]

* The auditor’s report should be appropriately addressed as required by the circumstances of the engagement and local regulations.

** A “Source and Application of Funds” statement is always required for each project. A balance sheet is also required where the project has assets and liabilities.