Final

TECHNICAL /ENGINEERING EDUCATION QUALITY IMPROVEMENT PROJECT (TEQIP)
(Cr. 3718-IN)

Tenth Joint Review and ICR Mission
(January 15-30, 2009)

AIDE-MEMOIRE

I. Introduction

1. A Government of India team and a World Bank team along with State Government officials from participating States conducted the Tenth Joint Review and ICR Mission of the Project during January 15-30, 2009. The teams met with all 13 participating States, 6 centrally-funded institutions and 26 State institutions (list at Annex-1). The Joint Review and ICR Mission was hosted by the National Institute of Technology, Warangal from January 19 to 22, 2009. Status of Implementation Completion Report (ICR), under preparation by the World Bank, was presented on January 22 along with the major findings from various associated surveys and studies. The mission was followed-by a preparation mission for the second phase of TEQIP.

2. With the Project closure on March 31, 2009, the mission focus was on: (a) ensuring successful project closing and fine tuning strategies for effective utilization of the remaining project funds, and (b) sharing of the draft ICR findings. The specific objectives of the Mission were as below:

a) With regard to the 10th JRM of TEQIP to:
- Review progress made in project implementation at the national, state and institutional level since the 9th JRM in June/July 2008.
- Review actions taken on the agreements in the Aide Memoire from the 9th JRM.
- Ensure current and planned implementation is consistent with a successful project closure on the extended closing date of March 31, 2009.
- Build further capacity to guide and monitor the adherence to fiduciary guidelines, and in particular to follow-up on post-procurement reviews, financial management aspects, and the civil works reviews.
- Continue strengthening the monitoring and evaluation of the project through enhanced data-collection and increased dissemination of impact indicators.
- Continue facilitating implementation of the project.

b) With regard to the ICR for TEQIP, to:
- Review progress made in project objectives by all states and project institutions during the entire project period.
- Identify additional achievement and shortfalls, if any.
- Discuss factors that affected project implementation both positively and negatively.
- Identify and discuss lessons learned.
- Discuss results from the studies undertaken by NPIU/States

3. The IDA team expresses its thanks to MHRD and all the State Secretaries/ Directors of Technical Education and heads of institutions for participating in the detailed discussions. Special thanks are due to the National Project Implementation Unit (NPIU) team for the excellent meeting arrangements; facilitating the entire mission and preparing a comprehensive status report covering all project States and institutions. The report was shared by the NPIU one week prior to the JRM.

Further, the IDA and MHRD-NPIU teams praise NIT Warangal for its excellent planning and hosting of the JRM. The report and presentations made by each State and the institutions formed the basis for all discussions.

II. Key Project Data

4. The Project supports quality improvement of the technical and engineering education system in India to produce high quality technical professionals in order to raise productivity and competitiveness of the Indian economy. It assists reforms in competitively selected engineering institutions from the participating States in achieving their own vision of academic excellence, including networking with others, and service to community and economy. In this centrally coordinated central and state-sector project, 13 States [Andhra Pradesh (AP), Haryana, Himachal Pradesh (HP), Gujarat, Jharkhand, Karnataka, Kerala, Madhya Pradesh (MP), Maharashtra, Tamil Nadu (TN), Uttarakhand, Uttar Pradesh (UP), and West Bengal (WB)] are participating. The Project is currently supporting 18 centrally-funded and 109 state institutions.

Key Project Data		**Performance Ratings**		
			Last (Jul 08)	*Now*
Board Approval	November 14, 2002	Achievement of PDO	S	S
Effectiveness Dates	March 12, 2003 for Cycle-1 States and CFIs and July 8, 2004 for Cycle-2 States and CFIs	Implementation Progress	MS	S
Original Closing Date	June 30, 2008			
Revised Closing Date	March 31, 2009			
MTR Date	December 2005			
Revised Credit Amount	162.5 Million SDR			
Project Age	6 years and 2 months			
% Disbursed	99.4 % including the advance in the Designated Account			

Ratings: **HS**-Highly Satisfactory; **S**-Satisfactory; **MS-** Moderately Satisfactory, **MU**- Moderately Unsatisfactory, **U**-Unsatisfactory; **HU**-Highly Unsatisfactory; **NA**-Not Applicable; **NR**-Not Rated

5. **Implementation of TEQIP has advanced considerably since the last JRM**. Almost all agreed actions in the last AM were undertaken on a timely basis by the MHRD-NPIU and the Bank. The main agreed action completed were: submission of action plans by state and institutions, follow-up on accreditation, review of less-well performing states and institutions, civil works review, civil works manual, submission of audits, reallocation between institutions and states, requested reallocation between cost categories in the IDA-credit, management review of procurement systems, collection of performance information, implementation survey, advance on faculty development study, and a long list of other actions. For this reason, the project implementation rating was upgraded to Satisfactory in September 2008.

III. Achievement of Development Objectives

6. The Project achievements in most project States and institutions are satisfactory. The soft components of the project—notably faculty development and accreditation—have received increased attention since the last JRM with good results. The development objectives are met in most States. The main outcomes are (details appear later):

- The percentage of high quality graduates/in cutting edge disciplines have increased from 35% to 51%.
- The number of post-graduates increased from 7,200 Masters and 342 PhDs in 2003-04 to 10,571 Masters and 587 PhDs in 2007-08, which almost represents a doubling of post-graduates.
- The placement rates doubled from 38% to 76%.
- Average annual salaries of placed UG graduates have increased from Rs. 1.7 lakhs in 2003-04 to Rs. 2.8 lakhs in 2007-08. Salaries for PG-graduates have increased from Rs. 1.9 lakhs in 2003-04 to 3.5 lakhs in 2007-08.
- About 80% of project institutions have implemented most of the agreed institutional reforms.
- About 56% of the eligible UG and PG programs are accredited. Another 16% of the eligible programs have sought reaccreditation and 19% are in the process of fresh accreditation. Only 9% of the eligible programs have not applied for accreditation.
- Academic outputs increased considerably from 2003-04 to 2007-08 in terms of publications (28% increase), conference papers and books (200%), patents obtained (59%), patents applied (656%) products commercialized (122%).
- Curricula of 93% of the existing programs have been revised.
- Most institutions have introduced a substantial number of innovations in academic and administrative processes and procedures, and some of these have been adopted by other institutions.
- Since project initiation over 5,000 networking activities have taken place among institutions. This amounts to around 7 activities per year per institution.
- Services to community and economy have also seen a large number of activities (4,400) being undertaken.

IV. Status of Project Implementation:

7. Legal Covenants

The States of Andhra Pradesh, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, and Uttar Pradesh and West Bengal have performed well in compliance of legal covenants, whereas the States of Gujarat, Jharkhand, Kerala, Tamil Nadu, and Uttarakhand are lagging in compliance with some covenants (details given in Annex 2). According to the reports from the State Governments, full significant academic, financial, administrative and managerial autonomies are now available to 81, 110, 102 and 112 institutions respectively. While the CFIs now enjoy full academic autonomy, their statutes have not yet been issued, and the block grant funding scheme has not yet been adopted as the related statute is yet to be issued.

8. Institutional Development

The Mission is satisfied with the overall achievement. Some of the achievements in the academic sector are:

a) *Institutional Reforms:* There is good progress in carrying out non-financial reforms by a majority of the institutions except for those in Jharkhand and Kerala.

b) *Accreditation:* From the 9th JRM report to the 10th JRM report, the share of accredited programs increased from 46% to 56%. The share of accredited programs and programs that have sought reaccreditation increased from 65% to 73%, while the share of programs that has not applied for accreditation declined from 10% to 9%. High performing states are Andhra Pradesh, Himachal Pradesh, Kerala, and Uttarakhand (over 80% of eligible programs accredited). Under performing states are Jharkhand and Madhya Pradesh (under 20% of eligible programs accredited). The detailed status and progress within accreditation for each state is available in the Accreditation Brief on the NPIU website.

c) *Starting of New Programs:* From the 9th JRM to the 10th JRM, 2 new UG and 11 new PG programs were started under the TEQIP project. This implies that 20 new UG and 89 new PG programs have been started since project inception against the targets of 28 UG and 136 PG programs respectively. Several Institutions have, however, reported starting of other UG and PG programs outside TEQIP from their own funds.

d) *Revision/Restructuring/ Reorientation of Existing Programs:* Overall achievement is very satisfactory. More than 93% of the 765 UG/Diploma and 556 PG/Post Diploma programs have been revised or reoriented or restructured to meet the emerging market. This represents an increase by 2%points since the 9th JRM.

e) *Filling of Faculty/Staff Positions:* At the national level, 88% of existing faculty in TEQIP institution have been filled up. This implies an increase of 1%point since the 9th JRM. 78% of existing staff vacancies has been filled up. Additionally, 476 new faculty and 548 new staff position have been filled.

f) *Professional Outputs*: The most significant impact of TEQIP has been an all round encouragement to creative and innovative endeavors as demonstrated by research publications, patents, research guidance and technology innovations and transfer. Against the baseline of 4951 publications in 2003-04, the figure at this JRM gone up to 37,542. Institutions have also reported obtaining 180 patents, commercializing 290 R&D products, publication of several books and manuals, and editorship/reviewer ship of several International journals, and organization of a large number of seminars and conferences.

g) *Innovations and Best Practices:* Institutions continue to innovate and develop and share good academic practices with project and other institutions. The NPIU's Review reports for the JRMs list selected innovations and best practices.

9. **Services to Community and Economy (SCE)**

The number of beneficiaries from SCE increased 38% from 56,000 in the 9th JRM period to 77,500 in the 10th JRM period. However, the number of SCE activities reported in the 10th JRM was 463, which represents a 30% decrease from the 666 activities reported in the 9th JRM.

Importantly, most of the institute presentations provided good examples of the "best" activities done under this sub-component (Annex-3 provides an analysis of the information received). Earlier confusion about SCE has reduced considerably, so that only a few non-technical education activities were reported. However, a few aspects of the sub-component still need to be strengthened in most institutions, notably: (i) selection and use of the activities to improve student learning, research,

innovation and/or application of technology; and (b) wider involvement of students and faculty. The sub-component aim for activities that went beyond giving "lectures" to communities, informal-sector training and "social service". The activities should provide—and have provided—students and faculty with "real-life" knowledge and project experience, sharpening their problem-identification, problem-solving and project design and management abilities, and stimulating R&D, among other benefits. Shortages of faculty and time were given as reasons by many for not undertaking SCE (or more of it). This could also be addressed by providing incentives to faculty and students to do so and, in particular, incorporating this component into the curricula and into faculty performance criteria. Further, institutes would benefit from widening discussion on their campuses about this sub-component to provide a 'climate' for it, generate ideas, and expand participation. Some institutes wrongly discouraged project expenditure in this sub-component, and several have not spent their full allocations. It is hoped that institutes that participate in the next project would pay attention to these issues. Therefore, despite the progress in this sub-component, there is a need to provide further guidelines, best practice examples, incentives and a need to consider renaming the concept.

10. **Activities for Disadvantaged Students and Faculty (Tribal Development Plan)**

The number of beneficiaries from activities to support disadvantaged students and faculty decreased 44% from 23,600 in the 9th JRM to 13,200 in the 10th JRM. The number of TDP activities reported for the 10th JRM was 236, which is a 6% decline from the 252 activities reported for the 9th JRM.

Almost all institutions implemented a range of measures to assist socio-economically disadvantaged and academically weak students - from book and laptop banks, to remedial teaching, language and communication skills training, counseling, grievance redressal, etc. (see Annex-4). While many students were also covered, there is no information on the impact of the activities, other than anecdotal evidence. A few institutes have begun to develop a systematic approach to assessing academic weaknesses in students and providing them with the appropriate 'remedies'. This needs to be strengthened in the next project to improve student performance more widely.

11. **Performance of States**

The mission collected the achievements of States, the implementation concerns in each State, performance of their institutions, and self-assessments. A summary is available in Annex-2. This information will be combined with additional information on implementation and results, which will allow the Bank and GoI to evaluate and rate the overall performance of States.

12. **Performance of CFIs in Project Implementation**:
Since the centrally-funded institutions were more or less a homogenous group, a quantitative evaluation methodology was adopted in the 9th JRM for these institutions and the result of the evaluation was reported in the last Aide Memoire. The methodology used grouped significant components for performance evaluation in three categories with weightings as shown;

- Procedural Implementation and Evaluation (35 points):
    - Audit score (20)
    - Accreditation (5)
    - Reforms (10)
- Outputs and Outcomes (45 points):
    - PhD enrolment/sponsored research (10)
    - Master programs started against proposed (5)
    - Publications (10)
    - Patents (5)
    - Innovations (5)

- Student placement record (10)
- Soft Components (20 points):
  - Faculty development (5)
  - Networking (5)
  - Service to community and economy (5)
  - Tribal development plan (5)

The 10th JRM discussed the above methodology adopted with the present NITs and other participants. The methodology and the relative weightings given to different components of the evaluation were endorsed. It was however recommended that data could be checked with the concerned institute before awarding grades. Some refinements were also recommended for evaluation of performance in the next project TEQIP-II. A final rating will be elaborated as part of the ICR process.

