INDIA

TECHNICAL EDUCATION QUALITY IMPROVEMENT PROJECT II (TEQIP-II)

First Joint Review Mission

18 February to 1 March, 2013

Aide Memoire

I. INTRODUCTION

1. A joint review team of the Government of India (GoI) and the World Bank held the first Joint Review Mission (JRM) from February 18 to March 1, 2013. The JRM team (see Annex 1 for list of members) would like to extend its gratitude to Ms. Amita Sharma, Additional Secretary, Department of Higher Education, Ministry of Human Resource Development (MHRD) for her leadership of the TEQIP project and guidance during the JRM. The JRM team would also like to thank the Central Project Advisor and his colleagues at National Project Implementation Unit (NPIU) for overall coordination of the JRM, especially in the preparation for State visits, and States and institutions, for their hospitality, informative presentations and proactive participation in discussions.

2. The overall objective of the JRM was to review the current progress of the project in sampled States and to provide concrete suggestions and recommendations to MHRD, NPIU and SPFUs in order to accelerate the project activities. The JRM team selected six States; UT-Chandigarh, Chhattisgarh, Maharashtra, Kerala, Madhya Pradesh, and West Bengal. Additionally, Himachal Pradesh and Punjab joined the meeting in UT-Chandigarh. The JRM team was grouped into three teams. Each team visited two states and several institutions during the first week of the mission (Annex 2). In the second week, meetings with CFIs and SPFUs and with a selection of mentors were held.

II. OVERALL FINDINGS AND MAIN RECOMMENDATIONS

3. _Findings_: Progress towards the Project Development Objective is Satisfactory. The JRM team observed that there are very well performing institutions, fully utilizing the benefits of their autonomous status, improving research quality through institution industry interactions, improving faculty teaching capacity, and supporting academically weaker students through innovative initiatives. All these outcomes show promising progress toward the PDO, and are reflected in progress against the KPIs of different institutions (see Annex 3). Some SPFUs visited area also showing good proactivity. Unfortunately, however, a greater number of institutions require significant improvement in almost all aspects of the project activities. Institutions need more support from mentors, SPFUs, and the NPIU. Compared to the well performing institutions, the leadership at institutional level tends to be weaker at less performing institutions. More detailed findings are discussed in Section III: Six Key Thematic Activities; Quality of Education, Governance, Industry-Institution-Interaction, Planning, Mentors, and Institutional Support.

4. Implementation Progress remains Moderately Satisfactory. The JRM team noted that the project had made progress in project implementation since the last mission in November 2012. All cycle I institutions have now received money from both the MHRD and their respective state government; approximately a further 30 cycle II institutions have been selected very much faster than the first cycle and rapid progress has been made in getting their formalities in place so they can receive resources. This now completes the selection of institutions under the project. Procurement activities have advanced. 144 out of 158 institutions have entered data in MIS, which resulted in completing 50% - 60% of the data entry (though only for one year's data). The Good Governance Programme is underway with all institutions having received the materials and it is already being implemented at some institutions. Learning forums has taken place for all mentors. However, cumulative expenditure to 31 January 2013 remains low at INR 60.21 crore; and though almost half this expenditure (27.14 crore) has been in the last 3 months, expenditures need to be approximately INR 113 crore _per month_ until project closing. In our opinion, the delay in the transfer of the fund to the participating institutes by the respective state governments, together with the lack of drive and vision for development on the part of the institute are mainly responsible for the slow progress of

TEQIP II. The latter point is the main reason in case of the NITs. The Directors/Principals of the institutes should take more interest in this activity. The three supporting systems (MIS, PMSS, e-FMR) continue to have some technical difficulties, which has resulted in unnecessary administrative burden at institutions. These systems need to work at maximum efficiency to support and allow continued acceleration in implementation progress and to monitor effectively that progress. Many Boards of Governors are not fully effective. Institutional Development Plans (IDPs) in general have not been periodically reviewed and updated. An Action Taken Report from the last implementation support mission is attached at Annex 4.

5.   *Recommendations*: The recommendations of the JRM, as set out in this Aide Memoire, are intended to significantly increase the rate of implementation of the project, and continue to increase the acceleration that has been observed in the past few months. These actions are summarised in Section V.

6.   The next few months are critical for the project. There is only one full academic year left prior to project closing, and therefore institutions need to ensure as much as possible is in place prior to the start of the academic year. This includes such issues as new/expanded courses (including accreditation for these courses), autonomous status, scholarships for students, completed faculty development activities (which can take place over the summer break), and so on. Institutions will need to develop detailed action plans in the next month across the range of activities under the project, to deliver on all activities in a timely way and to ensure resources are available as needed. The next JRM should therefore be in a good position to judge whether sufficient progress is being made to achieve the development objectives.

7.   Given that there is less than two years left to complete the project, the JRM team recommends that MHRD and NPIU review the likely expenditure to project closing based on current assumptions and consider whether to reallocate resources in the project (or indeed to cancel some project funding). In particular, MHRD should consider how long poorly-performing institutions should continue to receive resources. Based on the institutions' performance, project funding can be increased for well performing institutions while institutions showing only limited progress could downscale the scope of their IDP and receive reduced budget allocations. Therefore, MHRD and NPIU are suggested to provide the institutions with clear and specific indicators and targets (disbursement and some Key Performance Indicators, etc.) no later than 31 March 2013, and give institutions a clear deadline of no more than six months to demonstrate progress. Further, it is suggested that MHRD, NPIU and SPFUs should provide strong supports to institutions to meet the targets. The specific supports and suggestions are described in the rest of this Aide Memoire. The state reports are attached in Annex 5.

	Last	Now	Project Component Ratings:	Cost ($M)	Last	Now
Summary Development Objective Rating	S	S	Improving Quality of Education in Selected Institutions	453.00	MS	MS
Overall Implementation Progress	MS	MS	Improving System Management	38.00	S	S
Financial Management	MS	MS				
Project Management	S	S				
Counterpart Funding	MS	S				
Procurement	MS	MS				
Monitoring and Evaluation	S	S				

S: Satisfactory MS: Moderately Satisfactory

III. SIX KEY THEMATIC ACTIVITIES

8.   This JRM investigated in detail six specific issues: Quality of Education, Governance, Industry-Institution-Interaction, Planning, Mentors, and Institutional Support. The following sections take each issue in turn and examine the current situation, outline the main issues and concerns, identify good practices that were found, and make recommendations.

A. Quality

Current situation

9.   Improving the quality of teaching in UG and PG programmes as well as in R&D activities are key components in the TEQIP II project. There are many ways to assess the quality of UG and PG education. Since there are no direct measures available of student learning (e.g., national exit examinations), here we focus on two indicators which are student transition rates from first to second year of the UG programme and the total number of regular faculty members with a Ph.D. degree.

10.   There is a wide variation across TEQIP states and institutions in the student transition rate from the first to second year. For the State of Chhattisgarh, it increased from 33 per cent in the year 2009-10 to 47 per cent in 2011-12. In case of Maharashtra, it grew from 50 per cent in the year 2009-10 to 78 per cent in 2011-12. Similarly, in the State of West Bengal, the figure increased from 70 per cent in the year 2009-10 to 81 per cent in 2011-12. Given the different curriculum and standards used across states and universities, it is not possible to directly compare transition rates as measures of student learning, though there are important measures of effectiveness of teaching the prescribed curriculum.

11.   Also the total number of the regular faculty members having a Ph.D. degree varies substantially across states and institutions. The reviewed colleges of Punjab, Haryana, H.P. and Chandigarh U.T. can be divided into three broad categories. The first category of colleges is the one in which the number of the faculty members having Ph.D. degree is in the range 60-80 per cent of the total regular faculty members. The colleges falling in this category are NIT Kurukshetra, PEC Chandigarh, and Thapar University, Patiala. These colleges also have very high students' placement through campus interview, of the order of 90 per cent of all the eligible UG students.

12.   The second category consists of colleges in which 20-40 per cent of the total regular faculty members have a Ph.D. degree. The colleges falling in this category are Government Engineering Colleges at Bhatinda, Gurudaspur and Ferozepur; GNDEC, Ludhiana; JNEC, Sundernagar (H.P.); and, UIET, Punjab University, Chandigarh. Most of these colleges have relatively lower students' placement through campus interview, of the order of 40-60 per cent of all the eligible UG students. However, in case of UIET, Punjab University, Chandigarh, this figure was much higher, of the order of 90 per cent.

13.   The third category consists of colleges having a very low percentage of the total regular faculty members as Ph.D. holders, of the order of 5-10 per cent. There is only one college Chandigarh Engineering College, Landran, which is a privately run college. Approximately, half of the total faculty members of this college have only B.Tech. degree. A surprising observation is that 75 per cent of the eligible UG students of this college got the job through

the campus interview, which indicates the importance of other factors, like teacher performance, industry-institution interaction or the effectiveness of the Placement Cell.[1]

14. It is also interesting to note that the students belonging to the first category got relatively higher average pay package (4.0-6.0 Lac) than those in the second and third categories (2.5-3.5 Lac). A similar pattern was also observed in the State of Madhya Pradesh.

Key issues and concerns

15. The shortage of faculty resources, particularly at the level of professors and associate professors, has emerged as the single biggest impediment to quality improvement across TEQIP institutions (with the exception of CFIs). The shortfall is as high as 40-60 per cent which is sometimes forcing available faculty to teach outside their core discipline. The reasons vary considerably across states. The situation is worse in rural areas where attracting faculty resources of even mediocre standard has become a challenge, while in urban centres like Mumbai and Pune, lack of residential accommodation is putting off potential recruits. In several institutions, no regular recruitment had taken place the last 3-7 years. In one of the engineering colleges (in Chhattisgarh), there were only six regular faculty, 12 contractual staff and approximately 40 ad-hoc faculty who were responsible for 6 UG and 2 PG courses with nearly 1100 students on its rolls.

16. There were also issues relating to lack of well-equipped and functional laboratories in several of the Government Engineering Colleges especially in mechanical and civil engineering. It was obvious that these colleges were suffering from a lack of vision and planning on part of the college administration as well faculty to improve the quality of their education programmes.

17. There was a general concern in regard to NBA guidelines for accreditation that were still to be published in clear terms, resulting in delay in achieving target set under TEQIP for accreditation of courses in case of a good number of participating institutes. A large number of applications sent to NBA are reportedly pending.

18. In some cases, absence of an institutional research culture and also faculty inertia regarding continuous knowledge improvement were also a cause of concern.

19. There was concern expressed over the library timings being synchronous with the regular working hours, in the context of enhancing academic quality. The timings need to be extended suitably to facilitate easier access for faculty and students to the library resources.

Good practices

20. The State of West Bengal has signed MoUs with institutions such as IIT Kharagpur and IIM Raipur for capacity building, quality improvement, and training and continuing education. The State is also carrying out faculty and staff development activities through the Raipur extension centre of NITTTR, Bhopal. Such academic collaborations with national level premier institutions should be encouraged to be replicated elsewhere.

21. Feedback surveys conducted by some SPIUs to ascertain the satisfaction levels of students and technical staff, helping identify institutional weaknesses and developing support systems.

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[1] Caution should also be exercised in directly comparing 'placement rates' since: (a) this represents only places made through the institution's placement cell and student might have found employment through other routes; (b) there are fewer 'eligible' candidates than the total last year students; and (c) some students may get more than one 'placement' and hence the placement rate can be over 100 per cent.

22.   To encourage stronger students, some institutes have taken initiatives such as forming an innovation centre with government funding and utilizing the alumni network to mentor students.

23.   Many of the colleges have one full semester industrial training programme in their B.Tech curriculum. It takes place either in the 6th, 7th or 8th semester of the B. Tech. programme. Its credit is equivalent to 4 courses. The advantage of this course is that the students get a detailed industrial exposure.

24.   The development of good UG teaching laboratory is a challenge for any technical institute. Some institutes/colleges have developed self-designed laboratory equipment. A case in point is the UG Electrical Engineering teaching laboratory at UIT, RGTU in Bhopal where a faculty member had put a lot of efforts in designing this laboratory. Similarly the working demonstration of the generalization and utilization of the alternative non-traditional sources of energy at the Non-Conventional Energy Lab was impressive.

Recommendations

25.   *Faculty recruitment:* There is an urgent need for immediate recruitment of regular faculty positions in the Government colleges and NITs. The recruitment should be done in a planned step-wise manner distributed in all departments where there is a need to strengthen teacher capacity. This is to avoid less qualified faculty being hired as there is still a lack of good qualified teaching staff. Several states reported progress, albeit slow progress. Without sufficient staff, it will be very hard for institutions to achieve their TEQIP goals. SPFUs, working with their respective State Government, need to take up this issue urgently.

26.   *Avoid in-breeding:* Institutions are using TEQIP funds to support the enrollment of the existing faculty to M.Tech and PhD programmes. This is very encouraging. However, to avoid in-breeding at the institutional level, faculty should be encouraged to take such programmes in other institutions. Similarly, young Ph.D students who have not yet taken up a teaching position should be encouraged to go to another institution before they can return as an assistant professor at their original institution. SPFUs should discuss this issue with their institutions and State governments to develop their own policies in this area.

27.   *Weaker students:* To improve the transition rate of student passing out from first year to second year, additional courses during evenings and/or semester should be introduced through a greater number of remedial lectures and bridge courses, including by greater use of ICT. SPFUs should play a proactive role in helping institutions share their experiences and good practice as this is an area in which many institutions are embarking on systemic attention to the issue and assessment tools and pedagogical techniques are being started from scratch. NPIU should organise a national workshop on this issue.

28.   *Faculty development:* Institutions should organise frequent development programmes for faculty so that they are able to keep pace with rapidly changing technology and frontier knowledge. This should preferable be based on a systematic training needs assessment (TNA conducted to date have been rather generic). The pedagogical training should preferable be discipline-focused possible on particular difficult topics to teach. It is important for institutions to work together with other institutions on faculty development.

29.   Academic quality can be improved through a continuous process of peer learning and internal reviews. This may be achieved by academic resource support and the practice of quality circles, by continuous interaction between faculty and students from the institutes in similar geographical location. A case in point is the recently held TEQIP Conclave of Educators on quality of delivered academics in Mechanical Sciences organized by IIT, Kanpur. IITs should take the lead in organising such conclaves for the teachers of other disciplines. In order to

finance the logistics of the academic quality circles, seed money should be provided by the NPIU as necessary. The next JRM/IRM should examine the establishment of quality circles, their effectiveness and whether all institutes are part of a quality circle. In addition, various project processes, internal or external, such as mentors' reports, workshop feedbacks, JRMs, or specific study teams must be utilised for continuous and holistic quality watch of institutional reforms.

30. Institutions need to utilise the forthcoming summer break to engage in as much faculty development as possible. This will require urgent reviews of Training Needs Assessments, identification of suitable opportunities, and organising participation. This planning needs to take place in the next month.

31. NITs and other TEQIP institutions should be encouraged to appoint competent retired professors for a long period, say three years, and based on performance additional two years, in order to bring additional academic input in the chosen area. This opportunity may also be utilised to guide Ph.D. students in new areas of a discipline.

32. *Accreditation:* All technical institutions should have NBA accreditation for all the programmes. An institution-wide NAAC accreditation is not enough as it does not guarantee the quality of each of the UG and PG programmes. SPFUs should follow up with all institutions to confirm accreditation status and plans; ensure this information is entered into the EMIS and reported to NPIU. In addition, MHRD should advise NBA (and UGC on autonomy) that requests from TEQIP institutions are expedited so that an impetus could be given to the academic growth and advancement of the TEQIP institutions.

33. *Student surveys on teaching quality:* Institutions need to conduct surveys to receive feedback from students about the quality of courses offered. These surveys should be done under the responsibility of the dean/professor and the results should be discussed with the director of the institution and follow-up actions should be taken seriously. TEQIP resources can be used for these activities as necessary.

34. In addition, the national survey of student satisfaction being commissioned by MHRD/NPIU should be in place from the next academic session.

35. *PG quality:* Parameters for better managing and measuring the quality in PG programme and related R&D activities have to be developed. Besides PG student placement data (which are often much lower than UG student placement data), it could be considered to look into publication details including the name of its publisher together with its impact factor value. There is furthermore a need for a pragmatic approach for the review of the quality, in particular of PG programmes, based on Departments rather than the Institute as a whole. A survey should be commissioned by NPIU in this regard.

36. *Planning for quality improvement*: a focus on improving quality should start with a review at the level of department or discipline. Departments may find it helpful to bring in external experts to participate in these reviews (including but not limited to the mentors).

37. *E-learning:* Institutions should develop plans for e-learning as part of their institutional development, including but not limited to curriculum reform, accessing new resources for teaching and research, collaborating and sharing knowledge and curriculum resources across institutions, bringing in guest lecturers and faculty to assist in course delivery, and linking to broader national developments in this area. These plans should be developed for implementation next academic year.

B. Governance

Current Status

38.   Governance as the overarching framework that guides both academic and administrative decision making aimed at continuous improvement of the quality of technical education, is very much in its early stage of understanding and adoption in most TEQIP institutions across all the states visited by the 1st JRM. Except the state of Chhattisgarh, Boards of Governors (BoGs) have been formally constituted in all other states, chaired either by an eminent academician or a prominent industrialist of the region where the institution is located. However, the attributes and processes of effective governance are not in place yet, even in states like West Bengal, Kerala and Maharashtra where the BoGs have been meeting regularly and the minutes of the Board meetings are uploaded on the websites of respective institutions. Still the JRM is inclined to believe that as the learning curve of the Boards rises and state governments empower the institutions with greater autonomy, the BoGs will be able to plan and push forward the standards of quality, in the coming months. For this to happen, it is imperative that both the NPIU and the SPFUs take steps to accelerate the process of institutional autonomy on one hand, while insisting on the accountability of BoGs to the various stakeholders.

Key Issues and Concerns

39.   The members of the BoG representing the state governments and industry have not been able to devote adequate time and attention to board matters, denying their academic colleagues the benefits of diversity in the composition of BoGs. Their inability to attend BoG meetings causes avoidable postponement of meetings and the consequent delays in strategic decisions such as faculty appointments, procurement of capital equipment for laboratories, fee related matters etc. States like Punjab, Madhya Pradesh and Kerala have expressed particular concern in this regard. There are other states like Himachal Pradesh where the BoG of a lone participating institution feels frustrated due to the lack of any guidelines on their scope of powers and functions, while in Chhattisgarh, the heads of institution are not permanently in place and neither are the BoGs. There is also a need to ensure that BoG members take time out in a planned way to interact with stakeholders like faculty, students, non-teaching staff and even parents of students.

40.   The organisation of BoGs under TEQIP seems to have led to duplication in Board structure, as reported in Madhya Pradesh where institutions have appointed two BoGs with the same membership but with the different chairpersons. Another cause for concern observed in Kerala was the reluctance of the institutions to honour the decisions of their BoGs in the absence of government orders confirming the delegation of powers to the BoG. This defeats the very spirit of decentralization.

41.   The JRM was concerned to find that in some states, such as Kerala and Chhattisgarh, no progress has been made on institutions gaining autonomous status. In Chhattisgarh, for example, it appears that it would need an amendment to University Statutes or perhaps even the Acts, necessitating the legislative intervention of the State Governments; in many states, the state governments and universities are not proactively promoting autonomy to institutions. In other states, such as Madhya Pradesh, formal academic autonomy has been obtained, but in practice the institutions are not able to exercise real autonomy. Moreover, there is a poor understanding of what autonomy means and benefits amongst multiple stakeholders.

42.   The JRM was told that in several states and CFIs, the Board of Governors meetings were not held at the institution itself, but elsewhere. The JRM is concerned that this weakens the link between the Board of Governors and reduces the opportunity for the Board of Governors to interact with institutional stakeholders.

Good Practices

43. Though the governance processes have remained introductory in character in most institutions, the JRM has been impressed with some good practices. For instance, the College of Engineering, Pune (CoEP) in the state of Maharashtra has a system in place which mandates every member of its BoG to interact for at least 80-100 hours in a year with various stakeholders. The BoG of the institution also interacts regularly with the TEQIP co-ordinators, including the department level TEQIP co-ordinators. Designating departmental TEQIP co-ordinators, in itself is seen as a good practice.

44. Another institution, namely the Institute of Chemical Technology, Mumbai reported that their BoG has been very active in attracting endowments from the industry and in promoting industry-institutional linkages. In Kerala, the practice of the institutional mentors being invited to join the BoG, has been perceived as adding considerable synergy to the Board processes and decisions.

45. In West Bengal, every TEQIP institution has to dedicate one meeting of their BoG to exclusively discuss the project plans, components and milestones that the institution is expected to achieve. This practice introduced by the SPFU has been found very useful in promoting better understanding between the BoG and the state government in regard to implementation of the TEQIP.

46. The Union Territory of Chandigarh has one institution where delegation of authority within the institution is very well defined among the heads of department as well as administrative personnel, which supports speedy decision making. It is important to note that this delegation has been achieved despite there being an interim BoG. Similar delegation within the institution was reported in ICT Mumbai, resulting in expeditious activities in the institution.

Recommendations

47. The JRM recommends that the TEQIP Good Governance Guide and associated activities be rolled out by all the project institutions in accordance with the Programme document. That document specifies roles and responsibilities and timetables for completion of activities. SPFUs should monitor progress of their institutions; and mentors should be expected to support institutions in this work. It is important to build the leadership capacity of governors so that they can contribute more effectively to the quality of Board level decision making processes which in turn impact the quality of education provided by the institutions. A suitable leadership development programme may be designed in consultation with management development institutions for the purpose.

48. The BoG should take the lead in monitoring the progress against the objectives, initiatives and performance targets under TEQIP and for ensuring appropriate allocation of TEQIP resource within the parameters laid down under the Project. This will require further communication with BoGs about the TEQIP project and their responsibilities.

49. The NPIU, in collaboration with the World Bank, should carry out a review of the status of autonomy in TEQIP institutions, both with respect to their formal status as well as to what is happening in practice. In particular, it is of concern that some institutions seem unable to make progress on obtaining autonomous status, a KPI for the project, because of circumstances beyond their control. This study should be completed by 30 June.

50. The NPIU, perhaps in conjunction with AICTE, should organise a national level conference with affiliating universities of technical institutions, to sensitise them to the importance of

autonomy and to explore ways in which TEQIP resources could be utilised by affiliating universities to help engineering colleges gain autonomy.

C. Planning

Current status

51.   During visits to states, the JRM found an absence of a detailed, institutional and integrated approach to planning that shows the preparedness of the institutes to spend the TEQIP grants. TEQIP and non-TEQIP planning is happening in parallel in most institutes, barring a few like LBS Institute of Technology, which has a regular interaction of the institute's TEQIP team with its core planning team to create an integrated plan to utilize funds. Besides, the planning system of the universities dominates the institutional plans with focus largely on expenditure planning, rather than on improving academic quality. A related problem is that of ad hoc planning, especially related to TEQIP funds, as brought out by the institutes' efforts being concentrated on procurement to satisfy KPIs, even if the procured equipment is not fully used. Only a few institutes are making detailed plans along with financial projections. Consequently, the non-procurement component of spending is being ignored. Institutions also do not seem to review their IDPs and revise them as necessary. No task force has been constituted for strategic planning and even the better managed institutions operate on the basis of annual or half yearly plans.

52.   All institutions have Procurement Plans approved by their respective BOGs/MCs and uploaded in PMSS. But procurement per se is very less and in some institutions, it is nil. One of the major reasons for slow procurement is delay in transferring fund by SPFU to the institutions, for example, in the third week of Dec 2012 in the state of Punjab, almost after one year of transfer of funds by MHRD to the State. SPFU indicated that to get the govt approval for opening one PL account took a lot of time. In Chhattisgarh, no funds have been released, because of need for multiple revisions of the Plans and the approval of the Finance Department. However, this late release is only a partial explanation for slow disbursement in most institutions, since all CFIs have had their funds for a considerable time and in a given state the JRM found a wide range of performance across institutions.

53.   Some CFIs reported difficulty in handling PMSS during a workshop held in the course of the JRM, though the comments were rather general and not on specific issues. A review by the JRM found that the major concerns could not be substantiated. One of the possible reasons for difficulty is lack of trained person in place to handle PMSS, though it also appears that there is little proactivity in the institutions. The situation with respect to state institutions was generally favourable, though institutions have sought clarification on some specific issues from the NPIU (see state reports for examples). Responses to these inquiries have been slow, as has action to address the minor technical shortcomings in the functioning of the PMSS.

Key Issues and Concerns

54.   The JRM strongly feels that the need for an integrated, or at least a collaborative, approach to planning between the TEQIP and non-TEQIP aspects be impressed upon the institutes. A practice that could be replicated would be to create department level plans and consequently integrating these plans. In the long run, the goal should be to give a broad fund to be used freely by the institutes, in order to encourage an integrated approach to planning.

55.   In this regard, it is of concern that the training carried out by the IIMs to date has had a mixed reaction in the institutions visited by the JRM; while most institutions found the training valuable (for example, in West Bengal), others found the training generic and not relevant (as

in Maharashtra). IIM-Bangalore has yet to start its activities. An additional major concern is that the training is sometimes provided to only one person per institution, often the TEQIP coordinator, when there is clearly a need for a team of people from each institution to get this kind of capacity building for it to have any lasting and significant impact on the functioning of institutions. Finally, these courses are more likely to be welcomed and attended if they are held during the academic breaks.

56.   Most institutions had prepared their yearly plans in advance. The slow expenditure uptake despite this planning is due to the delayed approval of the Procurement Plans, lack of awareness of the system, and frequent change of faculty handling TEQIP II project.

57.   The slow uptake of non-procurement related expenditure was due to the low staff strength and hence the inability of institutions to spare faculty for trainings etc. The ability of institutions to get Faculty on board appeared to be the biggest bottleneck in the program.

58.   The struggles with the e-MIS mean that institutions do not use it for their planning purposes, and do not yet see the benefits of readily available information. Nor can the e-MIS be used for analysing trend data, either at the institutional, state or national level, since only one year's data is currently entered. Encouragingly, many institutions visited during the JRM who did not have an MIS saw the advantage of using the TEQIP MIS as the starting point for their own institutional MIS.

59.   Overall implementation progress is very slow, with notable exceptions in a very few states and institutions. Given that the project closes in December 2014, rapid acceleration is need by all implementing institutions and agencies. There is also a need to emphasise to institutions that without more rapid progress their participation in the project cannot be expected to continue. Certainly no institution should receive resources for a Centre of Excellence unless it has shown it is able to utilise the already-allocated resources.

Good practice

60.   PEC, Chandigarh has posted its 5 year Road Map on its website.

Recommendations

61.   The MHRD should identify a small number of key criteria that would be used to assess whether institutions are making sufficient progress (such as amount spent and contracted, and applications for accreditation and autonomy). These criteria should be communicated to institutions by 31 March and a review of progress take place in three months' time. Decisions can then be made by the appropriate authorities as to the continued participation of institutions in the project and to reallocation of resources to better-performing institutions by 30 September.

62.   Institutions need to identify the priorities for the next three and six months and prepare a detailed action plan (and associated procurement and fund utilization strategy, including clearing the backlog of unspent funds), with due approval by the Board of Governors. This plan should be completed by 30 April. Before the end of the next 3 months, all institutions should have spent or contracted sufficient funds so as to be able to request the next release of funds.

63.   NPIU should conduct an urgent review of the IIM training, including getting feedback from institutions. All the heads of TEQIP institutions, heads of department and TEQIP co-ordinators must be exposed to Planning, Implementation, Monitoring and Evaluation as part of a comprehensive leadership development programme. One option to consider is for institutions to choose which IIM course they wish to take, to increase the responsiveness of

the programme. Additional institutions, such as IITs with schools of management, could also be invited to participate. Attention is needed to ensure synergies between the IIM training and the Good Governance Programme which also addresses some fundamental institutional leadership issues.

64. There is a need for one round of quick training for all members of institutions handling TEQIP II specifically on PMSS, e-MIS and e-FMR.

65. As and when bottle necks in software are highlighted by institutions, the same may be addressed by the software developer on priority in consultation with NPIU.

66. Institutions should conduct an annual internal review, including of IDP and undertaking and SWOT analysis, approved by BoG. This should be based on SWOT analyses conducted at the departmental level. This would result in plans so that TEQIP, with the inherent flexibility that it provides, may help the institutes to improve along the path of their vision and mission

67. SPFUs are encouraged to facilitate quarterly monitoring of project progress with the institutions, to spread good practices and solutions so as to accelerate project implementation (but not to dictate to institutions or make decisions for them).

68. SPFUs, NPIU and MHRD will need to review their procedures for approving additional fund releases so that this happens rapidly, to allow acceleration of disbursements. In particular, releases will need to be considered on an institutional (rather than state-wide) basis as some institutions are spending their resources more quickly than others, and on a rolling basis as individual institutions make requests. West Bengal has already requested additional resources for some of its institutions. NPIU should carry out a review of the time taken to complete the necessary steps from an institution requesting resources to receiving those resources in its account, and use this review to design expeditious procedures.

D. Industry-Institution Interaction

Current Status

69. There is a wide range of industry partnerships evidenced in state and central institutions. Most institutions have industry partners represented on their Governing Boards as well as in different sub-committees e.g. on curriculum development & revisions. Student internships, participation in industry training programs, dissertations, summer projects, industry visits and placement initiatives are some of the initiatives that are commonly introduced or envisaged in most institutions.

Key Issues and Concerns

70. However, in some states, like Chhattisgarh and Kerala there is no provision for internships. In Chhattisgarh, there is negligible industry-institute interaction and a strong need for a special cell in each institution dedicated to enhancing this interaction. The JRM Mission notes that while institutions have progressed somewhat in initiating some worthwhile collaborative activities, they tend to be ad-hoc and not based on a long-term systematic collaboration with several industrial partners. Joint R&D and consultancy projects with industry are few confined to a limited number of institutions. On the other hand, there seems to be some reluctance in the minds of the industry when they are approached by the institutes for partnerships, as indicated by the lack of MoUs signed by industries even in institutes that they have an existing relationship with, especially in Kerala, Uttarakhand. Moreover, National Private Sector Advisory Group (NPSAG) and corresponding SPSAGs, which were

recommended to be constituted as per the decisions of the eighth NSC meeting, are not functional currently.

71. There have been about 85 eligible proposals to establish Centres of Excellence. They are being evaluated by a panel of experts organised by the NPIU. It is important that this evaluation is carried out quickly so that, by the end of March, Centres of Excellence funds can be released.

Good Practices

72. A few states like Maharashtra and West Bengal, besides most CFIs, are involving the industry in curriculum development. Selective institutes have developed infrastructure to facilitate R&D, which has been funded by TEQIP. Some institutes in Maharashtra and Punjab have established innovation or entrepreneurship centres.

73. The JRM observed pockets of excellence across states, like College of Engineering Pune, ICT Mumbai, Bengal Engineering and Science University, Jadavpur University and Thapar University as well as some CFIs like NIT Durgapur, NIT Suratkal, NIT Warangal and NIT Rourkela and some institutions in Karnataka and Tamil Nadu (see Annex 5 for state reports).

74. At some places, like PEC Chandigarh and RGPV Bhopal, industry also initiated contact with institutions for starting training in certain areas; this was done by EMC Corporation, IBM, and Eicher.

Recommendations

75. Given the overall lack of strong industry institute partnerships in many TEQIP institutions, it is suggested that NPIU in collaboration with the World Bank, AICTE as well as business associations will develop a specific TEQIP initiative to strengthen industry institute partnerships. It could have the following components:

   ▪ TEQIP institutions should be encouraged to produce strategies and action plans for promoting partnerships with industry and the wider community. The strategies and action plans would preferably be based on self-reviews and benchmarking tools such as the AICTE-CII survey of industry-linked engineering institutions;
   ▪ Engagement of the mentors in helping the TEQIP institutions in formulating and implementing institutional strategies and action plans on promoting academic-industry partnerships.
   ▪ TEQIP institutions could organise half-yearly or annual conferences where representatives of the State Industries and Commerce Departments; District Industries Centres; Chambers of Commerce and Industry; and successful entrepreneurs, could be invited, among others, to discuss ways and means of forging III linkages.
   ▪ Follow up proposals from industry associations for collaboration with TEQIP institutions.

76. Additionally, services of a qualified expert may be hired, whose role would be to lead, envisage and support the implementation of Industry Institute Interaction (III). This expert may use his/her own network, consolidate good practices and share it amongst the institutes, besides acting as a bridge between the industry and academia, leading industry surveys and other activities required to promote III.

77. Funds for Centres of Excellence should be released by the end of March, pending the outcome of the expert evaluation. However, funds should not be released to an institution until (a) the data contained in the proposal has been verified as recommended in the last aide-memoire; (b) the institution has completed the data entry for 2010-11 in the MIS; and, (c) the institution has spent or contracted for at least 60 per cent of the resources released to it.

78.   NPSAG and SPSAGs need to be made functional in order to promote the interaction between institutes and industry. Responsibility lies with the NPIU and respective SPFUs. This should be completed by 15 April.

79.   Besides alumni, institutes may also utilise the contacts and guidance of the BoG members and mentors to promote industry institute interaction.

E.   Mentoring

Current status

80.   During the visits to States, the JRM teams asked about the role mentors are playing and sought the opinion of institutions about the mentors assigned to them. In addition, a Learning Forum was held with mentors in Delhi, in which 25 mentors participated. There are currently 72 mentors, the majority of whom are also performance auditors under the TEQIP project (mentors typically mentor institutions in their home state, while in their role as performance auditors they are assigned to institutions in other states). Up until now, 62 mentors have completed their first visits to institutions (covering a little over 100 institutions).

81.   There appear to be a variety of reasons why some institutions have not been visited by mentors: a lack of proactivity on the part of institutions (who may not fully understand the role of the mentor as a 'critical friend' and hesitate to invite someone whom they perceive, instead, as an inspector); mentors only recently being assigned to institutions; and, in a small number of cases, because of the unavailability of the assigned mentors. Clearly, the role of the mentor implies that institutions should reach out to the mentor; but it may be that communication gap exists about the role of the mentor.

