TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME [TEQIP]

PHASE – II

PROJECT IMPLEMENTATION PLAN

December, 2009

GOVERNMENT OF INDIA
DEPARTMENT OF HIGHER EDUCATION
MINISTRY OF HUMAN RESOURCE DEVELOPMENT
NEW DELHI

CONTENTS

CONTENTS

CONTENTS

CONTENTS

Section – I
BACKGROUND

1.1 Present System of Engineering Education:

Engineering education became a main attraction after 1990 when India became a major contributor to the global IT industry revolution. In the last two decades, many State Governments have encouraged the idea of self-financed engineering colleges where State Government does not provide financial support but facilitates the setting up of such institutions. As a result, the Indian system of engineering education has become vast and so far a total number of 2388 engineering degree institutions have been established.

The exponential growth in Technical Education has however not translated into any significant growth in the number of quality graduates due to restricted availability of qualified faculty. There is currently a huge gap between quality and quantity in Technical Education.

The quality of education and training being imparted in the engineering education institutions varies from excellent to poor, with some institutions comparing favourably with the best in the world and others suffering from different degrees of handicaps. There is a gap between the educational standards of the Indian Institutes of Technology (IITs) and other engineering institutions and the few IITs can neither change the fate of the whole country nor improve the entire educational system.

Concerted efforts are required to bridge the gap in the quality of education between IITs and other institutions. The IITs have to act as a catalyst in the growth of quality Technical Education in the country, and play a major role in training faculty from the other institutions of the country in both teaching and research. Some of the concerns in engineering education system are listed below:

a) **Faculty Shortage/ Upgradation:** The massive expansion of institutions has resulted in an estimated faculty shortage exceeding 30,000 PhD and 24,000 Master Degree level faculty in 2388 institutions with an enrollment capacity of about 8,41,018 as of 31st August 2008. In some of the important disciplines such as IT and related areas, availability of faculty is dismal. The reasons could be:

- The institutions are not able to attract and retain good quality faculty due to archaic recruitment and promotion procedures, absence of incentives for quality performance, and non-existent faculty development policies in most institutions.

- Shortage of training opportunities and attention to overall growth of faculty is adversely affecting impartation of quality knowledge and skills to students thereby lowering their employability (only 25% at present). The faculty also lacks communication and pedagogical skills.

b) **Industry-academia collaboration:** At present, this collaboration is at a nascent stage. Industry-academia collaboration involves two key aspects, industry inputs to curriculum development and internships for students. Increasing industry-academia collaboration requires: (i) overcoming the distrust between the two partners; (ii) identification of win-win partnerships in terms of technical knowledge; and (iii) incentives to institutions and faculty for collaboration.

c) **Obsolete learning infrastructure:** This prevents the development of hands-on skills in industry-relevant technologies. Many institutions have not upgraded their equipment, laboratories, and learning resources for even more than a decade. There is also the absence of curriculum revisions that focus on practical training and quality instructions, research and development.

d) **Stagnating research:** Increasing research that caters to the emergent industry and societal demand for technological solutions results in directly and indirectly improving knowledge and quality of faculty, which in turn would benefit students. A growing number of Indian firms are keen to collaborate with academia to enhance their competitiveness. Active research programmes in engineering institutions would also make meaningful contribution for sustainable technological development in India.

e) **Attracting Students to become faculty:** The attraction of students for a faculty position depends on salary package, perks/facilities and professional career. Industrial sector salaries have increased significantly in the last few years but the increase in faculty salary with comparable experience is marginal. Furthermore, in many institutions, there is a problem in provision and maintenance of standard amenities of accommodation, medical attention, good quality schooling in residential campus, etc. Additionally, other facilities like holiday homes, availability of low interest loans, etc. that is provided by public sector, is lacking in educational institutions. The non-availability of research funds and quality research students is also the cause of concern in the professional growth of a faculty.

f) **Imbalance in Engineering output at Bachelors, Masters and Doctoral level:** The number of Bachelors degree graduates in engineering (B.E/B.Tech) every year has increased exponentially from about 270 in 1947 to 2,37,000 in 2006 which is 12% as per compound annual growth rate (CAGR) stated in study report submitted by Energy Systems Engineering, IIT Bombay in the year 2007. However, as compared to Bachelors degree, the Masters' output has only increased from about 14,000 in 2001 to 20,000 in 2006, which is 7.5%, and the Doctoral output has increased by a mere 2.9% from 1985 to 2005 as per CAGR. The data presented clearly reflects that the output of engineering graduates at Bachelor level is disproportionately high in comparison to Masters level, and further reduced at the Doctoral level. The under production of Masters and Doctoral degree holders is now seen to be seriously undermining quality of education (due to high proportion of under qualified faculty).

1.2 Government of India Initiatives:

Government of India has adopted the National Policy on Education (NPE-1986 as revised in 1992). The NPE has suggested some major steps to promote Efficiency and Effectiveness of engineering education as quoted below:

(i) High priority will be given to modernization and removal of obsolescence. However, modernization will be undertaken to enhance functional efficiency and not for its own sake or as status symbol.

(ii) More effective procedures will be adopted in the recruitment of staff. Career opportunities, service conditions, consultancy norms and other perquisites will be improved.

(iii) Teachers will have multiple roles to perform: teaching, research, development of learning resource material, extension and managing the institution. Initial and in-service training will be made mandatory for faculty members and adequate training reserves will be provided. Staff Development Programme will be integrated at the State, and coordinated at Regional and National levels.

(iv) Institutions will be encouraged to generate resources using their capacities to provide services to the community and industry. They will be equipped with up-to-date learning resources, library and computer facilities.

(v) Facilities for sports, creative work and cultural activities will be expanded.

(vi) The Government of India shall assist the State Governments for the development of Programmes of national importance.

During 1980s, the Government of India (GoI) and the State Governments have felt the need for revamping the Technician Education System in the country to make it demand-driven with relevant courses in new and emerging technologies, with adequate infrastructure resources, competent faculty and effective teaching-learning processes. The Government of India supported the State Governments through three Technician Education Projects during 1991-2007, financed by the World Bank, which helped to strengthen and upgrade the system and benefited 552 polytechnics in 25 States and Union Territories of Andaman & Nicobar and Puducherry.

The success of these Projects encouraged the Government of India and the State Governments to seek more funding from the World Bank for systemic transformation of the Technical Education System with focus on degree level engineering education. In 2002-03, the Government of India with the financial assistance from the World Bank launched a Technical Education Quality Improvement Programme (TEQIP) as a long-term programme of 10-12 years, to be implemented in 3 phases for a systemic transformation of the Technical Education system. The first phase of TEQIP commenced in March 2003 and ended on March 31st, 2009, covering 127 institutions in 13 States. As this Project, covering less than 10% of the institutions, was a beginning, the challenge for systemic transformation remains big. To meet the challenge, serious, organized and converging efforts are needed.

Realizing the potential of socio-political and economic benefits from higher education in transforming India into a knowledge society, the Government of India has placed a much higher priority on higher education in the Eleventh Five Year Plan (2007 to 2012). This change in priority is supported by a proposed Rs.2,70,000 crore allocation to the education sector, which represents a four-fold increase over the Tenth Five Year Plan allocations. The Government of India has initiated schemes to ensure universal access to quality primary and secondary education while significantly expanding the capacity of higher education to provide educated and skilled workforce for the 21st century economy. The Government of India has made a bold move by allotting 30% of the total education outlay to the higher education sector and thereby committing to an eight-fold increase over the spending on the higher education sector during the Eleventh Five Year Plan period.

The main target for the Eleventh Five-year Plan for higher education (technical and general) is to increase gross enrolment ratio in higher education from 11% to 15%. The goal for Technical Education is an annual growth rate of enrolment of 15%. An equitable expansion is aimed at through the establishment of 80 new centrally-funded high-quality institutions, over 1000 new polytechnics, and 370 new colleges in under-served regions. Equity is being further supported through financing of student loan and grant programmes, in combination with increasing recovery to 20% of the cost of education.

The proposed, second phase of Technical Education Quality Improvement Programme (referred to as TEQIP-II) is fully integrated with the Eleventh Five-year Plan objectives for Technical Education as a key component for improving the quality of education in existing institutions.

Section – II
THE PROJECT

2.1 INTRODUCTION:

Technical Education Quality Improvement Programme (TEQIP) was envisaged in 2003 as a long-term programme of about 10-12 years duration to be implemented in 3 phases for transformation of the Technical Education System with the World Bank assistance. As per TEQIP concept and design, each phase is required to be designed on the basis of lessons learnt from implementation of an earlier phase. TEQIP-I[1] started a reform process in 127 Institutions. The reform process needs to be sustained and scaled-up for embedding gains in the system and taking the transformation to a higher level. To continue the development activities initiated through TEQIP-I, a sequel Project is planned as TEQIP-II[2].

2.2 PROJECT GOAL:

Project aims to scale up and support ongoing efforts of the GOVERNMENT OF INDIA to improve quality of Technical Education and enhance existing capacities of the institutions to become dynamic, demand-driven, quality conscious, efficient and forward looking, responsive to rapid economic and technological developments occurring at the local, State, National and International levels. It has a clear focus on the objectives to improve the overall quality of existing engineering educational programmes.

2.3 PROJECT OBJECTIVES:

The Project will focus on the following objectives:

- Strengthening Institutions to produce high quality engineers for better employability,
- Scaling-up postgraduate education and demand-driven Research & Development and Innovation,
- Establishing Centers of Excellence for focused applicable research,
- Training of faculty for effective Teaching, and
- Enhancing Institutional and System Management effectiveness.

2.4 PROJECT SCOPE:

Project will be open for competition and participation by all the AICTE (All India Council for Technical Education) approved engineering institutions from all States and Union Territories (UTs) across the country. An estimated 200 engineering institutions including the Centrally Funded Institutions (CFIs) will be competitively selected to improve the learning outcomes and employability of the graduates and scaling-up research, development and innovations. Eligible private unaided institutions willing to contribute to the vision of India to produce high quality technical manpower are also welcome to participate in the Project.

The Project will also support universities affiliating Project Institutions for their innovations to improve policy, academic and management practices.

---

[1] First Phase of the Technical Education Quality Improvement Programme that closed on March 31, 2009 is referred to as the Project - TEQIP-I throughout the PIP.

[2] Second Phase of the Technical Education Quality Improvement Programme is referred to as the Project - TEQIP-II throughout the PIP.

2.5 PROJECT STRATEGY:

The Project will be implemented in pursuance of the National Policy on Education (NPE-1986 revised in 1992) through the Ministry of Human Resource Development (MHRD) of the Government of India as a **"Centrally Sponsored Scheme"** with matching contribution from the State Governments and Union Territories (UTs). The Project cost will be shared by MHRD and States in the ratio of 75:25 for all States except in the special category States for which the ratio will be 90:10. For Centrally Funded Institutions, the entire Project cost will be borne by MHRD.

Funding for private unaided institutions in all States selected under sub-component 1.1 will be in the ratio of 20:20:60 i.e. 20% funding from Institutions, 20% funding as grant from State and 60% funding as grant from MHRD. Funding for private unaided institutions selected under sub-component 1.2 will be in the ratio of 75:25 between MHRD and States for all States except in the special category States, the ratio will be 90:10.

A set of eligibility criteria for States will be enforced to achieve a high and sustained impact of the Project. The criteria will seek to give the Project Institutions adequate decision making powers that will enable and encourage them to deliver quality education and undertake research in an efficient manner. A primary focus is to transform the governments' traditional role of input-control towards a role of focusing on outcomes, and incentivizing improvements in engineering education.

The Project will require the Project Institutions to implement academic and non-academic reforms for their self-conceived Institutional development programmes that focus on quality and relevance, excellence, resource mobilization, greater Institutional autonomy with accountability, research and equity.

The Project intends to impart pedagogical training to faculty for making teaching effective and will cover maximum faculty members from the Project Institutions. The benefit of this aspect of the Project will also be extended to faculty from non-project institutions.

Professional Development Programmes for policy planners, administrators and implementers at Central, State and Institutional levels will be organized. Project will also support development of effective system governance.

The Project will lay major emphasis on monitoring and evaluation. The prime responsibility of monitoring will lie with the institutions themselves. The management structure at the institution level i.e. the Board of Governors (BoG) will monitor the progress of Institutional Projects on a regular basis and provide guidance for improving the performance of institutions in Project implementation. The information from Project Institutions will be collected through a scalable web-based Management Information System (MIS). State governments will also regularly monitor and evaluate the progress of institutions. The Government of India and the World Bank will conduct bi-annual Joint Reviews of the Project with assistance from the National Project Implementation Unit (NPIU). The monitoring will be based on Action Plans prepared by each institution and achievements made on a set of key performance indicators which will be defined in the Project proposals of the institutions. The monitoring will focus on implementation of reforms by institutions, achievements in Project activities under different sub-components, procurement of resources and services,

utilization of financial allocations and achievements in faculty and staff development and management development activities.

The Project intends to maximize collaboration between local industries and Project Institutions by providing the National Steering Committee and State Steering Committees (through national and State level private sector advisory groups) with timely, precise and concrete advice and summarized feedback on industry-institution partnerships to meet the national demand for graduates and post graduates equipped with skills and knowledge relevant to the changing market requirements.

Establishing Centers of Excellence with potential of world-class research in emerging areas is one of the important aspects of the Project.

Funding will be available to the institution for participation in either the sub-component 1.1 or the sub-component 1.2 but not for both at the same time. However, all project and non Project Institutions can seek funding under the sub-component 1.3.

2.6 PROJECT DESIGN:

The Project is composed of following components and sub-components:

Component – 1 : Improving Quality of Education in Selected Institutions

- *Sub-Component 1.1* : Strengthening Institutions to improve learning outcomes and employability of graduates
- *Sub-Component 1.2* : Scaling-up Post Graduate education and demand-driven R&D&I
- *Sub-Sub-Component 1.2.1* : Establishing Centers of Excellence
- *Sub-Component 1.3* : Faculty Development for effective teaching (Pedagogical Training)

Component – 2 : Improving System Management

- *Sub-Component 2.1* : Capacity Building to Strengthen Management
- *Sub-Component 2.2* : Project Management, Monitoring and Evaluation

The key features of the Project are presented in Table-1 and detailed Project description is given in Section – III.

TABLE-1 : PROJECT COMPONENTS AND SUB-COMPONENTS

Component – 1 : Improving Quality of Education in Selected Institutions	
1.1 Strengthening Institutions to improve learning outcomes and employability of graduates	
Objective	**Suggested activities**
To strengthen institutions to improve the competencies of undergraduates in selected engineering institutions. An estimated 140 new engineering institutions meeting the eligibility criteria will be competitively selected under this sub-component. Private unaided institutions could also be part of this sub-component but shall be funded on cost sharing basis for carrying out the following activities: • Updation of learning resources • Starting new PG programmes • Curricular reforms • Faculty and Staff development for improved competence • Enhanced interaction with industry • Institutional management capacity enhancement • Implementation of Institutional reforms • Academic support for weak students	• Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis • Improvements in teaching, training and learning facilities through; ○ Modernization and strengthening of laboratories / establishment of new laboratories ○ Modernization of classrooms ○ Updation of learning resources ○ Procurement of furniture ○ Establishment / Upgradation of Central and Departmental Computer Centers ○ Modernization / improvements of supporting departments • Modernization and strengthening of libraries and / or increasing access to knowledge resources • Increased enrolment in existing PG programmes, starting new PG programmes, providing assistanceships and enhancement of research and consultancy activities • Faculty and Staff development for improved competence based on Training Needs Analysis (TNA) • Enhanced interaction with Industry • Institutional management capacity enhancement • Implementation of Institutional reforms • Academic support for weak students • Refurbishment (Minor Civil Works)

1.2 Scaling-up Post Graduate education and demand-driven R&D&I	
Objective	**Suggested activities**
To significantly increase enrolment in post-graduate education and enhance engineering research and development and innovation. An estimated 60 institutions will be selected under this sub-component. The private unaided institutions could also be part of this sub-component and will be funded for activities as the other institutions. Sub-objectives: • Improve the quality and relevance of the PG-programmes • Attract more and better qualified PG students • Improve faculty qualifications • Enhance management of the institutions for more effective governance	• Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis • Significantly increasing enrolment in Masters and Doctoral programmes in engineering disciplines, providing assistanceships and starting new Masters programmes • Faculty and Staff development for improved competence based on Training Needs Analysis (TNA) • Enhancement of research and development activities • Modernization and strengthening of PG laboratories / establishment of new PG laboratories • Modernization and strengthening of libraries and / or access to knowledge resources • Enhanced interaction with industry • Institutional management capacity enhancement • Implementation of Institutional reforms • Academic support for weak students • Refurbishment (Minor Civil Works)

1.2.1 Establishing Centers of Excellence	
Objective	**Suggested activities**
To support establishment of Centers of Excellence for multi-disciplinary applicable research in specific thematic areas. About 30 institutions out of those selected under sub-component 1.2 having potential for applicable research will be selected with an additional grant for setting up Centers of Excellence. Sub-objectives: • Create knowledge in thematic, multi-disciplinary areas with industry and other knowledge users • Form advanced human capital (MTechs and PhDs) in collaboration with industry and other knowledge users through establishment of new PhD programmes or new electives • Increase societal use of produced engineering R&D through technology transfer and commercialization • Increase research output through publication	All the activities as listed in 1.2 and the following additional activities are to be carried out: • Industry collaborations for applicable thematic research • Converting innovative ideas into projects/products in close collaboration with both private and public sector industries • Collaborative activities with National/International associations

1.3 Faculty Development for effective teaching (Pedagogical Training)	
Objective	**Suggested activities**
To improve the learning outcomes of engineering students by improving competence of faculty from project and non-project institutions through pedagogical training.	• To cover maximum faculty for pedagogical training from Project Institutions for basic and advanced pedagogical training and from non-project institutions for basic pedagogical training.

Component – 2 : Improving System Management	
2.1 Capacity Building to Strengthen Management	
Objective	**Suggested activities**
• To build capacity of Technical Education policy planners, administrators and implementers at Central, State, and Institutional level for effective implementation of academic and non-academic reforms. • To introduce and sustain innovative systemic quality improvement practices.	• Establishment of Quality Assurance Practices in States/ Union Territory Governments and Centrally Funded Institutions • Establishing a Task Force for strategic planning of Technical Education by State Governments • Establishment of Curriculum Development Cells (CDCs) in universities that affiliate Project Institutions • Spreading best practices to non-Project Institutions. • Establishing Industry-Institute Partnership Promotion Cells • Sharing of Best Academic, Administrative and Governance Practices through workshops and specific groups • Conducting Professional Development Programme for Project and Technical Education administrators at the National, State and Affiliating Universities • Establishing Task Force for effective system governance by MHRD

2.2 Project Management, Monitoring and Evaluation	
Objective	**Suggested activities**
To plan, organize and manage resources to bring about the successful completion of Project goals and objectives. To support innovations for improving State and Institutional level management and education practices. To monitor and evaluate the performance of Project Institutions and to identify variance, if any from the Institutional plan and suggest remedial measures, as required. To mentor the Project Institutions towards quality improvement and audit the Institutional performance in achieving the Institutional goals.	• Ensuring successful and timely implementation of the Project at the Central, State and Institutional levels through coordination of resources and integration of activities of the Project in accordance with the Project Implementation Plan (PIP). • The deliverables as outputs from the Project, as planned. • Monitoring and evaluation of performance through: ➢ Key indicators ➢ Web based Management Information System (MIS) at the NPIU, State Project Facilitation Units (SPFUs) and project institutions. ➢ Conduct of Assessment Surveys : o Student Satisfaction Surveys o Faculty Satisfaction Surveys o Implementation Surveys o Employer Satisfaction Surveys ➢ Conduct of Institutional Audits : o Performance and Data Audits o Fiduciary Audits ➢ Conduct of Resource Utilization Study ➢ Conduct of Bibliometric Study ➢ Conduct of Impact Assessment Study ➢ Reviews : o Mid-term Review Mission o Six-monthly Joint Review Missions ➢ Mentoring

2.7 RISK ANALYSIS:

The Project is designed with an objective to improve quality of Technical Education and enhancement of existing capabilities of the Institutions to become responsive to rapid economic and technological developments occurring both at national and international levels. The Project design has been deliberated adequately by all stakeholders, State and Central Government, experts, Private Sector, etc with an aim to minimize the risks associated with the Project.

Following are the risks perceived and the ways to mitigate these risks to ascertain successful implementation of the Project are given below:

Risk Factor	Description of Risk	Rating of Risk	Mitigation Measures
Governance & Policies	Due to the selectivity in eligibility criteria to achieve the Project objectives, the institutions from the States lagging in Technical Education, may not participate in the Project causing regional imbalance.	Moderate	The Project has been designed to provide relaxation in eligibility criteria for the States lagging in Technical Education and give fair representation to such States to minimize the imbalance.
	There may be possible resistance to reforms envisioned for the Project by participating States/ institutions.	Low	The implementation of academic and non-academic reforms is an essential pre-condition for participation in the Project to be fulfilled by the States. Also, only those institutions that are willing to reform will be selected under the Project. The Project will incorpo-rate support to governance issues and capacity building.
	The possibility of failing to adhere to Project targets and time limits by the participating States / institutions due to changes in leadership at State / Institutional levels.	Low	The Project has been designed as bottom up approach. The Project planning by the Institutions/States has been encouraged in the design to have ownership of the Project.
Technical Design	Institutional inadequacy in preparedness for implementing reforms and achieving excellence.	Low	The eligibility criteria designed for the selection of institutions in the Project will screen the weak institutions.
	Inadequacy in financial & administrative autonomy to Boards of Governors/ Institutional leaders.	Low	The minimum desirable autonomy will be agreed and included in the eligibility criteria of States/institutions.

Risk Factor	Description of Risk	Rating of Risk	Mitigation Measures
	Less incentive to private sector to collaborate with institutions and promote R&D activities, and also less incentive to institutions to engage with industries.	Moderate	The Project will help the institutions, the private sector, and business oriented institutions to create a platform where they can discuss on mutual benefits for collaboration.
	Less effectiveness of the implementation plan for Faculty Development programmes.	Low	The Institutional proposals will be required to contain details of Training Needs Analysis carried out and a Faculty Development Plan for the first 18 months of the Project. The funding to non-performing institutions may either be stopped or curtailed. Also, selected institutions will be funded to establish facilities for training for all faculty in modern pedagogy & for updating subject knowledge.
Implementation Capacity & Sustainability	Lack of ownership at State level causing delay in implementation of all the agreed reforms to comply with all the fiduciary requirement of the Project.	Low	The States that agree to implement all the reforms and to comply with all the fiduciary requirements will only be selected under the Project.
	Lack of ownership at Institutional level causing delay in implementation of all the agreed reforms.	Moderate	The Project Institutions will be reviewed & mentored on regular basis to fulfill the requirements of the Project.
Financial Management	Variation in staff capacities.	Substantial	The Project has allocated budget for regular and ongoing training for staff at all levels. The Financial Management Training will be provided to staff to improve their capacity to handle various financial issues.
	Variation in quality of auditors and audit reports.	Substantial	The Project will strengthen the auditor's selection criteria and Terms of Reference for audits.
	Delay in funds distribution and inadequate amount of funds to institutions, especially to the private unaided institutions.	Substantial	The States will make 100% budget provisions under the Project before the fund release. A common MoU between State and Institutions for funding private institutions will be agreed under the Project (Annex–III (c) & (d)).
	Potential delays in fund release due to Centrally Sponsored Scheme (CSS) with implementation responsibility vested in participating States, partly due to lack of delegation of power, slow recruitment of staff, and slow audits.	Substantial	The Project has been designed with effective and continuous monitoring mechanism at NPIU.

Risk Factor	Description of Risk	Rating of Risk	Mitigation Measures
Procurement	Fiduciary risks of economy, efficiency, transparency and fairness in procurement of Goods, Works and Consultant Services at institution level in a large number of institutions of the country. Moreover, potential procurement risks involved with new institutions and States in the proposed Project.	Substantial	The Project has been designed to build the capacity of each institution by identifying a coordinator to coordinate and manage the procurement process. The coordinator will be trained on agreed norms and guidelines on procurement. Procurement manual has been developed for the Project as per the World Bank guidelines on procurement to streamline the procurement activities of all institutions under the Project. An appropriate internal quality assurance mechanism will be established to carry out prior review and post review of procurement undertaken by participating institutions.
	Too many entities handling procurement which could lead to issues on consistency & standards and lead to fiduciary risks.	Substantial	A web based Procurement Management Support System will be developed under the Project for monitoring the procurement process of all procurement activities undertaken in the Project to ensure smooth flow of information/data which could assist and identify priority areas for effective supervision. The system will identify commonly procured items and develop data bank including standard specifications, addresses of original manufacturers in the country with anticipated price ranges.
Social & Environmental Safeguards	Inadequate attention, at both State and Institutional levels, to address the disadvantages faced by students with SC/ST, poor, resulting in reduced internal and external efficiencies.	Low	The Project agrees to develop and oversee implementation of a set of actions designed specifically to overcome such disadvantages and improve equity in education.
	Possible agitation by local people due to construction in the Project.	Low	The Project agrees that no construction will be allowed on such sites/ or that appropriate procedures are fully followed to address the situations encountered.

Section- III
PROJECT DESCRIPTION

3.1 Component–1 : IMPROVING QUALITY OF EDUCATION IN SELECTED INSTITUTIONS

This component will support around 200 competitively selected Engineering Education institutions to improve Learning Outcomes and Employability and Scale-up Research, Development and Innovation through two sub-components 1.1 & 1.2. The faculty of these institutions will also be offered pedagogical training through a separately funded faculty development programme through sub-component 1.3.

3.1.1 SUB-COMPONENT 1.1 : STRENGTHENING INSTITUTIONS TO IMPROVE LEARNING OUTCOMES AND EMPLOYABILITY OF GRADUATES

1. Objective:

To strengthen institutions to improve the competencies of undergraduates in selected engineering institutions.

2. Scope:

This is a competitive fund that will finance the best Institutional proposals that have the potential to meet the above objective. An estimated 140 new engineering institutions meeting the eligibility criteria as described in Section-IV (4.3.1) will be competitively selected from (i) [1]new eligible States and (ii) [2]old States to participate in this sub-component.

Following types of educational institutions will be eligible for submission of proposals and if selected, for funding under this sub-component:

i) New [3]Institutions from the old States
ii) New Centrally Funded Institutions
iii) [3]Institutions from new States
iv) Engineering Faculty / Engineering Education Departments/constituent colleges of selected universities/ deemed universities, and
v) Private unaided institutions on cost sharing basis[4]

Following types of educational institutions will not be eligible for funding under this sub-component:

i) State Institutions and CFIs, which have participated in TEQIP-I,
ii) Polytechnic Institutions,
iii) Architecture, Management and Pharmacy Institutions or departments, and
iv) Master of Computer Application Departments / Institutions.

3. Strategy:

The objective of this sub-component will be achieved through implementation of comprehensive and coherent Institutional proposals containing a set of reforms, improvements in faculty competence and quality of teaching, research and consultancy, and improvement in the associated infrastructure. Institutions applying for participation in this sub-component should not apply in sub-component 1.2. Institutions participating in this sub-component will need to compulsorily arrange-pedagogical training for their faculty (sub-component 1.3).

1. New : First time entry to the TEQIP
2. Old : States / Institutions that have participated in TEQIP Phase I (Refer Annex– VIII)
3. Institutions : Government funded, Government aided, Private unaided
4. Funding for Private unaided institutions will be in the ratio of 20:20:60 i.e. 20% by institutions, 20% by State and 60% by the MHRD

4. Deliverables:

The institutions under this sub-component will be responsible for outcomes and measured deliverables (outputs) in terms of:

- A strengthened institution in terms of academic and management capacities as measured by :
  - Obtaining autonomous institution status within 2 years
  - At least 60% of its eligible UG programmes accredited within 2 years
  - Having at least four Board Meetings during the first two years of Project implementation, as documented by publication of the proceedings of the BoG meetings on the Institution's website
- Improved faculty qualifications as indicated by:
  - The share of regular faculty teaching engineering subjects with at least a Masters degree or a Doctoral degree over the baseline should be increased by 20% & 10% respectively at the end of the second year of the Project.
  - After two-years, at least 50% of its faculty members with only a Bachelor degree as their highest degree should be enrolled in a Master degree programme if the institution offers a Master degree programme. In the case the institution offers no Master degree programme, at least 25% of the faculty with Bachelor degree should be enrolled to Master degree programmes at other institutions.

These will be the primary outcomes and deliverables that the institutions are responsible for. Continued funding beyond the Second year of the Project will be subject to meeting the above deliverables.

In addition, the supported institutions will be expected to improve performance on the following aspects of a strengthened institution:

- Increased employability of students as measured by:
  - Improvements in the placement rate and the average salary of placement package
- Improved learning among weaker students as indicated by:
  - The share of the first year students that complete the full first year and transitions successfully to second year (disaggregated by social group)
- Overall Institutional progress as measured through :
  - Increase in the overall student and faculty satisfaction,
  - Number of registrants for Masters and Doctoral degrees (and number of Master and Doctoral graduates),
  - Percentage of external revenue from R&D Projects and consultancies in the total revenue of the institution,
  - Increase in the number of publications in refereed journals, and
  - Increased collaboration with institutions and industry.

5. Evaluation and Selection:

Selection will be based on evaluation of eligibility and development proposals prepared using the prescribed formats. The selection process is detailed in Section-IV. Information given in the formats should be verifiable, be to the point and be supported by documents.

It is estimated that about 40-50 institutions will be selected from the new States and 100-110 institutions from the old States.

6. Funding pattern:

The financial allocation to each Government funded and Government aided institution is expected to be in the range of Rs.10.00 crore and for Private unaided institutions, the allocation shall be restricted to Rs. 4.00 crore on cost sharing basis. For planning of fund requirements under various group of activities, refer Section-VI (Table – 4).

7. The following activities are envisaged under this sub-component:

(i) SWOT Analysis:

The institutions are required to carry out analysis using SWOT framework to identify Strengths, Weaknesses and to examine the Opportunities and Threats faced, thereby focusing on activities into areas where they are strong, and where the greatest opportunities lie (for guidelines please refer Annex–V). Based upon the SWOT analysis, the institution will prepare an Institutional development proposal in the prescribed format that seeks to strengthen the institution and increase employability of graduates. When designing their proposal, the institutions can propose a combination of the following activities:

- Improvements in teaching, training, and learning facilities,
- Modernization and strengthening of libraries and / or increasing access to knowledge resources,
- Increased enrolment in existing PG progammes, starting new PG programmes, providing assistanceships, and enhancement of research and consultancy activities,
- Faculty and Staff development for improved competence based on Training Needs Analysis (TNA),
- Enhanced interaction with Industry,
- Institutional management capacity enhancement,
- Implementation of Institutional reforms,
- Academic support to weak students, and
- Refurbishment (minor Civil Works).

(ii) Improvements in Teaching, Training and Learning facilities:

This will be achieved through:

(a) Modernization and Strengthening of laboratories/Establishment of New laboratories: Modernization and strengthening of laboratories may be required for:

- Meeting additional/ new requirements from revised UG and PG curricula
- Starting of new PG programmes
- Removal of obsolescence
- Promotion of research activities for students and faculty

Establishment of new laboratories may be required for:

- Introduction of new PG programmes
- Existing UG and PG programmes

(b) *Modernization of Classrooms*: Classrooms could be modernized to have Smart Boards and Computers linked to LCD Projectors with Screen, which can hold greater attention of the students than mere lecturing. Guest Lectures or Class Lectures organized through V-SAT, Video Conferencing, Audio Conferencing can also be considered depending upon need and feasibility. The classrooms need to be equipped accordingly.

(c) *Updation of Learning Resources*: Continuous updating of Learning Resources (books, LRs and software's) and procuring the same is part of the improvement to be brought about in the teaching learning process. Course specific software to improve teaching learning process may be procured, as required. The faculty needs to be encouraged and trained to use modern equipment and course-specific software.

(d) *Procurement of Furniture*: Furniture may be required for modernization of the laboratories, establishment of new laboratories, libraries, computer centers and classrooms. Provision would need to be made for such procurement in the Institutional proposal.

(e) *Establishment / Upgradation of Central and Departmental Computer Centers*: The institutions may need to focus on modernization/upgradation of Computer Centres to meet curricular and research requirements. It is desirable that Computer Centers be kept open for extended periods beyond Institution hours and on non-working days. Proper connectivity with Campus-wide Networking needs to be ensured. Purchase of the required Computers at one go may be avoided; it may be phased to ensure that the latest systems are procured. The Institutional proposal should include the number of computer systems with purpose and estimates with time frame.

Institutions would need to enter into Annual Maintenance Contracts for the computers procured under the Project after the expiry of warranty period. Wherever possible, replacement of computers/components by the suppliers/manufacturers to ensure upgradation of the computers procured may be considered.

(f) *Modernization/Improvements of supporting Departments:* Upgradation of teaching and training facilities in the supporting Departments may be considered and included in the proposal so that their contribution is enhanced. The faculty belonging to these supporting Departments may also be extended benefits under Faculty Development limited to pedagogical training and subject area training.

In Physical Education, funding will be for supporting the training of trainers for enhancing their proficiency and knowledge and also for the training of students participating in games and sports at the university and above level.

(iii) Modernization and Strengthening of Libraries and / or increasing access to knowledge resources:

Libraries, which are part of every Institution, promote self-learning and also support the teaching learning processes. There is a widespread need to keep the libraries open to the maximum extent. There are institutions where libraries are kept open for 24 hours a day throughout the week.