13. **Performance Audit and Mentoring:**

Seven rounds of Performance Audit based on performance auditors' assessment (perceived scores), and 5 rounds based on stakeholders' assessments (calculated scores) have been carried out. The national averages of the Perceived and Calculated scores have increased since the last JRM from 8.3 to 8.5 and from 7.1 to 7.4 respectively, signifying further improvement in institutional overall performance. Stakeholder satisfaction was noted to be significantly low in 20 institutions at the last JRM—the situation has been considerably improved as evidenced by the increased Calculated Scores. It is satisfying to note that many institutions have achieved a high level of performance (56 institutions have Perceived Score of 9 and above, and 31 have Calculated Score of 8 and above). However, it should also be noted that students and faculty in a number of institutions report very close to 100% satisfaction. This could be a sign of lack of critical assessment from these stakeholders. Leaving this point aside, the general improvement seems to have been achieved through open discussion of the shortcomings between institute authorities and the stakeholders, and positive steps taken to rectify the same. Rectifications carried out by individual institutions are listed in the NPIU's Review Report.

a) The Implementation Survey carried out prior to this JRM makes 3 suggestions for improving similar audits in TEQIP-II. These are:

   - Performance audit should include responses from other stakeholders than students and faculty (industry/ employers, parents, support staff and alumni).
   - Auditors may be appointed from outside the State, and may preferably be rotated between institutions.
   - Survey questions should be made more unambiguous.

b) Guidance provided by the mentors has been highly valued by all institutions. The Implementation Survey points to the need for making mentoring exercises structured to further improve their effectiveness.

14. **Implementation Survey and Suggestions from States**

A web-based Implementation Survey was carried out in the months of October to November 2008 with 175 respondents (Central Government including NPIU, State authorities, institutional heads and project nodal officers). The key findings of the structured survey are:

- Participants felt very proud of being part of the Project.
- The feature of competitive selection of institutions was well appreciated.

- The policy reforms by State governments were not adequately implemented.
- Assessment of teachers' performance by students was well received.
- Support to weaker students was appreciated.
- JRMs were considered useful as they provided opportunities for knowledge and experience sharing.
- The project contributed to improving quality of teaching-learning, quality of education, and internal efficiency of institutions.
- Mentoring helped in improving project implementation

15. **Institutional and State level Self-Assessments**

A large number of institutions and states undertook a self-assessment on the performance of their institution in TEQIP. Several State governments have had a regular accountability mechanism through benchmarking across TEQIP institutions and meetings. This self-assessment has sought to build upon this process by providing an opportunity for the State governments to hold institutions accountable for their results under TEQIP. Further, it allows the MHRD-NPIU and the Bank to evaluate the performance of States and institutions and their ability to realistically assess achievements (based on quantifiable outcomes). Based upon a preliminary review of over 30 self-assessments, the Bank team has noted that the quality and realism of the self-assessments is closely related to the capacity and performance of the state governments. Several State governments have devoted significant time and efforts to achieve an honest and objective assessment of the institutions. This is highly appreciated. These Self-Assessments will enter into the ICR process. It is expected that this management and accountability instrument will be further strengthened under the next phase. The Self-assessment from NIT Srinagar and from six institutions in UP are awaited.

16. **Independent case-study evaluation and Utilization of Equipment**

Two remaining evaluation would be undertaken prior to project closure:

(i) The utilization of equipment study will be completed.

(ii) An independent impact evaluation of 6-8 institutions will be undertaken. Draft ToRs is available in Annex-5.

17. **Utilization of Project Funds**

Utilization of project funds. As on December 31, 2008 approximately 4% of the credit remained to be invested. MHRD and the NPIU have been diligent with the reallocation and following-up to ensure the full and effective investment of the credit. This needs to be continued. All activities need to be completed and Learning resources and other purchases received by project closing on March 31, 2009.

Interest rate funds. Interest income has been generated in the savings bank accounts of the various Institutions and implementation agencies under the project. This income has been generated due to advances provided by the implementing entities (MHRD and State governments). These funds could be treated as non-project resources, and can be utilized as per the MHRD guidelines for CFIs and State Govt. guidelines for State institutions. However as Bank guidelines and oversight extend to the entire TEQIP Project irrespective of the financing share of the Bank for specific transactions, the Bank advices MHRD and the State Governments the following: The interest funds may be transferred out of the TEQIP bank accounts to the institute's account at the earliest and in a one-time transfer. This will ensure that the expenditures and payments made from these funds will not form part of the TEQIP Project and so will not be reported/ monitored under TEQIP. Bank procurement guidelines would therefore not apply to these funds. However, it would

be the responsibility of MHRD for the CFIs and the State governments for the State-funded institutions to ensure proper monitoring of these interest funds. If MHRD and state governments choose to do so, the Bank should be provided with a report of the amount transferred from the TEQIP account of each institution and implementing agency along with an acknowledgement that the use of these funds are strictly monitored by MHRD and the State governments for the CFIs and State-funded institutions, respectively.

Purchase of Learning Resources and Books. To ensure full utilization of the funds, the institutions can purchase learning resources and books. Further, it was agreed that equipment for video-conferencing could be purchased to as a learning resource in order to promote distance learning. Hence, institutions can purchase video conferencing equipment. Procurement of other equipment and goods after November 30, 2007 is not eligible for reimbursements. This applies to all institutions, including the special requests from NIT Jaipur and other institutions.

18. **Financial Management**

Disbursements: Disbursements as on January 14, 2009 stand at SDR 161.52 million, representing approximately 99.4% of the revised credit of SDR 162.47 million. This is inclusive of the disbursement of the advance of SDR 5.35 million to the designated account. All goods, learning resources and other expenditures have to be incurred, purchases received, and activities completed prior to project closure on March 31, 2009. Any claims for expenditure incurred till March 31, 2009 needs to be submitted to the Bank no later than 4 months of end of project. That is there is a 4 month period, until July 31, 2009, to settle bills and submit claims to the Bank. NPIU may prefer to set a prior deadline for submission of claims from States and CFIs.

Financial Monitoring Reports (FMRs): FMRs are pending for submission to the Bank for two quarters (April-June and July to September). FMR for October to December quarter will also be due by February 15, 2009. Submission of timely quarterly FMR is a legal covenant. This backlog is a result of high turn-over among financial staff at the NPIU. The situation is improving. NPIU will submit the first overdue FMR by February 6 and the second due FMR by February 27. The Bank is committed to provide assistance for a review of the draft FMR.

FM Indicators: Formats of FM Indicators, which were introduced in May 2008, were due for submission by the State governments/CFIs to the NPIU along with FMR for quarter ending September 2008. NPIU was to then analyze the information, advise State governments/CFIs about corrective action which may be necessary; and provide summary of FM Indicators in the review report of the 10th JRM. This information would have been beneficial to evaluate and improve State performance within FM. It is proposed that these indicators are collected from the on-set of phase-II.

Staffing: The post of Consultant Finance at the NPIU has been vacant for several months and needs to be filled at the earliest. This is important in view of the imminent closure of current project and preparatory activities for TEQIP II. NPIU will through EdCil put the contracting on a fast track basis, and aims to contract before February 27, 2009.

Audit: For the FY 2006-07, information from Haryana is pending for disallowance as per audit report of 2006-07 (WB letter dated 11.11.08, Table III). For the FY 2007-08, all audit reports for 2007-08 have been received by the Bank. Compliance for 2007-08 audit has been submitted by 8 States and is being reviewed by the Bank. Compliance for 2007-08 audit report is pending from Haryana (as per WB letter dated 11.11.08, Table II) and CFIs (WB letter dated 5.1.09).

19. **Procurement**

The Mission noted the good progress achieved on various actions agreed on procurement since the last JRM. The Bank has reviewed and proposed further actions as part of the closure actions on post-review 2006-07 of institutions in Karnataka. A meeting is being arranged in mid-February between the State Government of Gujarat and the Bank to resolve issues raised in the 2006-07 post-procurement review.

NPIU and Bank teams had visited 7 institutions in the States of Andhra Pradesh and Kerala as part of the management review of the procurement management arrangements and the lessons from this experience had further reinforced the need for central guidance and unified systems that can be accessed by all participating institutions for effectively and consistently managing procurement in the project. The Bank has informed the team that post-review of contracts issued since June 2007 will be carried out by Global Procurement Consultants Ltd. (GPCL). The scope will cover institutions from Karnataka, Maharashtra, Uttar Pradesh, Madhya Pradesh, Jharkhand, Himachal Pradesh, and Tamil Nadu.

20. **Civil Works**:

The allocation for the civil works was limited to 10% of the total allocation since the recipients were well established running institutes. The institutes were advised to optimize the existing spaces and prioritize the civil works in the order of repairs, refurbishment, extensions to existing buildings and new buildings only if very essential. Civil works were not undertaken in 25 of total 127 institutes included in the project.

All the works have been completed. Against the committed amount of Rs.996.5million, about Rs.985.6million (99% of total) has been spent till date. The allocation for civil works amounts to about 7.4% of the total project out-lay.

While conducting a post-review of completed civil works, deficiencies were noticed at the Ambedkar Institute of Technology, Bangalore. The State Government of Karnataka was advised to hire an independent consultant for a detailed review. The report has been received from the State of Karnataka with its recommendations. Based on the recommendations and NPD's approval, the State of Karnataka is advised to withdraw the claims submitted for construction in AIT, Bangalore.

There are several lessons learnt, which will need attention under TEQIP-II. These are listed in Annex-6.

21. **Recommendation to increase dissemination of outcome**

The Bank recommends that MHRD and NPIU increases the dissemination of success-stories, outcomes and monitoring reports from TEQIP-I. One way would be to post the available information and documents on the NPIU, State Government, and Institutional websites and other media. A best practice example is from MHRD's unit handling the Sarva Shiksha Abhiyan at **http://ssa.nic.in/** . While the NPIU site is well-designed, clearly above average and includes a host of important information, the SSA site is organized better allowing for easier access to information and documents, a larger set of success stories, press releases, more performance information, financial information (such as audits), minutes from meetings, and a discussion forum. The State governments and the TEQIP institutions could also consider providing more information regarding TEQIP on their

websites, including success stories, innovations (which in many cases are there), audits, student and faculty satisfaction surveys, list of major TEQIP purchases, among other information.

V. Project Completion and ICR

Government of India (the borrower) is required to draft an implementation completion and results report (the borrower's ICR) which will become an input into the Bank's ICR. Each State Government will prepare and submit a state implementation completion and results report to NPIU. Each state's implementation completion and results report will be based on the self-assessment reports prepared and submitted by each project institution to the State government. Formats for borrower's ICR (Institutional, State level and at National level) will be prepared by World Bank and shared with NPIU by February 27, 2009.

During the mission, the Bank carried out a preliminary assessment. The NPIU and states have agreed to submit the following data and documents which will become the basis for verification and completion of the ICR:

- Complete data from all institutions and states on key institutional reforms and institution profiles
- State completion reports and institutional self-assessments
- Seventh performance audit data
- Student and faculty satisfaction survey data

The NPIU has agreed to share the above with the Bank team by March 31, 2009.

The following additional reports will also be used as inputs into the Bank's ICR:

- Utilization Survey
- Faculty Development Survey
- Implementation Survey
- Independent evaluation of policy and institutional reforms (on a case-study basis)

These reports are currently under preparation and the NPIU will assess their progress and provide estimates of dates when these can be shared with the Bank.

22. **Structure of the Bank's ICR**

The ICR will contain one section which will assess achievements of project outcomes compared to targets that were set at project approval. Besides this section, the ICR will consist of five other sections: (i) quality and relevance of the project objective and design, (ii) project outcomes and impact, (iii) risks to outcomes, (iv) quality of implementation, and (v) lessons learned.

(i) Quality and relevance of the project objectives and design, which includes a discussion of:

- The relevance and appropriateness of support to engineering education in the current Indian economic context.
- The relevance and clarity of project objectives, in particular discuss the appropriateness of focus on quality of engineering graduates.
- The close link between objectives and indicators and setting up of clear targets.
- The incorporation of prior lessons learned from relevant projects and the appropriateness of project design and components selected.
- The identification of important risks and the effectiveness of mitigation measures.

(ii) Project outcomes.

(iii) Risks to outcomes. This section will discuss the sustainability of the results and document the actions taken by the States to mitigate the risks and ensure sustainability. Will the institutions continue being dynamic? The project should not result in a one time change. The project has undertaken to institute new policies and reforms at the institution level aimed at increasing the efficiency, effectiveness and continued relevance of engineering education. It has sought to create the basis for generation and use of funds at the institution level for on-going institutional development. For this, the state, national and Bank completion reports should show that the policies implemented by the project, such as autonomy, strategic planning, board of governance, and IRG activities will become regular working policies of institutions. This is currently deemed to be the most important risk to outcomes.

(iv) Quality of implementation and Performance of the project implementing agencies. This section will evaluate the Borrower's performance (including the NPIU, State Governments, and the institutions), and the World Bank. This assessment will partly rely upon results and risks to outcomes, and partly rely upon results of an already completed user survey of implementing agencies.

(v) Lessons learned. These are at least four lessons learnt from the project:

- Forceful and effective implementation of an engineering education project can lay the basis for change in the sector.
- Modernization of labs and workshops, and establishment of libraries and campus-wide networking have laid the basis for improved teaching and learning, state of the art research and generation of future stream of revenues for the institutions.
- Institutional reforms towards greater autonomy and better governance have made the project institutions more flexible and better oriented towards the needs of the society and economy.
- Stronger and more systematic networking among institutions for sharing physical and intellectual resources and industry-institution linkages need to take place.

These lessons learnt will be expanded and following input from the states and national implementation reports.

23. **Learning Forum**

As a separate activity outside of the TEQIP project and following the 10th JRM, the Bank organized a meeting to discuss the interest and planning of a *Learning Forum* with state and institutional representatives from five medium and large states that performed well on policy reforms in TEQIP. Selection of these five states does in no way signal a prior decision regarding the selection of these states to participate in TEQIP-II. The proposed *Learning Forum* was in general supported and would be endorsed by the MHRD. The aim of the *Forum* is to assist State governments and institutions to obtain better education outcomes through more strategic, purposeful and effective governance of their engineering education institutions. The *Forum* will provide an environment for senior policy makers to examine key principles that underpin autonomy and accountability, as well as measures to improve effective governance. One key outcome will be a substantial body of knowledge and best practices regarding system and institutional governance from experiences in India and abroad.

VI. Schedule of Specific Actions

Academic issues

Action Points	Action by Whom	Action by When
• A meeting with AICTE/NBA to follow-up on TEQIP program applications	MHRD/NPIU	Continuous
• Facilitate the issuing of statutes and ordinances related to NIT Act	MHRD	Continuous
• Obtain accreditation of maximum eligible programs covered by TEQIP	Institutions	To be completed by March 31, 2009

Funds Utilization

Action Points	Action by Whom	Action by When
• Submission of all reimbursement claims for completed activities and received goods to NPIU	SPFUs and CFIs	May 31, 2009
• Submission of all reimbursement claims for completed activities and received goods to the Bank	NPIU	July 31, 2009 (at the absolute latest)

Financial Management

Action Points	Action by Whom	Action by When
Audit: • Pending FMRs to be submitted	NPIU	February 6 and February 27
FM Staffing • Hire Consult Finance	NPIU	February 27
FM Indicators: • Summary of FM Indicators to be presented	NPIU	As part of TEQIP-II preparations
• Information from Haryana is pending for disallowance	NPIU and Govts. of Haryana	March 15, 2009
• Provide assistance to MHRD/NPIU	Bank	Continuous

Procurement

Action Points	Action by Whom	Action by When
• Finalize post procurement review of procurement in 2006/07	Bank	March 31, 2009
• Initiate post review for 07/08	NPIU	Done
• Provide assistance to MHRD/NPIU	Bank	Continuous

Civil works

Action Points	Action by Whom	Action by When
• Confirm that the State Government of Karnataka will not claim expenditure for construction with shortcomings in AIT, and confirm that no claims for the same has previously been submitted	NPIU (and State government of Karnataka)	February 27, 2008

Monitoring and Evaluation

Action Points	Action by Whom	Action by When
• Fill out the template for Equipment Utilization	SPFUs and CFIs with NPIU	March 31, 2009 or date earlier to be determined by NPIU
• Contract the Independent case-study evaluation	NPIU	Completed by March 31, 2009

Implementation Completion and Results report

Action Points	Action by Whom	Action by When
• Submit self-assessment	For the institutes that have not yet completed the self-assessment	February 27, 2009
• Prepare Formats for borrower's ICR	World Bank	February 27, 2009
• Undertake an independent impact evaluation of 6-8 institutions	NPIU	March 31, 2009
• Share Complete data on institutional reforms and institution profiles, State completion reports and institutional self-assessments, Seventh performance audit data, and Seventh student and faculty satisfaction survey data with the Bank	NPIU	March 31, 2009
• Prepare National ICR	MHRD-NPIU	June 30, 2009
• Prepare Bank ICR	Bank	October 31, 2009 or by the time of appraisal of TEQIP-II
• Prepare final performance rating of States and CFIs	MHRD-NPIU and the Bank	October 31, 2009 or by the time of selection of states for TEQIP-II

Annex-1

List of Participants in the Tenth Joint Review and ICR Mission (January 15 to 30, 2009)

Members of Review Team for the 10th Joint Review Mission

GOI, MHRD and NPIU

1	Shri Ashok Thakur	Additional Secretary and National Project Director, TEQIP, Department of Higher Education, MHRD
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4	Shri KS Varghese	Auditor, CAA & A, Ministry of Finance
5	Prof AU Digraskar	Central Project Advisor, NPIU
6	Shri Puran Singh	Consultant (Admn), NPIU
7	Shri S Ramachandran	Consultant (Procurement), NPIU
8	Dr Yogesh Srivastava	Consultant (Academic), NPIU
9	Shri Sachin Gupta	Associate Consultant (Academic Excellence), NPIU
10	Shri MP Gupta	Associate Consultant (Academic), NPIU
11	Ms Rati Mohan	Associate Consultant (Finance), NPIU
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World Bank

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18	Shri Hiroshi Saeki	Operations Analyzer
19	Dr Meera Chatterjee	Sr. Social Development Specialist
20	Dr Sangeeta Goyal	Economist
21	Ms Jannette Cheong	Member, World Bank Team
22	Shri Andrew Cubie	Member, World Bank Team
23	Shri Arun Nigavekar	Member, World Bank Team

Centrally Funded Institutions

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25	Prof R P Dahiya	Director, MNIT Jaipur
26	Prof S S Gokhale	Director VNIT Nagpur
27	Prof Sarangi	Director NIT Rourkela
28	Prof Y. Venkateswara Rao	Director, NIT, Warangal
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31	Prof R A Gupta	TEQIP Coordinator, MNIT Jaipur
32	Prof S L Soni	Nodal Officer (Procurement) MNIT Jaipur
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34	Prof Anurag Misra	Nodal Officer (Civil), MNIT Jaipur
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45	Prof SP Srikanth	Head (Procurement), SPFU
46	Shri Muralidhar Reddy	Nodal Officer (Finance), SPFU
47	Ch Uma	Head Quality Assurance, SPFU
48	Prof N P Rao	Mentor/Auditor, AP
49	Prof C Radhakrishna	Mentor/Auditor, AP
50	Prof JSR Subramanyam	Mentor/Auditor, AP
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	Haryana	
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64	Shri Sudhir Rana	HOD, Head Quarter SPFU
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	Himachal Pradesh	
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67	Shri L R Rana	Nodal Officer (Procurement), SPFU
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	Jharkhand	
69	Shri RS Sharma	State Secretary, Govt. of Jharkhand
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72	Prof G Kumar	TEQIP Coordinator, Bihar Institute of Technology, Sindri, Dhanbad
73	Prof (Mrs) Mandira Mukerjee	TEQIP Coordinator, BIT Mesra, Ranchi
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75	Dr (Mrs) S Shivani	TEQIP Coordinator of BIT Mesra
	Karnataka	
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79	Prof G Raghavendra Rao	Vice Principal, NIE, Mysore
80	Prof R Gopal Kirshne Urs	TEQIP Coordinator, NIE, Mysore
81	Prof K Mallikharjuna Babu	Principal of BMS College of Engg., Bangalore
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83	Shri Puneet Kumar, IAS	DTE & Head, SPFU Kerala
84	Dr C Sam	Director, SPFU Kerala
85	Dr Kuncheria P Isaac	Nodal Officer (Civil), SPFU
Madhya Pradesh		
86	Shri Ashish Dongre	Director Technical Education, SPFU
87	Dr Nilay Khare	Head, SPFU
88	Dr DK Mishra	TEQIP Coordinator of Shri GS Institute of Technology & Science, Indore
89	Dr CK Jain	Principal of Ujjain Engg. College, Ujjain
90	Dr Sanjay Verma	Nodal Officer, UEC Ujjain
91	Dr DK Mishra	TEQIP Coordinator, Shri GS Institute of Technology, Indore
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93	Dr SK Mahajan	Director, Technical Education & Head SPFU
94	Shri KV Umap	Dy. Secretary, Govt. of Maharashtra
95	Dr VM Mohitkar	Dy. Director, Technical Education & TEQIP Coordinator, SPFU
96	Dr Sangita Vaidya	Head, Quality Assurance, SPFU
97	Shri Deepak Jadiye	Assistant TEQIP Coordinator, SPFU
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108	Dr S Sukumar	Nodal Officer, Govt. College of Engg., Salem
109	Dr V Ramamoorthi	Principal, AC College of Technology, Chennai
110	Dr Meenakshi Sundaram	Nodal Officer, AC College of Technology, Chennai
Uttar Pradesh		
111	Shri Ram Ganesh	Special Secretary & Advisor, SPFU
112	Prof SK Awasthi	Chief Project Coordinator, SPFU
113	Prof Vinay Pathak	Quality Assurance, SPFU
114	Prof H Singh	Director, BIET Jhansi
115	Dr G Srivastava	TEQIP Coordinator, BIET Jhansi
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Uttarakhand		

118	Shri M S Bisht	Finance Controller Govt. of Uttarakhand & SPFU
119	Shri Avinash Jain	Nodal Officer (Procurment, Civil, Finance), SPFU
120	Shri SP Sachan	Nodal Officer (Academic), SPFU
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125	Dr S Das Gupta	Director, Technical Education & Head, SPFU
126	Shri M Biswas	Joint Secretary, Higher Education
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129	Dr HS Das Gupta	Principal, Asansol Engg. College, Asansol
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Annex -2

Performance of States in Project Implementation–Achievements and Concerns

There is significant progress made in all States since the last Joint Review Mission (June-July 2008). This is reflected in their expenditure and disbursements also. Major achievements and areas needing attention in each State are summarized below:

1. ***Andhra Pradesh***

Grant of Autonomies	State is lagging in this aspect. Only 4 institutions have full and 3 significant academic autonomy. Only 4 have full financial autonomy. As per the last JRM reporting, have 7 full/ significant administrative and all 12 have full managerial autonomy.
Implementation of Block Grant	11 institutions including the 3 universities are being given Block Grant. The lone non-recipient is a polytechnic.
Retention of IRG	Only 6 institutions are allowed to retain and utilize IRG from fees, and 9 are allowed to retain non-tuition IRG. As per the SPFU report at the last JRM, the Fund amounts are small as a part of the IRG is being utilized for meeting both recurring and non-recurring expenditures.
Establishment of 4 Funds	All institutions have established these. Fund amounts in each are small in most institutions.
Institutional Reforms	Reforms continue to be implemented by most institutions.
Accreditation	Overall achievement is very satisfactory with 70 of 72 UG, 88 of 96 PG and the rest applied for.
Faculty Development	Overall achievement is satisfactory.
Formal Networking	Activities continue to be inadequate.
Services to Community	The State could have done better on this aspect.
Academic Outputs	Overall achievement is very satisfactory.
Innovations and Good Practices	Status is satisfactory. Some of the innovations have been adopted in other project institutions.
Overall Performance	The Perceived and Calculated Scores of 9.1 and 8.0 respectively show further improvement in overall performance and stakeholder satisfaction levels since the last JRM. Eight (8) of the 12 institutions are high achievers.

2. ***Gujarat***

Grant of Autonomies	Only one institution which is a deemed university has full academic autonomy, and the other 5 have significant academic autonomy. All have full managerial autonomy. Five institutions have administrative and financial autonomy limited to TEQIP matters only.
Implementation of Block Grant	Only one institution which is a deemed university is given. Implementation in other 5 institutions is under consideration of the Government. The State needs to comply with this Project requirement.
Retention of IRG	Only one institution is allowed to retain both tuition and non-tuition incomes. The other 5 are allowed to retain full tuition

	income but only a part of tuition income. The State needs to improve compliance.
Establishment of 4 Funds	All institutions are reported to have established all 4 funds. Institution-wise amounts under each fund have not been reported.
Institutional Reforms	There is good progress with implementation of all the reforms by institutions though in varying degrees.
Accreditation	UG accreditation has improved. Of the UG programs, 29 of 40 are accredited. None of the 11 PG programs is currently accredited though applied for.
Faculty Development	The number of days of training per faculty continues to be low. The programs reported are in subject areas only.
Formal Networking	Joint faculty activities (publications and R&D projects) and joint student-centered activities need to be increased further.
Services to Community	Activities have increased with greater involvement of students. Faculty participation has also increased. The number of real-life projects undertaken is however quite low.
Academic Outputs	While the level of publications and seminar organization is satisfactory, conference attendance is low. Patenting is also at a low level.
Innovations and Good Practices	Achievements are very satisfactory.
Overall performance	Both the Perceived and Calculated scores have improved to 9.2 and 7.3 respectively. Stakeholder satisfaction level has decreased to an alarmingly low level at the Dr. S&SS Ghandy College.

3. ***Haryana***

Grant of Autonomies	4 institutions now have full academic, financial and managerial autonomy.
Implementation of Block Grant	All 5 institutions continue to be given block grant.
Retention of IRG	All institutions are allowed to retain and utilize IRG from fees and other sources.
Establishment of 4 Funds	All institutions have established the 4 funds.
Institutional Reforms	Extent of implementation is quite satisfactory.
Accreditation	Status remains unchanged since the last JRM (only 8 of 18 UG programs are accredited though 10 have been applied for). All 3 PG programs are accredited.
Faculty Development	Status is satisfactory in all institutions.
Formal Networking	Joint faculty activities and joint student-centered activities need to be increased.
Services to Community	State is lagging in this aspect. Faculty and student involvement needs significant improvement. Student project are inadequate.
Academic Outputs	Progress is inadequate. The State has not reported organization of seminars and workshops. No patenting is carried out.
Innovations and Good	Status is satisfactory. A few reforms have been adopted by

Practices	other institutions.
Overall Performance	While the Perceived Score has remained at 8.3, the overall Calculated Score has improved to 6.8. Calculated Score for 2 institutions has decreased since the last JRM.

4. ***Himachal Pradesh***

Grant of Autonomies	The status remains unchanged since the last JRM. All 3 have substantial academic, managerial and administrative autonomies but only partial financial autonomy.
Implementation of Block Grant	Not implemented in any of the 3 institutions
Retention of IRG	All the 3 polytechnics are allowed to retain non-tuition fee income but not the tuition fee income.
Establishment of 4 Funds	All have established the 4 funds.
Institutional Reforms	Most of the reforms are implemented.
Accreditation	All programs are accredited.
Faculty Development	Progress is satisfactory.
Formal Networking	Number of joint publications is low and the number of joint projects is nil. Status of other aspects of networking is satisfactory.
Services to Community	The number of activities including student projects undertaken is satisfactory.
Academic Outputs	Status is satisfactory.
Innovations and Good Practices	Status is satisfactory. All 3 institutions are now ISO certified.
Overall Performance	Improved since the last JRM. Perceived and Calculated Scores are satisfactory at 8.2 and 7.5 respectively.

5. ***Jharkhand***

Grant of Autonomies	Only one institution which is a deemed university has full academic autonomy; the remaining 3 have significant/ substantial academic autonomy. All 4 institutions have full financial and managerial autonomies, and 3 have significant administrative autonomy.
Implementation of Block Grant	Status remains unchanged with none of the 3 government funded institutions receiving Block Grant. The State has not complied with this Project requirement.
Retention of IRG	None of the 3 government funded institutions is allowed to retain income from tuition fee. Though these institutions are reported to be retaining part of income from other sources (which currently are extremely low), these are used for institutional development and maintenance, etc.
Establishment of 4 Funds	All institutions have established the 4 funds. The amounts in each fund in the 3 government-funded institutions are very small to be of any use in the post-project period.
Institutional Reforms	Overall achievement has improved.
Accreditation	None of the 10 Diploma programs in the 2 polytechnics are accredited. It appears that of the 29 UG programs, only 8 are

	accredited; and 11 applied for; and of the 20 PG programs, none are accredited but all applied for.
Faculty Development	Overall status is satisfactory.
Formal Networking	Though activities have increased since the last JRM but overall achievements in joint publications and joint R&D are low. No progress on joint student-centered activities has been reported.
Services to Community	The activities undertaken have increased. Only 2 institutions have reported undertaking projects with involvement of students.
Academic Outputs	Publications, patenting, attendance in and organization of seminars and conferences has increased in 2 institutions only. Achievements of the 2 polytechnics are almost nil.
Innovations and Good Practices	Status is satisfactory
Overall Performance	Both the Perceived and Calculated Score are satisfactory at 8.2 and 6.8 respectively. The stakeholder satisfaction levels in the 2 polytechnics need improvement.

6. ***Karnataka***

Grant of Autonomies	12 institutions have full and 2 have significant academic autonomy. Only 5 have full financial autonomy and 7 have full administrative autonomy.
Implementation of Block Grant	Only 2 institutions (that are university institutions) get full block grant.
Retention of IRG	The 7 government-aided institutions are allowed to retain only 50% of the tuition-fee income. However, except for UVCE Bangalore, the other 6 institutions are allowed to retain 100% of income from other sources. <u>This reform is not implemented in the desired mode.</u>
Establishment of 4 Funds	All funds established in all institutions.
Institutional Reforms	Achievement is very satisfactory.
Accreditation	Most programs are accredited. Applications for accreditation of 51 UG (41 for re-accreditation) and 28 PG programs have been made.
Faculty Development	Achievement is very satisfactory with 93% of the faculty trained. Project target in terms of man-days has been exceeded.
Formal Networking	Achievement is very satisfactory. Targets have been exceeded for joint training programs, joint workshops, joint publications, joint researches, joint consultancy and joint conferences. Four institutions have reported <u>nil</u> joint projects.
Services to Community	Progress has been made. Several student projects are reported. Targets for number of programs and beneficiaries have been exceeded.
Academic Outputs	Achievements is vey satisfactory. Project targets for publications, conference papers and, publication of books and manuals have been exceeded. Target for patents has been met.
Innovations and Good Practices	Achievement is satisfactory.
Overall Performance	Perceived and Calculated Scores at 8.8 and 7.6 are satisfactory.

	Perceived scores for 5 institutions and calculated scores for 4 institutions from the 7th audit have not been reported to the NPIU.

7. ***Kerala***

Grant of Autonomies	Status since the last JRM remains unchanged. All 5 institutions have only substantial academic autonomy; and the 4 self-financing ones have full managerial and financial autonomy.
Implementation of Block Grant	Not implemented in the lone eligible government funded institution.
Retention of IRG	Status remains unchanged. The lone government funded institution continues to be not allowed to retain income from tuition fee. Others retain both the tuition and other incomes.
Establishment of 4 Funds	All institutions have established the 4 funds though not with separate accounts.
Institutional Reforms	Status of implementation is satisfactory.
Accreditation	Achievement is excellent with all UG and PG programs being accredited.
Faculty Development	Status of faculty development is satisfactory.
Formal Networking	The overall status is satisfactory with several joint activities. Institutional Reforms Survey shows nil joint projects.
Services to Community	There is progress since the last JRM.
Academic Outputs	Achievement is satisfactory in respect of national and international publications and conference papers but not in respect seminar organization.
Innovations and Good Practices	Achievement is satisfactory
Overall Performance	Performance has shown improvement. Both the Perceived and Calculated Scores are satisfactory at 7.8 and 7.7 respectively.

8. ***Madhya Pradesh***

Grant of Autonomies	All 7 have full managerial, administrative and financial autonomies but only one has full academic autonomy.
Implementation of Block Grant	Block grant implemented in all institutions but not in the correct mode.
Retention of IRG	All institutions are allowed to retain IRG from fee and other sources.
Establishment of 4 Funds	All institutions have established the 4 funds with good amounts.
Institutional Reforms	Most of the reforms are under implementation in all institutions.
Accreditation	The status is not satisfactory. Only 7 of 45 UG/ Dip programs and 1 of 21 PG programs are accredited. Accreditation has been applied for 33 UG/Dip and only 10 PG programs.
Faculty Development	Progress in faculty development continues to be satisfactory both in terms of numbers deputed for training and average training days per person.
Formal Networking	The overall status is satisfactory in terms of numbers. Student

	centric activities have not been reported.
Services to Community	Several activities are reported but these are not in the right direction. Three institutions have nil student projects.
Academic Outputs	Status is satisfactory in terms of publications and seminars and workshops organized. Patenting has not been reported.
Innovations and Good Practices	Status is satisfactory. Several noticeable practices have been reported.
Overall Performance	The Perceived Score is satisfactory at 7.6. The Calculated Scores at 6.7 shows less than desirable stakeholder satisfaction level, which is specifically low in 3 institutions.

9. ***Maharashtra***

Grant of Autonomies	Progress since last JRM is satisfactory. Now 12 institutions have full academic financial, administrative and managerial autonomies.
Implementation of Block Grant	The pattern adopted by the State is not in accordance with the Project concept. The status remains unchanged since the last JRM.
Retention of IRG	All institutions are allowed to retain IRG from fee and other sources. The proportion allowed to be retained by different institutions has not been reported.
Establishment of 4 Funds	All institutions have established the 4 funds.
Institutional Reforms	Current status is satisfactory.
Accreditation	The State has made progress but continues to lag in this aspect. Of the 121 UG programs, only 90 are accredited and 27 been applied for. Of the 69 PG programs, 25 are accredited and 39 applied for. <u>The State needs to vigorously follow up with the AICTE/NBA,</u> and ensure accreditation of all the programs by project closure.
Faculty Development	Current status not reported.
Formal Networking	Current status not reported.
Services to Community	Progress is satisfactory.
Academic Outputs	Progress is satisfactory in terms of publications, conference papers and proceedings, conferences and seminars organized, and patenting.
Innovations and Good Practices	Further innovations not reported.
Overall Performance	Both the Perceived and Calculated Scores are quite satisfactory at 9.1 and 7.2 respectively. A good number of institutions have Perceived Score of 9 and above.

10. ***Tamil Nadu***

Grant of Autonomies	Achievement has increased since the last JRM. Now 9 institutions have full academic autonomy; and all 11 have full financial, managerial and administrative autonomy.

Implementation of Block Grant	Institutional Reforms Survey shows that only 3 institutions get Block Grant. The SPFU has however reported giving of Block Grant to all 11 institutions. At the last JRM, none of the institutions was being given Block Grant.
Retention of IRG	At the last JRM, none of the institutions were allowed to retain IRG through tuition and other sources. At this JRM, the SPFU has reported at one place in its presentation that all 11 institutions are allowed to retain both tuition and non-tuition incomes in full but at another place, the statement shows that this is not true.
Establishment of 4 Funds	All institutions have established the funds. Amounts in the 4 funds are very low in all but one institution. The situation needs improvement.
Institutional Reforms	Progress in implementation has improved.
Accreditation	Accreditation of UG and PG programs has not progressed well. Only 40 of the 70 eligible UG/Dip programs are accredited and 30 applied for. Only 9 of the 64 eligible PG/PDip programs are accredited, and the remaining applied for. The State needs to vigorously follow up with the NBA for getting all eligible programs accredited in the next 2 months.
Faculty Development	Progress since the last JRM is satisfactory
Formal Networking	Status has only marginally improved. In the Institutional Reforms Survey, several institutions have reported nil joint publications and nil joint projects.
Services to Community	There is progress but not in the right direction. Several institutions have undertaken nil to few student projects.
Academic Outputs	Overall achievement is satisfactory. A number of patents have been obtained and also applied for.
Innovations and Good Practices	Status is satisfactory.
Overall Performance	Perceived and Calculated scores at 8.4 and 7.5 are satisfactory.

11. ***Uttar Pradesh***

Grant of Autonomies	Only 2 institutions have full, and the remaining significant / substantial academic autonomy. All 10 institutions have full financial and managerial autonomy, and 8 have full administrative autonomy.
Implementation of Block Grant	Implemented in all the 7 eligible institutions.
Retention of IRG	IRG from fee and other sources is being retained by all institutions and utilized for building of the 4 funds and development activities.
Establishment of 4 Funds	All institutions have established the 4 funds; amounts in each are now substantial.
Institutional Reforms	Current status not reported. At the last JRM, reforms were reported to be implemented to a limited extent.
Accreditation	The State is lagging in accreditation. Of the 53 UG eligible programs, 43 are accredited and 8 applied for. None of the 14

	PG programs is presently accredited, though 12 have been applied for.
Faculty Development	Current status not reported.
Formal Networking	The State is lagging in this aspect. More joint activities need to be undertaken with greater focus on student centered activities.
Services to Community	Focus on community-relevant student projects is missing.
Academic Outputs	Achievement is satisfactory.
Innovations and Good Practices	Status is satisfactory.
Overall Performance	Though the State average Perceived Score has improved to 8.4 but the Calculated Score has decreased from 7.3 to 7.0. Stakeholder satisfaction needs improvement in several institutions.

12. ***Uttarakhand***

Grant of Autonomies	Status remains unchanged. Full academic autonomy is available to only one of 4 institutions (which is a University), while 3 have substantial academic autonomy. Three institutions have full managerial, administrative and financial autonomy except the lone polytechnic.
Implementation of Block Grant	Status remains unchanged with 2 of the 3 eligible institutions, given Block Grant.
Retention of IRG	2 institutions retain tuition income and 3 retain non-tuition income. It appears that the Block Grant as given is on deficit financing basis and not as desired under the Project.
Establishment of 4 Funds	Current status not reported. At the last JRM, funds were reported to have been established in all institutions.
Institutional Reforms	Most reforms implemented in all institutions though partially.
Accreditation	15 of 22 UG programs are accredited and 7 applied for. All 4 PG programs are accredited.
Faculty Development	Progress in faculty development and staff training is satisfactory.
Formal Networking	Overall achievement is satisfactory.
Services to Community	Very small number of activities is reported, and even these are not relevant. Faculty and student participations are small.
Academic Outputs	There is satisfactory increase in achievement.
Innovations and Good Practices	These are reported from all institutions. Some of these are noteworthy.
Overall Performance	Both the Perceived and Calculated Scores have increased since the last performance audit and are satisfactory at 8.5 and 7.9 respectively.

13. ***West Bengal***

Grant of Autonomies	There is no change in status—only the 3 universities have full academic autonomy and the rest significant. However, all 11 institutions have full managerial, administrative and financial autonomies.
Implementation of Block Grant	Of the 7 eligible institutions, the 3 universities get all expenditure as Block Grant, and the remaining 4 get non-salary expenditure as Block Grant.
Retention of IRG	All institutions are allowed to retain full IRG from fee and other sources.
Establishment of 4 Funds	Current status has not been reported. At the last JRM, all institutions had established the 4 funds, though with small amounts under Staff Development, Depreciation and Maintenance funds in most institutions.
Institutional Reforms	Most of the reforms continue to be under implementation in all institutions.
Accreditation	UG program accreditation continues to lag. Only 30 of the 67 eligible programs are accredited, and 25 (including 17 for re-accreditation) are pending with the NBA. The situation is similar with PG programs. Of the 47 eligible programs, only 23 are accredited, and 5 are pending with the NBA.
Faculty Development	Achievement is low, mainly due to shortfall in the 3 Universities. Only 530 of the 1219 faculty have received training (374 of them more than once).
Formal Networking	Overall status is satisfactory. Joint student centered activities are inadequate..
Services to Community	Achievement by some institutions needs improvement. Three institutions have reported nil student projects and 2 only one project each during project life.
Academic Outputs	Overall achievement is very satisfactory with 1295 publications, 28 patents obtained, and 200 international and national seminars held..
Innovations and Good Practices	Status is satisfactory
Overall Performance	Performance has improved. The Perceived and Calculated scores are very satisfactory at 8.9 and 7.9 respectively.

Annex-3

Feedback on
Services to Community and Economy Sub-component and 'Tribal Development Plan'

Considerable progress has been made on the ***Services to Community and Economy*** Sub-component since the last JRM. The nature of services to be offered is better understood, though 'awareness generation' and training programs for community members (especially unemployed rural youth and housewives) are predominate. Many technology development or application projects have come up, in which the objective of this sub-component to be a learning and "real life problem-solving experience" to students (and even faculty) would be realized. This objective is however still short of being met across the project institutions, and more focused efforts are required to do so.

The following observations are made on the basis of the NPIU's report for the 10th JRM ("Services to Community and Economy," January 2009).

- A large number of activities listed are still in the realm of "social work", welfare or NSS/NCC and are not related to the institute's technical/engineering education program, i.e., to student learning or faculty development. As a consequence, very few faculty and especially students are involved as only a few have the 'philanthropic' motivation for the above. A solution to these problems (the way suggested at the beginning of the project to go about SCE) was to include SCE in the curriculum (possibly only in some semesters) and have students undertake projects that used their T/E skills to solve "real life" problems in communities or industries (i.e., in society or economy). Giving students credit for the SCE project and considering the time spent by the faculty member in her/his overall workload as well as in career development would have enthused more to participate. However, these steps have been taken by very few institutions.
- Most of the activities undertaken have been "awareness" or "training" programs. While many of these related to improving awareness or skills in technical areas, very few have been technology-based in such a way that students or even faculty honed their technical skills. A greater focus on research, development, demonstration or transfer of technology (or technical processes) would have addressed this issue.
- Awareness and training programs, and other activities such as surveys, workshops, helping communities/groups develop proposals, "Workshop on community services", etc. would be useful and acceptable items <u>if they lead to specific technology-focused projects</u>. Training, for example, of school children (in computers, mathematics, science or technical subjects) could also be related to helping them prepare for technical/engineering education entrance exams and so on, but such opportunities should also be used to help the T/EE institutions students sharpen their knowledge through teaching. However, a large number of "few hours" or one/two-day training programs have been carried out which may not have much pedagogical value. Also it is probably not very useful to the learning of T/EE students for them to provide training in English to school students, housewives, etc., income-generation or entrepreneurship development activities, time and stress management, mushroom training, women's empowerment, medical camps, first aid practices, health check-ups, professional writing skills, AIDS awareness, blood donation, training in Japanese, and so on. Similarly, expert or guest lectures (few hours) or workshops should not have been listed here.
- Many programs did not involve students at all. This is to be discouraged.
- Some institutions did not carry out (or report) any programs at all (e.g., VIT-Pune, TPGIT-Vellore, others).
- It is unclear what was done (or intended) in some programs, e.g., "Literacy and Continuing education" for a community, "Online admission" program.
- We have inadequate information on the extent of involvement of students and faculty - although numbers are give in the NPIU's report, these are not accompanied by denominators for us to judge the extent to which the institutes' students or faculty were involved.

The feedback in Table 1 below is based on the presentations made by the SPFUs and institutes to the JRM. (Information provided in the NPIU's JRM report is also considered where relevant.) However, a lot of information is 'missing' in these documents, which constrains analysis of the sub-component as a whole.

Table 1. Services to Community and Economy

Significant Information and Assessment
National Project Implementation Unit, MHRD, GOI
The NPIU report states that the SPFUs and institutions were advised and given guidelines to enhance projects on community oriented real-life problems involving a maximum of students and teachers. Each institute subsequently developed an action plan with a minimum of three activities under the SCE. 74% of the total project allocation for SCE has been spent.
Centrally Funded Institutions
MANIT, Bhopal
Most of the activities listed are awareness/training programs for community members/unorganized sector, or field visits and expert lectures for students, and a few good technology-based projects are mentioned. The institute can surely do better and introduce technology development or application projects for students to learn by doing. The institute has a Community Service cell. Faculty participation is encouraged through giving this activity weight in self-appraisal which is counted in annual performance assessment.
NIT, Calicut
Among the reasons for shortfall in the SCE, the institute mentions that a small proportion of the students and faculty have participated in SCE as there is a lack of enthusiasm among some of the students and faculty. Further, the "tight academic schedule" is a constraint. It refers to the large number of "welfare schemes" for the people and the need to liaise with government departments. These last two points betray a lack of understanding in the NIT of this sub-component – they have not internalized the possibility of this activity being based on practical projects and learning-by-doing. This needs to be done.
MNIT, Jaipur
The SCE activities were largely training/awareness programs and assessments/studies. The list includes training of SC/ST students from other engineering colleges in Rajasthan.
VNIT, Nagpur
The SCE activities are mostly workshops, courses, events and studies – hardly any technology-based projects have been mentioned.
NIT, Rourkela
Several good projects are listed. However, the institute notes that shortcomings were due to its late inclusion in the project and low allocation of funds to the sub-component, in addition to lack of clarity in "interpretation" of SCE.
NIT, Warangal
Since the 8th JRM training programs have been run for rural boys and girls. Students participation is described as "minimum" as it is difficult to "appraise" and motivate them. A possible remedy could be to give credit for the activity.
State: Andhra Pradesh
A large number of beneficiaries of SCE activities are reported for all the 12 participating institutions in the state. According to the SPFU's presentation, the SCE activities are "mainly concentrating on improving basic skills … (in engineering related areas) to benefit the unemployed and underemployed, senior citizens, women, etc. (The) Institutes are realizing their responsibility to promote community development (CD) activity involving students to mitigate their problems and improve quality of life through Technology Transfer." We know less about the numbers of students and faculty involved, and whether the CD activities have contributed to student learning - AP reports "student projects on live problems" and "faculty geared to give innovative projects to students and guide them" among its significant achievements, and that these efforts are developing the skills of students. Some activities listed are: training in computer applications,

food processing, electrical and electronics. CD programs are expected to become more visible as interest in them is apparently increasing and faculty would like to take up bigger problems faced by communities. SCE is expected to be included in the formal curriculum soon: "Colleges have realized the challenge and pleasure in addressing community problems that demand technology-based solutions." Among the suggestions for improving implementation are: holding exclusive workshops to improve awareness and efforts in SCE; increasing the involvement of students; making it part of the curriculum and time-table; giving rewards for the five best activities in the state; and developing mini-projects involving technology transfer. All institutions are reported to be providing faculty incentives for involvement in SCE and other 'soft' components of the project. Details are not provided in the presentation. Industry-Institute Interaction is among the areas in which achievements are expected to become visible over time because a number of measures have been taken to foster these; but getting industry involved has posed some difficulty.
Institution: JNTUCE, Anantapur
A fair number of SCE activities have been undertaken, and faculty and students involved. The very large number of beneficiaries suggests, however, that most of the activities were 'lectures' or workshops. The best practices listed are: training of police personnel in computers, exposure of school children to the college, training of rural youth, and formation of a students' service forum. To improve the program, the institute suggests increasing the involvement of students, faculty and staff by holding a larger number of programs, but a constraint mentioned was the limited time available to all to undertake SCE. The suggestion that programs be of shorter duration is inappropriate for the real-life problem-solving and learning objectives of the component. Only 52% of the outlay on SCE had been spent up to 31 Dec. 08. Improving participation is also seen to be part of sustaining a work culture in the institute. The total outlay has been spent.
Institution: JNTU College of Engineering, Hyderabad
17 SCE programs have been organized. The activities reported are largely short-duration soft skill, entrepreneurship development and computer awareness programs for various community groups. Some activities have also been undertaken for Hyderabad's municipal departments. Allocation used fully. "One-on-one" activities and technical fairs involving students are proposed for the future.
Institution: University College of Engineering, Osmania University, Hyderabad
Have revived a Centre for English Language Training which run special programs for learning, communication and soft skills for community members – working professionals, rural students, and housewives – in addition to English classes. Other training programs (e.g., on masonry, carpentry, computer software) were also conducted. The benefits accrued were to the community – but we do not know about student involvement and learning. The institute intends to institutionalize the programs by making them part of the curriculum and establishing a Community Service Centre, and make them more technology-based.
Institution: Bapatla Engineering College, Bapatla
No information presented.
Institution: RGM College of Engineering and Technology, Nandyal
17 programs organized for unemployed youth in electrical/electronic servicing and repair, computer-based activities, and others. Similarly, efforts with the organized sector focused on computer-related training, and language teaching for school teachers and teachers in technical institutes. 83% of the allocation has been used. The presentation identifies the impact of these activities on people outside the institute. The impact on students is not known, but the presentation reports "lack of motivation and interest among stakeholders" as a shortcoming and suggests that financial incentives be introduced to motivate involvement. If SCE were included in the curriculum and activities selected to enhance student learning this problem may at least partly be overcome. The institute has introduced an award of Rs. 10,000 for a project which help s rural people, and another for a project with good technical innovation. The institute mentions the scope of SCE as an important lesson learned during the project, and has set up "permanent" service-to-community centers.
State: Gujarat
Most of the "best community-related technical projects" listed are awareness-generation or training activities. However, all are technology related and there are some good innovations such as the "techno saathi" to urban local bodies. Some confusion with the TDP activities persists as SCE in tribal areas are reported separately.

Good improvements suggested include making SCE a part of the curriculum and motivating faculty and students (to reduce the time constraint).
Institute: Vishwakarma Govt. Engg. College, Gandhinagar
The number of activities (9) and the number of beneficiaries (1107) in community activities in 2008 are high; 2 and 70, respectively, are reported for the unorganized sector and 0 and 0 in the organized sector. The community activities are technology related awareness-creating activities. We have no information on the number of students/faculty involved from the GEC. "no motivation" and staff shortage are mentioned as reasons for incomplete expenditure of this component. The need for full autonomy is suggested to run a program like Purdue's EPICS. Future SCE projects need to be rethought as they also focus on awareness creation and training and less on student engagement with technology-related projects. Only 61% of funds under this component were utilized.
State: Haryana
- The efforts listed focus on training activities and workshops. The state could encourage actual hands-on projects in partnership with communities and industries. - Haryana has rightly suggested the SCE should involve everyone in the TE institutions. - For Phase 2 Haryana has included in its suggestions for "Additional Reforms" "Teaching-Learning-Evaluation process to focus on continuous and self-learning, problem solving and skill building" and "To improve fusion between Industry and academia"
Institution: Guru Jambheshwar University of Science and Technology, Hisar
Activities are mostly awareness, training and workshops; some mention is made of "real life projects" and consultancy to govt. bodies. TDP activities are listed under SCE. The university apparently advertised the training programs they had on offer – and got no response. Shortage of staff and lack of incentives are given as difficulties, and providing incentives/honoraria as a remedy. To improve SCE they suggest its incorporation into the academic calendar and action plan of the institute. The focus continues to be on training – the institute needs to adopt the suggestion that students and faculty undertake real-life problem-solving projects.
State: Himachal Pradesh
Activities mentioned are awareness-demonstration, workshops, training, coaching, and design. Some confusion with activities for SC/ST students (e.g., PETC and personality development) Involving all students in SCE is recommended.
Institute: Government Polytechnic, Hamirpur
Mostly technology-related training programs have been offered. About 64% of the allocation on SCE has been spent.
State: Jharkhand
Best community projects are actual applications of technology, deserving congratulations! However, the number of activities was very high in all four institutions, and expenditure was very low in BIT Sindri. Including SCE in the curriculum and evaluation of students, and making it mandatory are suggested measures for the future.
Institute: BIT, Sindri
Six programs have been conducted for 300 beneficiaries. Only one SCE activity mentioned among the best (e-Swarojar). The other programs also appear to be good practical applications. Obstacles to implementing SCE include the academic calendar, lack of technical staff and faculty, lack of remuneration for the SCE activities. They mention providing incentives to faculty to participate in SCE among "reforms that were important and have not (been) implemented." Only 13% of funds have been used or committed! They propose to provide practical training in each sector in the future.
Institute: BIT, Mesra
Have set up a science and technology park which offers vocational training and ED courses to youth in the area, and a Rural Technology centre to transfer technology. Besides a large number of awareness and training programs, they have undertaken many live projects in communities and for the unorganized and organized sectors.

State: Karnataka
The 14 institutions in the project have implemented 414 community programs for almost 35000 beneficiaries; and 397 programs for industry with about 29000 beneficiaries. A wide range of good technology transfer and application programs are listed among the best. Recommend that guidelines be provided for TEQIP2 on the basis of success stories from the first phase.
Institute: National Institute of Engineering, Mysore
Report a few techno-applications projects. However, mention the tight academic schedule as an impediment to community services "at far off locations". There is no need for the location of these projects to be "far off."
Institute: BMS, Bangalore
Programs are mostly training for community members and the unorganized sector, and some technology applications. .
Institute: NMAMIT, Nitte
65 programs were conducted for 1300 beneficiaries in the community, and 50 programs for about 1000 beneficiaries in industry. The community programs include training and technology transfer to rural youth, farmers, women, etc. They mention an "action plan to implement student projects practically."
State: Kerala
A total of 427 activities were under by five institutions for about 18500 beneficiaries. Two technology applications projects mentioned under "best SCE." The state suggests making SCE mandatory for faculty promotions and career advancement, a two-hour-per week additional workload, and quarterly reviews at the level of HOD. For students: make it part of the curriculum with credit. Incentives and awards for both.
Institute: College of Engineering, Trivandrum
219 programs offered for about 9300 beneficiaries by this institute alone; over one-third of this since the last JRM alone! One techno-application among the best; training programs and lectures in addition
State: Madhya Pradesh
27 activities implemented since the last JRM by the seven PIs, for 1221 beneficiaries. Appear to be mostly training activities (as only these are mentioned in the "best"). 61% of allocation spent. There continues to be confusion with the TDP as training of SC/ST/etc. students for competitive exams is also mentioned in the best list! Suggestions include including SCE in the career advancement of teachers and giving incentives for its implementation. The SCE scheme has apparently been extended to other institutions in the state and a special budget has been sanctioned.
Institute: SGS Institute of Technology and Science, Indore
Both technology-based projects and training programs have been carried out.
Institute: UEC, Ujjain
10 programs conducted for about 800 beneficiaries – mostly training. Some TDP activities are wrongly listed under SCE. They suggest setting up a separate community interaction cell to take up real projects with sustained benefits. (An III cell is also suggested with similar intent.)
State: Maharashtra
Among best practices the state has noted that Dr. B. Ambedkar Technical University in Lonere is giving academic weight for the SCE component. In addition to awareness programs, technology application projects are also showcased. Among suggestions for the future the presentation notes that periodic workshops should be held to improve understanding of SCE, and lectures to motivate the students and faculty, that SCE could be made part of the curriculum with due credit, and that NGOs should be allowed to participate along with the institutions. The first three of these suggestions are excellent, while the last one should be approached with some caution – although such partnership is a good idea in principle it should not distract from the institutions – students and faculty – main role in undertaking and learning from SCE themselves.
Institute: Government College of Engineering, Aurangabad
No information provided.
Institute: Institute of Chemical Technology, Mumbai

Although the presentation mentions that "almost every department conducts programme to serve the community and general public as consumers," the activities listed for the organized sector are training programs and competitions, whereas those for the unorganized sector include some technological applications. The institute could expand its efforts in the latter area. Among "TEQIP Gains" the institute mentions the "high level of energy and commitment to serving communities and the non-formal sector."
Institute: College of Engineering, Pune
The presentation lists large numbers of programs carried out for unemployed youth, the unorganized sector and industry personnel, and sizeable numbers of beneficiaries in these categories from the start of TEQIP. In the same table (labeled SCE) it gives the total number of programs for disadvantaged groups (21) and number of beneficiaries (484). Presumably these are "community" programs; alternatively, is the institute mixing up the SCE and the TDP (which is for the "disadvantaged group" of students)? The problem-solving services mentioned are worthwhile. Establishment of an NGO of students and alumni is an interesting innovation about which we need to learn more, and the large donation by an alumnus for SCE is creditable.
Institute: Walchand College of Engineering, Sangli
A large number of programs were carried out and beneficiaries covered and the focus seems to have been on increasing computer awareness among rural school students. About 40% of the allocation to SCE and the entire interest received on it remain unspent and no plans are noted to spend these amounts. While the institute suggests carrying out such training for rural school teachers, it could focus on developing technology-based projects for students to carry out in the community/economy. Apparently its departments have identified areas in which they can serve the community - if these would also be areas of learning for the students, they could be the areas in which projects are developed to begin with.
State: Tamil Nadu
A number of activities have been undertaken by the 11 PIs since the last JRM – and the cumulative number during the project period is extremely large. The "best" list includes many technology-based projects, though for at least three of the seven institutions included only training programs have been listed. The suggestions for improvement include: encouraging student participation by giving marks/grades, establishing vocational training centers and forging links with development bodies. While a recommendation to include SCE projects in the student curriculum and give credit for them is good, the focus should be on problem-solving projects and not too much on training.
Institute: Govt. College of Engineering, Salem
All the institute's departments appear to be participating in SCE, which is very good. Programs are a mix of technology applications and training – mostly the latter in several departments. Unfortunately Yoga for staff and students is also listed among community development programs, which suggests that some confusion persists in the institute about this sub-component.
Institute: Alagappa College of Technology, Chennai
A mix of technology-based projects and training are reported but there is scope for involvement of more departments and greater relevance to the curriculum. In establishing the training centers (proposed by the institute) care should be taken to ensure that the activities carried out are learning and practice opportunities for students.
State: Uttar Pradesh
Under Innovative Practices is listed: "Project being awarded on real life problems/industrial problems." Several technologies appear to have been developed under this component, and some studies and projects have been undertaken. Training programs are also mentioned.
Institute: IET, Lucknow
Among innovative academic practices IET has allotted B.Tech. projects related to SCE to students (no details of these are given). Lectures to address student stress, personality development, etc. are also valuable. The three projects mentioned as "Best Community-related technical Projects" appear to be worthwhile, but we do not know which department (s) undertook them. The institute is undertaking a "social assessment and community profiling" to develop the SCE component further. It is hoped that this information will be used to identify community needs that can be met by projects that also enhance the learning of students and

faculty.
Institute: BIET, Jhansi
The institute has sensibly set up "implementation committees" for SCE and TDP. Among other "reforms difficult to implement" was "incentive to faculty for participation in CEP ad SCE. SCE in the past six months consisted of training of unemployed rural youth in engineering-related activities and workshop practice, training of government engineers, and increasing computer awareness of government department staff." Best SCE consist of a study and awareness raising – real, live projects are not mentioned. However, the institute mentions the need to identify community needs, develop livelihood-oriented community programs of longer duration and to give "more weight to faculty involved in community services equivalent to research activity." They also recommend inclusion of SCE in the curriculum. The student learning and project nature of SCE appear not to have been recognized.
State: Uttarakhand
SCE activities include a mix of technology applications and awareness programs. However, few students appear to have been involved – this could be increased. The state recommends that SCE be made a credit based course and included in the curriculum as an elective to do so; and teachers should also be given due credit…and the workload counted, and exemplary work peer-reviewed and counted for promotion. Surely all these good measures could be introduced by the state. ("Work program" and NSS are compulsory credit courses at COT Pantnagar.) The suggestion for holding awareness measures with Directors, etc. is also a good one which the state could follow-up with the institutions.
Institute: Dehradun Institute of Technology, Dehradun
The programs listed are primarily awareness programs; some are technology-based studentc projects, which could be increased. Very few students (12) were involved. It recommends joint meetings at the state and central levels to work out programs. While involving social scientists and NGOs is also recommended the focus should be on wider involvement of the faculty and students.
State: West Bengal
SCE includes some good technology-based projects. About 80% of the allocated funds have been utilized. The state suggests linking involvement in SCE to faculty career development, inclusion in the curriculum, possibly from the first year on. Other suggestions (involvement of state government departments and impact assessment studies) are less important. The SPFU has brought out a publication "Technology to Society", a compendium of reports on SCE. This is an excellent initiative and a study of this report may reveal some useful projects which could be emulated elsewhere. It also held a workshop in June 2007 on implementation of the SCE component, and analyzed the soft components of the institutes' action plans in May 2008.
Institute: Asansol Engineering College, Asansol
There are many good community-related technical projects among the best listed, and many awareness/training programs as well. To encourage students the institute awards appreciation certificates, credit, and financial rewards. SCE is mandatory for the faculty and considered in performance appraisal. Incentives are given to the best performers. Only 554% of the allocated funds will have been spent by March 2009.
Institute: IEM, Kolkata
The SCE activities listed consist only of awareness/training although the "two best" mentions "participation of students in technology development for community." The institute needs to introduce technology-based projects which enhance student learning. The proportion of students involved (currently 35%) could also be increased. Expenditure to date has been about 70% of allocated funds.

Annex-4

Feedback on Tribal Development Plan

Table 2 provides feedback on the presentations made by the SPFUs and institutes at the JRM. The following observations are made on the basis of the NPIU's report for the 10th JRM (**Tribal Development Plan**, January 2009).

- This report provides some additional information over past reports, notably the number of student beneficiaries and description of the activity and its outcome. However, the information is of highly variable quality.
- Several of the CFIs have not reported any activities for disadvantaged students under this sub-component (e.g., Allahabad, Jalandhar, Nagpur, Surat, Karnataka, Warangal) and some have listed SCE activities here (often with large numbers of beneficiaries given as "student beneficiaries") (e.g., Bhopal, Hamirpur). Others have listed activities which covered all students (not only focused on disadvantaged students). Still others are unclear (e.g., NIFFT-Ranchi).
- The reports on state institutions also have similar issues:
  - not reported any activities: *Andhra:* JNTUCE-Hyderabad, JNTUCE-Ananthapur; Sreenidhi IST; SVUCE-Tirupati; *Bihar:* GP-Ranchi, GP-Dumka; *Gujarat*: LDCE-Ahmedabad, DDIT-Nadiad; GEC-Modasa, GCET-Surat, GP-Ahmedabad; *Haryana:* GJUST-Hisar; *Karnataka:* BEC-Bagalkot, BMSCE-Bangalore; DAIT-Banglaore; MCE-Hassan, NIE-Mysore, SJCE-Mysore, SDMCET-Dharwad; MP: Jabalpur EC, SVPolytechni-Bhopal; Maharashtra: CE-Pune, SGGSIET-Nanded, WCE-Sangli, GCE-Aurangabad, KESRIT-Rajaramnagar, GEC-Amravati, VIT-Pune; Tamil Nadu: ACCT-Chennai, ACCET-Karaikudi, CPC-Chennai, MIT-Chennai, TPGIT-Vellore; Uttarakhand: GBPEC-Pauri; West Bengal : KGEC-Kalyani, GCECT-Kolkata
  - wrongly listed SCE or other activities (often giving large numbers of "student beneficiaries"): Andhra: UCE-Osmania; Karnataka: SIT-Tumkur (alumni meets) UBDTCE-Davangere, UVCE-Bangalore; MP: UITRGPV-Bhopal ("Adopting Bishen Kedi village…"); Maharashtra: ICT-Mumbai; West Bengal: Calcutta University
  - listed activities which covered all students or gave numbers of all students (not only disadvantaged students): *Andhra:* JNTUCE-Kakinada ("Ecosystem", expert lectures); *Bihar:* BIT-Mesra, BIT-Sindri; *Gujarat*: VGEC-Gandhinagar; *Maharashtra:* GP-Nagpur; *Tamil Nadu:* TNPC-Madurai (career guidance, communication skills, etc.)
- Most of the activities that have been listed by the institutes and states are the standard government schemes for disadvantaged groups. These include: book banks, remedial teaching, improving language (English and other foreign languages) and communication skills, coaching for post-B. Tech. competitive exams (for entry to higher studies; PET Cells), career counseling, personality development (these are beyond reservations of seats for these categories). Activities such as "Reservation of seats for ST/SC/OBC students," "Reservation of hostel accommodation for SC/ST/etc." and "Provision of govt. norms" should be taken as a given and not listed here.
- The number of hostel places for girls is always considerably less than that for boys, and probably need expansion to encourage girls into this sector.

- A few new or innovative activities are mentioned, e.g., *Haryana:* GP-Nilokheri (Induction training for new students), YMCAIE-Faridabad (Grievance redressal meetings with girls separately), Jalpaiguri GEC ("Program to identify academic weaknesses…")
- Very few institutions have carried out the diagnostic test for students which has been advocated over several past JRMs, and very few have innovated under this component. Some of the innovations are noted in the table below.
- No information is given in the state/institute presentations nor in the NPIU report on the number of students enrolled and the percent of these who are girls or SC/ST, OBC, etc. This also makes it difficult to assess to what extent the disadvantaged students benefited /from these interventions.

Table 2. Equity Aspects ("Tribal Development Plan")

Significant Information and Assessment
National Project Implementation Unit, MHRD, GOI
The NPIU report states that the SPFUs and institutions were advised and given guidelines to put mechanisms in place to identify the specific weaknesses of students and take remedial actions. Each institute subsequently developed an action plan with a minimum of three activities under the TDP. Only 74% of faculty posts in the CFIs are filled (with regular or contractual persons) and of these, women occupy 24% and SC/ST/OBC people occupy 33%. In the state institutions 91% of faculty positions were filled, 21% with women and 16% with SC/ST/OBC. According to the NPIU report 12% of faculty positions targeted to be filled during the project were not filled. It would be important to know what proportion of these are reserved posts.
Centrally Funded Institutions
NIT, Bhopal
The TDP activity listed is "training for electrician for villagers"! This reveals a lack of understanding of this sub-component by the institute. While 2000 hostel seats are being provided for boys, the provision for girls is only 200! Earn-while-you-learn scheme has been launched for poor students.
NIT, Calicut
No information provided.
MNIT, Jaipur
A long list of standard activities has been carried out among which the Grievance Cell and summer courses and jobs for weak/needy students (including SC/ST students) are notable. There are 1571 hostel places for boys and only 212 for girls.
VNIT, Nagpur
Several standard activities have been listed under the TDP, notably a laptop bank and special notes prepared for weak students. The confusion in VNIT on this component is high as several activities mentioned under the TDP should have been listed as SCE (i.e., those intended for SC/ST community members). The institute had a special drive to fill up the vacancies in reserved faculty posts (but we do not know the results of this drive).
NIT, Rourkela
No information provided.
NIT, Warangal
An SC/ST cell coordinated by a faculty member has been set up. The institute offers a summer quarter for poor performers. It proposes to run a finishing school (with MHRD support) for unemployed graduates to be trained in IT related subjects, etc. Currently about 13% of faculty are women.
State: Andhra Pradesh
A large number of students are reported to have benefited from TDP activities in the 12 institutes in the state (over the past three JRMs). Few details are not provided in the presentation – the list of activities includes several which would benefit all students and the numbers of disadvantaged students reached are not given. Among innovative practices, AP has included provision of laptops to SC/ST students. The proportion of

women faculty is 29% and of SC/ST/OBC is 40% (if contract faculty are excluded from the total. We also do not know whether contract faculty have been included in the numbers for these groups.) All institutes are reported to have developed governance systems with all stakeholders participating and to have adopted staff- and student-friendly management systems.
Institution: JNTUCE, Anantapur
The 10 activities under the TDP involved an average of 92 students. The best practices reported were: personality development and soft skills (resulting in 70% placement of disadvantaged students in 2007-08), and remedial teaching (resulting in 80% improvement).
Institution: JNTUH College of Engineering, Hyderabad
The activities are fairly standard. In addition a "dedicated computer facility" has helped poor students who don't have heir own computers. Best practices include: a Poor Students Fund created to help needy students who are not receiving any scholarship (about 12 students have received stipends of Rs. 500-750 per month; these funds are not out of the project); an earn-while-learning program (30 students have benefited). 20% of faculty are women, 19% OBC, 18% SC/ST, and 7% Muslim.
Institution: University College of Engineering, Osmania University, Hyderabad
Wrongly labeled Services to the Community, the TDP includes the usual activities.
Institution: Bapatla Engineering College, Bapatla
No information presented.
Institution: RGM College of Engineering and Technology, Nandyal
A computer bank has been established under TEQIP. Other activities are standard.
State: Gujarat
One item reported is appears to have been for all students, not SC/ST students in particular ("Under GKS - job oriented programs …from 38 different courses to SC/ST and girl students".) Also, one institution had a very large number of beneficiaries (1215) for one activity – this needs clarification. 26% of faculty are women (range across institutions: 19-34%); 23% are SC/ST/OBC/Muslim (range across institutions: 5-38%)
Institute: Vishwakarma Govt. Engg. College, Gandhinagar
TDP is probably misunderstood given the numbers of activities (8) and beneficiaries reported (1400) for 2008 (a similar situation in 2006 and 2007). Under "future Plan" training for tribal youth is mentioned – this belongs under SCE. Career guidance and coaching for competitive exams is appropriate but we do not know whether this is for all students nor how many students SC/ST would be helped.
State: Haryana
- 37% of faculty are SC/ST/OBC/Muslim, and 35% are women - Several of the innovative practices mentioned are good measures to help disadvantaged students including: the "earn while you learn scheme", cooperative learning among students, induction programs for students and teachers; the Students Charter is an excellent intervention. - For Phase 2 Haryana has included in its suggestions for "additional reforms" "Providing affordable technical education to all (facilitating inclusion of disadvantaged groups/areas/society"
Institution: Guru Jambheshwar University of Science and Technology, Hisar
Some of the standard activities have been undertaken for SC/ST students (though these are reported under SCE, we infer that they are for the institute's students). No numbers are available. Grievance redressal and anti-sexual harassment cells have been set up, and an Earn-while-you-Learn program has been started for "meritorious and needy students". 19% of regular and 70% of contractual faculty are women. This suggests that women are available but not being recruited commensurately into regular teaching posts! Only 14% are SC/ST/OBC/Muslim if regular and contractual faculty are combined.
State: Himachal Pradesh
Several of the usual activities have been carried out. 20% faculty are women; 24% SC/ST/OBC/Muslims
Institute: Government Polytechnic, Hamirpur
There is no information about activities undertaken for disadvantaged students, nor on the social composition of faculty.
State: Jharkhand

Establishment of a Grievance cell is reported at BIT Mesra, with online facilities for student and parents, and meetings between faculty and students at GP Ranchi, Dumka. Teacher-student committees and teacher counselors have been introduced at BIT Sindri and GP, Ranchi, Dumka, and they have also set up "TDP Cells" to provide care to weaker students - an excellent action. Only 10% of faculty are women, and 17% SC/ST/OBC/Muslim.`
Institute: BIT, Sindri
Have set up a "TDP Cell" to provide care to weaker students – excellent. Beyond the standard activities, an innovation is a weekly "Group Discussion" for final year students. An industrial visit and five-week industrial training are mandatory. Teacher-student committees and teacher counselors have been introduced. Only one woman among 88 faculty members! 43% are SC/ST/OBC/Muslim.
Institute: BIT, Mesra
An innovative scheme is the introduction of alumni-mentors for current students. Have introduced online grievance redressal and regular meetings between faculty and students.
State: Karnataka
32% women faculty (Karnataka has 33% reservations for women). 26% SC/ST/OBC/Muslim.
Institute: National Institute of Engineering, Mysore
Have established a grievance committee and meetings, and a student counselor who monitors the progress of students throughout the course.
Institute: BMS, Bangalore
No information provided.
Institute: NMAMIT, Nitte
Among best practices, a performance monitoring cell has been set up which "performs its activity based on the academic profile of students at the time of admission, students' performance in bridge courses, and first semester per romance. It monitors the performance of students with under 60% marks, has a list of students to be monitored, the academic profile of detained students, and so on. It monitors performance in the higher semesters, and as a consequence of these activities has improved the performance of students and reduced dropouts drastically. Another best practice is the teacher guardian scheme which includes weekly meetings with students, keeps in touch with parents, and arranges special coaching as needed
State: Kerala
Mention that all PIs have instituted participatory management of all stakeholders in administrative and academic matters.
Institute: College of Engineering, Trivandrum
One program has been undertaken since the last JRM – it is not clear whether this was especially for weak students or all students.
State: Madhya Pradesh
Seven PIs carried out 15 activities for 942 beneficiaries. Earn to learn scheme introduced for PG students. 31% women faculty; 26% SC/ST/OBC/Muslims.
Institute: SGS Institute of Technology and Science, Indore
Very few activities are mentioned for weak students, and the reasons given are "tight academic schedule" for students and faculty and the need to identify useful projects for community within the timeframe and expertise available in the institute. This suggests that the SPFU is still confused about the TDP!
Institute: UEC, Ujjain
In addition to the usual measures, "free stationery" is mentioned. 17% women faculty.
State: Maharashtra
29% of regular and ad hoc faculty are SC/ST/OBC/Muslims. The state has noted "difficulty in getting qualified faculty particularly in reserved category" among the problems facing accreditation of its colleges by the NBA. It suggests that special efforts are required to recruit faculty, and it is hoped it will make these efforts. Student counseling has been introduced by all the institutes, and the COE-Pune, has implemented the earn-while-you-learn scheme, providing work in hostels and the library.
Institute: Government College of Engineering, Aurangabad

The presentation mentions that "training programs" in the organized and unorganized sectors covered about 2000 beneficiaries. Technical student projects included awareness creation, and energy audit and drives. Carrying out training programs in the unorganized sector is noted as a difficulty, and links with the government employment exchange considered the solution. The institute could strengthen its technology-based projects instead.
Institute: Institute of Chemical Technology, Mumbai
Some of the usual activities are mentioned. The presentation notes that the number of female SC/ST students has increased from 12 to 67 during the project period (but we do not know the total number of students in 2007-08). Among "TEQIP Gains" the institute mentions these activities have helped underprivileged students.
Institute: College of Engineering, Pune
Earn-while-learn scheme implemented for students. The institute conducted a series of workshops with faculty and students (along with industry and a consultant organization) to develop a vision, mission and identify key challenges. Future plans include a girls' hostel.
Institute: Walchand College of Engineering, Sangli
Only the usual measures are mentioned for SC/ST students. 23% women faculty (mostly at lecturer level) and 10% SC/OBC.
State: Tamil Nadu
The large number of programs and beneficiaries under the TDP is difficult to interpret in the absence of information about the activities. 39% women faculty; 21% SC/ST and 52% OBC.
Institute: Govt. College of Engineering, Salem
There is obvious lack of clarity in the institute about the TDP. The presentation mentions "solar lighting system for tribal community, training on solar energy, and other potential SCE programs among TDP activities. This should be immediately rectified.
Institute: Alagappa College of Technology, Chennai
Standard programs mentioned.
State: Uttar Pradesh
Under Innovative Practices are listed: "Introduction of diagnostic analysis for first year students," and "Involvement of…alumni and parents of students in improving the quality of graduates," and "Student involvement in all matters related to students like extra-curricular and co-curricular activities, hostel activities." 18% of faculty are women and 38% are SC/ST/OBC/Muslim.
Institute: IET, Lucknow
The TDP mentions the standard measures for students, most of which are not financed from TEQIP. Only some remedial courses appear to have been supported by the project during the last inter-JRM period. Among administrative reforms, the institute mentions that a Grievance Cell is working, and complaints/suggestion boxes have been put in the administrative area and hostels. Student participation in management appears to be limited to, co-curricular activities, hostels, and training and placement. This could be extended to academic and core managerial areas. Academic reforms include career counseling of students, counseling of faculty for "better teaching", and of both groups to "increase friendliness." Among best practices, IET lists the extension of insurance coverage to students, financial assistance to students on the death of an earning parent, and senior students arranging problem-solving sessions for juniors. These are all good measures.
Institute: BIET, Jhansi
The TDP activities are standard. Among innovative practices for all students the institute set up clusters of "brilliant, average and poor students in class" and teachers provided individual care to the clusters. They also increased interaction between senor and junior students, and undertook "personality enhancement" of students. The institute made several efforts to enhance student skills to secure jobs including training in communication and soft skills, career counseling, personality development. The proportion of women faculty is very low (6%).
State: Uttarakhand

Among reasons for not granting full autonomy, the presentation mentions that students have a "general fear of victimization by faculty being the examiner also," "general reluctance to follow tight deadlines in academic calendar," and "non-availability of orientation programs (for faculty, staff and students) to prepare for autonomy." The first of this is a serious issue if it is well-founded, and needs to be addressed proactively by the institutions and the state. Grievance redressal systems need to be fully functional. (Staff and student grievance cell has been established at GP Dehradun.) The earn-while you learn scheme has been introduced in COT Pantnagar. Innovative academic practices include: remedial teaching classes conducted by senior students; a code of conduct for students and faculty which includes professional ethics and social responsibility; advisory system for each student in COTP; special classes for weak students; "student motivation practices" (?), mock interviews and guidance for biodata preparation for students at GP Dehradun. Several of these measures have spread to other institutions from the originating one, and the state advocates workshops and other means to enhance this. 17% of faculty in the engineering institutions are women and an equal proportion is SC/ST/OBC/Muslim. In the GP, the proportions are 15% and24% respectively.
Institute: Dehradun Institute of Technology, Dehradun
Under TDP the institute has listed a PDP by Career Launcher which was presumably offered to all students. Efforts for disadvantaged students should be stepped up.
State: West Bengal
Notable activities under the TDP include some relatively unusual ones such as: development of special learning resources for weak students, creation of a PC bank, a grievance cell for women students, diagnostic test at entry, and psychometric testing of students to understand their difficulties. 18% of faculty are women and 8% are SC/ST/OBC/Muslim.
Institute: Asansol Engineering College, Asansol
No information provided.
Institute: Institute of Engineering and Management, Kolkata
A special campus recruitment drive for women students was carried out - this being the only such special activity mentioned among all institutions.

Annex-5

Terms of Reference

Case Studies:
What was the Impact of TEQIP on Quality of Technical Education in Selected Institutions?

1. Background

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

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

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

The specific objective of TEQIP is to support production of high quality technical professionals through reforms in the technical/engineering education system in order to raise productivity and competitiveness of the Indian economy.

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

Available data show significant progress over the project period. Nevertheless, the largely quantitative data are not adequate for assessing the extent of actual implementation and the more subtle nuances of issues and challenges in implementation. It is therefore concluded that an independent study should be conducted of a small representative group of TEQIP I institutions to gain lessons that could be useful in the design and implementation of TEQIP II.

2. Objective of the study

The main objective of the study is to asses "impact accrued due to TEQIP in the up-scaling of engineering education system in the selected instructions". The specific objectives are:

- To study the status of the technical instructions before and after the implementation of TEQIP. In particular regarding the long-term improvement of quality, defined in terms of:
  - Quality of institutions in terms of faculty, curriculum, governance and other indicators
  - Outcomes such as improved student learning and improved quality of research
- To assess the extent of reforms committed towards educational excellence.
- To analyze and present the trends after implementing TEQIP.

- To review the utilization of financial assistance sanctioned under TEQIP.
- To suggest lessons from TEQIP I that could be useful for TEQIP II.

3. Methodology

The Key steps in the independent study should include:

In consultation with NPIU, select not more than six TEQIP institutions representing the major categories of institutions participating in the project, including both colleges and universities (but not including polytechnics). The institutions should be located in different states balancing the different regions of India) :

- Government funded institutions (4)
- Private-aided institutions (2)

Become thoroughly familiar with project background including:

- Interviews NPIU, and World Bank project team
- Review of project documents, including but not limited to:
  - Project Appraisal Document
  - Reports of Joint Review Missions, especially the 9th and 10th JRM
  - The Project Implementation Survey
  - The Self-assessment of the studied institutions
  - The Concise Institutional Proposal of the studied institutions
  - Other Available performance information

Design an interview protocol for review and comment by NPIU

Conduct in-depth interviews at each institution of key stakeholders at each institution. These interviews should be confidential with assurances that the identity of individuals or specific institutions will not be revealed. Those interviewed should include:

- BOG members
- Directors/Vice Chancellors
- Deans and other officials
- Faculty
- Students
- State officials
- Representatives of employers in the region and those who have employed the largest number of institutional graduates
- Auditors and mentors for TEQIP I for the institutions that are the subjects of the case studies.

Prepare a draft report of observations and findings for review and comments by NPIU. The report should emphasize themes and generalizations but should not identify specific individuals

4. Outputs

The outputs should be produced no later than March 31, 2009, and include:

- Draft interview protocol
- Draft report of observations and findings, and
- Final report reflecting comments of MHRD and NPIU. The expected elements of the final reports include:
  - Extent of implementation of legal covenants and obligations by sponsoring governments (mainly generation, retention, utilization and recovery issues of the fund)

- Status of key aspects of TEQIP (Funds utilization, capacity development, community services, empowerment and autonomy at institute level)
- Status of the reforms mainly in four broad areas: designing of the education contents, improving delivery quality in terms of teaching, systematizing administration process of teaching and mapping these efforts with end outcome of getting good quality engineers.
- Institutional Development during 2004-08 (On student front: admitted, passed-out, and placed together with salary package. On Faculty front: faculty strength research publications, qualification, program offered)

5. Qualifications of consultant(s)

- Demonstrated competence and experience in conducting case studies and preparing policy-relevant observations, findings and recommendations
- Knowledge about and experience in technical education in India, including the diversity of needs and conditions across Indian states and Union territories
- No current or past employment by or affiliation with the studied institutions, and no conflict of interest that could be perceived to bias the evaluation.

6. The Consultant or Consultants should a submit an Express of Interest with

- Time-line (with a latest delivery dateline of March 31, 2009),
- Budget,
- List of experiences with evaluations
- Suggestions of improvement of methodology (if any)

Annex-6

Lessons Learnt in respect of Civil Works

a) All the civil works envisaged in the project have been completed. A total of 43 NCB contracts were awarded including 20 jointly funded contracts. The implementation of the jointly funded projects was not smooth. Following are the issues with / lessons learnt from the jointly funded projects:

   i) Initially the institute-boards assured funds beyond project allocation and approved construction of works costing more than the allocated funds. Subsequently, the long decision making process due to involvement of institute-funds slowed the implementation of works from the award of contract stage onwards.
   ii) The Institute used the TEQIP funds first and the matching funds were not made available in time. This resulted in two scenarios: (i) the portions proposed to be constructed using project funds could not be completed, generally, where the project funds amounted to about less than one third of the contract amount; and (ii) the completed portions could not be effectively used due to lack of services like electricity, water supply and disposal etc.
   iii) In cases where ground floor of a higher building was constructed using project funds, its functioning was affected when the upper floors were constructed.
   iv) Frequent changes were made in the portion to be funded by the Institute / State slowing the progress.

b) Most of the SPFU's were not staffed with full time coordinator for civil works. Thus, they were heavily dependent on NPIU for advice and guidance and the works were not monitored as rigorously.

c) Since only small constructions were funded from the project, and the recipients were technical institutes, they were encouraged to use their technical faculty for design and implementation of works. But at most institutes the faculty was reluctant to take on extra work without additional remuneration. Thus, most of the institutes hired respective state PWD's for implementation. Only a few institutes hired private consultants.

Due to frequent transfers, the faculty/ staff trained in Bank's procurement procedures was not available for the project duration affecting the progress. NPIU and Bank had to conduct a number of training workshops for new incumbents.

Annex-7

JRM Suggestions from State and Institution on Implementation Survey results

Project Concepts: (i) Better understanding of project concepts, specially related to Networking and Service to Community, by the faculty and frequent discussion among them would have improved impact of the project. (ii) Several reforms did not bear the desired results due to lack of understanding among the stakeholders. Detailed and clear guidelines for project and reforms implementation would have been very helpful. (iii) More interaction with the World Bank would be helpful in smooth project implementation.

Autonomies: (i) For TEQIP-II, the eligibility criteria for sponsoring state governments may include granting of academic and other autonomies to project institutions, and this process should be initiated at the earliest so that the autonomies are in place by project effectiveness. (ii) Institutions require training for building capacity to exercise autonomies properly. (iii) Guidelines on how BOGs can maximize gains from the Project need to be provided to institutions. The BOG members may also be given orientation to the project.

Accreditation: (i) Keeping in view the acute shortage of faculty, teaching by PG students and adjunct faculty, and through video-conferencing may be taken into account for accreditation. (ii) Project fund releases to institutions may be linked to progress in applying for and obtaining accreditation for both UG and PG programs.

Faculty Development: (i) Available training programs either do not match the training requirement of faculty members or the desired training areas are not available at the suitable time. To minimize the problem, a national calendar for the available pedagogy and subject area training programs needs to be prepared by the NPIU and published on its web site. The calendar needs to ensure that programs are not scheduled in the middle of academic calendar. (ii) Filling up all faculty positions will facilitate deputation of faculty for training without disrupting academic work. (iii) Participation in both academic and industrial training programs for pre-defined periods may be made compulsory for faculty. (iv) Qualitative and quantifiable indicators may be used to assess training achievements. (v) Institutions need to be empowered (through BOGs) to approve deputation of faculty for training, and to appoint substitute faculty on contract. (vi) Training Needs Assessment (TNA) should be achievable with clearly identified training areas. (vii) Institutions need to make pre-decided use of the training gains of faculty.

Networking: (i) Formal Networking should not be limited within a small cluster of institutions. They should be allowed to opt for different network partners for various streams based on expertise available and requirements. (ii) Concurrent academic calendar among network partners is necessary which otherwise poses problems. (iii) Institutions within the proximity must have information on high value inventory in other Institutions. They should have clear understanding amongst themselves to access to such physical resources for mutual interest on trans-disciplinary research or joint consultancy activities as a cluster of institutions. (iv) To ensure student-centered activities, the entire cost especially related to exchange program should be chargeable to the Project.

Service to Community and Economy: (i) Involvement of faculty in SCE activity should be career linked. (ii) Participation of students needs to be ensured through curricula.

Industry Linkages: (i) UG and PG curricula need to accommodate an industry project in the last semester with one supervisor each from the parent institution and industry. (ii) Exposure to industrial practice for a period of at least 2 weeks in a year should be counted towards faculty career advancement. (iii) Industries, being the major beneficiaries from academic excellence in engineering education, should adopt a few engineering institutions.