82.   The feedback from institutions was generally very positive about the contribution of the mentors; commenting that they were helpful in guiding and supporting the development of the institution, promoting networking and innovation linkages, and enriching research. With future mentoring visits, the impact of the mentors should become more visible in TEQIP progress. Moreover, it must be stressed that mentoring is a continuous activity and not a day visit. Accordingly, the NPIU, SPFUs and institutes must keep the mentors abreast of all developments that take place in terms of new guidelines, communications etc.

83.   In several institutions in some of the states visited during this JRM (Chandigarh, Punjab and Chhattisgarh), institutions were not satisfied with their mentor: for example, several mentors' reports were not sent despite the visits being conducted weeks previously, or institutions did not feel they benefit from the mentor's visit. Moreover, in Chhattisgarh the JRM team found the report of the mentor totally inadequate (the mentor and the performance auditor had also visited the institution at the same time and had prepared a joint report, which is bad practice); similar concerns were expressed by some of the CFIs.

84.   The Learning Forum for mentors was an excellent opportunity to learn in more depth about what is happening in TEQIP institutions and for the mentors to learn from each other about how they are doing their work and examples of good and bad practice they found. The mentors requested more such events. The role of mentors should be clarified to them and they should be oriented towards the program's expectations from them through seminars, workshops etc.

85.   At present, overall, there are approximately two institutions for each mentor. It seems likely that this is near to the limit for individual mentors, given other demands on their time and the expected commitment to support their TEQIP institutions (and their additional role as a performance auditor). Given that an additional set of institutions will be joining the TEQIP project, it may be that additional mentors need to be found. This is an urgent issue given that new institutions will likely need significant support.

86.   Institutions currently have no role in the assignment of mentors. This may explain some of the dissatisfaction of institutions, where it exists. There seems no reason why institutions should not be offered the chance to choose their mentor, from a list of approved and available mentors; and this practice could be used for the new institutions coming into the project and for those institutions which are dissatisfied with their current mentor. (Note: this should not be the case with performance auditors, who should continue to be assigned by the NPIU.)

87.   While clearly the overwhelming majority of mentors are doing a good job, now is the time to weed out those who are not performing satisfactorily. There is already evidence about mentor performance from the frequency of visits and the quality and timeliness of the reports prepared, plus additional feedback could be gathered from institutions.

88.   There is insufficient clarity amongst institutions and mentors about the different roles of mentors as against performance auditors. Given that the same individual is performing different roles, albeit in different institutions, clarity is essential for effective working: for example, the mentor should visit at the request of the institution (which may be several times during the year) while the dates for performance audit are determined by the national project. Greater consistency in the reports being written by mentors would also help institutions get better feedback and enable the state and national bodies to build up a composite picture.

89.   Another area in which clarity is could be brought is whether mentors should address academic issues, administrative issues or both.

Good Practices

90.   In Kerala, it is the practice that the mentor is invited to attend a BoG meeting, during the visit.

91.   Discussions during mentoring visits which focused on the quality of education and the institutional changes required to improve quality, rather than the administrative issues under the TEQIP programme.

Recommendations

92.   NPIU to review and revise the Guidelines for mentors and for performance auditors, with a view to providing clarity in the distinct roles, promoting greater consistency in performance and report writing, clarifying the incentive structure and giving further support for their work with institutions. This should be completed by 31 March.

93.   Mentors should expect to visit institutions more frequently than auditors. There should be a minimum number of visits by a mentor to the institute, during which the mentor must meet with the director.

94.   NPIU to identify those mentors who appear not to be performing satisfactorily and remove these mentors from the programme. This should be done by 30 June. NPIU can then issue performance monitoring guidance to mentors.

95. SPFUs and NPIU to identify additional mentors to support the new institutions; and give these institutions a choice of mentor (should they wish). This should be done by 30 April.

96. Organise additional events for mentors so that they can share their findings more broadly and providing guidance to the state and national agencies (at least once every two months).

97. The BoG members, preferably including the chairman, should be available to meet with the mentors during the visit.

F. Institutional Support Systems

Current Situation

98. The JRM reviewed mainly four areas in institutional support; (i) MIS, (ii) PMSS, (iii) e-FMR and, (iv) human resources. All institutions and States were given training for all three supporting systems last year. In principle, they are all up and running. For instance, 144 out of 158 institutions have entered data in MIS with about 50% completion of data entry for 2010-11, but the data collection process for 2011-12 and 2012-13 has not begun. Those institutions that did not have an MIS system before TEQIP-II generally welcomed the MIS and see the possibility of the TEQIP MIS forming the basis of a future institutional MIS. On the other hand, those institutions which already do have an MIS, have faced problems with integrating their institutional data with the project MIS.

99. Most institutions have started contracting and claiming expenditures through PMSS. However, some institutions expressed concerns about the user-friendly nature of the system. The JRM conducted a specific review of the concerns of CFIs. It was observed that many purchase orders are generated in the PMSS for national competitive bidding (NCB), Shopping and direct contracting (DC) by many institutions. One of the CFIs is yet to login. It was pointed out to the committee that in TEQIP I about 50 per cent of expenditure was not in conformity with the norms; therefore a PMSS system was thought of. The JRM feels that PMSS is helping every institution in processing the purchase orders as per the applicable norms. It was emphatically clarified that the NPIU is NOT approving the orders. There are many NITs, such as Trichy, Durgapur, Warangal and Surathkal, which have done well with same PMSS.

100. Despite the progress in supporting systems, the systems do have technical issues. They could be more user-friendly, which may require some system revisions. Additionally, system users do not fully understand the systems partly due to insufficient training of the systems, limited knowledge in the project fiduciary guidelines, and inadequate human resources.

101. The approvals process for procurement, and through the PMSS, has evolved and become more decentralised. At the level of policy, the MHRD and the World Bank have agreed that any changes to an institution's procurement plan need be approved only by the Board of Governors of that institution through its due process. In addition, carrying out procurement in accordance with the procurement rules in place for the project is the responsibility of the institution (or SPFU in the case of procurement carried out by the SPFU). The PMSS facilitates these processes and the NPIU has no approval role (a technical review of the PMSS is needed to ensure this policy is reflected in the system's procedures and the PMSS software should be amended in such a way that system proceeds with order inputting only when the prescribed norms are met, thereby making it self-correcting). The agreed procurement rules for the project specify that in a small number of cases, for very large contracts and for single

source selections, the approval of the World Bank is required and these requests are channelled through the NPIU. These reviews typically take one week.

102.   Procurement plans for Centres of Excellence can be approved by the institution's Board of Governors since all COEs are to be located at existing cycle I institutions. Thus, the additional items proposed to be procured under the new component shall be inputted as an amendment to the existing procurement plan in the Institution and approved by the BoG.

103.   For the procurement plans for cycle II institutions, the current policy agreed between the MHRD and the World Bank is that the initial procurement plan prepared by the institution is approved by the Board of Governors and then forwarded to the SPFU and the MHRD/NPIU for review (the financing agreement with the World Bank specifies that the Bank itself will review these plans, but this responsibility has been delegated to the MHRD). Bank role is limited to endorsing a consolidated state wise plan submitted by NPIU. This review process gives comfort that an institution starting procurement under the project for the first time has understood the applicable procurement rules and this makes it much less likely that mis-procurement will take place. Once this initial plan has been reviewed, the SPFU and the NPIU has no further role, subject, as noted above, to a small number of contracts.

Key Issues and Concerns

104.   <u>MIS</u>: MIS is not yet fully utilized for data analysis at institutional and state levels. Most of the institutions have not yet fully completed the data entry for 2010-11. Therefore, the system cannot be frozen for 2010-11 data entry. The delay in data entry is mainly due to difficulties and cumbersome procedures of data entry in the system. CORE, the company that established the system, is now revising the system so that institutions can more easily update their data in the system simply by using excel sheet.

105.   Once the data entry is completed, the institutions and SPFUs will need to ensure that the data is systemically analysed and reports generated and shared within the institution to assess progress and enable their use in strategic decision-making and planning, for achieving project goals and targets.

106.   <u>PMSS</u>: There are two main issues in PMSS. One is insufficient knowledge about procurement guidelines at institutional and state level. The other is that PMSS is not user-friendly. On the latter issue, there are some difficulties in the system, for instance, not reflecting changes in the cancelled procurements, system automatically sending the NCBs for approval to SPFU etc.

107.   <u>e-FMR</u>: This system is less advanced compared to the above two systems. Virtually, e-FMR is not in use in most institutions, if not all. The main issue is similar to MIS, which is labour-intensive data entry.

108.   <u>Human Resources</u>: Limited human resources are of concern at most of the institutions, especially in the area of monitoring and evaluation (hence, the limited usage of the three systems). In addition, those who received training of the three systems often change their positions without knowledge transferring. Limited and inadequate human resources make it difficult for institutions and States to make strategic plans for institutional development, using the three systems.

Good Practices

109.   Those institutions that did not have supporting systems like MIS before TEQIP-II highly appreciate that the project brought automated systems to the institutions. TEQIP-II MIS could

become the basis of an institutional MIS. The systems have potential to help institutions to holistically and strategically analyse strengths and weaknesses at institutional and State levels.

Recommendations

110. MIS should be revised and updated ASAP to make the data transfer from institutional data base to TEQIP MIS data base. This is currently underway, and a pilot to test the revised MIS is expected to be conducted at Institute of Chemical Technology in Mumbai in the mid-March. This would significantly mitigate data entry burden at institutional level.

111. NPIU should then complete additional MIS training for all institutions no later than 31 May, 2013.

112. The 2011-12 data entry process should begin immediately and be completed by 30 June, 2013. The 2012-13 data entry process can also begin immediately, and institutions should be encouraged to enter 2011-12 and 2012-13 data at the same time; in any case, 2012-13 data entry should be completed by 30 September 2013. Institutions may recruit short-term data entry operators to assist them in these tasks.

113. NPIU should work with the software developers to continue to make improvements in the user-friendliness of the PMSS, including ensuring that the helpline is responsive to institutions' concerns. In particular, NPIU should carry out a technical review of the PMSS to ensure this policy is reflected in the system's procedures and the PMSS software should be amended in such a way that the system proceeds with order inputting only when the prescribed norms are met, thereby making it self-correcting. This should be done by 15 April.

114. NPIU should also provide additional PMSS training and procurement guidelines to all institutions, no later than May 31, 2013. It is important to provide institutions with both system and procurement training.

115. NPIU and World Bank should revisit e-FMR, scrutinize system challenges, revise the system, if needed, and provide additional training accordingly, no later than June 30, 2013. As data entry seems to be one of the main issues, the system should take into account this difficulty and update itself accordingly.

116. SPFU and Institutions should make sure that the knowledge gained through training should be transferred to concerned personnel whenever needed.

117. In-house capacities of institutional and SPFU MIS staff and faculty require to be strengthened in data analysis and their appropriate use for assessing progress and strategic planning at their end to achieve project goals and targets. MIS staff may require additional training in generating progress reports and consolidation of project gains at SPFU levels. It is recommended that NPIU take a lead in sorting data issues with respective MIS units, if any, and strengthen their capacities to function effectively. The NPIU may, however, need to strengthen its own capacities in this regard.

118. Boards of Governors and SPFUs should ensure that there is a TEQIP cell of at least 3 responsible professors, together with a few assistants, at each institute, which would oversee the implementation of the program at the institutes' level. The role of this cell would be to co-ordinate with the NPIU and SPFU as well as the mentors, besides ensuring that all TEQIP related activities are carried out at the institute.

IV. STRENGTHENING NPIU

119. The strengthening of the NPIU needs to be reviewed in the current context of decentralization and functional autonomy of institutions along with the new initiatives of dedicated TEQIP offices and MIS cells at the state and institutional levels respectively.

120. The Mission appreciates the recent initiative of the MHRD and the NPIU to empower project institutions through decentralised approval processes for procurement activities and other administrative decisions. In addition, international travel is now approved at the SPFU, and in West Bengal a system involving experts has already been established to do this. While the Governing Boards of respective institutions, thus empowered, have the potential to expedite implementation of quality reforms, the NPIU can now be better positioned to play an effective role in facilitating institutions to further strengthen their professional development and networking programmes. In addition, their role will be critical in strengthening capacities of the SPFUs, which have recently been operationalized at the state levels. NPIU, however, will require considerable strengthening at its own end to be able to function as an effective team.

121. It will also require that the NPIU fully uses its given delegated authority to make decisions on operational matters, such as approval of Tour Programmes and Tour reports of NPIU Officers and Staff, engagement of short duration consultants for up to 07 days, approval of organization of training/orientation workshops for TEQIP participating institutions and agencies and of meetings with experts, and purchasing equipment/items up to Rs 1.0 lakh (with due process).

122. Discussions with the academic team of NPIU revealed considerable scope for expansion and reorganisation of their respective roles and responsibilities to enable thematic specialization in the areas of Quality (pedagogy, faculty development, quality circle initiative, student services, academic programmes, CoEs, etc), Institute-Industry Interaction, MIS and Procurement. The Mission is of the view that thematic specialization will facilitate not only in consolidating progress and gains at various levels: institutional, state and national, but also in analysing their strengths and challenges, providing need based training support in academic reforms and networking with identified resource institutions, encouraging meaningful partnerships with industries, or utilising institutional data bases for strategic decision making and planning. The MHRD may consider appointing high quality, senior professionals with proven expertise in some of the identified areas, at-least in the areas of Quality, I-I-I and MIS, and utilise internal expertise where available, such as in procurement, to lead and facilitate implementation at state and institutional levels. There is considerable scope for developing their capacities as well in several programmatic areas.

123. A related issue is to clarify the expectations of SPFUs, as the first point of reference for and monitoring of institutions in their respective states. It is not likely to be effective or efficient for the NPIU to establish strong working relationships with all individual institutions; instead NPIU should focus on value-added activities like analysis, evaluation, knowledge dissemination at the national level, making sure project procedures are as streamlined and decentralised as possible, and liaison with national agencies which affect TEQIP implementation and the World Bank.

Key Recommendations

124. A Management Consultant may be hired by MHRD to undertake an in-depth review of roles and tasks and to suggest reorganisation of the NPIU to enable them undertake a much wider and dynamic role in the current context of decentralization and functional autonomy of project institutions.

125. There will be a further need to revisit the current work distribution matrix of the NPIU shared with the Mission, to make responsibilities more thematically-oriented.

126. Expansion of the MIS cell may be considered while suggesting the reorganized roles and tasks where all monitoring activities may be handled by the MIS unit instead of making all academic consultants responsible for 16 to 18 institutions each which take up most of their quality time.

127. In addition, MHRD may consider appointing high quality, senior professionals with proven expertise in the identified thematic areas of Quality, I-I-I and MIS, to lead and facilitate implementation at state and institutional levels. Such consultants would need to be appropriate compensated in view of their opportunity cost. Also, considering that such consultants can seldom devote all of their time to this project, it is advisable that part time or need-based consultants may be hired. Existing consultants in the reorganised NPIU can support and carry out follow-up activities on a long term basis.

128. The internal expertise currently available in procurement may be utilized to resolve PMSS issues and provide training support to the institutions. The sanctioned staff positions in Procurement should also be filled to enable them take on their roles with institutions in an effective manner.

129. Clarification is needed whether private unaided institutions can acquire small items needed to directly improve the quality of teaching and learning, such as e-journals, textbooks and software.

V. ACTIONS TO BE TAKEN

S.No.	Action	By Whom	To be Completed by
1.	Provide institutions with clear and specific indicators and targets (disbursement and some Key Performance Indicators, etc.) and give institutions a clear deadline of no more than six months to demonstrate progress.	MHRD and NPIU	31 March, 2013
2.	Review progress of institutions against a small number of key criteria as conveyed to institutions, and make decisions about future funding for institutions	MHRD	30 June, 2013
Quality			
3.	Recruitment of regular faculty positions in the Government Colleges and NITs.	SPFU	Ongoing
4.	Adopt policy to avoid in-breeding of PhDs and faculty	Institutions, SPFUs	30 June, 2013
5.	Organize national workshop to share experiences and good practice on improving transition rate of students	NPIU	30 June, 2013
6.	Systematic Training Needs Assessment on faculty development, and develop plans for use of summer 2013 for faculty development	Institutions	30 April, 2013
7.	Establishment of Academic Quality Circles	IITs, NPIU	Next JRM

8.	Follow-up with institutions to confirm accreditation status and plans; ensure this information is entered into the EMIS and reported to NPIU	SPFUs	15 April, 2013
9.	Advise NBA (and UGC on autonomy) that requests from TEQIP institutions are expedited	MHRD	15 April, 2013
10.	Student Surveys on teaching quality	Institutions	Each semester
11.	National Survey of Student Satisfaction	MHRD/ NPIU	31 July, 2013
12.	Survey on PG Quality	NPIU	30 September, 2013
13.	E-learning strategy development	Institutions, NPIU	31 May, 2013
Governance			
14.	Roll-out of TEQIP good Governance and associated activities by all the project institutions in accordance with the Programme Document.	Institutions	As per Programme document
15.	Design leadership development programme in consultation with management development institutions.	IIMs, NPIU	30 April, 2013
16.	Study to review status of autonomy of TEQIP institutions	NPIU and World Bank	31 July, 2013
17.	Organize national level conference with affiliating universities of technical institutions on importance of autonomy and explore ways to gain autonomy	NPIU and World Bank	30 June, 2013
Planning			
18.	Identify the priorities for the next three and six months and prepare a detailed action plan (and associated procurement and fund utilization strategy, including clearing the backlog of unspent funds), with due approval by the Board of Governors.	Institutions	30 April, 2013
19.	Spent or contracted sufficient funds so as to be able to request the next release of funds	Institutions	30 June, 2013
20.	Review of IIM training including seeking feedback from institutions	NPIU	30 June, 2013
21.	One round of training for all members of institutions handling TEQIP II specifically on PMSS, e-MIS and e-FMR	NPIU	31 May, 2013
22.	Conduct an annual internal review, including of IDP and undertaking and SWOT analysis, approved by BoG	Institutions	31 May, 2013
23.	Carry out a review of the time taken to complete the necessary steps from an institution requesting resources to receiving those resources in its account, and use this review to design expeditious procedures.	NPIU and SPFUs	15 April, 2013
Industry Institution Interaction			
24.	Hire qualified expert, whose role would be to lead, envisage and support the implementation of	NPIU	15 April, 2013

	Industry Institute Interaction (III).		
25.	Release of Funds for Centres of Excellence, following verification of data and adequate spending for initial approval of IDP	NPIU	31 March, 2013
26.	NPSAG and SPSAGs to be made functional in order to promote the interaction between institutes and industry	NPIU and SPFU	15 April, 2013
27.	Follow up with industry associations on concrete proposals for collaboration with TEQIP institutions	NPIU	15 April, 2013
Mentoring			
28.	Revise guidelines for the mentors and performance auditors	NPIU	31 March, 2013
29.	Identify non-performing mentors and remove them from the programme	NPIU	30 June, 2013
30.	Identify additional mentors to support the new institutions; and give these institutions a choice of mentor	NPIU and SPFU	30 April, 2013
31.	Organise knowledge sharing events for groups of mentors	NPIU	Every 2 months
Institutional Support Systems			
32.	Pilot to test the revised MIS at Institute of Chemical Technology in Mumbai	NPIU	15 March, 2013
33.	Complete additional MIS training for all institutions	NPIU	31 May, 2013
34.	Completion of 2011-2012 data entry by institutions	NPIU	30 June, 2013
35.	Completion of 2012-13 data entry by institutions	NPIU	30 September, 2013
36.	Carry out technical review of the PMSS	NPIU	15 April, 2013
37.	Provide additional PMSS training and procurement guidelines to all institutions	NPIU	31 May, 2013
38.	Revisit e-FMR, scrutinize system challenges, revise the system, if needed, and provide additional training accordingly	NPIU and World Bank	30 June, 2013
39.	Ensure that there is a TEQIP cell of at least 3 responsible professors, together with a few assistants, at each institute, which would oversee the implementation of the program at the institutes' level	BoG and SPFU	30 June, 2013
Strengthening NPIU			
40.	Hire Management Consultant to undertake an in-depth review of roles and tasks and to suggest reorganization of the NPIU	MHRD	30 April, 2013
41.	Appointing high quality, senior professionals with proven expertise in the identified thematic areas of Quality, I-I-I and MIS	MHRD/NPIU	30 April, 2013
42.	The sanctioned staff positions in Procurement to	MHRD/NPIU	30 April, 2013

	be filled		
43.	Clarification is needed whether private unaided institutions can acquire small items needed to directly improve the quality of teaching and learning, such as e-journals, textbooks and software	MHRD	15 April, 2013
Pending from previous JRM (MIS)			
44.	To include institution level data for all TEQIP indicators (as mentioned above) for 2009-2010 and 2010-2011 in a single report	CORE	March 31, 2013
45.	Final verification of data contained in the proposals for the second round (before submission to National Steering Committee)	NPIU	
46.	Verification of data provided by COEs (before submission of proposal to National Steering Committee)	NPIU	
47.	Verification of 2009-2010 and correction of any error, incompleteness or inconsistency	NPIU	March 31, 2013
48.	Ensure that all 158 institutions selected in the first round complete the data entry process	NPIU	March 31, 2013
49.	Ensure that all data entry is completed before the institution is awarded a COE	NPIU	
Pending from previous JRM (Financial Management)			
50.	Provide Guidance to NPIU regarding selection criteria for internal auditors	World Bank	
51.	Appointment of statutory auditors for FY 2012-13	NPIU/States/CFIs	March 31, 2013
Pending from previous JRM (Procurement)			
52.	Report on Procurement Post Review	World Bank	June 30, 2013
53.	Draft complaints procedure	NPIU	

Annex 1: Joint Review Team Members

Nominated by MHRD:

Dr A S Pant, Vice Chairman AICTE

Mr R D Sahay, Ret Joint Secretary, MHRD

Prof R K Dube, Professor and Head of Department (retired), IIT Kanpur

Dr Ranjana Srivastava, Chairperson, CERD

Prof Hemnath Rao, ASCI

Mr Jai Sharda, Managing Partner, Equitorials

Prof N C Shivaprakash, IISc Bangalore

Nominated by the World Bank:

Mr Toby Linden, Lead Education Specialist

Ms Priya Goel, Senior Financial Management Specialist

Mr Kurt Larsen, Senior Education Specialist

Mr Satyanarayan Panda, Procurement Specialist

Mr Hiroshi Saeki, Education Specialist

Team 1: Team members
- Dr. A.S. Pant (Team Leader)
- Prof. R.K. Dube
- Dr. Ranjna Srivastava
- Mr. Kurt Larsen
- Mr. Satyanarayan Panda

States visited
- UT-Chandigarh
- Madhya Pradesh (Bhopal)

(A) Review meeting at Chandigarh
- Venue for review meet: Chandigarh Engineering College, Landran, Mohali
- Entities to be reviewed:
    o State Project Unit: UT-Chandigarh
    o University Institute of Engineering & Technology-Panjab University, Chandigarh
    o PEC University of Technology, Chandigarh
    o State Project Unit – Himachal Pradesh
    o Jawaharlal Nehru Government Engineering College, Sundernagar
    o State Project Unit – Punjab
    o Guru Nanak Dev Engineering College, Ludhiana
    o Chandigarh Engineering College, Landran, Mohali
    o Beant College of Engineering & Technology, Gurudaspur
    o GZS College of Engineering & Technology, Bhatinda
    o SBS College of Engineering & Technology, Ferozpur
    o Thapar University, Patiala
- **Institute campus visits:**
    o University Institute of Engineering & Technology-Panjab University, Chandigarh
    o Thapar University, Patiala

(B) Review meeting at Bhopal
- Venue for review meet: Vichar (Conference Hall), Hotel Palash Residensy Bhopal
- Entities to be reviewed:
    o State Project Unit – Madhya Pradesh
    o Madhav Institute of Technology & Science, Gwalior
    o Samrat Ashok Technological Institute, Vidisha
    o Sagar Institute of Research & Technology, Bhopal
    o Rajiv Gandhi Proudyogiki Vishwavidhyalaya, Bhopal
    o Shri Govindram Seksaria Institute of Technology & Science, Indore
- **Institute campus visits:**
    o Rajiv Gandhi Proudyogiki Vishwavidhyalaya, Bhopal
    o Sagar Institute of Research & Technology, Bhopal

Team 2: Team members

- Prof. Hemnath Rao (Team Leader)
- Mr. Jai Sharda
- Mr. Hiroshi Saeki
- Ms. Priya Goel

States visited
- Maharashtra (Mumbai)
- Kerala (Trivandrum)

(A) **Review meeting at Mumbai**
- Venue for review meet: Hotel Grand Hyatt, Santa Cruz East
- Entities to be reviewed:
  - State Project Unit – Maharashtra
  - Government College of Engineering, Karad
  - Government College of Enginering, Chandrapur
  - Government College of Engineering, Jalgaon
  - BVB's Sardar Patel College of Engineering, Mumbai
  - Bhartiya Vidyapeeth University, College of Engineering, Pune
  - STES's Sinhgad College of Engineering, Pune
  - Institute of Chemical Technology, Mumbai
  - College of Engineering, Pune
  - Shri Guru Gobind Singhji Institute of Engineering & Technology, Nanded
  - Walchand College of Engineering, Sangli
  - Government College of Engineering, Amravati
  - Government College of Engineering, Aurangabad
  - Veermata Jijabai Technological Institute, Matunga, Mumbai
  - Dr Babasaheb Ambedkar Technological University, Lonere, Raigad
  - GH Raisoni College of Engineering, Nagpur
  - Rajarambapu Institute of Technology, Sakhrale, Sangli
- **Institute campus visits:**
  - Institute of Chemical Technology, Mumbai
  - Veermata Jijabai Technological Institute, Matunga, Mumbai

(B) **Review meeting at Trivandrum**
- Venue for review meet: Convention Centre - Mascot Hotel, Trivandrum
- Entities to be reviewed:
  - State Project Unit - Kerala
  - Govt Engineering College, Thrissur
  - Govt Engineering College, Kozhikode
  - Govt Engineering College, Painavu, Idukki
  - Rajiv Gandhi Institute of Technology, Kottayam
  - School of Engineering-Cochin University of Science & Technology, Cochin
  - Govt Engineering College, Kannur
  - Govt Engineering College, Thiruvananthapuram
  - LBS Institute of Technology for Women, Poojappura, Thiruvananthapuram
  - College of Engineering, Perumon, Kollam
  - College of Engineering, Kidangoor, Kottayam
  - Cooperative Institute of Technology, Vadakara, Kozhikode

- o College of Engineering, Trikaripura, Kasargod
- o College of Engineering, Thalaserry, Kannur
- **Institute campus visits:**
  - o LBS Institute of Technology for Women, Thiruvananthapuram
  - o Govt Engineering College, Barton Hill, Thiruvananthapuram

Team 3: Team members
- Team members
  - o Mr. R.D. Sahay (Team Leader)
  - o Prof. N.C. Shivaprakash
  - o Mr. Toby Linden

States visited
- Chhattisgarh (Raipur)
- West Bengal (Kolkata)

(A) Review meeting at Raipur
- Venue for review meet: Government Circuit House, Raipur
- Entities to be reviewed:
  - o State Project Unit – Chhattisgarh
  - o Govt Engineering College, Bilaspur
  - o Govt Engineering College, Jagdalpur, Bastar
  - o Govt Engineering College, Raipur
  - o Rungta College of Engineering & Technology, Bhilai
- **Institute campus visits:**
  - o Govt Engineering College, Raipur
  - o Rungta College of Engineering & Technology, Bhilai

(B) Review meeting at Kolkata
- Venue for review meet: College of Technology - Calcutta University, Salt Lake, Kolkata
- Entities to be reviewed:
  - o State Project Unit - West Bengal
  - o University Institute of Technology, Burdwan University, Burdwan
  - o RCC Institute of Information Technology, Kolkata
  - o College of Engineering & Management, Kolaghat
  - o Bankura Unnajani Institute of Engineering, Bankura
  - o West Bengal University of Technology, Kolkata
  - o Birbhum Institute of Engineering & Technology, Birbhum
  - o Heritage Institute of Technology, Kolkata
  - o MCKV Institute of Technology, Howrah
  - o Narula Institute of Technology, Parganas
  - o University College of Technology - University of Calcutta
  - o Bengal Engineering & Science University, Shibpur Howrah
  - o Faculty of Engineering and Technology-Jadavpur University, Jadavpur
  - o JIS College of Engineering, Nadia
- **Institute campus visits:**
  - o Bengal Engineering & Science University, Shibpur Howrah
  - o Heritage Institute of Technology, Kolkata

Annex 3: Key Performance Indicators

Indicator	2009-2010 (From IDP)		2010-2011 (MIS*)		Frequency and reports	Data Collection Instruments	Responsibility for Data Collection
	Target	Actual	Target	Actual			
Share of supported programs that are accredited	30%	31%	35%	22%	Annual%	NBA Records	NBA
Percentage of Institutions with academic autonomy	30%	37.9%	40%	58.2%	Annual%	UGC Records	UGC
Percentage of faculty with at least an M.Tech	45%	83.0%	45%	86.6%	Annual%	Monitoring Formats, MIS	NPIU,SPFUs
No of Master and PhD students enrolled	15000	25107 (all years)	16500	14089	Annual	Monitoring Formats, MIS	NPIU,SPFUs
Increase in the number of publication in refereed journals(within field of Engineering)	7032	10470	7500	7496	Annual	Monitoring Formats, MIS	NPIU, SPFUs
Percentage of faculty enrolled in M.Tech	63%	12.7%	63%	15.1%	Annual%	Monitoring Formats, MIS	NPIU, SPFUs
Percentage of Externally funded research and development projects and consultancies in total revenue	10%	23.6%	10%	13.0%	Annual%	Monitoring Formats, MIS	NPFU, SPFUs
Transition rate of student from the first year to the second year of under graduate study	45%	67.4%	45%	44.1%	Annual%	Monitoring Formats, MIS	NPIU, SPFUs
Number and share of female students (beneficiaries) in project institutions	50000, 33%	87452 (all years), 26.6%	0	26455, 31%	Annual	Monitoring Formats, MIS	NPIU, SPFUs

Notes: * 2010-11 data is being populated by the institutions (To be completed by March 15, 2013)

Annex 4: Progress of Key Action Points since Last Mission in November 2012

S.No.	Action	By Whom	Deadline	Results	Comment
	Monitoring and Evaluation				
54.	To include institution level data for all TEQIP indicators (as mentioned above) for 2009-2010 and 2010-2011 in a single report	CORE	December 13, 2012	Partially Completed	Draft report prepared, but final report not completed.
55.	3Institutions to send data files prepared for uploading AICTE data	NPIU	December 31, 2012	Completed	
56.	Final verification of data contained in the proposals for the second round (before submission to National Steering Committee)	NPIU	Mid-January, 2013	To be done	SPFUs will complete the activity through data auditors
57.	Verification of data provided by COEs (before submission of proposal to National Steering Committee)	NPIU	Mid-January, 2013	Not yet due	COE proposals currently being evaluated by experts. Verification of data to be completed.
58.	Confirm on the possibility of developing a programme to load/ convert that data into the TEQIP MIS.	CORE	January 15, 2013	Completed	
59.	Verification of 2009-2010 and correction of any error, incompleteness or inconsistency	NPIU	January 18, 2013	Underway	Complete, except two/three indicators
60.	Ensure that all 158 institutions selected in the first round complete the data entry (2010-11)	NPIU	January 31, 2013	Partially Completed	144 institutions have entered at least 50 % of their required data.
61.	Ensure that all data entry is completed before an institution is awarded a Centre of Excellence	NPIU	February 15, 2013	Partially completed	Institutions are in the process of finalizing and freezing baselines
62.	Necessary training on MIS, PMSS and e-FMR for the institutions selected in the first round (remaining) and second round	NPIU	January/ February, 2013	Completed	
63.	Request for 2011-12 data from institutions	NPIU	February 1, 2013	Not Completed	Not started.
64.	Complete data entry for 2011-12 data	NPIU	April 30, 2013	Not Completed	Not started.

Financial Management					
65.	Submit consolidated audit report for FY 2011-12 to the Bank	NPIU	December 25, 2012	Completed	
66.	Submit FMR for April-Sep 2012 to the Bank	NPIU	December 31, 2012	Completed	
67.	Provide Guidance to NPIU regarding selection criteria for internal auditors	World Bank	December 31, 2012	Not started	
68.	Complete training for remaining institutions in E-FMR	NPIU	January, 15 2013	Completed	
69.	Start process for appointment of statutory auditors for FY 2012-13	NPIU/States /CFIs	January 31, 2013	Started	World Bank agreed to extend current auditors for another year
Procurement					
70.	Carry out review of procedures for approving procurement plans and activities	NPIU/World Bank	January 15, 2013	Completed	It has been agreed that revisions to Procurement Plans will approved by Boards of Governors.
71.	Report on Procurement Post Review	World Bank	June 30, 2013	To be confirmed	Review is underway; World Bank has written to NPIU for information.
72.	Draft complaints procedure	NPIU	January 31, 2013	Not started	
Other					
73.	Agree Joint Review Mission schedule	MHRD/NPIU/World Bank	January 15, 2013	Completed	

<p align="center">**Annex 5: State Reports by JRM Members**</p>

<p align="center">**Chhattisgarh**</p>

Introduction

There are four participating institutions: three government institutions, Government Engineering College Bilaspur, Government Engineering College Jagdalpur, and Government Engineering College Raipur; and one private unaided institution, Rungta College of Engineering & Technology Bhilai. All institutions are in component 1.1.

Overall, there has been virtually no progress which has been reported in the State: resources have not yet been released by the Government to any institutions.

Governance

1. *Current situation :*

All the three Government Colleges are without regular principals since a number of years. Even the Boards of Governors (BoG) has not been constituted by the State Government in any of the colleges. As such these colleges were found to be suffering from lack of leadership, both at individual and institute level, resulting in the Institutes looking up to the Directorate of Technical Education, Govt. of Chhattisgarh for practically everything. Even at the College level, there hardly seem to be any well-coordinated approach towards the Project amongst the various departments and their Heads. The TEQIP Coordinators were also not found to be well conversant with the various aspects of the project management and the obligations cast on them. There was a common refrain that the activities to be carried out under TEQIP-II are time consuming and it was hard to execute them parallel to the regular institutional work particularly when the number of regular faculty was quite small.

The Deputy Director, Technical Education, who was coordinating the visiting on behalf of the State Government assured the Committee that the Board of Governors of these Government Colleges would be constituted latest by 15th March 2013.

The BoG of the private self-financed college under the project was found to be in place and it was reported that the Board is meeting quarterly and the proceedings are well minuted. There was visible enthusiasm amongst the top management of the institute towards the project and the benefits that may accrue on this account.

2. *Key issues / concerns :*

There is an immediate need for the State Government to ensure constitution of the Board of Governors and regular appointment of principals in all the three Government funded colleges so that there is no undue drift and laxity in decision making at the college level. In the lone BoG of the self-financed college, it was noted that the Board of Governors was packed by the family members of the sponsors and there was hardly any outside representation from Industry/Academia.

3. *Key recommendations / actions :*

The Board of Governors must be constituted immediately, comprising of, besides the Government nominees, a nominee of the AICTE and representatives from Industry and Academia who may bring value to the proceedings of the Board on account of their diverse background. Likewise the principals of the colleges be appointed without any further delay. To sensitise the Board of Governors, of the need to take the Quality Improvement Programmes with due seriousness, it may perhaps be desirable that at the National level (NPIU) an effort is made to constitute a Task Force to develop and recommend guidelines for effective functioning of the Board of Governors.

Quality of Education

1. Current situation :

The State level information furnished under Key Performance Indicators (KPIs) reveal that the quality of faculty and teaching obtaining in the State leaves much to be desired. In the year 2011-12, barely 21% of the faculty were having at least M.Tech degree and still the percentage of faculty enrolled in the M.Tech and PhD programme was to the extent of 2.33% only. There was no significant increase in the number of publications in the referred journals and the percentage of externally funded research and development projects and consultancies in total revenue was negligible. The transition rate of students from the first year to the second year had however gone up from 33.25% in the year 2009-10 to 47% in 2011-12, even though the same in respect of students from disadvantage background was not satisfactory (21%). The presence of female students in the project institutions was healthy (35.75%) which is much higher than the National average.

The JRM team found that there was acute shortage of faculty particularly in Government engineering colleges. It was informed that no regular recruitment had taken place since last 6-7 years. In one of the engineering colleges, there were only six regular faculty, 12 contract and approximately 40 adhoc faculty who conducted 6 UG and 2 PG courses with nearly 1100 students on its rolls. By and large similar position was obtaining in one more Government Engineering College.

There were also issues relating to lack of well-equipped and functional laboratories in at least one of the Government Engineering Colleges that the team visited, even though the College boasted excellent newly constructed building premises with plenty of space lying unutilized. It was obvious that the college was suffering on account of lack of vision and planning on part of the college administration as well faculty.

While autonomous status has been mandated for all the institutions under the Project with accreditation of the courses and programmes, in the current situation it was obvious that the colleges were not ripe for the same. An interesting dimension was that all these four colleges were affiliated to a Technical University which was barely six years old and the Statutes thereof provide that unless the University was 10 years old, it was not open to it to recommend autonomous status. Under the circumstances, the private self-financed college, which has a large number of UG/PhD programmes with fairly good physical and academic infrastructure, finds itself in a peculiar situation even though it may be fulfilling the requisite norms for autonomous status.

2. Key issues / concerns :

There is a crying need for immediate recruitment of principals and appointment to regular faculty positions in the Government colleges. Sooner the appropriate steps are taken in this regard, the better it would be for all the concerned stake holders. There ought to be proper academic plan of action at the college level to address to issues relating to quality, both in respect of teaching and learning. The eligibility norm in the Technical University's statutes for autonomous status needs to be revisited so that the project requirement in deserving cares could be fulfilled.

3. Key recommendations / actions :

The State Government should embark upon a time bound faculty recruitment programme so that teaching and learning in the Technical Institutions do not unduly suffer. The State Government must incentivize the enrolment of the existing faculty to M.Tech and PhD programmes. However, to ensure that there was no inbreeding it was necessary to ensure that the faculty is encouraged to take such programmes outside institutions. To improve upon the transition rate of student pass out from first year to second year and further it was necessary to conduct remedial coaching for the needy students. Besides improving their employability skills etc. Special efforts were also needed for faculty

development programme so that they are able to keep pace with rapidly changing technology and frontier of knowledge.

4. Good Practices :

The State Government has signed MoUs with National level institutions, such as IIT Kharagpur and IIM Raipur for Capacity building, Quality improvement, Training and Continuing education. The State is also carrying out faculty and staff development activities through Raipur extension centre of NITTTR, Bhopal. Such academic collaborations with national level premier institutions need to be replicated elsewhere.

Industry-institutional Interaction

1. Current situtation

The Government institutions have mentioned that at present there are no industry interactions. One of the private Institutions has some interaction with industry with respect to students project:

- **Governance**: The BOGs have not been constituted in all the Government Institutions. The private institution has BOG, but external industrial representation is not there. All Institutions have applied for autonomy.
- **Student internship**: The internship scheme is not in place at the moment.
- **Faculty**: There are no R&D projects with industry. Some industry lectures have been arranged.
- **Infrastructure**: The private Institution has created some facility for student projects.
- **Consultancy services**: There are no consultancy projects.
- **Student placement**: The placement is quite satisfactory in private institution and not so great in government institutions.
- **Entrepreneurship**: A few lectures are arranged on entrepreneurship in some institutions only.

2. Main issues

It is clear that a greater efforts are required to achieve the above issues.

3. Good practices

The private institution has a good leader to who can motivate the faculty members to implement the TEQIP activities.

4. Recommendations

All institutions should come together and approach AICTE for a special cell to move forward in creating more industrial interaction. The mentors' role will be very important in preparing a strategic plan with the Institutions particularly for industry interaction. The institutions could take some help from other good counterparts from Maharashtra state.

Mentors

The mentors have been identified for all the Institutions. The institutions have informed the JRM that first mentoring has not taken place. The reason given by the Institutions is that mentors have expressed nothing can be initiated with out the release of first installment of funds. One mentor has been in touch with the Institute and will probably visit during March 2013. The JRM has observed that there are no principals in place for Government colleges and also BOGs are not constituted. It is

suggested to SPFU that mentoring to be completed by March and the report of the same should be made available to the Performance auditor and Institution for taking action from their part.

Planning

1. Current situation

At the time of the visit, funds had not been released to institutions, because the initial finalization of the procurement plans had taken time and the final approval of the fund release was needed from the Treasury. However, the JRM team was informed (by both the TEQIP coordinator and the Chief Secretary to the government) that all the obstacles to releasing the funds had now been overcome, and that it would only be a matter of days before the funds were released. The team was also informed that it is not expected that these problems will arise again with further releases.

For 2013-14, only 4 crore has been proposed in the State budget (due to be discussed at the Assembly shortly). This reflects the lack of spending in the current financial year. The JRM team was informed that additional resources would be allocated during the supplemental budget for 2013-14 if this initial allocation was utilized by June.

No activities had taken place under TEQIP in the government colleges, since no money had been released. No planning has taken place to date for utilizing the resources which are now expected to arrive shortly. The private college had started a few activities, and was able at short notice to present a three month action plan to utilize the expected resources.
The SPFU and the colleges were aware that procurement plans could be change with the approval of the Board of Governors (though as noted elsewhere in this report, these Boards are not yet in place).

2. Key issues/concerns

There is an immediate need for all colleges to develop a plan of action for the next six months to utilize the resources shortly to be transferred and those available starting in April. The JRM team was concerned that the government colleges did not have in place processes which enable these action plans to be developed.

None of the colleges in Chhattisgarh were notified about, and therefore did not participate in, the training offered by IIM-Indore.

3. Key recommendations/actions

All the colleges need to develop an action plan for the next six months. These plans should project to spend the funds immediately available and those available in April. This will allow additional resources to be sought during the budget revision. In order to do this, colleges will need to identify activities which: (a) are priorities for action; (b) can be completed in this period; and (c) are ready to go immediately (either through procurement or other methods). These plans will need to be prepared and approved by the college director/principal in the absence of the Boards of Governors; subsequent plans for the remaining period should be brought before the BoG at their first full meeting (which should take place in March or April).

The NPIU and SPFU should contact IIM-Indore to arrange training the Chhattisgarh colleges. It would be ideal if IIM-Raipur were included in this training, given that it shares a campus with one of the TEQIP institutions and is in close proximity to another and could provide localized support.

Clarification is needed about what activities private colleges can spend their money on. In particular, software, books (especially e-books), consultant services for training, registration fees for faculty to pursue degrees.

Clarification is needed on how advance payments can be made through the PMSS given that e-journals can only be purchased with advance payment.

Action needs to be taken to identify auditors for the 2012-13 audit, before the end of March so that the audit can be started and completed on time.

Institutional support – systems and people

1. Current situation

There are four people in the SPFU, with two more being appointed shortly (namely an accounts person and data entry person).

Colleges have not entered most of their data into the MIS. They were having difficulties because once data is entered it cannot be corrected.

Colleges have entered contracts into the PMSS as per their procurement plans, but not yet used the system for procuring goods and services.

2. Key issues/concerns

Given that procurement and other spending has not started, colleges have not faced any problems with the PMSS etc., but this is likely to be the case once activities get underway (based on the experience in other states.

Institutions do not currently have their own MIS. The TEQIP MIS was welcomed by institutions, and they felt that it could become the basis of an institutional MIS.

3. Key recommendations/actions

The SPFU should ensure that the TEQIP teams in the different colleges meet on a regular (at least monthly) basis to share experiences and help solve problems as they arise. These meetings should be organized thematically (e.g., those working on faculty and staff training, procurement, MIS etc).

Maharashtra

The implementation of TEQIP II in the Maharashtra State is beginning to gain momentum, though teething problems in regard to the Management Information System (MIS), Procurement and Financial Support Systems, persist. Other issues such as institutional autonomy, accreditation and speedy recruitment of faculty resources that directly impact the project strategy and design, seem to engage the attention of the Government of Maharashtra (GoM). All the 16 participating institutions-six selected under sub-component 1.1 and the rest under sub-component 1.2, besides the centrally funded National Institute of Technology (NIT) in Nagpur, displayed considerable enthusiasm for TEQIP, during their interaction with the JRM. Two additional institutions have been identified by the GoM under the sub-component 1.1, which will enhance the list of state sponsored institutions participating in TEQIP II to 18 in Maharashtra. Following are the JRM's observations on key aspects of project implementation in the state.

Governance
2. All the participating institutions have constituted Boards of Governors (BoG), chaired either by an eminent academician or a prominent industrialist of the region where the institution is located. Barring few institutions like the College of Engineering, Pune (CoEP) and the Institute of Chemical Technology, Mumbai (ICTM), now a deemed university under Section-3 of the UGC Act, 1956, the BoG in most institutions is passive. Their commitment to the good governance of the institution is not evident as they do not spare adequate time for interaction with stakeholders like faculty, staff, students or alumni, beyond attending the formal meetings. Transparency to the extent of posting the minutes of the BoG meetings on the websites of the institutions is practiced, however. The better performing institutions seem to have clearly benefited from the positive contribution of the BoG in promoting academic quality and efficient administration, besides access to government and industry resources.

3. The CoEP has a system in place which mandates every member of its BoG to interact for at least 80-100 hours in a year with various stakeholders, which the JRM considers a good practice that can be replicated across other TEQIP institutions. The BoG also interacts regularly with the TEQIP co-ordinators, including the department level TEQIP co-ordinators. Designating departmental TEQIP co-ordinators, in itself is seen as a good practice that helps increase the outreach of TEQIP support within the institution. The BoG in both CoEP and the ICTM has taken initiative to attract endowments from the industry while expanding students' access to scholarships and concessional bank loans, often enlisting the support of alumni. The JRM also recommends the practice of weekly meetings of Heads of Department every Monday at 3.00 pm and disseminating the minutes of the same via the institutional website of CoEP as well as setting a time limit of 15 days for the Head of the Institution to respond to any representation from any stakeholder, as worthy of replication.

Planning
4. Systems of planning for infrastructure, human resources, courses and curriculum development seem to be ad'hoc at best, in most institutions. No task force has been constituted for strategic planning and even the better managed institutions operate on the basis of annual or half yearly plans. Lack of planning at the institutional level has also affected the GoM and the ability of the Maharashtra State Public Service Commission (MSPSC) to carry out timely recruitment of faculty and non-teaching staff, which adversely impacts all quality related matters including the institution's ability to utilize TEQIP funds. The JRM recommends that all the heads of TEQIP institutions, heads of department and TEQIP co-ordinators must be exposed to Planning, Implementation, Monitoring and Evaluation (PIME) as part of a comprehensive leadership development programme.

Quality of Education
5. The quality of education has been improving in Maharashtra, going by the key performance indicators, particularly in terms of transition rates of undergraduate students from the first year to the second, which went up from 50% in 2009-10 to over 78% in 2011-12. A similar improvement in the enrolment for postgraduate courses and published research work has been reported. Yet, there is scope for improvement while indicators relating to social equity need urgent attention. The shortage of

faculty resources, particularly at the level of professors and associate professors, has emerged as the single biggest impediment to quality improvement. The shortfall is as high as 40% which is forcing available faculty to teach outside their core discipline. The situation is worse in rural areas where attracting faculty resources of even mediocre standard has become a challenge, while in urban centres like Mumbai and Pune, lack of residential accommodation is putting off potential recruits. It is recommended that the GoM and SPFU should approach the MSPSC with an appropriate plan for crash recruitment of faculty. A suitable system of faculty evaluation by the students coupled with an opportunity for continuous learning to the faculty, should be considered.

Industry-Academia Linkages
6. Being an industrialized state, the students do have an adequate opportunity for interaction with industry. Institutions like the ICTM have developed innovative models of partnering with the industry as may be seen from **Box 1**. The JRM understands the difficulty of the institutions in the rural areas to achieve industry linkages but location specific strategies may be considered by such institutions to focus on agro-processing and alternatively examine flexible options of inviting industry experts to visit the institutions as faculty in residence for varying lengths of time. The best practices in many of the TEQIP institutions in the state is the constitution of Industry-Institution Partnership Boards and inviting industry representatives to join the curriculum design committees, which can be encouraged in other states, too.

Mentors
7. Mentoring has been widely appreciated by all the institutions in the state and there is a demand for more time from the mentors, though the rubric of mentoring seems to vary with the profile and experience of the mentors. Some mentors have helped institutions with opportunities for networking while others have enriched the faculty with innovative approaches to research. Mentoring has led to new initiatives such as entrepreneurship development centres, innovation labs and technology incubators. Mentors' role in revamp of libraries and laboratories has also been reported. The JRM recommends that better incentives can be extended to mentors to enable them to frequently visit and continuously interact with the institutions. A standard format can

Box 1: Partnering with Industry at ICTM

1. **Industrial Internships**: Every third year student spends minimum six weeks in industry for practical training. Each student works on a project and the industry pays handsome stipend.
2. **Industry Chairs**: ICTM has created a number of endowments with donations from Industry and plan to create at least one Chair every year. The chair endowment is supposed to take care of salary, research and improve the corpus enough to take care retirement benefit to the faculty.
3. **Visiting Professorships**: Industries have created endowments for supporting visits of eminent industry persons to deliver lectures, interact with faculty and students on regular basis. More than 50 such positions are created over time.
4**. Honorary Professors from Industry**: Many industry experts would like to share their knowledge with students without charging anything to the Institute. These experts are appointed as honorary professors, where some of them teach a course of their expertise as an elective.
5. **Adjunct Professors**: Superannuated industrial experts are also considered for an appointment as adjunct professors who teach undergraduates, one or two courses in a semester.
6. **Industry Experts on Committees**: Most academic committees have an industry expert and one of the examiners for Ph.D. thesis evaluation is from industry. This helps the industry to appreciate the research value for the industry and vice-versa.
7. **Industry Research Projects**: ICTM respects confidentiality, timelines and deliverables as an important basis to engage with industry. IPRs are equally shared with the industry. The basic scientific curiosity is balanced with practical application of the results.
8. **Industrial Consultancy**: Almost every faculty member is an active advisor to industry and the fees are shared in 2:1 ratio with institute. One day in a week is allowed for the consultation. Many faculty members pay back their salary to Institute through the 1/3rd share.
9.**Board Memberships**: Some of the faculty members are on the board of companies and thus guide the companies in their R&D.

10. **Entrepreneurship**: Faculty is allowed to develop his or her own business enterprise using their own research. Sabbatical leave/special leave is granted for the same.

11. **Industrial Problem Solving Skills**: This is a relatively new activity of ICTM, where industries and students are brought on common platform for solving live industrial problems. The team opts for a problem of their choice from a pool of problems offered by a host of industries and attempt to solve it within a span of 72 hours. The winner takes home handsome cash prize and in many cases an offer for internship or job.

also be developed for reporting by the mentors on the progress and problems of the TEQIP institutions, as a way of actionable feedback for the SPFU and the NPIU.

Institutional Support

8. Total autonomy (administrative, academic, and financial) is critical to the institutional ability to chart its path for achieving the targeted quality. It is taking a lot of time for institutions to obtain autonomy from the affiliating university, for various reasons, the most important being the faculty crunch. With autonomy, institutions can even organize more flexible student loan schemes in collaboration with commercial banks. Autonomy apart, there are institutions that have taken very good advantage of TEQIP for faculty and staff development, though some institutions have expressed serious reservation on the quality of management enhancement training provided by the Indian Institutes of Management.

9. The JRM was pleased to note that some rural institutions have succeeded in developing collaborative linkages with international universities, thanks to the infrastructure facilities developed under TEQIP. The JRM recommends that a uniform guideline be circulated to all the TEQIP institutions to extend the library working hours well before and beyond the conventional working hours, on the lines of libraries in international universities. Other support systems can be

- Closer relationship between NPIU/ SPFU and TEQIP institutions
- NIPU and SPFU should give adequate notice and time for institutions in matters of reporting
- TEQIP systems (MIS, PMSS, e-FMR) should be more user friendly.
- Data formats should be consistent among AICTE, NBA, and TEQIP

Kerala

1. The state of Kerala is now witnessing a pick-up in the pace of implementation of TEQIP phase II after a slow start. The interesting point about the institutes that the JRM team met is that all of them fall under the category 1.1, which has its own set of distinct problems and opportunities. The overall impression of the JRM is that the institutes are faced with a number of concerns that are region specific. However, the creativity in tackling these concerns is missing, despite the fact that the institutes recognize the opportunities for improvement that this program has provided them with. A common theme of issues is the shortage of faculty and the lack of autonomy, besides the problems with MIS, PMSS and the e-FMR. Also, there is a lack of clarity regarding the do's and dont's of activities under TEQIP. The JRM's observations on the key issues related to the implementation of TEQIP in the state are discussed below.

GOVERNANCE

2. One positive in the state is the proactive role played by the SPFU. The SPFU has been holding regular sessions with the state institutes for brainstorming on common issues. Additionally, SPFU has divided the state into 4 clusters, which are encouraged to interact regularly amongst themselves. At the institute level, the BoGs meet regularly with agendas, but they are not able to devote time to meeting the students or faculty. The Government and industry nominees to the BoG are not very active, presumably owing to their commitments elsewhere. The procurement, academic and finance committees are active in all the institutions. A major differentiator that we observed between the institutions that were performing well vis-à-vis those that were not, was the quality and intent of the institution's management.

3. One area of concern that the JRM identified in the state is that de-centralization is only in letter, not in spirit. E.g. in a number of cases, it is not sufficient if the BoG takes a decision. The decision has to be approved by a government order with approval from finance. Even at the institute level, in some cases, cashiers do not make payments despite the sanctioning of bills by authorized professors. Similarly, many principals issue orders authorizing every purchase order by a HoD, defeating the whole purpose of de-centralization. Unless the Government of Kerala issues orders confirming the powers of the BoG, the decentralization of powers by BoG to Principals and HoDs will not make any impact. Secondly, being category 1.1 institutions, all institutes should aim for obtaining autonomy, which currently is stalled, primarily owing to the passive role of the universities in this regards. A case in point is the CUSAT not forwarding the application for autonomy of its engineering institute to UGC. Moreover, there is talk of a technical university being started in the state and all institutes being forced to be affiliated to it, raising questions on the autonomy provided to the institutes in the true sense. In order that the state's institutions get autonomous status, UGC may need to revise its Acts and state interventions may be needed. On similar lines, the absence of adequate faculty has created problems in getting accreditation.

4. One practice that the JRM feels should be replicated across states is the interaction of mentors, BoG and state steering committees for brainstorming that is facilitated by the SPFU. In order to create incentives for institute's management, our recommendation is also that the institutes must be encouraged to compete for funds, as a part of encouraging good leadership. Moreover, there could be some provision to drop the institute from the program mid-way, in case it does not fulfill certain performance parameters. On the question of lack of faculty, given the fact that it is the root cause for a number of problems, this JRM feels that faculty hiring must become the primary concern for all related parties.

PLANNING

5. The JRM senses an absence of a detailed, institutional and integrated approach to planning. TEQIP and non-TEQIP planning is happening in parallel in most institutes, barring a few like LBS institute of technology, which has a regular interaction of the institute's TEQIP team with its core planning team to create an integrated plan to utilize funds. Besides, the planning system of the universities dominates

the institutional plans with focus largely on expenditure planning, rather than on improving academic quality. A related problem is that of ad hoc planning, especially related to TEQIP funds, as brought out by the institutes' efforts being concentrated on procurement to satisfy KPIs, even if the procured equipment is not fully used. Only a few institutes are making detailed plans along with financial projections. Consequently, the non-procurement component of spending is being ignored. Institutions also do not seem to review their IDPs and revise them as necessary.

6. The JRM strongly feels that the need for an integrated, or at least a collaborative approach to planning between the TEQIP and non-TEQIP aspects be impressed upon the institutes. A practice that could be replicated would be to create department level plans and consequently integrating these plans. In the long run, the goal should be to give a broad fund to be used freely by the institutes, in order to encourage an integrated approach to planning. In the short run, one way to tackle the problem of ad hoc purchases of equipment would be to constitute the revenue being generated on TEQIP equipment as a part of KPI.

QUALITY OF EDUCATION

7. The institutes recognize the need to improve the quality of education and accordingly, have been conducting regular training programs for faculty and students are being conducted regularly. Remedial sessions for weak students are also prevalent, where institutes like LBS have identified a group of teachers to conduct these sessions. The JRM feels that stronger students also could be encouraged to conduct these remedial sessions, to exploit the easy relationship that students would share with each other. The Institutes found the training at IIM to be extremely useful, especially because it was a residential course, giving opportunity for a close contact with faculty from other institutes. