

Document No.- I

**TECHNICAL EDUCATION QUALITY
IMPROVEMENT PROJECT OF GOVERNMENT
OF
INDIA**

PROJECT DESCRIPTION AND GUIDELINES

OCTOBER 29, 2001

**GOVERNMENT OF INDIA
MINISTRY OF HUMAN RESOURCE DEVELOPMENT
DEPARTMENT OF SECONDARY & HIGHER
EDUCATION
NEW DELHI - 110 001**

ABBREVIATION

AG	Accountant General
AICTE	All India Council for Technical Education
BHU	Banaras Hindu University
BOG	Board of Governors
BTE	Bureau of Technical Education
CAA&A	Controller of Aids, Accounts and Audit
CFE	Centre for Excellence
CSIR	Council for Scientific and Industrial Research
DEA	Department of Economic Affairs
GOI	Government of India
IAMR	Institute for Applied Manpower Research
ICD	International Competitive Bidding
IDA	International Development Agency
IIIT	Indian Institute of Information Technology
IIITM	Indian Institute of Information Technology and Management
IIM	Indian Institute of Management
IIT	Indian Institute of Technology
IPMU	Institutional Project Management Unit
IRG	Internal Revenue Generation
IT	Information Technology
ITC	Interface Training Centres
LI	Lead Institutions
LAN	Local Area Network
LR	Learning Resources
LRU	Learning Resource Utilisation
MHRD	Ministry of Human Resource Development
MOU	Memorandum of Understanding
MPECS	Multi Point Entry and Credit System
NBA	National Board of Accreditation
NCB	National Competitive Bidding
NPE	National Policy On Education
NERIST	North Eastern Institute of Science and Technology
NI	Network Institution
NIFFT	National Institute for Foundry and Forge Technology
NIPMU	Network Institution Project Management Unit
NITIE	National Institute for Training and Industrial Engineering
NPD	National Project Directorate
NPIU	National Project Implementation Unit
NTMIS	National Technical Manpower Information System
PFMS	Project Financial Management System
PMR	Project Management Report
QIP	Quality Improvement Programme
R&D	Research and Development
REC	Regional Engineering College
SA	Special Account
SLIET	Sant Logonwal Institute of Engineering & Technology
SPA	School of Planning and Architecture
SPD	State Project Directorate
TQM	Total Quality Management
TSG	Technical Support Group
TTTI	Technical Teachers Training Institute
UGC	University Grant Commission
USA	United States of America

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CHAPTER 1

TECHNICAL EDUCATION IN INDIA: AN OVERVIEW

1.1 Introduction

- 1.1.1 The foundation of present day Technical Education System in India was laid during 1840's with the establishment of technical institutions at Roorkee, Madras, Calcutta and Pune. All India Council for Technical Education was established in 1945 as an Advisory Body in all matters of Technical Education. Technical Education in India gained momentum after independence in 1947 when emphasis was laid by Government of India (GOI) and the States in their policies and plans for this purpose. Full policy support and substantial funds have been provided by GOI and the States to create one of the world's largest systems of technical education. As a result of this, the country has witnessed enormous growth in technical education facilities during the past 50 years.
- 1.1.2 The Constitutional Amendment of 1976 places education, including Technical Education in the concurrent list. This calls for greater responsibility on part of both the States and the Centre for integrated development of technical education sub-sector. They have to meet the challenge of heavy demand of professional courses in the institutions directly funded by them and also ensure quality education both in the Government funded and in the private self financing professional and technical educational institutions growing at faster pace.
- 1.1.3 In 1987, the All India Council for Technical Education (AICTE) was vested with statutory powers through an Act of Parliament with a view to the proper planning and co-ordinated development of the Technical Education System throughout the country, the promotion of qualitative improvement of such education in relation to planned quantitative growth and the regulation and proper maintenance of norms and standards in the Technical Education System and for matters connected therewith.

- 1.1.4. Besides, the Central Government by an Act of Parliament in 1956 established the University Grants Commission to make provisions for the Co-ordination and determination of standards in Universities.
- 1.1.5 The Bureau of Technical Education (BTE) in the Ministry of Human Resource Development (MHRD) remains the apex authority in the country to co-ordinate the efforts of various agencies, lay down policies, finalise development plans and implement the same for Technical Education System in the Country.
- 1.1.6 Professional Bodies like Institution of Engineers, Institution of Electronics & Telecommunication Engineers, Institution of Mechanical Engineers, Council of Architecture, All India Management Association, Indian Society for Technical Education etc. are also engaged in various ways in the development of Technical Education in the Country.

1.2 **Current Scene**

- 1.2.1 At the apex of Technical Education system in India, are the Indian Institutes of Technology (IITs) located at Mumbai, Delhi, Kanpur, Kharagpur, Chennai, Guwahati and Roorkee with a goal to impart world class education. These are established by the BTE by an Act of Parliament and are directly funded by it.
- 1.2.2 The Indian Institute of Science, Bangalore was set up to offer postgraduate education and conducting research in various areas of basic science, engineering and technology. It is yet another World Class Institution and is directly funded by the BTE
- 1.2.3 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 of various sectors of the Indian economy.

- 1.2.4 Over the years the BTE has also established several other institutes for imparting quality education and conducting research in specialised areas, viz., Indian Institutes of Information Technology (IIIT) at Allahabad, Indian Institute of Information Technology and Management (IIITM) at Gwalior, National Institute for Training in Industrial Engineering (NITIE) at Bombay, National Institute of Foundry and Forge Technology (NIFFT) at Ranchi, Indian School of Mines at Dhanbad, Sant Longowal Institute of Engineering and Technology (SLIET) at Longowal, North Eastern Institute of Science and Technology (NERIST) at Itanagar, School of Planning and Architecture (SPA) at New Delhi, and Technical Teachers' Training Institutes (TTTIs) at Calcutta, Chennai, Bhopal and Chandigarh etc.
- 1.2.5 In the second tier are the 17 Regional Engineering Colleges (RECs), set up one each in the major States to meet the growing requirement of trained technical manpower for various developmental projects. The RECs are the joint and cooperative enterprises of the Central and State Governments (where REC is situated). All RECs offer undergraduate and post-graduate programmes (barring three RECs) in various branches of engineering and technology.
- 1.2.6 The States and Union Territories have played equally important role in the development of technical education by establishing large number of fully funded and aided technical institutions and supporting them by providing adequate policy support. Institutions. There are various state universities and state technical institutions which have earned name for themselves, such as, Anna University, Jadavpur University; deemed universities like Bengal Engineering College, Sibpur, Birla Institute of Technology, Pilani, Birla Institute of Technology & Science, Ranchi and Thapar Institute of Engineering & Technology, Patalia, and University Technical Colleges such as Institute of Technology, BHU, Punjab College of Engineering, Poona Engineering College, Poona etc.
- 1.2.7 At the time of independence, there were 43 polytechnics with an intake capacity of 3,400 students. In the year 2000, the number has grown to 1215 polytechnics with the intake capacity of about 2 lakh students. Similarly, the number of degree level institutions has increased from 38 with intake capacity

of 2940 in 1947 to 776 institutions in the year 2000 with an intake capacity of approximately 1.5 lakh. Since 1980s, private sector has played a major role in capacity expansion of technical education sub-sector. Approximately two-thirds of engineering colleges and polytechnics are in private sector.

- 1.2.8 Currently, 185 institutions offer postgraduate courses in engineering and technology with an annual intake capacity of approximately 16,800. Some of these institutions also offer doctoral programmes in engineering, technology and applied sciences.
- 1.2.9 Informal sector forms an important component of Indian economy. Selected Polytechnics are being provided with Central Assistance by the BTE to provide trained manpower for the informal sector and community around them. However, these are not adequate compared to the needs.
- 1.2.10 The policies and programme of Government of India are laid down in the National Policy on Education (NPE) 1986 and Programme of Action thereon.
- 1.2.11 Besides, to study and improve the functioning of various institutions and programmes and critical examination of key sector issues, GOI sets up various committees from time to time. Some of the reports of such Committees of the recent past are :
- (a) Raju Committee Report on Networking of Engineering Institutions (2001)
 - (b) Indiresan Committee Report on Technical Teachers' Training Institutes (November 2000)
 - (c) Policy Guidelines for Training Teachers of Polytechnics and Engineering Colleges (May 2000)
 - (d) IT Advisory Committee recommendations for upgrading REC's to the level of IIT's (2000)
 - (e) Mashelkar Committee Report on Regional Engineering Colleges (1998)
 - (f) Rama Rao Committee Report on Post Graduate Education in Engineering and Technology (1998)

- (g) Swaminadhan Committee Report on Mobilization of Additional Resources for Technical Education.
- (h) India 2020 – a Vision for the New Millennium, based on TIFAC Reports (1998).
- (i) National Policy Initiative in Technical Education (1998).
- (j) Report of National Appraisal Committee on Scheme of Community Polytechnics (1996)

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

1.2.13 During 1980s, Government of India and the State Governments recognised an urgent need for revamping 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 the World Bank assisted First and Second Technician Education (Tech Ed) Projects, which helped and renovated the system and benefited 531 polytechnics in 19 States and UT of Pondicherry.

1.2.14 The Third Technician Education Project currently under execution would complete the GOI initiative taken with the World Bank Assistance by including the polytechnics in the States not included in the earlier two projects. The success of these projects has encouraged the GOI and the State Governments to seek similar assistance for the systemic transformation of Technical Education quality as a whole with a greater focus on engineering education.

1.2.15 The 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 the craftsmen and the engineer, it requires multiple level positions to perform and manage activities on the shop floor and in the field. Therefore, in view of the above it is necessary to upgrade

potential well performing polytechnics into degree awarding engineering collages which will offer high technology courses and gradually phase out the polytechnics. This effort will provide vertical mobility to the students.

1.2.16 The GOI and the State Governments are committed to upgrade the quality of technical manpower in the country in all areas and bring it to recognised international level. In this endeavour it is important to understand the current structure of the technical manpower in the country especially due to advent of modern technology.

1.2.17 Chapter – 2 of the document contains sector context and rationale, Chapter – 3 deals with the project goals, strategy and components, Chapter - 4 includes eligibility and selection criteria for institutions, Chapter - 5 contains details about invitation, submission and appraisal of proposals, followed by details on project funding and accounting in Chapter– 6, Chapter - 7 deals with details of project management monitoring and evaluation.

CHAPTER 2

SECTOR CONTEXT AND RATIONALE

2.1 Sector Context

- 2.1.1 With India opening its doors to multinational corporations and the advent of globalisation 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.
- 2.1.2 Though the GOI and State Governments have intervened to avoid obsolescence in facilities and infrastructure in the institutions (through modernisation and removal of obsolescence scheme, thrust area development scheme, quality improvement programmes, etc.) due to very large number of institutions in the system and rapid changes in technologies obsolescence of facilities and infrastructure are experienced in many institutions.
- 2.1.3 Absence of a system of regular maintenance of facilities has contributed towards non-functioning of various equipments and labs. Also IT infrastructure and use of IT in technical institutions is woefully inadequate.
- 2.1.4 There are barest minimum laboratory facilities available in many of the institutions and very little research activity is undertaken. Actions towards sharing of resources among institutions or with industries or R&D organisations are almost non-existent in the country, which causes under utilisation of resources and wastage.
- 2.1.5 Engineering institutions and polytechnics have not succeeded in developing strong linkages with industry and community. These institutions need to direct their efforts in developing close linkages with industry and community and for service rendered to them as a basic instrument of their developmental goals.

- 2.1.6 The curricula offered by most institutions today is outdated and does not meet the needs of labour market. There is also a mismatch between student demand/ labour market needs and institutional output and training modalities. In certain fields there is over supply of skilled manpower and therefore, unemployment. Whereas, in certain critical fields vital for enhancing economic competitiveness, there is a shortage of skilled manpower.
- 2.1.7 Industry often finds engineering college graduates weak in professional practice and requires orientation and training for long duration to make them professionally useful.
- 2.1.8 The large scale expansion of degree and diploma level institutions which has led to acute shortage of teachers in the technical institutions and as a consequence brought in decline in quality of education offered therein.
- 2.1.9 The isolation of many teachers from the national and international community as well as recent advances in their fields is partially responsible for the inertia in curricula.
- 2.1.10 Advances in technology are occurring at bewildering pace, creating special problems in curriculum planning and delivery. The half-life of many technologies has come down to only a few years. In this context, it has become essential that both teachers and non-teaching professionals should develop an attitude for life long learning, and have exposure to advances in their field through continuing education programmes, seminars, conferences, and fellowships in India and abroad.
- 2.1.11 Research and postgraduate education in engineering and technology is confined to approximately 200 institutions in the country. Nearly, 50% of seats, approved for post-graduation in engineering and technology, remain vacant and only 35% of approved seat is the out turn of postgraduates in the country. Regardless of the parent discipline, most of the postgraduate in engineering and technology are absorbed in IT industry. Advance 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.

- 2.1.12 Compared to 10,000 Masters degree-holders/year and 800 Ph.D. degree-holders/year in computer science in USA, only 300 M.Tech degree & 25 Ph.D. holders/year in computer science are produced in our country. For the country to move up the value chain in IT industry and to become a super power in knowledge-led business, it is essential to give greater importance to postgraduate education and research. This would be essential if we wish to graduate from mere users of IT to generators of IT products and services and wish to become internationally competitive.
- 2.1.13 Demand of IT professionals is increasing tremendously. According to IT Task Force estimates, 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. An earlier Ministry of Information Technology report indicated that only 30% of the out put of the IT supply sector is of quality acceptable for high level skills. Therefore, there is urgent need for upgrading the quality and training of high level IT professionals coming out of engineering colleges and university departments.
- 2.1.14 The disadvantaged groups are poorly represented in higher science & technical education in spite of special efforts being made such as special coaching, reservation of seats, award of fellowships / associateships etc.
- 2.1.15 There is a need to support some of the good performing institutions under technician education system to be upgraded to the level of an engineering college offering technician degree courses in new and emerging technology areas. This will provide an opportunity to the polytechnic students for vertical mobility.
- 2.1.16 While the procedural (financial) audit, when is mandatory, is carried out in minute details, there is no systematic evaluation of institutional performance. Though review of IITs, RECs, TTTIs and state Institutions have occurred but

there is no performance audit annually conducted. So there is little incentive to excel. Also, feedback system from lower levels to higher ones, feedback from students on courses taught, feedback from employers (client system) and evaluation of teacher's performance is non-existent in most institutions.

2.1.17 There are wide variations between states and regions in the development of educational infrastructures. The southern and western states are well ahead in their capacities where as the eastern and northern states are lacking. 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.

2.1.18 Higher Education as a whole including the engineering colleges, 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 lacking due to stringent rules and regulations. Fee charged to students by most public institutions represent no more than a small fraction of the real costs.

2.1.19 While a few institutions in the private sector are utilising 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.

2.2 Rationale

2.2.1 It has been recognised 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.

- 2.2.2 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 in those areas where substantial demand has arisen. Because of lack of investment from private investment 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.
- 2.2.3 Indian policy framework (NPE-1986 and revised in 1992) and planned investment for the last 50 years has resulted in production of internationally valued manpower through such institutions as IITs, IIMs etc. However, because policies have not been implemented in the right spirit in all other institutions in the country, the over all picture considering all engineering and polytechnic institutions in the country is not encouraging. Efforts are needed to bring all these institutions to international standards and improve the quality of the system as a whole. Recognizing the importance of technical education for national development, the country has committed itself to the development of quality technical manpower.
- 2.2.4 It has been pointed out in the Policy Initiatives for Technician Education 1998 that it is important to raise the status of polytechnic passouts which will help them to upgrade their position in the work place from undertaking supervisory roles to managerial roles. In this context it is important to consider some of the technician level institutions to be enhanced to become engineering colleges. The proposed Project is designed to translate these commitments to actual practice.
- 2.2.5 Because of shortcomings in the system restricting production of quality manpower, the Government of India has decided to reform and enable the system through systemic transformation supported by policy changes. 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 has to be expanded not only to address the

needs of organised sector but also to cover the needs of unorganised and rural sectors.

2.2.6 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 Project of Government of India would support ongoing efforts of the Centre Government and State Governments in this direction.

2.2.7 The proposed Project will focus on Quality Improvement of Technical Education sub-sector through policy changes to cover these aspects, such as:

- (a) Quality of education.
- (b) Promoting research culture.
- (c) Maximising utilisation of expertise and resources.
- (d) Interaction with and extending benefits to industry and community.
- (e) Development of management capacity.
- (f) Encouraging strategic partnership.
- (g) Quality of faculty.
- (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 Project.
- (l) Sustainable decision-making mechanisms.

2.2.8 Strategy for achieving Quality Improvement is detailed in the next chapter.

CHAPTER 3

PROJECT GOALS, STRATEGY AND COMPONENTS

3.1 Project Goals

3.1.1 The **Technical Education Quality Improvement Project of Government of India** aims at improvement of quality of technical education sub-sector into a dynamic, demand-driven, quality conscious, efficient and forward looking system responsive to rapid economic and technological developments occurring both at national and international levels. In other words, the technical education system should dynamically respond to market demands in both its formal and informal educational offerings and services; provide quality products (passouts) and services efficiently which are highly sought after by industry, R&D organisations and others; anticipate developments both in technology and economy and strategically respond to such developments.

3.1.2 These goals are for fostering and propagating the culture of relevance, quality, and efficiency to be achieved through four primary activities. They are:

- (a) Developing academic excellence through institutional mechanisms for: the promotion of creativity and innovation; identification and nurturing of existing and potential internal sources of excellence; and creating an academic and administrative environment, which would promote their growth.
- (b) Networking with *selected* institutions for resource sharing and optimisation, faculty development, curriculum development, research participation, information dissemination and for bringing a competitive spirit among faculty and students of participating institutions.
- (c) Providing service to community and economy through linkages and active interaction with industry, government, and other stakeholders, formal and informal sectors of the economy, adult learners, and all who seek or need technological assistance.

- (d) Developing management capacity for managing such a systemic transformation, and creating an entirely different culture of management both within individual institutions of technical education and within the governmental agencies which will guide and support implementation of Quality Improvement Project.

3.1.3 It is proposed that through this Project, 100-120 well performing institutions will be developed into excellent institutions of world class; and through their services 400-480 network institutions in the technical education sub-sector will be developed to strive for excellence. The Project also aims to upgrade selected polytechnics to engineering college level institutions. It is expected that sub-network will be evolved over a period, which will envelop entire technical education sub-sector.

3.1.4 **Characteristics of Excellent Institutions**

Vision

1. Institutes have a corporate vision of growth and development and are willing to work hard to achieve objectives based on this vision.

Management

2. They have a corporate and participative management system with decentralisation of authority with full accountability.

Resources

3. They have a optimum size of high quality faculty and have an institutionalised mechanism/policy to increase their number through well-structured staff development Programmes and through talent search.
4. They have excellent basic infrastructure (laboratories, workshops, library, modern equipment) for their activities and innovative ideas to use existing facilities for maximum impact.

Processes

5. They have established an academic atmosphere and a culture to promote free debate, innovations and creativity through intensive interactions among staff, students, and management.
6. They have encouraged and fostered critical thinking, the development of problem solving and communication skills, the pursuit of design emphasis and innovations in the teaching-learning process, and an attitude of life-long learning.
7. They are always willing and eager to experiment with new tools of delivery of educational products and processes and to determine their efficacy and effectiveness.
8. They are willing to learn from experiences of good institutions world-wide and for this purpose develop formal interactions with them and have a system for continual monitoring, collection and dissemination of information on educational innovations.
9. They recognize and reward creative and quality endeavours of faculty, staff, and students.
10. They have a culture of extending and borrowing academic benefits to and from institutions and other agencies.
11. They have dynamic and deeply organic relationship with local industry and community involving many different forms of interactions. They have a fast response to the changing needs of their immediate environment.
12. They employ modern office practices and management culture.
13. They exercise autonomy and are fully accountability for their actions.
14. They encourage faculty and other stake holders in governance, and have participative and group decision making processes.

Outputs

15. They offer educational products and services of the highest international quality with
 - a) demand driven Programmes
 - b) up-to-date curricula with modern delivery systems
 - c) relevant skills
 - d) appropriate research and development, and consultancy
 - e) continuing education for knowledge and skill upgradation.

16. They assume a leadership role in system improvement through
 - a) Showing the way to other institutions by futuristic planning;
 - b) Networking with other institutions for information exchange, resource sharing, and policy formulations, and for encouraging competitive strategies for educational innovations;
 - c) Taking a lead in knowledge creation , addition and dissemination;
 - d) Innovating in teaching-learning and training;
 - e) Institutionalising collection, analysis and dissemination of information for educational management;
 - f) Fostering research singly or jointly with other institutions on issues of educational concerns, innovation, etc. in technical education; and
 - g) Systematizing entrepreneurial development activities through courses, training, and incubation.

17. Their students are most sought after by employers (industries, R&D organisations, etc.).

3.1.5 Anticipated Benefits from the Project

- (a) Students would gain by
 - (i) Better learning environment, acquiring requisite skills such as learning-to-learn, communication, problem-solving,

entrepreneurship, etc., and being stretched to their maximum potential through challenging assignments for innovation and creativity.

- (ii) Better quality of education and training
- (iii) Higher employment potential
- (iv) Being better equipped to serve industry or be self-employed
- (v) Higher flexibility and a variety of learning options
- (vi) Availability of resources of network institutions
- (vii) Learning from services to community and economy (dealing with real life problems)
- (viii) Better administered and innovative technical education system.

(b) Institutions would gain by

- (i) Having learned, accomplished, creative, resourceful and accountable faculty
- (ii) Being driven by shared vision and commitment to reach goals.
- (iii) Becoming change mangers.
- (iv) Attracting better quality of teachers and students based on the image of the institutions.
- (v) Improved efficiency and effectiveness through resource optimisation and networking.
- (vi) Having extensive linkages with local community and economy
- (vii) Being better managed
- (viii) Being futuristic
- (ix) Being innovative

(c) Sector would gain because of

- (i) Low wastage (due to market driven educational offerings)
- (ii) Resource optimisation (through networking)
- (iii) Improved relevance (through services to community and economy)
- (iv) Improved practices and system
- (v) Improved planning and management
- (vi) Greater efficiency
- (vii) A better regulating system

- (d) Economy would gain because of
 - (i) Availability of high quality technical manpower
 - (ii) High quality research and development
 - (iii) Emergence of new technologies
 - (iv) Technology transferred, creation of new knowledge and competence upgradation of working professions, unemployed youth rural artisans, and service technicians
 - (v) Additional opportunities for retraining of professionals by continuing education Programmes

3.1.6 **Expected Outcomes and Their Indicators**

A. **At Students' level**

(a) **Outcomes**

- i) Better educated, trained and thus employable students

(b) **Indicators**

- i) Higher percentage of employment through campus interviews
- ii) Higher percentage getting employment by end of one year of passing out
- iii) Higher percentage of first class graduates
- iv) More winners of national contests/design awards/paper presentation/debates/ cultural contests, etc.
- v) Better performance at GATE and other competitive examinations

B. **At Institutional Level**

(a) **Outcomes**

- i) Institution becomes world class
- ii) Self propelled institution

(b) **Indicators**

- i) Relevance (Labour Market Orientation) of educational offerings
- ii) Admission to institute is highly valued by students

- iii) Highly placed alumni
- iv) Number of patents, increased number of technical publications, sponsored research and consultancy earnings
- v) Autonomous in academic, administrative, managerial, and financial matters
- vi) Improved cost-recovery of education and increased revenue generation
- vii) Improved service to community/industry
- viii) Improved high quality R&D
- ix) Well trained/qualified faculty

C. At Sector Level

(a) Outcomes

- i) Self propelled Forward-looking system responsive to rapid economic and technological developments occurring both at national and international levels.

(b) Indicators

- i) Dynamic (as shown by Project offerings in Cutting-edge technologies)
- ii) Demand-driven (as shown by revision of existing curricula and a new curricula development based on labour market)
- iii) Quality conscious
- iv) Efficient

3.1.7 Outputs and its Indicators

A. Academic Excellence

(a) Improved academic services

- i) More relevant curricula
- ii) Better evaluation mechanism
- iii) Better technological support for teaching/ learning/ information dissemination
- iv) Increased access to laboratory, workshops, library, etc.

- (b) **More competent and committed teachers**
- i) Reduced faculty turnover
 - ii) Increased percent of PG-qualified teachers/Ph.D. holders
 - iii) Increased involvement in research and development
 - iv) Increased availability for interaction with students (guidance and counselling)
 - v) Increased innovations in teaching
 - vi) Increased number of publications
 - vii) More national/professional awards and recognition
 - viii) Increased membership of National Expert Committees
- (c) **Better institutional ambience for innovation and creativity**
- i) Increased hours of access to library, laboratories, computer centres and workshops
 - ii) Improved access to internet, international data banks
 - iii) Increased number of state-of-art lectures, seminars, continuing education Programmes
 - iv) Increased participation in design competition
 - v) Better quality of student project output
 - vi) Increased forwarding of sponsored research projects
 - vii) Improved servicing of consultancy assignments
 - viii) Mechanism for recognizing and rewarding excellence at all levels
- (d) **Increased creative contributions from staff and students**
- i) Number of student-centred experiments designed and implemented
 - ii) Quality of student projects
 - iii) Number of students seminars/ papers/ presentations
 - iv) Number of student-centred activities
 - v) Number and value of research projects completed
 - vi) Number and value of consultancy offered to industry and community
 - vii) Number of research publications in national and international journals

- viii) Number of books, monographs, manuals published/prepared
- ix) Number of patents applied for
- x) Number of national/international awards won by staff/students

B. Networking

(a) Better flow of information

- i) Increased number and frequency of information exchanged among network partners

(b) Better utilization of resources

- i) Sharing library facilities
- ii) Sharing expensive equipment
- iii) Faculty exchange
- iv) Using laboratory and workshops during off periods by other institutions
- v) Faculty development Programmes

(c) Improved implementation of curricula

- i) Networking of faculty (departmental level) for improving curricula in formulation as well as implementation
- ii) Offering electives in areas where expertise is borrowed from another network partner
- iii) Permitting students to take courses in other network institution with full transfer of credits
- iv) Use of electronic media for videoconferencing of lectures

(d) Better interaction with peers

- i) Increased interaction among faculty of several institutes for individual or joint research, sponsored projects, consultancy etc.
- ii) Attendance at research seminars, state-of-art lectures organized by other institutes

(e) More co-operative Programmes

- i) Increased number of joint courses offered

- ii) Increased number of joint seminars, Continuing Education Programmes
- iii) Increased number of student design contests, paper presentation contests, etc. organized on a co-operative basis

C. Services to Community and Economy

(a) Increased interaction in training

- i) Number of training Programmes
- ii) Number of people trained from community/ informal sector

(b) Infusion of new technologies to enhance productivity

- i) Number of technologies transferred
- ii) Estimated number of beneficiaries

(c) Development of management capacity of informal sector

- i) Number of persons trained
- ii) Number of small businesses benefitted

D. Development of Management Capacity (both at institutional level and at technical education system's level)

(a) Increased number of Capability Development Programmes

- i) Number of Management Development Programmes organized for head of the institutions, senior faculty, and senior administrators
- ii) Number of head of the institutions, senior faculty, and senior administrators exposed to new ideas

(b) Increased research on educational issues

- i) Number of research projects in education areas undertaken and completed

- ii) Number of research papers on educational aspects delivered at national/international conferences

(c) **Better decision making on educational policies**

- i) Use of data for decision-making
- ii) Websites of institutions of providing data for EMIS
- iii) Number of beneficiaries of EMIS (hits on website of EMIS)

(d) **Better and more efficient financial management**

- i) Increased cost recovery of education
- ii) Increased IRG
- iii) Reduced time for taking fiscal decisions

(f) **More number of institutes having quality certification (ISO 9000) and TQM philosophy adopted.**

- i) Number of institutions with ISO 9000

(g) **Use of Resource Institutions**

- (i) Number of persons trained by institutions
- ii) Number of consultancy projects completed by resource institutions for Programme institutions
- iii) Number of new ideas/ innovations introduced by resource institutions.

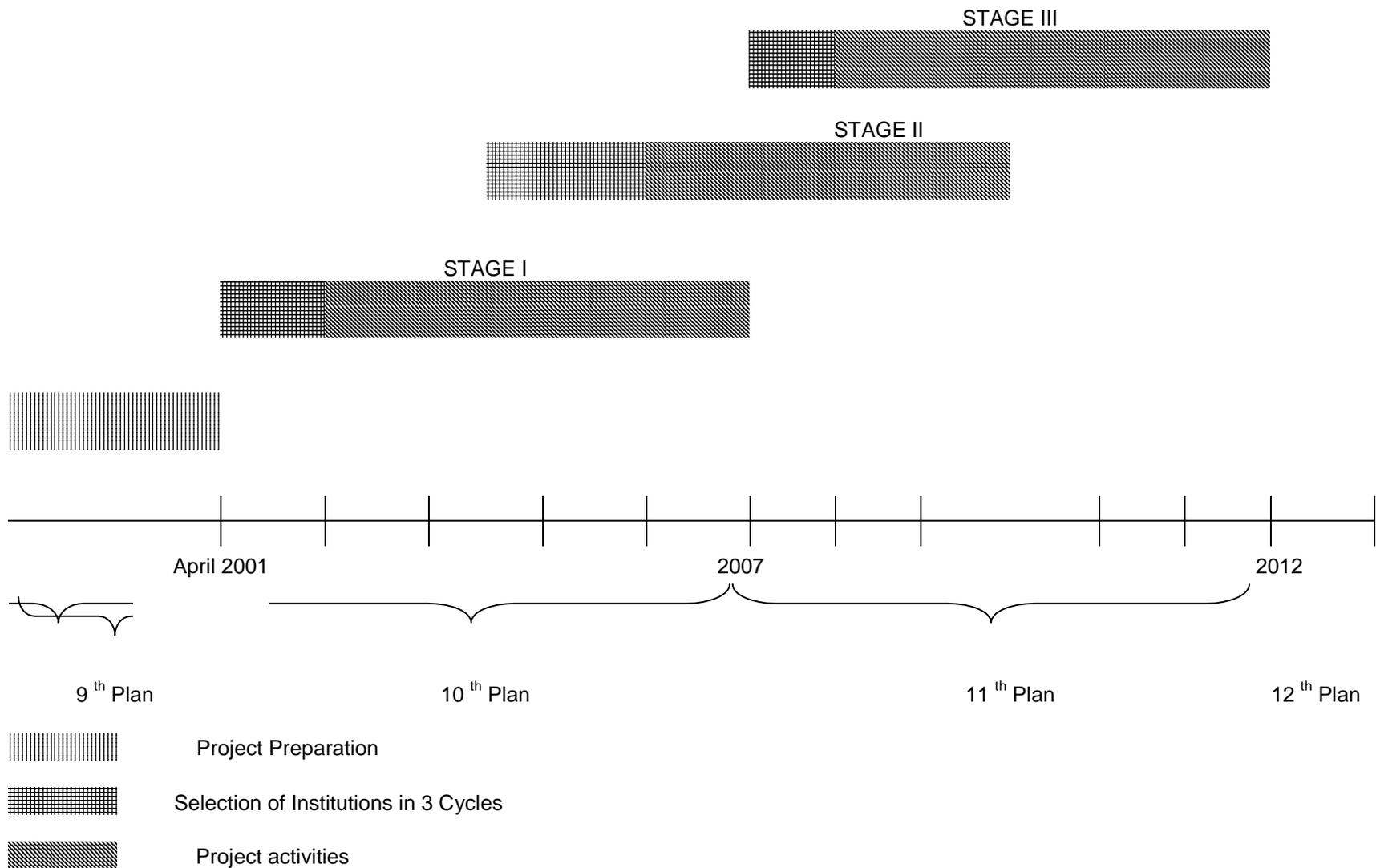


Fig. 3.1 Overlapping Stages in the Project

3.2 Project Strategy

3.2.1 The proposed developmental effort will be operationalised in the form of a long-term Project consisting of 3 overlapping stages covering about 12 years period. Each stage will be of 5 years duration. Each succeeding stage will be built on the learning and experience gained from earlier stages, thus making the Project dynamic and flexible. A pictorial representation of these stages with details of first stage is shown in Fig. 3.1.

3.2.2. Within each stage, there will be three cycles for selection of institutions. It is expected that funds available for the stage would be committed to discrete development proposals from institutions over the first two years of implementation of the phase and will actually be expended by those institutions over a period of about 5 years.

3.2.3 Selection of institutions for assistance will be done by a transparent competitive process. It will be a two step process, viz., Willingness Proposal Step and Composite Proposal Step. Willingness proposals from State level institutions through State and Central Institute through their concerned administrative division will be invited by National Project Directorate through advertisement to become lead institutions. The Expert Committee at national level will select potential lead institutions on the basis a transparent criteria. Other details of selection of institutions is mentioned in Chapter 5.

3.2.4 Following types of educational institutions will be eligible for participation in the Project.

(a) Engineering Institutions (Govt., Govt-aided, private), including Deemed-to-be-Universities (Technological) and Universities (Technological), Faculty of engineering of universities, university departments offering engineering courses, and other institutes related to engineering education sub-sector offering degree, post-graduate degree and research programmes.

(b) Engineering Polytechnics (Govt., Govt-aided, private) to be up graded to become engineering collages

3.2.5 Salient features of the Project are:

- a) Investment proposals from individual institutions may require expenditure over differing periods of 5 years or less. Institutions may update their development plan and submit for reconsideration.
- b) The proposed Project will admit institutions and institutional clusters only when they fulfil eligibility conditions. Institutions, which have a well-developed vision to accomplish in the future and fulfil certain quality criteria, will qualify to become lead institutions.
- c) It is presumed that all potential participants may not be ready as soon as the Project starts. With this in view, the admission of institutions through a series of selection cycles (three) has been planned.
- d) Financial requirements of institutions can vary and exceed the general averages planned for. 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 Project. However, the planning and expenditure of finances has to be done on a rational basis.
- e) The lead institutions selected in earlier stages, even after completing their project stage, will continue to play part in providing the lead to the technical education sub-sector. In subsequent stages, earlier lead institutions may select a new set of network institutions, where only network institutions will eligible to be funded.

3.3 **Project Components**

The Project will have four components, viz., developing academic excellence, networking, services to community and economy, and development of management capacity. Each participating institution (both lead and network) will need to submit its proposal enveloping all these four components of the Programme.

3.3.1 **Project Component I – Developing Academic Excellence**

Excellence is a multifaceted ideal, involving aspects of relevance, quality, efficiency and equity, in differing mixes as suited (often vastly) to different circumstances. Different institutions may have differing requirements for the attainment of their vision of excellence. So, excellence will take many different forms.

Excellence can involve bringing about changes in the whole institution through faculty development, upgradation of equipment and physical infrastructure, curricular reforms, assessment reforms, governance and management reforms (autonomy in all its dimensions), and creating an ambience for innovation and creativity. This concept of excellence will lead to excellent/ world-class institution as a whole. Characteristics of excellent institutions are suggested in 3.1.4. Alternatively, institutions in their proposals can propose developing those groups/ departments/ Programmes which have already reached high levels of achievement, by supporting them with academic, financial and administrative inputs to reach world class standards. Either strategy, or any combination of these, can be proposed by institutions for selection as lead institutions. Autonomy of institutions to manage their own affairs is a pre requisite in pursuit of excellence. A detailed discussion on autonomy is provided in the document “Creating an Enabling Environment to Promote Excellence - Administrative and Procedural Reforms”.

There are various parameters to achieve excellence. Some of them are detailed below:

(a) **Equipment and Facility Improvement:**

The quality of system is affected by the 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 have assumed enormous proportions in many institutions, both due to changes in technology as well as emerging technologies. Laboratories and computer centres in particular need modernisation, 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, in order to offer new Programmes in emerging areas will also require acquisition of equipment and setting up of new laboratories. The overall outcome of this thrust will be to enhance productivity of technical education by improving the quality and efficiency of the teaching-learning process thereby achieving the better-cost effectiveness and relevance to needs.

(b) Faculty and Staff Development:

Importance of developing faculty and staff cannot be over stated. Training of faculty and staff in resource institutions like IITs, IIMs and TTTIs (for educational technology, educational management, educational research, etc.) can be planned.

The aspects to be covered by teacher development may include:

- i. Content updating, especially in new technologies.
- ii. Use of innovative instructional methods approaches.
- iii. Designing and developing learning resources.
- iv. Managing systemic reforms like institutional autonomy, course or Programme flexibility, interaction with industry and community, developing appropriate cost recovery systems, improving the utilisation of institutional resources, and the general management of institutions.
- v. Curriculum development to suit global requirements and upgrade the technical content of courses offered in institutions.
- vi. Undertaking research and consultancy projects for industry and community and managing corporate schools, production centres and entrepreneurship, employment generation and transfer of technology.
- vii. 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.

- viii. Industrial exposure of teachers.
- ix. Qualification enhancement of teachers.
- x. Programme management and attitudinal change.

The training of institutional staff may occur in areas like:

- i. Exposure to industrial technology and processes.
- ii. Laboratory and workshop instruction.
- iii. The managing and maintenance of laboratory and workshop equipment and computer centres.
- iv. The upkeep of institutional services
- v. Computer usage.
- vi. Office automation.

(c) Curricular Improvements:

The importance of periodically updating and improving curriculum in short cycles needs to be realised by Project institutions. One of the main bases of curriculum renewal and development of regular and continuing education programmes will be labour market data. Labour market orientation of educational offerings becomes an important dimension of systemic transformation. The labour market for different types of institutions is likely to be different. It may include the whole country and in some cases, foreign countries as well. The labour market may envelop industry, field agencies, R&D organisations, government departments, and entrepreneurial opportunities.

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 Programmes, learning by research, course flexibility, etc., may be adapted by Project institutions.

(d) **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 earlier technician education projects. Many institutions practise this reform. However, flexibility in Programmes has to be extended to many other institutions, which still adhere to rigid course structures.

The preference for four year Programmes for degree students, irrespective of the entry level of the students, results in considerable learning repetition and wastage of time for students. In engineering colleges, no differentiation occurs among 12 plus, B.Sc. plus, polytechnic plus and ITI plus entrants. All have to study the same courses for similar duration's. It can also be noted that continuing education passouts or part time passouts are rarely given any credit exemption in regular courses.

An attempt must be made to conceive of a system in which different levels obtain credit exemptions, students can learn at their own pace through the acquisition of credits, and student interests in specific subjects and topics are encouraged, and provided choice for learning in curricula. Such practices will make curricula and learning much more student friendly and acceptable. Programme institutions should experiment with course flexibility patterns.

(e) **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 student is overlooked.. In

fact, if continuous assessment is well designed to include regular class tests, laboratory performance, 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 the 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 as done currently. The importance of terminal assessment may be reduced correspondingly in both regular and continuing education Programmes.

(f) **Learning Resources:**

Classroom teaching can be reinforced by the use of a variety of media. Institutions in their proposal may propose learning resources development for simple resources like OHP transparencies sets, 35mm slides, work books and training packages. More complex resources like video Programmes, multimedia and CAI packages can be developed through resource institutions or purchased. Other forms of learning resources which require attention by all Project institutions are laboratory manuals, learning packages and packages specific for the development of competencies. The teacher should be trained in developing these learning resources. Learning resources development is an important activity in the Project and needs to be addressed by selected institutions. Through the use of LRs student self learning should be encouraged.

All project institutions should house **Learning Resources Utilisation Centres (LRUCs)**. Currently, many institutions have some form of facility for student learning and for teacher usage of specific visual learning resources. Much more needs to be done in this field. Project institutions must acquire a variety of learning resources from Learning Resource Development Centres in the country. A directory of learning resources can be prepared at the central level to publicise the nature of learning resources available in various technical subjects and topics. Each Project

institution should create facilities to store these resources, provide ready access to teacher and students for using these resources, and acquire and install appropriate hardware for projection and learning from audio-visual resources. Some of the institutions can also become **Learning Resources Development Centres (LRDCs)** in the Project.

One important component in learning resources is the **provision of internet** and networking between institutions. In fact, this can enhance a variety of learning resources available in a cluster, reduce duplication of learning resources, and permit students from a network institution to access resources from other network institutions for his own learning and development.

The introduction of **digital libraries** in institutions, with institutional linkages abroad can facilitate many students in the cluster. Help from institutions which possess this facility can be taken by others in establishing digital libraries.

All institutional libraries need to be addressed for intensive modernisation purposes including computerisation. The institutional libraries also need to be strengthened to cater to students, researches and the consultancy work. In fact, libraries can attract industrial attention towards the institution very easily. Libraries may also contain other forms of learning resources. The Project institution will have to plan for training library staff for this purpose.

(g) **Curriculum Implementation:**

Well-designed curricula have to be implemented in an effective manner in classroom and laboratory to maximise 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 for 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.

As mentioned earlier 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 counselling cells which can help students with learning difficulties and in selecting optional streams of specialisation.

Curriculum implementation has one more important virtue. It can result in **peer review** (for student appraisal) of learning methods and effectiveness, leading to identification of faculty and staff training needs.

Collaboration and interaction with industry to enhance student learning is a vital process. The practical application of new technologies in industry can be made accessible to students through such interaction. 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 Project institutions. Service to the community can occur in the form of research for community profiling and social assessment, offering maintenance services on simple devices, Shramdan (donation of manual labour), undertaking special development projects and helping rural industry and enterprises to operate successfully.

Many of these aspects may be included by institutions in their proposals.

(h) **Interaction with Industry**

It has been well realised and recognised 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 the previous technician education projects. Both the National Policy on Education and the National Policy Initiative for Technician Education stress this factor. The Confederation of Indian

Industry has been instrumental in promoting interaction of industry with institutions in all the regions of the country.

In spite of 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. Passouts from many technical institutions still take more than a 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 industry, long periods of apprenticeship and probation are practised by many industries. In brief, the importance of making educated technical manpower productive at the earliest instance after passing out has yet to be realised in many industry locations.

Tracer studies on employment of passouts have been undertaken by organisations like the IAMR. These studies have established many of the deficiencies mentioned in the earlier paragraph. It is important that all institutions promote tracer studies of their passouts so that employment, career progression and income on employment of passouts can be traced on a continuing basis and remedial action initiated wherever necessary.

While in recent past, contributions by industry to curriculum development have been commendable; there is a 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 of information about the labour market is easily available from industry. Information often is unreliable. It is in this context that industrial sectors have to play a more intensive and proactive role.

Industry does pay for many of these services and contribute to the income generation of institutions. This has become substantial in polytechnics and engineering colleges located in large cities with industrial estates in the proximity. This phenomenon has yet to spread in part or whole to technical institutions located in smaller towns.

National policy to promote industry institute interaction is already available. The CII and FICCI are amenable to intensifying interaction and partnership. Institutions too have to rise above current levels and focus on intensifying interaction. Each Project institution may set up Industry--Institution-Interaction cell (III cell), which would promote interaction and partnership with industry. At least some of the lead institutions will attempt the caretaker industry concept with the support of the CII. A well-trained and experienced Training and Placement Officer could be positioned in every Project institution, and will be the secretary and convenor of the III cell.

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

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 centres of industry.
- (g) Production centre for outsourced components.

Contributions from industries to institutions may include:

- (a) Contributions by industry to academic services in institutions like curriculum design, curriculum implementation, student assessment, training of students, exposing students to new technologies, and providing experts for certain instructional sessions. In addition, industry can provide opportunities for small student groups to undertake problem-solving projects.

- (b) Participation of industry in institutional governance of institutions. The agencies in which industry can participate are the Board of Governors, Academic Councils, Boards of Studies, support committees on finance, purchase and construction to the Board of Governors, and on faculty recruitment groups.
- (c) Industry can support institutions in setting up new laboratories, providing literature on new technologies, and even offering their shop floors as substitutes for laboratories.
- (d) Industry can train technical teachers and staff in hi-technology and new processes.
- (e) Industry can collaborate with institutions and offer sandwich Programmes.
- (f) Industry can offer training to students.
- (g) Industry can also help institution in creating Interface Training Centres (ITC) or finishing schools.
- (h) Industry can shift R&D activities and projects to deserving institutions.
- (i) Rather than duplicate manpower training services, industry can use institutional services for the same purpose.
- (j) Industry can enhance employment of passouts and reducing the substitution of manpower levels.
- (k) Industry can participate in the certification and accreditation of institutions by the National Board of Accreditation, the Board of Technical Education, or by the local technological university.

(i) **Virtual Institutions:**

A Virtual Institute concept is a institute that can train a very large number of professionals without having a large investment in physical infrastructure like building, equipment, etc. Such an institute harnesses the expertise and resources available across geographical boundaries. This is accomplished by utilising advanced technologies like computer based interactive training, internet, world wide web, etc. A Virtual Institute would, therefore, make it possible for a very large number of students situated at different locations to access the expertise available across the globe.

(j) **Research:**

A culture of undertaking research and consultancies must gradually spread among institutions. The help of the IITs in helping institutions in the initial stages of developing a culture would offer essential support. Later on institutions can become self dependent for this activity. Initially the Lead institutions can engage themselves in developing such a culture. Later on they can assist network institutions in undertaking research.

(k) **Distance Education:**

Some Project institutions may propose undertaking experiments in distance education too. They can target both regular and continuing education students through this mode. With the networking that is to occur in the Project, the outreach of the institutions will be enhanced and can easily promote distance education. The advantages from continuing and distance education are primarily related to value addition of people. The beneficiaries can be redeployed to more productive roles and jobs.

3.3.2 Project Component II- Networking

Though the excellence is sought for the whole technical education sector, in view of large number of institutions and constraints on human, physical and financial resources, the only viable path to achievement of the ultimate objective is to develop critical mass of lead institutions and to develop synergistic network between a lead institution with neighbouring institutions for uplifting the level of latter.

Two types of networking are proposed in the Project: The first type networking will be between lead institutions and networked educational institutions preferably in the neighbourhood. Such networks could be established between technological/ technical universities, deemed universities, university departments, university colleges, stand alone colleges and polytechnics. **Institutions in this network will be funded under the Project.** The second type of networking will be between lead institutions and R&D organisations, CSIR laboratories, IITs, foreign institutions/ universities/ agencies/ organisations, industry, community, another lead institution or institution from another network etc. Funds for activities under such network will be provided to the Lead Institutions only. Both types of networks will be governed by MOUs. Networking must ensure bi-directional flow as shown in Fig. 3.2.

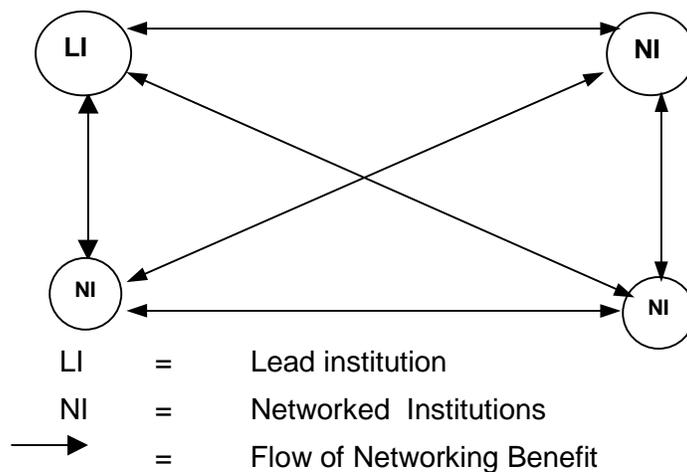


Fig. 3.2. Model for Networking

Networking among lead institutions 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 networked institutions. In addition, if one of the networked institution 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 networked 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 utilisation of resources.

- (a) **Academic Sharing:-** Academic innovations like curricular improvements can be done jointly by network institutions or curricula developed by one network institution can be adapted by other institutions. Also, information exchange on curricular issues, new technological or educational development world wide, new classroom innovations, etc. can be shared in network partners. Electronic bulletin boards for problem solving, book reviews etc. can be created for network.
- (b) **Credit transfer and carry over of credits:-** Institutions can attempt credit transfer and carry over of credits for students. For example, a student from one institution can join other institutions for study of some subjects and credits earned at another institutions can be carried over/ transferred to him at parent institution.
- (c) **Staff Development:-** Lead institution/ network institution can carry out/ facilitate staff development for the whole cluster. Staff development need not be at one location, different network institutions can organise staff development Programmes for the whole cluster.

- (d) **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.
- (e) **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 networked institutions can use each others libraries as their own. Different institutions can subscribe to different expensive journals, which can then be shared among all network institutions.
- (f) **Facilities like Hostels etc** :- Network institutions may allow use of their hostels for students of other institutions pursuing industrial training, etc. Similarly other facilities like laboratories, computer centre, expensive equipment can be shared among networked institutions.
- (g) **Expertise** :- Network institutions can share their expertise among themselves. For example, one institution which is close to cluster of industries and have good relations with them can arrange for industrial training of students and faculty of other institutions.
- (h) **Joint Ventures** :- Network institutions can promote joint ventures. For example, they can start joint projects, researches and consultancies. Even students can have guidance from faculty of other network institutions through e-mail, etc.

Above mentioned are a few examples of sharing of resources. This can be extended in many more areas. Individual institutional proposals may contain many more dimensions of networking.

Mechanism

Institutions in their proposals should provide detailed mechanism 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.

3.3.3 Project Component III- Services to Community and Economy

The pivotal role of technical education system in facilitating and expediting the process of economic and industrial development of the country is well recognised. There is no doubt that we need to apply more science and technology in our rural/ community development efforts. 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 organised industrial and service sectors. Informal sector of economy employs 93% of the work force and produces 50% of the Gross Domestic Product (GDP). Productivity of work force of informal sector is currently low. It is pegged at approximately one-thirteenth of the productivity of 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, manpower for all sectors, organised as well as unorganised needs to be prepared 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.

Therefore, an important component of the Project is services offered to community and economy by the Project institutions. Among the defining characteristics of global standard in 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 various ways in which

technical education institutions can serve both the formal and informal segments of the economy across all parts of industry, services and agriculture relevant to the local community whether rural or urban, and in turn derive benefits for their students and faculty by undertaking studies, projects, and researches, mobilising local resources from doing so, will vary across different classes of institutions.

A majority of the engineering colleges and polytechnics in the country 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 the polytechnic and offer technical/support services. Important service offered by technical institutions to the community are skill development courses and continuing education programmes. Some institutions have also assisted in transfer of appropriate technologies to rural areas, and provide support services through their technical service centres. In brief, interaction between community and institutions does exist though the scale of interaction is marginal in many institutions.

Being one of the 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 intention needs to be pursued with greater vigour.

Informal sector of economy is present in every industrial sector. It is present both in rural and urban sectors and both Hi-tech and Low-tech. Sectors Institutes can choose their areas of operation by providing services to informal sector based on their capacity and vision. The technical institutions can help informal sector by technology infusion, developing management capacity in informal sector, and by knowledge and skills upgradation of persons working in informal sector.

Polytechnics and engineering colleges possess adequate technological expertise to achieve the above objective. The main impediments are:

- (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 preparing the institution better for community development 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 approaches like PRA and participatory social assessment, needs assessment and planning a partnership can be developed between the community and the institution.

Institution can encourage student participation in community activity by providing incentives like giving credits for activities.

Some of the strategies that may be included by institution in their proposal are given below:

- (a) Undertaking social assessment and community profile studies for the community around the institutions.
- (b) Getting an agreement from the community on identifying needs for development from (a) above, which can be fulfilled by services from the institution.
- (c) Offering services that suit or match the technology available in the institution.
- (d) Periodic monitoring and assessment of services provided to community.
- (e) Continuing education for community/ informal sector that may lead to employment and income generation.
- (f) Development of management capacity in informal sector.

- (g) Infusion of useful technologies to enhance productivity of informal sector/ community.
- (h) Providing technical support services to community.

Institutions can also be informally networked with community polytechnics/ NGOs/ other state agencies/ community service centre of ministry of agriculture, Krishi Vigyan Kendras of ICAR, agriculture universities etc. that have exposure and experience of community services for providing services to community. Another strategy could be to provide credits to students for doing community services and offering projects based on community problems.

Mechanism

Institutions in their proposals should provide detailed mechanism of interaction with community and economy. Institute can create Community Cell in the institution which would promote interaction and partnership with community and economy. However, involvement of whole of the institution in interaction with community and economy is necessary for success of this component.

3.3.4 Project Component IV- Development of Management Capacity

Reforms of the depth and breadth envisioned in the Project will depend for their success upon creation of an entirely different culture of management both within individual institutions of technical education 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 Project.

This component will have two sub-components:.

- (a) Development of Management Capacity at Institutions Level

(b) Development of Management Capacity of Technical Education System

(a) Development of Management Capacity at Institutions Level

At institutional level Project will support following activities:

- I) Training of heads of institutions and senior faculty in management.
- II) Improvement in quality and efficiency of institutional management
- III) Development of Processes of Self-renewal
- IV) Institutional web site contributing towards Educational MIS.

I) Training of heads of institutions and senior faculty in management.

Training for heads of institutions and senior faculty is likely to occur in:

- i) Use of autonomy
- ii) Participative management
- iii) Financial management
- iv) Visioning
- v) Educational innovations
- vi) Governance
- vii) Other management related issue such as strategic planning etc.

II) Improvement in quality and efficiency of institutional management

Some institutions in the Project 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 office and administration efficiency is 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 staff structure prevalent in international institutions/organisations of repute (i.e. Empowered faculty and officers and less of supporting staff).

III) Development of Processes for Self-Renewal:

An axiomatic feature of the environment we live in is that change will occur. Organisations therefore have to adapt constantly to environment changes or face the consequences of decline. Changes in the social, political, economic, technological and natural environments 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 Programmes 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 can promote and sustain excellence.

IV) Institutional web site Contributing Towards EMIS

There is a dire need for a comprehensive information system of technical education in the country. Towards this end, each Project institution will host a website providing data about itself on various aspects. The website may include:

- i) Courses and facilities in the institution.
- ii) 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 passouts 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.
- iii) Avenues available to the student in graduate, postgraduate, research, diploma and higher diploma studies.
- iv) The special competencies and academic experience possessed by the students, the nature of projects and industrial training undertaken by them in the course of study.
- v) Important fiscal parameters e.g unit cost of training, fee structure, IRG, welfare expenses per student, etc.

- vi) Equipment and facilities available at the institution so that a basis for information and resource sharing can be established in the system.

(b) Development of Management Capacity of Technical Education System

While grants for the other components and sub components will be on competitive basis, grant for this sub component will be on fixed grant basis.

At technical education system's level Programme will support following activities:

- I) Training of administrators of technical education system.
- II) Researches in technical education
- III) Educational MIS
- IV) Resource Institutions
- V) Programme Management Structures

I) Training of administrators of technical education system.

Training administrators, officials of Technical Education Bureau and state officials is likely to occur in:

- i) Educational planning and management
- ii) Exposure to systems of technical education in other countries
- iii) Innovations
- iv) Economics of education etc.

Training will also include study tours abroad.

II) Researches on Technical Education

Researches on various aspects of technical education are equally important and need much more attention than provided currently. One of these aspects is research on the technical

education system and its operation. Very little sponsored research occurs in this field. Data generated about the effect of processes on the outcome and impact of the system is not available, for remedial measures, 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. National/International Seminars and Workshops are to be organised by NPIU.

The second significant aspect, which is currently ignored, has been the relatively low attraction of the graduates of the technical education system towards 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 preferences 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 are 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. These aspects will receive attention in the Project

It is expected that 5 to 6 Seminars /Workshops/ researches per year of the Project will be carried out under this sub-component.

III) Educational MIS

While states and organisations like the AICTE and IAMR have developed information systems for certain segments and

phenomena of the technical education system, there has been no well designed attempt to install and develop an EMIS for technical education in the country. Further, the use of information available for planning, policy formulation and operation of the system is rare. A majority of the states and central agencies make decisions in an unscientific manner. The consequences of such decisions are poor implementation, inadequate outputs and impact, marginal changes and a reduction in efficiency and, sometimes, quality of performance.

Planning at the institutional, state and central levels is not information based to the extent it should be. This results in improper planning for marginal improvements, inadequate monitoring of investments and institutional efficiency. Similarly, information based policy formulation has yet to take root in the country.

There is a dire need for a comprehensive information system for technical education in the country. Present weaknesses of existing NTMIS needs to be identified and measures are required to be taken to improve the system by incorporating modern technologies for online access of current data.

Each selected lead institution selected under the Programme will act as a comprehensive data source to provide online access under the EMIS improvement component. The extent of coverage at various level are as following:

At Institutional level

- (i) Information on Programmes of study offered by institution (Programmes, seats, curriculum, calendar/schedule, student response, market demand, admission procedures, etc.);
- (ii) Profiles of institutional performance;

- (iii) Student performance information (training, placement, initial salary, etc.), profile trends and directions;
- (iv) Faculty profile;
- (v) Resources and institutional expertise;
- (vi) Budgets, unit cost of education/ training, welfare expenses, etc.;

At State Level

- (vii) Capacity: demand- supply data;
- (viii) Planning: state budgets, budgets allocation to institutions, and performance review of institutions;
- (ix) Employment of passouts and self-employment data;
- (x) Forecasting of manpower and technology;
- (xi) Labour market conditions;

At National Level

- (xii) National labour market conditions including supply and demand of manpower projections;
- (xiii) Planning: funding and fund allocation

The EMIS will, in addition to maintaining information, have

- Features to view the data in a multi-dimensional manner and permit movement from one dimensions to another;
- Extensive analysis tools;
- A range of reporting capabilities;
- Easy access to data both analysis reports or basic pre-analysed data.

Mechanism

A suitable agency will be identified for carrying out full-scale information system analysis, design and development and managing EMIS. For primary data collection, existing nodal centres of NTMIS, Programme institutions, state-level bodies

(directorate/ boards/ councils), national level bodies (AICTE, IAMR etc.), will be utilised.

IV) Resource Institutions

To implement systemic transformation of such dimensions as described above will require assistance from resource institutions. These are well performing and have made their name in many areas of expertise. These are Indian Institutes of Management (IIMs), Indian Institutes of Technology (IITs), Indian Institute of Science, specialised institutes at regional and national level (TTTIs), CSIR Labs., and other R&D organisations.

Role of Resource Institutions:

Though the roles of resource institutions are given below, they will be performing these roles only on being contracted to perform these services on payment basis. Such roles are:

- i) Assist the Project states and institutions, through appropriate means (workshops, seminars, consultancy etc.), in the preparation of willingness and Composite Proposals of institutions based on the requirements of individual institutions.
- ii) Assist the NPD and NPIU with the necessary expertise in the formulation of nationally acceptable concepts, formats and structures for various components, schemes and activities under the Project.
- iii) Provide consultancy to Project institutions on the areas desired by institutions, such as academic, networking, industry/community - Institution Interaction, management development, etc.

- iv) Undertake staff development including qualification enhancement and training of faculty and staff of institutions.
- v) Undertake research studies/ tracer studies/ impact studies, during project implementation, on various aspects of the project (at national/ regional/ state and institutional levels) and prepare reports/ case studies/ databases.
- vi) Develop suitable approaches/ strategies/ procedures/ mechanisms/ formats for project management at state and institutional levels as and when required.
- vii) Provide academic and project assistance and support to the institutions, wherever necessary.

Funding of Resource Institutions

The resource institutions will not be funded directly under the Project. These institutions can charge consultancy fees under the project to institutions for providing consultancy/ services to them.

V) Project Management Structures

- (a) Project management structures are detailed in Chapter-6 of this document. Funding for Project management structures will occur under this sub component and the same in details has been mentioned in Chapter-6.

3.4

Indicative List of Activities Eligible for funding under the Project:

- (a) All activities that contribute to the goals of the Project will be eligible for Project funds. Activity must contribute to at least one of the components. Some examples of such activities are:
 - i) Curriculum development
 - ii) Faculty and staff development
 - iii) Equipment and Learning Resources
 - iv) Modifications in existing buildings for efficient utilisation of space
 - v) Consultants for quality improvement
 - vi) Upgradation of well performing polytechnics to engineering colleges
 - vii) Activities related to networking (e.g. networking cell)
 - viii) Activities related to services to community and economy
 - ix) EMIS, Research, Action Research and such other Project related activities
 - x) Salaries of key additional staff.
 - xi) Scholarships and fellowships
 - xii) Consumable and O & M related to activities supporting components of the project.

- (b) Some activities which will not be funded under the Project are:
 - i) Capacity expansion in traditional disciplines
 - ii) New conventional engineering colleges and polytechnics

CHAPTER 4

CRITERIA

4.1 Introduction

This chapter details the eligibility criteria and selection criteria for states and institutions. There will be separate eligibility and selection criteria for different category of institutions, viz., engineering colleges and polytechnics. Deemed- to-be-Universities (Technological) and technological universities will be selected by following the eligibility and selection criteria for engineering colleges.

4.2 Eligibility Criteria for States

- a) Willingness to include funded, aided and private engineering colleges (engineering colleges, deemed-to-be universities, technological universities, etc.) and polytechnics (for enhancement of their level to engineering collage) in the Project through open competition and for the reforms to be carried out in them;

This implies that the State Government will examine proposals submitted by institutions (funded, aided and private engineering colleges and polytechnics) and sponsor them to the NPD with a clear statement that these institutions will be supported through policy reforms as envisaged under the Project. The State will provide the required financial support to the selected institutions. Also, that the results of open competition, i.e., selection of lead institutions and network institutions through a National Expert Committee will be acceptable to them.

Documents to be submitted:

- (i) Declaration mentioning willingness to include, funded, aided and private engineering colleges and enhancement of polytechnics in to engineering collage.
- (ii) Declaration stating that result of competition (selection of lead institutions and networked institutions through a National Expert Committee) are acceptable to them.

- (iii) Funding mechanism to private institutions with mechanism of repayment.
- b) Willingness (demonstrated by policy formulations) to accord and sustain full autonomy (academic, managerial, administrative and financial) to the selected institutions;

The autonomy shall be in academic, financial, managerial and administrative dimensions. The delegation of powers to occur to institutions from State/ Centre, University or Board of Technical Education have been detailed out in the document "Creating an Enabling Environment for Promoting Excellence – Administrative and Procedural Reforms".

Documents to be submitted:

- (i) Government order stating that all selected lead institutions will be provided full autonomy.
- c) Willingness (demonstrated by policy formulation/Government order) to permit the selected institutions to increase recovery of the cost of education from students;

At present, recovery of the cost of education is abysmally low in many states. There is a need to increase cost recovery of education to a reasonably accepted level. Willing states will formulate their own policy in respect to cost of recovery of education. They are also required to formulate specific measures to enable student from poor families to participate in the Project without compromising the quality (e.g. loans, scholarship schemes, student aid Programmes funded through cross subsidisation, "earn while you learn" schemes).

Documents to be submitted:

- (i) Policy/ Government order to permit participating institutions to increase recovery of the cost of education from the students keeping equity consideration in view, i.e., tuition fees, facility fees, and cost-of-living fees (hostel fees).

- (ii) Policy/ Government order for helping needy students (e.g. loans, scholarship schemes, student aid Programmes funded through cross subsidisation, “earn while you learn” schemes).
- d) Willingness (demonstrated by Government order) for changing pattern of fund releases to block grant basis;

At present, most of the institutions (Government and Government-aided) are running on the net-deficit financing basis. Therefore, there is not much incentive for revenue generation through various means like consultancy services, continuing education programmes, and economising on expenditure. There is an urgent need to shift to alternative funding from Government which will encourage culture of revenue generation and better financial management. Block Grant is one such approach. Central/ State Governments are required to formulate their own appropriate policy in this regard.

Documents to be submitted:

- (i) Policy/ Government order showing willingness of Government to shift to an alternate mode of funding such as Block Grant Approach.
 - (ii) State Government showing willingness to fund the private institutions through an appropriate mechanism which includes terms of repayment. During admission tuition fee from students may be deposited in joint account with the State Director of Technical Education as one party and recovery may be affected through this fees in case of default. Alternatively, property having clear title may be mortgaged with the State Director of Technical Education
- e) Formulation of a policy in respect of revenue generation and its utilisation by institutions including establishment of Corpus Fund, Staff Development Fund, Depreciation/Renewal Fund (for equipment replacement) and Maintenance Fund (for maintenance of equipment and buildings) and guidelines for management of these funds;

Both these aspects are highlighted in NPE 86 and the National Policy Initiative-1998. The Government of India is also in the process of finalising guidelines for

institutional income generation, the development of the Corpus and the creation of a block grant approach in funding. Once these guidelines are finalised, they would have to be examined by the states and adopted in a form acceptable to them, The UGC and the AICTE are also encouraging these aspects. With a high accent on efficiency and cost recovery it is important that such guidelines be prepared/ accepted by states and implemented at least in Project institutions. A suggested scheme of Block Grants is given in Annex-IV of the document “Creating an Enabling Environment for Promoting Excellence – Administrative and Procedural Reforms”.

Documents to be submitted:

- (i) Policy for institutions for revenue generation and its retention and utilisation by institutions.
 - (ii) Government order for creation of corpus fund, staff development fund, depreciation/ renewal fund (for equipment replacement) and maintenance fund (for maintenance of equipment and building) in institutions.
 - (iii) Guidelines for managing corpus fund, staff development fund, depreciation/ renewal fund (for equipment replacement) and maintenance fund (for maintenance of equipment and building).
- f) Willingness (demonstrated by Government order) to permit total participation of the institutions in community service; and

At present, there is no policy for participation of institution as a whole in community service except through community polytechnic wings. Technical institutions can enter into many different types of interaction with the surrounding community thus providing valuable services to the community and in turn gaining by real life problem-solving experience. States should formulate policy to permit total participation of the institutions in community service.

Documents to be submitted:

- (i) Government order permitting total participation of the institutions in community service.

- g) Policy formulation for enabling institutions to fill all teaching and staff vacancies.

At present, there exists approximately 30-40% vacancy in faculty. This is due to the long process of recruitment through PSC. It is of utmost importance that a suitable mechanism may be worked out such that power to fill vacancies is given to institutions.

Documents to be submitted:

- (i) Policy/ Government order enabling institutions to fill all teaching and staff vacancies.
- h) Implementation of AICTE pay scales for Faculty and Staff of Technical Institutions in the States

Many states have not yet implemented AICTE pay scales for technical teachers and staff. Providing AICTE pay scales to technical teachers and staff will be one of the factors to motivate them towards the pursuit of excellence.

Documents to be submitted:

- (i) Government order stating implementation of AICTE pay scales for technical teachers and staff.

4.3 Eligibility Criteria for Lead Institutions (LIs)

- a) Willingness to accept and exercise full autonomy (academic, managerial, administrative and financial) with full accountability at all levels (institutional proposal should reflect time frame for autonomy, measures and mechanism to implement autonomy);
- b) Willingness to participate in all the 4 aspects of the Project (excellence, networking, community service and development of management capacity);
- c) Willingness to increase recovery of cost of education from various sources institutional proposal should reflect visible measures of cost recovery with support to the deserving poor);

- d) Willingness to accept funding on block grant basis or the alternate mechanism evolved by the Centre/State;
- e) Willingness 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 utilisation of these funds;
- f) Willingness to accept the results of the enunciated process of award of competitive grants;
- g) Acceptance of staff and students to participate in community service;
- h) High academic profile

These criteria for academic performance are not rigid and broadly suitable exceptions may be granted to institutions depending upon their nature and local conditions. **High academic performance will be adjudged as a whole.**

Each institution should preferably have:

- Accreditation of Programmes with National Board of Accreditation
- 4 undergraduate Programmes.
- 2 postgraduate Programmes.
- a facility to design/fabricate precision accessories and can identify 5 such design/ fabrications in the last three years.
- 15% faculty members with doctorate degrees.
- Collectively by faculty members published at least 0.10 x n papers every year for the last three years (where n is the number of faculty).
- A well-stocked library containing at least 10,000 titles and should be subscribing to Indian and international journals.
- Computer centre with sixty computers in LAN.
- Good record of utilising grants provided under MODROB/ Thrust Area and other Direct Central Assistance Schemes.
- At least 5% of annual recurring expenditure is met by the institute itself through revenue generation in last three years (Including all fees, consultancy earning etc.)

- Secured and completed at least three sponsored research Programmes in the last three years.
- Secured at least three consultancy assignments in last three years amounting to Rs.06 lakhs.
- Undertaken and rendered having significance beneficiaries in the last three years for the local community.
 - Offered at least 15 training / continuing education Programmes in the previous three years.
 - 10% of the faculty trained in last three years.
 - 5% of the technical staff trained in last three years.

4.4 **Eligibility Criteria For Polytechnics**

4.4.1 Under the Project , potential polytechnics in the country willing to offer Technician Degree Programmes in specific technology areas will be considered to be up-graded to engineering colleges.

4.4.2 The selection process of these institutions will be separate in which State Governments will play a significant role, however the final selection will be made by a separate National Expert Committee constituted by the NPD for the purpose.

4.4.3 The eligibility criteria for the polytechnics are as following:

- a) Willingness to accept and exercise full autonomy (academic, managerial, administrative and financial) with full accountability at all levels (institutional proposal should reflect time frame for autonomy, measures and mechanism to implement autonomy);
- b) Willingness to participate in all the 3 aspects of the Project (excellence, community service and development of management capacity);
- c) Willingness to increase recovery of cost of education from various sources (institutional proposal should reflect visible measures of cost recovery with support to the deserving poor);
- d) Willingness to accept funding on block grant basis or by alternate mechanism evolved by the Centre/State;
- e) Willingness to establish distinct Corpus Fund, Staff Development Fund, Depreciation/Renewal Fund and Maintenance Fund from the generated

- revenue and income savings and to accept Central/State guidelines for operation of these funds;
- f) Willing to offer Technician Degree Programmes in Engineering / Applied Technology through an affiliating university;
 - g) Acceptance of staff and students to participate in community service;
 - h). Willingness to accept the results of the enunciated process for award of competitive grants;
 - i). High academic profile

These criteria for academic performance are not rigid and broadly suitable exceptions may be granted to institutions depending upon their nature and local conditions. **High academic performance will be adjudged as a whole.**

Each institution should preferably have:

- Accreditation of Programmes with National Board of Accreditation
- 3 diploma Programmes.
- A facility to design/fabricate precision accessories.
- A well-stocked library containing at least 10,000 titles and should be subscribing to Indian and international journals.
- Computer centre with thirty computers in LAN.
- Good record of utilising grants provided under MODROB/ Thrust Area and other Direct Central Assistance Schemes.
- At least 5% of annual recurring expenditure is met by the institute itself through revenue generation in last three years (Including all fees, consultancy earning etc.)
- Secured at least three consultancies/ testing assignment in last three years.
- Undertaken and rendered having significance beneficiaries in the last three years for the local community.
- Offered at least 15 training / continuing education Programmes in the previous three years.
- 10% of the faculty trained in last three years.
- 5% of the technical staff trained in last three years.

4.5 Eligibility Criteria for Networked Institutions (NIs)

- a) Willingness to be a network institution of a particular lead institution
- b) Willingness to accept and exercise autonomy (managerial, administrative and financial) with full accountability at all levels (institutional proposal should reflect time frame for autonomy, measures and mechanism to implement autonomy);
- c) Willingness to participate in all the 4 aspects of the Project (excellence, networking, community service and development of management capacity);
- d) Willingness to increase recovery of cost of education from various sources including increase in fees from students (institutional proposal should reflect visible measures of cost recovery with support to the deserving poor);
- e) Willingness to accept funding on block grant basis or any other alternative evolved by the Centre/State;
- f) Willingness to establish distinct Corpus Fund, Staff Development Fund, Depreciation/Renewal Fund and Maintenance Fund from the generated revenue and income savings and to accept Central/State guidelines for operation of these funds;
- g) Willingness to accept the results of the enunciated process for award of competitive grants;
- h) Acceptance of staff and students to participate in community service;
- i) Accreditation of Programmes with National Board of Accreditation

4.6 Selection Criteria for Institutions

4.6.1 Once an institution becomes eligible and its proposal is sponsored by an eligible state and institution is selected through Willingness Step, the proposal will have to be examined against certain criteria for selection as a lead institution. Any institution that desires to apply will develop a future vision that is rich and projects thrusts contemplated to raise it to high levels of performance. Institutions will seek to be world-class institutions in academic services, research and development and services to community and economy. The criteria for selection

will in fact reflect various dimensions and thrusts contained in the vision. These criteria will be

Preparedness of institution to implement the Project (25% weightage):

- (a) Steps already taken in creating an enabling environment for promoting excellence, i.e., status of administrative and procedural reforms. The institutions, which already enjoy substantial autonomy, will have an edge over other institutions that do not enjoy such autonomy. Also, time frame for providing autonomy by the state will be evaluated considering State's past record in this area. It is proposed that in the first cycle of selection those institutes will be given preference, who have the following:
 - (i) Governance by Board of Governors/ Governing Council
 - (ii) Autonomy to recruit faculty/ staff
 - (iii) Autonomy to purchase goods and services and
 - (iv) Substantial degree of managerial autonomy

- b) Quality and adequacy of faculty and staff. The issues of vacancies, the nature of faculty and staff development schemes undertaken in the past few years, the qualifications of faculty, and the nature of recruitment of faculty and staff have to be presented by institutions appropriately. Representing a significant projection of institutional strength, this factor may be presented with clarity. Plans to fill vacancies early in the Project must get reflected in the proposal. Also to be incorporated are the dimensions in which faculty development is planned and the challenges that would be made available to faculty in research and development, consultancies and in interacting with industry and community.

- c) National and international linkages with educational institutions and Research organisations. This will be reflected by number of MOUs, linkages with educational institution, agencies and research organisations. Proposal should also reflect benefit (actual) from such linkages.

- d) Level of industrial/ community linkages. It is important for institution to project various dimensions of interaction with industry and community and the mutual benefits that occur through them. This aspect has to be presented in detail by the institution.
- e) Existing strengths in emerging technologies. In the past few years certain institutions have introduced specialised activity in new technologies like new regular courses, post graduation, research and development consultancies, development of testing and calibration facilities, and continuing education for industrial personnel Institutions may desire to introduce such provisions in the future in specialised technology areas. These intentions must be clearly reflected in their proposals.

Past Performance (25% weightage):

- f) Academic performance and employment of students. Of utmost importance are parameters describing the academic performance of institutions. This would include parameters like frequent cycles of curriculum revision, steps to improve the relevance and market orientation of existing curricula, introduction of new hi-tech Programmes or topics, academic innovations in curriculum implementation and student assessment, introduction of flexibility in courses, incorporation of student training in industry and the introduction of sandwich courses, student response to Programmes, dropout rate and pass rates in various disciplines offered by the institution.

Passout employment data is a crucial factor for judging institutional performance. This factor will include information on employment rate of passouts within specific time period, agencies which employ passouts, income of passouts on employment (average, higher bracket and lower bracket percentages), percentage students pursuing higher qualifications, employment status of students from disadvantaged groups. Mechanisms for enhancing passout employment will have to be clearly stated.

- g) Achievement in addition to knowledge and teaching-learning methodology. This parameter will be reflected in institutional proposals by

number of patents, researches, paper published, dissertations, thesis, books, etc. Innovation in teaching-learning methodology brought by institutions should also be reflected in the proposal.

- h) Achievement in organising activities leading to sharing and dissemination of knowledge. This will be indicated by number of seminars, workshops, conferences (National and International) organised by the institution.
- i) Past performance and potential in terms of Internal Revenue Generation (IRG), services to community and economy, experience in conducting high quality Programmes. Parameters describing this factor will include revenue generated in the past three years from various sources, creation of a corpus or development fund (if any), nature of services offered to industry and their impact, high technology regular and continuing education Programmes and the student response to them, and impact of such hi-tech Programmes.
- j) Innovations in teaching and training Programme designs and delivery. Institution should reflect in their proposal innovations in designing teaching and training Programmes (e.g. competency-based Programmes, self-learning resources development, etc.) and innovations in Programme delivery (e.g. On-line learning, distance education, etc.).
- k) Performance in research, design and development. Outstanding work performed by engineering colleges, and certain polytechnics may be highlighted under this factor. The undertaking of consultancy challenges for industry, defence services and community may also be highlighted. Mention of specific projects successfully completed by the institution is necessary.

Institutional Vision (50% weightage):

- l) The quality of the proposal- which will be the main criteria and can be identified on the basis of comprehensiveness of proposed action plan for the excellence in current and future performance indicated in terms of academic excellence, services to community and economy and plans to

exchange benefits with the network institutions, Effectiveness of proposed activities to recover cost of education, increased revenue generation and establish and operate the funds, exercise cost effectiveness, time efficiency of the proposed Project, and the proposed measures for sustainability. The quality of the proposal should be reflected in all dimensions of performance proposed- relevance of activity, their quality, and measures to enhance internal and external efficiency of operation and, in general, its future vision. Another important dimension is the consensus within the institution for undertaking proposed developments and a general agreement from faculty and staff to accept the challenges projected in the proposal.

- m) Quality and extent of leadership role in the proposed network. The Programme envisages the development of lead institutions with a cluster of network institutions. The agreement of institutions to be networked with the lead institutions must be clearly presented. Secondly, the intended developments and innovations to occur through the network are to be identified and agreed upon by the partners (network institutions). Thirdly, the nature of leadership to be provided by the lead institutions in aiding the development of the networked cluster must also be clearly stated.
- n) Size of budgetary support requested. While the normal finance available to applying institutions has been specified in a later chapter of this document, institutions can feel free to digress from the suggested amounts. Institutions must present budget with full justification. A 5 year phasing of such expenditure should also be provided. As far as possible institutions may limit construction activity to the minimum required, and avoid enhancing capacity in traditional disciplines.
- o) Statement of clear vision of the institutions to sustain the gains of the Project. Detail as to how the reforms carried out during the course of the Project will be continued after the project period and how the institution would maintain the cost of such reforms beyond the Project period.
- p) A clear statement indicating cost benefit analysis of the project inputs and outputs with justifications about cost effectiveness of the investment.

4.6.2 As described in subsequent chapter the selection process will consist of two stages, viz., willingness stage and Composite Proposal stage. The detailed description of these stages and content of willingness and Composite Proposals is given in Chapter-5.

CHAPTER 5

INVITATION, SUBMISSION AND APPRAISAL OF PROPOSALS

5.1 Introduction

- 5.1.1 In this Chapter details have been provided about the procedure of selection of the institutions under the Project. All activities relating to process of selection of States/institutions in the Project will be done by GOI.
- 5.1.2 The procedures are explicit and clear such that they provide equal and fair opportunity to institutions to prepare and present their proposals and to participate in the Project. The procedures also have involvement of the concerned State Governments in selection of institutions and providing approval/commitment towards the desired reforms.
- 5.1.3 The procedures are flexible and provide opportunity to the institutions to know their shortcomings and redesign their proposals to be considered in the next cycle of selection.
- 5.1.4 The process of selection of institutions will consist of two steps, viz, appraisal of Willingness Proposals and appraisal of Composite Proposals. Only institutions that qualify the first step will be invited to submit Composite Proposals.
- 5.1.5 After approval of the competent authorities regarding launching of the Project, National Project Directorate (NPD) Headed by the National Project Director will announce the Project through an advertisement. National Project Implementation Unit (NPIU) will act as the agency to co-ordinate, facilitate and receive the Willingness and Composite Proposals from the institutions. The NPD will appoint (a) Screening Committee for scrutinising Willingness Proposals and (b) National Expert Committee for final selection of institutions for the Project. The NPIU will be responsible for organising workshops for the selected eligible (pre-qualified) institutions in each cycle for preparation of the Composite Proposals. NPIU will inform the State Governments about all proceedings related to invitation, submission and appraisal of the proposals submitted by the

institutions and seek support for motivation of the institutions for competitive participation in various cycles of selection process.

5.1.6 Various activities related to invitation, submission and appraisal of the proposals are listed below. At the end of this Chapter a flow chart is appended which indicates various steps involved in one cycle of selection of institutions in the Project.

5.2 **Process of invitation of Willingness Proposal of Lead Institutions:**

5.2.1 The invitation for submission of Willingness Proposals will be advertised in a number of National Dailies in Hindi and English covering all parts of the country by NPIU on behalf of the NPD and the advertisement will also appear on the web site of MHRD/NPIU. In addition, the advertisement / circular will also be published in Journals/News Letters/News Bulletins of nationally known Institutions/Organizations having wider circulation among concerned institutions of the technical education system. A Government Circular containing all details will also be issued by NPD to all State/UT Governments

5.2.2 Advertisement will be brief mainly explaining the invitation to participate in the Project in a competitive way for well performing technical institution to become world-class institutions by adopting the policy reforms. The advertisement will also mention that in order to participate in the Project, the interested institutions may obtain Project details from NPIU indicating the procedure of participation in the Project. The document will be available at NPIU and can also be downloaded from MHRD/NPIU's website

5.2.3 The contents of the document will include:

- (1) Background and purpose;
- (2) Eligibility criteria giving details of participation by the institutions in the four aspects of the Project viz. academic excellence, networking, services to community and economy, and development of management capacity;
- (3) Operation and implementation in Project mode;

- (4) Details about the competitiveness of the Project;
- (5) Details about the contents of willingness proposal (information as per a specific format given at Annex II)
- (6) Cut off date and time and address of submission of the Willingness Proposal;
- (7) Eligible institutions; i.e. institutions eligible to participate in the Project.
- (8) Declaring that the institutions will have opportunity to participate in the Project not only once but if they fail to be included, they can try in the next cycle;
- (9) Number of cycles anticipated in the Project (it is expected that there will be 3 cycles in one stage and in all there will be 3 stages in the Project);
- (10) Declaration that there will be two step selection – first Willingness Proposals will be submitted for identifying willing and eligible lead institutions and at the second step the selected institutions will be required to prepare and submit a Composite Proposal along with network institutions. For preparation of the Composite Proposal guidance will be provided by NPIU and experts form resource institutions.

5.2.4 Sample of advertisement is included in Annex - III.

5.3 **Invitation of the Willingness Proposal:**

5.3.1 The NPD will decide an appropriate time for announcement of the invitation of the proposal for selection of institutions for funding under the Project. The first cycle of the first stage will be announced after signing of the agreement with the World Bank.

5.3.2 After the first cycle, subsequent cycles will be announced as per the details given in Chapter-3.

5.3.3 The Willingness Proposals of the institutions (except central institutions) will be reviewed and forwarded by the States for participation in the Project. This is important because certain policy related reforms are expected to be carried out by the institutions with the consent and approval of the State Governments and also state institutions will be funded by the concerned State. Along with willingness proposals of institutions, the State must submit responses to eligibility criteria with supporting documents and copies of order etc., where applicable.

5.3.4 The institutions funded by the GOI may respond to the invitation to participate in the Project through respective administrative division in the Technical Bureau of Ministry of HRD, GOI. The administrative division must submit responses to eligibility criteria with supporting documents and copies of orders etc., where applicable.

5.4 **Submission of Willingness Proposal:**

5.4.1 The Willingness Proposal will be received in a sealed envelop by the NPIU on the date, time and address specified in the advertisement.

5.4.2 The proposals will not be opened and a record of received proposals will be maintained by the NPIU.

5.5 **Screening Committee for Willingness Proposals:**

5.5.1 The NPD will appoint a Screening Committee comprising of 6 to 7 prominent Technical Educators in the country for the purpose of scrutinising the Willingness Proposals. The Committee will meet on the date of the opening of the proposals as announced in the advertisement.

5.5.2 The NPIU will open the proposals in the presence of members of the Committee. Each proposal will be signed by an authorised officer of NPIU.

5.5.3 The Committee will meet in several sittings to scrutinise the Willingness Proposals depending upon the number of proposals received. Each proposal will be screened through the eligibility criteria as given in Chapter-4

- 5.5.4 The proposals of the institutions will be eliminated which do not meet the eligibility criteria after thorough examination by the Committee and the shortcomings would be documented. The shortcomings will be communicated to the institutions so that they have an opportunity to improve their proposals and submit the same in the next pre-qualification cycle.
- 5.5.5 The Screening Committee would recommend a list of pre-qualified lead institutions to the NPD who will finalize the selection and through a letter inform the concerned institutions as well as the concerned State Governments about the same.
- 5.5.6 The state where lead institution is located will invite proposals from other institutions of the state (may also call from neighboring states) for willingness to be networked with the selected lead institution. The proposal of institutions interested in becoming network institution will include responses to eligibility criteria for network institution and its proposal for participating in all four components of the project.
- 5.5.7 State along with the lead institution will jointly screen the proposals of for network institutions and decide the network partners of the lead institution.

5.6 Preparation of Composite Proposal:

- 5.6.1 The NPIU will announce organisation of three days workshop for the selected lead institutions and their respective network institutions as decided by the State Government at an appropriate time and place to explain detailed requirements and inputs for preparation of the Composite Proposal to the representatives of the selected lead and network institutions.
- 5.6.2 It may be explained to the participants of the workshop that each institution (lead institutions and network institutions) will be required to participate in all the four aspects of the Project (academic excellence, networking, services to community and economy, and development of management capacity) in order to be further eligible for the competitive grants and that the 'Excellence' component of the proposal could be either (a) for the whole institution or (b) one or more of its

faculties/departments/units that have reached high levels of achievement or a combination of (a) & (b).

5.6.3 The participants may be provided with the details of the model of lead and network institutions both formal and informal. The network institutions (formal) are the institutions of the nature of the lead institution providing technical education and are located in close geographical proximity with the lead institutions. Institutions in the formal network will be funded under the Project. Other institutions/organisations such as CSIR labs, R&D centers, Government Department, other research centers will not receive any funding under the Project. However, the institutions may work out arrangements with such institutions/organisations on a cost basis if required.

5.6.4 The institutions must seek approval / commitment from the State Government for the reforms being proposed or wherever necessary.

5.6.5 The Composite Proposals will be submitted to NPIU on a specified date as mentioned in the invitation letter. The proposals received late will not be considered.

5.6.6 The proposal should be presented integrating all components including lead and networking institutions, each being complete in itself.

5.7 **Inputs to the Composite Proposal:**

5.7.1 Following are suggested inputs of the Composite Proposal (this may further be refined after discussion with the stakeholders):

- a. Checklist showing fulfillment of eligibility criteria (copies of relevant Central / State Government approval/ commitment/ order to be appended);
- b. Status and time frame for implementation of administrative and procedural reforms.

- c. A clear vision statement on excellence and goals to be achieved through participation in the Project.
- d. Analysis of vision vs. reality; systemic and institutional constraints over achieving excellence; justification for reforms and investment.
- e. Capability statement (with examples of innovations and achievements over the last 3 years) to support the institutional drive for excellence;
- f. Strategy for achievement of proposed excellence and for its sustenance;
- g. Objectives and sub-objectives of institutional Project along with brief write up on each.
- h. Status of critical indicators at present and targets at the end of Project (the indicators may be both objective and subjective)
- i. Description of mechanisms for exercise of autonomy (managerial, administrative, financial and academic autonomy)
- j. Action plan for achievement of objectives and sub-objectives with quantified targets, duly supported by task analysis and time-based activity charts. It should cover aspects of academic excellence, networking, community service and development of management capabilities.
- k. Description of proposed academic reforms (describe the reforms to be carried out for making curricula demand-driven and programme flexible; procedure for revision of curricula; reforms in student performance evaluation; motivation of students and faculty; staff development; teacher evaluation and counseling; improving teaching-learning processes; and strategy for creating ambience for innovation and creativity);
- l. Description of network arrangements for implementation of each networked activity along with roles and responsibilities for each network institution / partner. Description of the procedures to be followed and a list of measurable indicators.

- m. Details of interaction mechanisms and service for the local industry and community to be carried out along with an activity chart; list of indicators for assessing achievement of such interactions / service.
- n. Description of activities proposed for development of management capabilities among officials and senior faculty;
- o. Description of strategies for attracting and retaining good quality faculty and for removing faculty shortages;
- p. Description of strategies for increasing revenue generation and strategy for better fund management.
- q. Description of mechanism for self-monitoring and evaluation of Project implementation and for making mid-course corrections.
- r. Details of physical and financial support required with phasing over the institutional Project implementation period (*about 5 years*). Estimates of financial requirements should be phased and given by activities and category of expenditure.
- s. Brief descriptions about 'procurement arrangements' for civil works, goods and services
- t. Details of strategies for sustaining the gains from the Project in all aspects (academic, network institutions and community interaction.

5.8 Preparation of Composite Proposal:

- 5.8.1 Each pre-qualified institution would be given 60 days time to prepare the Composite Proposal.
- 5.8.2 Each institution as per its location would be essentially required to provide documentation of support of the State Government and its commitment to provide support to the reforms indicated in the document.

5.9 National Expert Committee for Appraisal of Composite Proposal:

5.9.1 The NPD will constitute a National Expert Committee for appraisal of the Composite Proposals received from the pre-qualified institutions. The committee will comprise of 6-7 eminent experts.

5.9.2 The selection criteria for the Composite Proposals are detailed in Chapter 4. Within the framework of the selection criteria the National Expert Committee will review each Composite Proposal. In order to assess strength of the claims made in the proposal, the committee may recommend visit to the institution of certain experts to verify the facts.

5.9.3 The Committee will provide a list of selected Composite Proposals to the NPD after the selection process. The eliminated proposals which do not meet the selection criteria will also be examined by the Committee and the shortcomings in the proposals will be documented and communicated to the institutions for improvement of the proposal for consideration in the next cycle. The NPIU will inform respective State Governments the names of selected and eliminated Composite Proposals.

5.9.4 The institutions whose Composite Proposals are eliminated can participate in the next cycle (provided lead and network institutions do not change) along with their revised Composite Proposal such institutions need not submit their willingness proposals in the next cycle.

5.10 Project Launch Workshop

5.10.1 NPIU with the help of experts organise a three days launch workshop in which all the operational details and Project implementation procedures will be made known to the representatives of the selected lead and network institutions.

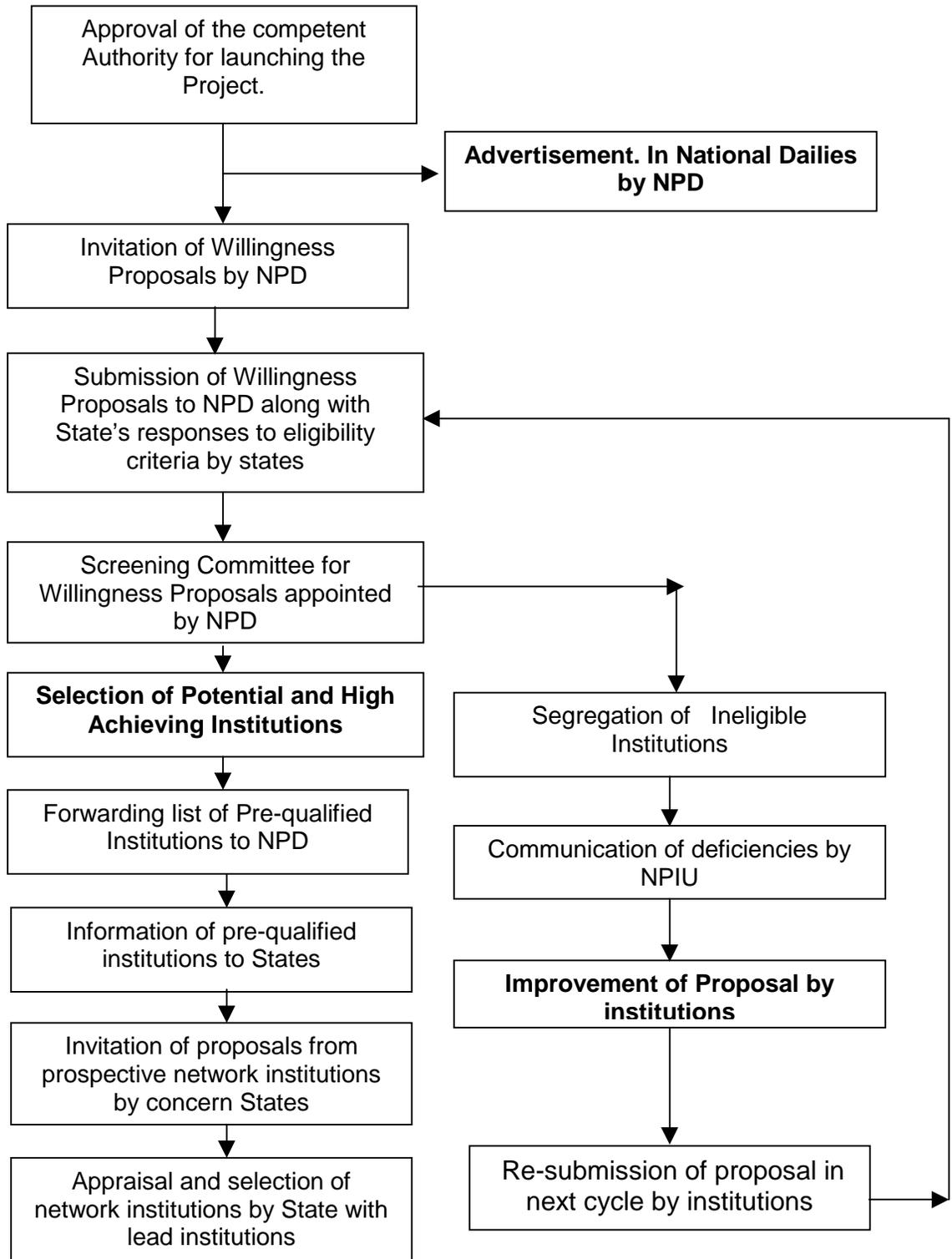
5.11 Selection of Polytechnics (as Network Institution)

5.11.1 The purpose of selection of potential polytechnics under the project is to upgrade them in to the level an engineering collage and are willing to offer

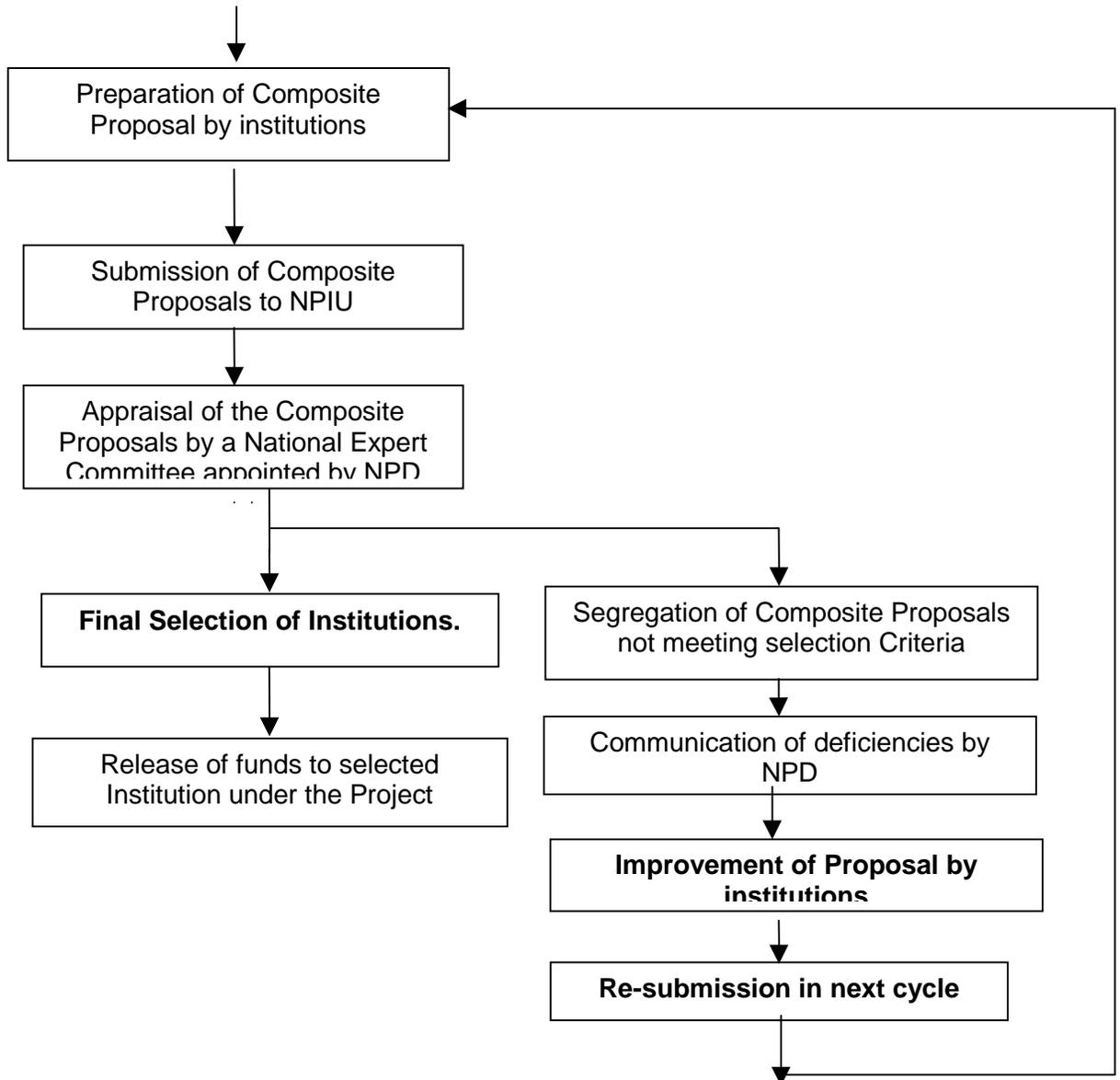
technician degree programme. Polytechnics will be selected as a network institution and will strive for excellence, networking, service to the community and development of management capacities. All engineering polytechnics either State Government funded, aided or private may participate in the project.

- 5.11.2 The State Government will announce the Project by sending a circular to all engineering polytechnics in the State. Based on the eligibility criteria the State will select the potential institutions. The State will ask the eligible institutions to prepare a proposal based on the inputs of Composite Proposal with a specific lead institution. The proposals will be submitted to the State Government on a specified date and time.
- 5.11.3 The State Government will select the proposals with the help of a State Level Expert Committee and forward the selected proposals to the NPIU for review by a National Level Expert Committee specially constituted by the NPD for selection of polytechnics to become engineering collages.
- 5.11.4 While selecting The National Expert Committee, besides eligibility criteria as given in para 4.4 and selection criteria in 4.6 will take due care of equity aspect and regional imbalances.
- 5.11.5 The above process will be repeated in each cycle and each stage.

STEPS INVOLVED IN INVITATION, SUBMISSION AND APPRAISAL OF WILLINGNESS PROPOSALS



**STEPS INVOLVED IN INVITATION, SUBMISSION AND APPRAISAL OF
COMPOSITE PROPOSALS**



CHAPTER 6

PROJECT MANAGEMENT, MONITORING AND EVALUATION

6.1 Introduction

6.1.1 The implementation procedure for the Technical Education Quality Improvement Project of Government of India is unique in nature as the emphasis is being given to well performing institutions to further develop self-governance and self-assessment at various stages of their development into world class institutions. The implementation, monitoring and evaluation of the Project will be done by GOI through NPD. Agencies such as NPIU, SPFU, etc. are expected to play supportive role in Project implementation involving the Central/State Governments to monitor Project activities and formally instituting the reforms as envisaged under the Project. Therefore, the Project needs to be monitored on a quantified basis, for academic, physical and financial achievements under various Project components. The inputs of the Project and the corresponding outputs will be constantly monitored at different levels so that the required changes are systematically achieved ultimately leading to total quality improvement in the entire technical education sub-sector.

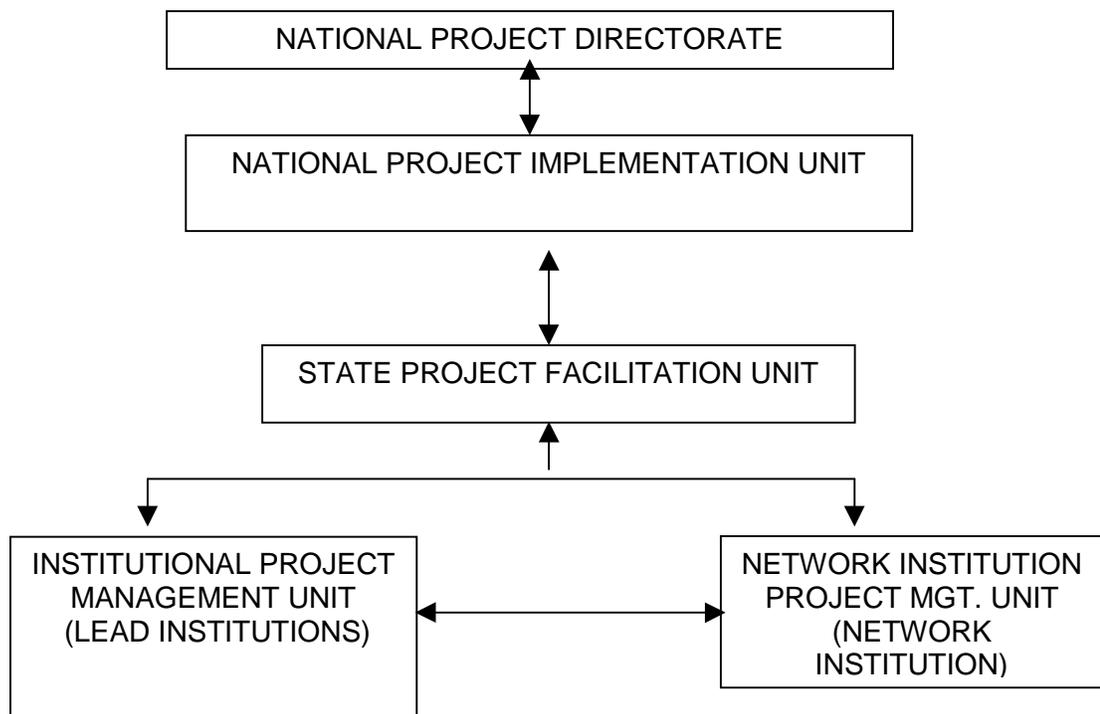
6.2 Project Management Structure:

6.2.1 The Project management structure will be as following:

- (a) National Project Directorate (NPD) in the BTE headed by the National Project Director duly appointed by GOI – to co-ordinate and monitor the Project at national level.
- (b) National Project Implementation Unit (NPIU) – to facilitate the Project
- (c) State Project Facilitation Unit (SPFU) to be situated in the Secretariat of Technical Education of the State/UT to co-ordinate and monitor the Project at the state level

- (d) Institutional Project Management Unit (IPMU) for grassroots level implementation and monitoring of Project at the lead institution level /potential polytechnics to become engineering colleges.
- (e) Network Institution Project Management Unit (NIPMU) for implementation and monitoring of Project at network institution level.

PROJECT MANAGEMENT STRUCTURE



6.3 Organisational Structures and Functions

6.3.1 National Project Directorate (NPD)

- (i) The NPD will be located in the Bureau of Technical Education MHRD.
- (ii) NPD will be the chief nodal agency at Government of India level for implementation of the Project.

6.3.2 National Project Implementation Unit (NPIU):

- (i) NPIU will act as the facilitating, co-ordinating, and monitoring agency for the entire Project and assist the NPD. NPIU will assist in preparation of all documents for the Project, the selection process of institutions in various cycles, evaluation of eligibility criteria, providing guidance in preparation of Composite Proposals by pre-qualified institutions and final selection of institutions under the Project.
- (ii) NPIU will be headed by a Central Project Advisor and it will have six Division namely (a) Institutional Selection and Co-ordination Division (b) Quality Improvement Division; (c) Capacity Expansion Division (d) Modernisation and Procurement Division; (e) Finance Division and (f) Administration Division. Each Division will be headed by a Programme Co-ordinator and each Division will be provided with adequate manpower to support the activities being undertaken.

6.3.4 Functions

- (a) Liaison with the Government of India, States/UTs, World Bank, regional establishments and individual institution on all Project issues.
- (b) Disseminate information about Project to States/UTs and institutions and act as information exchange center.
- (c) Co-ordinate activities related to invitation, submission and appraisal of institutional proposals;
- (d) Assist in organising meetings of various committees for selection of the institutions under the Project
- (e) Guide and organise training for preparation of Composite Proposals in each cycle of the selection process.
- (f) Conducting Project launch workshops for selected institutions.

- (g) Interact with selected institutions on project implementation issues and assist in effective implementation.
- (h) Interact with institutions which could not be selected and help them improve their proposals to be considered in the next cycle.
- (g) Organise GOI and World Bank reviews and monitoring Project activities and ensure that remedial action occurs in the selected institutions.
- (h) Develop a Project Management Information System (PMIS), train States and institutions in utilising the system for reporting.
- (i) Collect progress data from the States and institutions through the PMIS, and preparing compilations for review.
- (j) Prepare and discuss cases on procurement of goods, construction, appointment of consultants, Project staffing, and local and foreign training, financial management and disbursement with institutions, States, for further action and decision.
- (k) Handle issues of procurement, training, appointment of consultants and financial management and disbursement.
- (l) Help and guide states in the establishment and operation of PFMS (Project Financial Management System).
- (m) Organise workshops related to procurement,, academic excellence, networking, community interaction and development of management capacities etc.
- (n) Organise research studies on issues of common interest to all participating States.
- (o) Disseminate information of successful experiences to other Project institutions through case studies, research reports and guideline documents.

- (p) Continuous training of State and institutional officials on comprehending the details of the Project, proposal design, Project management and procedures and other aspects.
- (q) Organise foreign study tours for senior officials of the Center and the State Governments.
- (r) Organise studies related to impact of the Project.
- (s) Coordinate development of software for specific Project purposes like disbursement through PFMS, PMIS, and financial management.
- (t) Evaluate the progress of the selected institution on various aspects of the Project activities and report on delays, deviations from procedure, complaints etc to the NPD for remedial action and decision about further support under the project.
- (u) Participate in the periodic reviews of the States and institutions under the Project.
- (v) Central institutions will directly report their progress to NPIU

6.3.5 State Project Facilitation Unit (SPFU) :

The SPFU will be established in the Secretariats of Technical Education/Higher Education in the States/UTs. The SPFU will be headed by a person of the rank of a Professor of an Engineering Collage. SPFU will have following Key persons of hold different responsibilities:

- (a) An officer for selection of the institutions, scrutinising the willingness applications.
- (b) An officer to manage procurement of civil works, goods and services
- (c) An officer to manage financial aspects, disbursement etc.

The SPFU will be adequately supported by supporting staff.

6.3.6 Functions

- (a) Scrutinising the proposals of the institutions for become lead institutions and providing policy support for carrying reforms. Providing documentary support to the proposals.
- (b) Selection of the institutions as lead institutions, forwarding their proposals to the NPIU. After selections of the institutions as lead institutions and thereafter selection of network institutions for each lead institution.
- (c) Selection of potential polytechnics to become engineering colleges and forwarding their proposals to NPIU
- (d) Facilitate and expedite activities related to policy reforms such as granting autonomy to be selected institutions and funding of institutions.
- (e) Suggest and ensure remedial action in institutions where progress is inadequate or declining.
- (f) Facilitate institutions in their interaction with industry and community.
- (g) Facilitate State in inviting proposals for institutions willing to be networked with lead institution(s) located in the State.
- (h) Facilitate State in selecting network partners (educational institutions) for potential lead institution(s) in co-ordination with potential lead institution (pre-qualified through Willingness Step)
- (i) Liaison and link with NPIU and other concerned department of the State/UT Government.
- (j) Attend BOG and other meetings of the institutions and take stock of progress and difficulties.
- (k) Review progress at State level and take remedial action as necessary.

- (l) Facilitate the block grant or any other alternate mechanism suggested by the State Government is given by state as per agreed terms and conditions.
- (m) In case of private institutions provide necessary assurances and guarantees and enter into agreement for Project financing.

6.3.7 Institutional Project Management Unit (IPMU) (at Lead Institution)

- (i) Each selected Project institution will create the Institutional Project Management Unit comprising of various HOD and faculty members of the institution by giving additional responsibility for effective management and implementation of various components of the Project activities. The IPMU will be headed by the Principal/Head of the institution and comprise of faculty members and staff as considered necessary. There will be one officer/ faculty member identified to co-ordinate each of the following activities at IPMU: construction, procurement, finance, academic excellence, networking, services to community and economy, and development of management capacity.

6.3.8 Functions

- (i) The IPMU would be responsible for preparation of all proposals (eligibility as well as composite) and revise the same as per the requirement of the institutions from time to time in order to transform/bring about changes in institutional development towards excellence.
- (ii) The IPMU will be fully responsible for Project implementation. All activities like academic, physical and financial achievements would be the responsibility of the IPMU. The IPMU should involve the other officials of the institution in Project implementation to achieve the laid down targets and also develop ownership to promote grassroots involvement.
- (iii) The IPMU will be responsible for quality assurance of all Project activities carried out by the institution.

- (iv) The IPMU will also maintain records and follow procurement guidelines as agreed to by the GOI and World Bank.
- (v) The IPMU will also send reports to the SPFU and NPIU as and when called for.

6.3.9 Network Institution Project Management Unit (NIPMU) (at Network Institutions including polytechnics)

- (i) Each selected network institution will create a Network Institution Project Management Unit comprising of various HOD and faculty members of the institution by giving additional responsibility for effective management and implementation of various components of the Project activities. The NIPMU will be headed by the Principal/Head of the institution and comprise of faculty members and staff as considered necessary. There will be one officer/ faculty member identified to co-ordinate each of the following activities at NIPMU: construction, procurement, finance, academic excellence, networking, services to community and economy, and development of management capacity.

6.3.10 Functions

- (i) The NIPMU would be responsible for preparation of all proposals and revise the same as per the requirement of the institutions from time to time in order to transform/bring about changes in institutional development towards excellence.
- (ii) The NIPMU will be fully responsible for Project implementation. All activities like academic, physical and financial achievements would be the responsibility of the NIPMU. The NIPMU should involve the other officials of the institution in Project implementation to achieve the laid down targets and also develop ownership to promote grassroots involvement.
- (iii) The NIPMU will be responsible for quality assurance of all Project activities carried out by the institution.

- (iv) The NIPMU will also maintain records and follow procurement guidelines as agreed to by the GOI and World Bank.
- (v) The NIPMU will also send reports to the SPFU and NPIU as and when called for.

6.4 Procedures to be followed for monitoring purposes

6.4.1 It is necessary that the entire Management Structure of the Project develops standard monitoring mechanism which will help in expeditious information gathering from Project institutions. The components of monitoring are as following :

- i. Implementation of policy reforms
- ii. Project Components
 - a) Academic Excellence,
 - b) Networking,
 - c) Services to community and economy, and
 - d) Development of management Capacity
- iii. Physical
- iv. Financial

6.4.2 **Implementation of policy reforms:** The institution, which has been selected for the Project has laid down targets to be achieved under implementation of policy reforms within a specified period. These would include: autonomy (academic, administrative, managerial and Financial); setting up of Corpus, Depreciation, staff development and Maintenance funds, shifting to block grant or any other alternative mechanism of funding, and enhanced cost recovery of education.

6.4.3 **Project Components :** The institution which has been selected for the Project has laid down targets to be achieved under each component of the Project, viz., academic excellence, networking, services to community and economy, and development of management capacity. These may be following :

- (i) IRG – Ways to generate, utilisation and amount
- (ii) Continuing Education – Areas and beneficiaries
- (iii) Networking with institution, industry and community – Areas impact etc.
- (iv) Curriculum Development – Role of industry, faculty etc.
- (v) Placement and Guidance cells
- (vi) Innovations – Type of innovation, impact etc.
- (vii) Entrepreneurship/employability
- (viii) Staff Development
- (ix) Pass rate/drop rate
- (x) Student assessment and evaluation
- (xi) Average student cost
- (xii) Alumni association – tracer study
- (xiii) Flexibility in courses – Multi Point Entry System
- (xiv) Certification by institution etc.

The targets should be quantified and not vague. The formats for evaluation of institutional performance would be related to the Project activities of the institution.

6.4.4 Physical : The infrastructure development for Project implementation would be mainly relating to equipment by way of modernisation and bringing in latest technology to the institution. The civil works would be minimal to strengthen existing structures to help facilitate Project implementation activities. Monitoring of physical achievements would therefore be for :

- (i) Civil Works
- (i) Equipment
- (ii) Furniture
- (iii) Vehicles
- (iv) Books and LRs

Each institution would have planned the above requirements in their proposal. They would be free to modify the above requirements depending upon the Project activities. The IPMU would be totally responsible for all procurement activities. As mentioned earlier the records would be maintained preferably on a computerised basis to generate different types of reports. The above infrastructure facilities should be synchronised to help facilitate Project

implementation. Monitoring would take place at the IPMU, SPFU, NPIU and NPD level.

It may be essential to strengthen the SPFU, NPIU and NPD offices by adding necessary computers and other facilities to monitor the Project implementation.

6.4.5 **Financial** : While the financial aspect gains importance as a means to achieve the academic goals/objective of the Project, it also has an independent bearing due to its importance in terms of value, availability and facility to create infrastructure and promote Project implementation. The Project States/institutions will be provided advance funds for Project activities. Replenishment of the advance will depend on proper, prompt and effective utilization.

6.4.6 The policy changes planned to be introduced are a crucial aspect of the Project. The policies exist at national and state level, which grant a reasonable level of autonomy to the institutions but are not put into practice. It therefore becomes one of the essential aspects to be monitored.

6.4.7 The Lead and network institutions would have laid down certain targets to be achieved at the end of the Project and also at intermediate levels.

(a) The Project expects the Project institutions to achieve the targets in a span of about 5 years.

(b) These could be monitored and problem areas identified.

(c) The Lead and network institutions will submit the progress report to the NPIU and the SPFU on the Project implementation.

6.4.8 SPFU will consolidate the progress made at the state level and feed information to Secretary (Technical Education) in the State and to the NPIU.

6.4.9 NPIU will consolidate the progress made, identify crucial areas including policy issues that are holding up progress of implementation and feed the information to the NPD.

6.4.10 The NPD will take appropriate action to ensure speedy implementation of the Project by advising the NPIU, SPFU and the institution to take remedial action.

6.4.11 The NPIU under the leadership of NPD will hold periodical reviews with the officials of the SPFU and selected institutional heads. The joint review will be held bi- annually as in accordance with Project requirements.

(a) The joint review will be held at different venues, preferably nearer to institutions, which will enable the Project Monitoring Authorities to see the developments made and interact with the faculty, students, industry and the community

(b) The venue will be changed during each review to enable participation of maximum number of institutions.

(c) The wrap up meeting at the end of each joint review will identify problem areas including policy changes and recommend remedial actions.

6.4.12 As mentioned earlier there would be joint mid term reviews to assess the progress made and re-fix the targets along with monetary allocations if need be.

(a) Institutions, which do not perform well and do not show signs of improvement could be removed from the Project.

(b) The scope of work/ activities the Project could also be revised.

(c) The lessons learnt would be incorporated in the subsequent part of the Project to overcome Project hurdles and help effective implementation.

6.4.13 The lessons learnt will also be incorporated in the design of the second stage of the Project.

6.4.14 **Terminal Evaluation** : As mentioned earlier the Project can be conceived consisting of three overlapping stages, the first stage stretching for about 5

years, and the second stage for a similar overlapping period. At the end of each stage an in depth evaluation of Project achievements will be undertaken. Evaluation shall encompass an analysis of strategies, processes, outputs and impact. It would be done through reports on specially developed questionnaires, observation visits and discussions with institutional and state officials, researches to determine effectiveness of strategies, impact, and flow of benefits, and tracer studies. The terminal evaluation will generate many lessons, which can be used in the second stage or phase and in other schemes or projects. This evaluation of the Project will be done by Government of India at various stages of implementation of the Project and at the end of the Project.

6.4.15 The Evaluation Report will contain information on :

- (a) General and outstanding Project achievements.
- (b) The extent to which Project objectives and targets have been accomplished and the impact that has occurred.
- (c) The efficacy of the contribution made by Project related agencies.
- (d) The major problems encountered and lessons learned from the Project.
- (e) Plans for sustaining Project gains.

6.4.16 It is to be emphasised that monitoring of the project is not the sole responsibility of the NPD/ NPIU/ SPFU

- (a) Since a fair degree of autonomy is available with the Lead and network institutions themselves, the institutions are expected to review the progress on a monthly basis and take remedial actions as required.
- (b) In case help is required from other agencies they should be sought and utilised to promote Project implementation.

6.4.17 IPMU will monitor the Project activities on day-to-day basis, meet at least once a month to consolidate its report and present the same in every meeting of the Board of Governors highlighting areas requiring attention

6.5 **Procedures for procurement**

6.5.1 The Project envisages that the powers for procurement would be delegated to the Lead and network institutions themselves.

- (a) The institutions if need be may appoint procurement consultants.
- (b) It becomes essential that the officials concerned familiarise with the World Bank norms and guidelines to ensure conformity and also expenditures incurred are reimbursed. Such meetings will be organised by NPIU

6.5.2 The Project as such does not envisage large civil works but only essential requirements to cater for the changes proposed.

- (a) No new institution in conventional disciplines is proposed to be created, only existing institutions will be part of the Project.
- (b) The major resources to be improved upon would relate to equipment, furniture, books and to a small extent vehicles.
- (c) The major expenditure is likely to be on equipment.
- (d) Institutions may undertake NCBs national shopping and direct contracting themselves.
- (e) A common agency for all ICBs could be identified if such procurements are large enough.
- (g) In case a common agency is required to be appointed, NPIU would help in selection of the agency as per World Bank norms.

6.5.3 Consultancy services are required particularly for academic purposes. These consultancy services could be procured at institutional level. NPIU will assist in sharing information about the procedures and help identify the consultancy agencies.

6.6 **Project Management Information System (PMIS)**

6.6.1 A Project Management Information System is very much essential to monitor and obtain the status of implementation at any stage of the Programme.

(a) The PMIS would be developed by the NPIU through consultancy services if required and given to all the Project institutions and the states.

(b) The PMIS developed would aim to have on line information entered on a day to day basis.

(c) The information would be maintained at the institutional, state level and conveyed to the NPIU/NPD.

6.6.2 The information generated has to be profitably used for taking decisions particularly in problem areas. Periodical reports could be generated at the Institutional / SPFU /NPIU/ NPD levels.

6.6.3 All the organisations should be equipped with latest computers and linked suitably.

6.6.4 The SPFU and GOI would thereby have updated information at short notice and progress could be monitored more effectively.

6.6.5 It is very essential that such facilities are created in the selected institutions, and at the level of SPFU in the State Government/NPIU/ NPD

6.6.6 The information flow would be from the institution to the state authorities.

- 6.6.7 The institution shall maintain records on all activities of the Project including infrastructure development like civil works, equipment procurement, furniture, vehicles, books procurement etc. The physical achievements and the corresponding expenditure would also be maintained.
- 6.6.8 It is expected that the review at the state level will be at least once in a month initially .
- 6.6.9 The review at the state level would be based on the documents generated by the institutions regarding project achievements.
- 6.6.10 The facilities at the state level could be created to generate information if more than one institution is under the Project. The details of the network institutions would also be similarly compiled and reviewed along with the Lead institutions.
- 6.6.11 Depending upon the Project requirements, the lead and network institutions would also be linked to the NPIU/NPD
- 6.6.12 The National Project Directorate and NPIU may have quarterly review meetings with the institution officials.
- 6.6.13 The document to be prepared for such reviews would be generated by the institution. The NPIU will prescribe the formats.
- 6.6.14 For periodic joint review possibly six monthly by the GOI, state and the World Bank, the NPIU will generate the reports based on the online data duly updated and verified by the participating institutes.
- 6.6.15 The formats and the reports would be modified as required to add or delete information. In addition monthly reports would be called for from each Project institution.
- 6.6.16 The information maintained on various Project aspects should also be in conformity with the information being maintained under PFMS.
- 6.6.17 This will help in proper coordination and correlation and facilitate reconciliation.

6.7 **Specialised Studies to be utilised for refinement**

- 6.7.1 While formulating and implementing the Programme difficulties would be experienced by the institution and state in planning the changes required.
- 6.7.2 The changes may be pertaining to academic areas, resource and other impact aspects.
- 6.7.3 Need may be there to have expert opinion on the various aspects like labour market data giving employment opportunities, knowledge and skills required, effect of changes introduced on the employment market etc.
- 6.7.4 The options available are to hold seminars/workshops and use the services of experts, consultants and conduct studies.
- 6.7.5 The institutions or the State could plan specialised studies required and also identified the agencies to conduct the same.
- 6.7.6 The NPIU could also organise specialised studies like Tracer Study to see the impact of the various Project implementation components.
- 6.7.7 The finding from these studies/expert advise will be utilised in taking remedial action by way of changes to be introduced in policy matters if required and also the Project components.
- 6.7.8 The data from these studies could also be profitably utilised for taking corrective measures in the different phases of the Project.
- 6.7.9 The ultimate objectives of such studies would be to achieve the goals set under the Project.

CHAPTER 7

PROJECT FUNDING AND ACCOUNTING

7.1 Project Funding

7.1.1 Selected Central institutions (both lead and network), Project management structures at central level NPIU, Central resource institutions, education researches organised by NPIU, Training of NPD and NPIU officials will be funded by the Centre through Direct Central Assistance Scheme. Selected State institutions (both lead and network), Project management structures at state level (SPFU), training of State officials will be funded by concerned State/UT. The potential polytechnics selected under the Project will also be funded under the State sector only as a network institution. It is necessary that GOI/ state/ UT release yearly allocations in two installments. The yearly allocations will be estimated from phasing of recurring and non-recurring expenditure of the year.

7.1.2 There will be two types of grants in the Project viz., competitive grants and fixed grants. Competitive grants will be for components like academic excellence, networking, services to community and economy, and development of management capacity at institutional level. While fixed grant will be for the sub-component development of management capacity of technical education system such as supporting EMIS and NPIU and SPFU. The potential polytechnics to become engineering collages will also be selected in a competitive manner at the state level and will receive the grant.

7.2 Project Financial Management System (PFMS)

7.2.1 A sound Project Financial Management System (PFMS) is proposed for the Project. Such system will provide highly reliable and useful data in a time-bound fashion, which in turn will facilitate decision making and fix accountability.

This will help NPD, NPIU, SPFU, IPMU and NIPFU to:

- a) make advance planning based on Project goals and objectives

- b) forecast adequate requirements of funds
- c) ensure optimum utilisation of financial resources to derive maximum output for the funds invested
- d) gain confidence in making decisions and accept accountability at different levels of operation
- e) reflect transparency with proper checks and controls
- f) make periodical comparison of Project progress with physical, academic and financial achievements
- g) generate and evaluate financial reports for Project implementation and monitoring
- h) timely preparation of Project Management Reports (PMRs) and use them in decision making process.

7.3 Accounting

7.3.1 A highly qualitative computerised accounting process will be initiated. To ensure the transparent and accurate accounting system, the following actions are suggested:

- (a) The books of accounts and record of funds flow will be maintained at IPMU, NIPMU, SPFU, and NPIU levels separately through standards Books of Account (Cash, Book Bank, Journal, Ledger etc.) These will be maintained through computerised accounting systems using appropriate software.
- (b) The institutions will follow the applicable statutory procedures for maintaining the accounts. However, the records of the Project will be kept separately.

- (c) Proper linkages will be established between the accounting expenditure head and the category of expenditure as reflected in the Project document. This needs logical cost grouping, segregation of different expenditure in investment and recurrent cost.
- (d) Report will be generated in order to compare the Project cost with the revenue generated. This will facilitate effective decision-making.
- (e) To ensure the transparency in the system, sufficient and accurate records will be kept at IPMU, NIPMU, SPFU, and NPIU. These records will have supporting documents/vouchers in order to establish the accuracy in expenditure.
- (f) Financial reports generated from the above accounting system will be comparable to Project allocations, yearly budget, forecasting and utilisation of funds relating to physical and academic achievement under the Project.
- (g) The accounts will be updated regularly through computerised accounting system in order to ascertain the latest data and make use of online data transmission/retrieval.
- (h) Decentralised approach of accounting system will be adopted since the Project will cover individual institutions. However, a system for online data transmission and retrieval will be developed and implemented during the Project period.

7.4 Internal Checks and Controls

7.4.1 To ensure proper checks and control at the institutional level, it is suggested that:

- (a) Basic day to day transactions will be maintained on a regular basis in various registers and ledgers.

- (b) Trial balance, reconciliation statements, receipts and payment, income and expenditure statements will be generated through computerised system.
- (c) Statement of expenditure will be compared to the annual budgetary allocations, Project components and categories of disbursement.
- (d) There will be periodic checks on delay of payments on the pending bills and an immediate corrective action will be taken by IPMU/NIPMU/SPFU.
- (e) Yearly physical verification of assets, will be done independently by a finance committee at the institution level.

7.5 Financial Reporting

7.5.1 The Project Financial Management System (PFMS) system will be implemented for Project monitoring, which will introduce:

- (a) an integrated Project monitoring system bringing together Project financial management, disbursement, procurement & contract management and physical progress.
- (b) a simplified system of disbursing funds by periodic advances to a Project special account based on Project Management Reports (PMRs). These PMRs link eligible expenditures with actual physical progress made by the Project.
- (c) effectiveness by strengthening Project Financial Management System.
- (d) cost effectiveness by redesigning accountability and disbursement processes.

7.5.2 Project Management Reports : The Project Financial Management System will produce the following quarterly reports that will support the withdrawal application of disbursement:

- (a) Financial Reports : These will provide information on the sources and uses of funds by loan category and by Project activity, forecasts of expenditure, amount of disbursement requested.
- (b) Project Progress Reports : These will provide information on project implementation progress in physical and financial terms using monitoring indicators, including identifying deviations from plan and explaining reasons for such variations.
- (c) Procurement Management Reports : These will provide reports on the status of procurement and contract commitments and expenditure including source of supply data for contract.

(The tentative formats for above PMRs are at Annex – V)

7.5.3 In addition to the above, other financial statements will have to be prepared. These are:

- (a) Monthly statements of expenditure as per expenditure category showing the allocations, current and cumulative expenditures.
- (b) Cash Flow Statement reflecting the receipt of Govt. grant, receipts from various services, research work, etc. and utilization of such funds for developmental purposes.
- (c) Income and Receipt Statement will include items on revenue from job-work, consultancy, research, provision on depreciation, income from interest on investments, etc.
- (d) A Balance Sheet showing total assets and liabilities of the institution

7.6 Review and Analysis

7.6.1 The Financial Reports will be reviewed by IPMU/ NIPMU/BOG/ SPFU/ and NPIU. Each review will focus on physical and academic progress in the Project, make their recommendation for future course of action to be taken by the institution.

7.6.2 The IPMU/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 the IPMU/NIPMU for reconciliation.

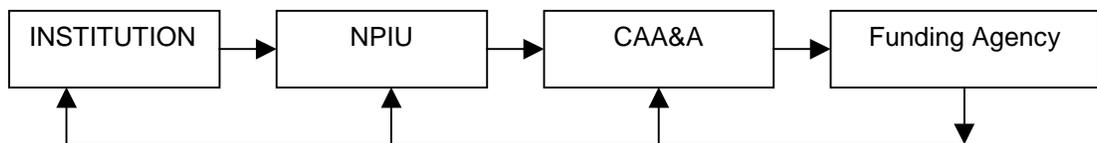
7.6.3 Wherever delays occur in the reimbursement claims or the error/mistakes are noted, the same will be communicated to the concerned institutions to take corrective measures by the NPIU.

7.6.4 Guidance and suggestions will be the regular phenomenon from the NPIU to the institutions.

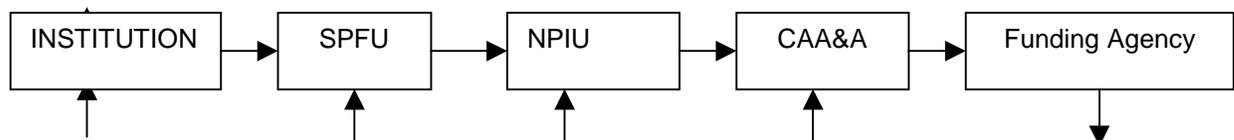
7.7 Disbursement

7.7.1 Quarterly PMR-based disbursement procedures will be adopted for the implementation of the Project . With the introduction of Project Financial Management System (PFMS) disbursement will be made under quarterly PMR-based procedures.

Flow of Quarterly PMR's for Disbursement for Centrally funded Institutions



Flow of Quarterly PMR's for Disbursement for State funded Institutions



- 7.7.2 All State level institutions will send their PMRs to the SPFU and the Central institutions will send their PMRs to NPIU. SPFU after the scrutiny send the PMRs to NPIU and NPIU will consolidate the PMRs and will forward these to CAA&A for claiming disbursement every quarter.
- 7.7.3 The Financial Co-ordinator at DTE and at the institutional level will be responsible for preparing quarterly PMR's and the Head of the Institution will ensure timely submission of these PMR's for the purpose of disbursement.
- 7.7.4 CAA&A will examine these PMR's and take appropriate action for claiming disbursement from the funding agency.
- 7.7.5 CAA&A will provide information on periodic disbursement status to MHRD, States and Institutions.

7.8 **Audit**

- 7.8.1 All accounts maintained by the institutions would be audited as per governmental and agreed procedure once in a year. For institutions the audit will be done by the office of respective Account General (AG) of the state / local firm of Chartered Accountants as acceptable to GOI.
- 7.8.2 The SPFU will be required to submit the audit certificate consolidating for each selected institution within four to five months of the closure of financial year to NPIU. For this purpose the institutions are required to furnish all documents / records to the auditors to facilitate timely audit.
- 7.8.3 Timely action on audit observations will be taken by the institutions to get the observations settled with the auditor's within the shortest possible time, positively before the next audit.
- 7.8.4 The responsibility of timely audit will be shouldered by Financial Coordinator and the submission of Audit Certificate and settlement of audit observations within prescribed time limit will be ensured by the Head of the Institution.

7.9 Financial Estimates

7.9.1 The anticipated expenditure for a lead institution is likely to be Rs. 500 million and a networked institution be Rs. 100 million. Similarly anticipated expenditure for a polytechnic to be enhanced to become engineering collage is likely to be Rs. 50 million. These amounts are only indicative, however the institutions will develop their proposals as per their requirements and needs to upgrade their institutions to fulfil the targets envisaged for them in the Project and the actual costs would be indicated in their development plans for funding under the Project.

7.9.2. During the 10th Plan it is estimated that about 45 lead engineering institutions and 180 networked institutions will be selected for the Project in two stages comprising of 6 cycles. Similarly 75 polytechnics are expected to be selected. During the same plan period the Project related structures such as NPIU, EMIS (Central Sector) SPFU (State Sector) will also be supported.

7.9.3 During the 10th Plan the estimated expenditure is as below :

(a)	45 Lead Engineering Institutions	- Rs. 22500 million
(b)	180 Networked Engineering Institutions	- Rs. 18000 million
(c)	75 Polytechnics	- Rs. 3750 million
(d)	EMIS	- Rs. 100 million
(d)	SPFUs	- Rs. 100 million
(e)	NPD/NPIU etc.	- Rs. 350 million

	TOTAL	- Rs. 44700 million

7.9.4 Since the selection of the institutions is on competitive basis it is difficult to exactly quantify the Central and the State Sector component of the Project, however as per the estimate about 20% of Rs 44700 million would fall in the Central Sector which is Rs. 8940 million and Rs 35760 million in the State Sector.

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 post graduate 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.

The X Plan frame work includes:

- expansion of the scheme of Technology Development Missions and its coverage to other institutions like RECs
- 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
- modernization of Libraries, Laboratories & Workshops
- introduction of electronic classrooms with video conferencing facility & state of art computer facilities to institutions
- strengthening of IIT, Allahabad and IITM, Gwalior to be fully operational
- Strengthening of Regional Engineering Colleges to World class institutions

- launching of a National Education System for Testing (NEST)
- Improvement in Post Graduates Education in Engineering & Technology
- Development of a comprehensive information system for technical education
- Enhanced emphasis on value education in technical and professional education
- Technician Education Project for the State/UT not covered under earlier two Project.
- Schemes for training and retraining of teachers
- Development of Information Technology Education
- Networking among institutions, with industries and other organisations
- Quality assurance and certification
- Improving Quality and Quantity of Research in Technologies and Technical Education
- Flexibility by introducing MPECs in degree and diploma Programmes
- Granting autonomy to institutions
- Increasing technical education opportunities for weaker and disabled sections of society
- Development of informal sector through technical institutions and
- Removal of regional imbalances

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 which is often neglected. Reforms of management in its entirety should be the first and foremost task of the education community." (Programme 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."

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).

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, Bangalore 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.

Important Committees

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

- 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.
- 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.

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

The committee was set up to analyze the current state of post graduate 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.

- 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:

- There is need to look into the infrastructure facilities and expertise available at the TTTIs and find ways & means to optimally utilize these facilities.
 - 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.
 - Considering shortage of faculty in polytechnics, modular pattern may be more suitable for training large number of teachers. TTTIs should adopt this approach.
 - 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.
 - TTTIs should undertake systemic research to provide research impact for development of education systems & their management.
- 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, 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.
- 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, simulation among others. Missions to strengthen these areas focussed 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 unorgained 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.

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

WILLINGNESS PROPOSAL FORMAT**(Draft)**

1. Identification details such as

Name of Institution

Name of the Head of Institution

Address

Telephone No.

E-mail

Fax

2. Remarks/write up on Eligibility Criteria for institution

S.No.	Prescribed Criteria	Response of Institution
1.		
2.		
3.		
4.		
5.		

3. Past performance (for last three years) :

(i) Academic performance and employment of students

S.No.	Criteria	2001	2000	1999
a.	Pass rate			
b.	No. of Awards/ design contests won by students			
c.	Employment rate of pass outs (within one year of passing out)			
d.	Average salary on employment			
e.	Any other Relevant information			

(ii) Achievements in addition to knowledge and teaching-learning methodology

S.No.	Item	2001	2000	1999
a.	No of books published*			
b.	No. of other Learning Resources produced			
c.	No. of research projects completed*			
d.	No. of research Papers published*			
e.	No of innovations in teaching-learning methodology*			
f.	Any other Relevant information			

* Please attach a list and brief write up.

(iii) National and International linkages with educational institutions and Research organisation

S.No.	Name of Institution/Organisation	Type of interaction/linkages
1.		
2.		
3.		
4.		
5.		
6.		

(iv) Achievements in organising activities leading to sharing and dissemination of knowledge

S.No.	Item	2001	2000	1999
a.	No. of seminars*			
b.	No. of conferences*			
c.	No. of workshops*			
d.	Any other Relevant information			

* Please attach a list.

- (v) Past-performance and potential in terms of Internal Revenue Generation (IRG), services to community and economy, experience in conducting high quality Programmes.

S.No.	Activity	2001	2000	1999
a.	IRG through consultancy (in Rs. Lakhs)			
b.	IRG through testing/calibration (in Rs. Lakhs)			
c.	IRG through sale of intellectual property (Learning Resources, royalties etc.) (in Rs. Lakhs)			
d.	IRG through continuing education Programmes (in Rs. Lakhs)			
e.	IRG through renting out institutional facilities (in Rs. Lakhs)			
f.	Any other (pl. mention the source)			

- (vi) Level of industrial/ community linkages

S.No.		Type of interaction/ linkages
1.	Industry*	
2.	Community**	

* Pl. attach a list of industries/ companies with whom institution has close linkages along with a brief write up.

** Pl. attach a brief write up on type of community linkages and services provided to community.

- (vii) Quality and adequacy of faculty and staff

S.No.		Total No. of sanctioned posts	Post fill with regular appointment	Post fill with contract/ adhoc	Plans to fill vacancies
1.	Faculty				
2.	Staff				

S.No.	Qualification of faculty	Numbers
1.	Ph.Ds in Engineering and Technologies	
2.	Ph.Ds in Science or Humanities	
3.	Post graduate in Engineering and Technology	
4.	Bachelor of Engineering or Technology/ Post graduate in Science or Humanities	

- (viii) Innovations in teaching and training Programme designs and delivery (Pl. attach a brief write up)
- (ix) Performance in research, design and development (Pl. attach a brief write up)
- (x) Quality and extent of leadership role in the proposed network (Pl. attach a brief write up)
- (xi) Existing strengths in emerging technologies (Pl. attach a brief write up)

4. Programmes of Study :

S.No	Name of the Programme	Level (graduate/ post graduate/ research)	No. of seats	Average no. of applicants per seat for last three years
1				
2				
3				
4				
5				
6				
7				
8				

5. Vision of the Institution for Future (give a write up)

6. Description about Plan of Action of following aspects of the Programme

- Academic Excellence
- Networking
- Services to Community and Economy
- Development of Management Capacity

7. Autonomy available to the institution at present

- a. Academic
- b. Administrative
- c. Financial
- d. Managerial

8. Members of the Governing body of the institute

Name	Qualification	Affiliations

9. Enclosures

- a. Copy of Central/State Government orders for Autonomy
- b. Annual Report for last three years
- c. Audited accounts for last financial year (for private institutions)

Sample Advertisement

The Government of India have decided to launch a Quality Improvement Project for Technical Education. Under the Project, engineering education institutions which are presently well performing will be assisted financially and with policy reforms to become world-class institutions in their chosen fields. Each participating institution will need to necessarily implement all four aspects of the Project viz., academic excellence, networking, services to community and economy and development of management capacity.

Selection of institutions for assistance will be done by a transparent competitive process through two-step process, viz., Willingness Proposal Step and Composite Proposal Step. Selection of institutions at each step will be based on transparent criteria.

Interested institutions may obtain further information from the office of National Project Directorate. National Project Director * Bureau of Tech Education, Deptt of Secondary & Higher Education, MHRD, Shastri Bhawan, New Delhi: 110 001 or visit <http://www.education.Nic.in/>

A complete set of detailed documents may be obtained by any interested institution on submission of a written application to the above office, during office hours, in person or by post. Copies of these documents are also available with the State Director of Technical Education. The interested institution may prepare an eligibility proposal as per the guidelines given in the detailed document along with necessary enclosures for consideration as Lead institutions. The eligible institutions will be required to prepare a Composite Proposal including proposals of network institutions at a later stage. Selection as eligible lead institution does not mean selection in the Project. Only those institutions will be selected finally who will fulfill the selection criteria.

- | | | | |
|----|--|---|-------|
| a. | Date of availability of document | : | ----- |
| b. | Last date of sale of document | : | ----- |
| c. | Last date and time for receipt of eligibility proposal | : | ----- |
| e. | Address for submission of proposal | : | NPD* |
| f. | Address for communication | : | NPD |

PROJECT MANAGEMENT REPORT (PMR's)

Quarterly Reports

1. FINANCIAL REPORTS

- A. Project Project Sources and Uses of Funds
- B. Uses of Funds by Project Activity
- C. Project Cash Withdrawals (Disbursement)
- D. Special Account Statement
- E. Project Cash Forecast (Part-I & Part -II)

2. PROJECT PROGRESS REPORTS

- A. Output Monitoring Report (Contract Management)
- B. Output Monitoring Report (Unit of Output by Project Activity)

3. PROCUREMENT MANAGEMENT REPORTS

- A. Procurement Process Monitoring (Civil Works & Goods)
- B. Procurement Process Monitoring (Consultancy Services)
- C. Contract Expenditure Report (Civil Works & Goods)
- D. Contract Expenditure Report (Consultancy Services)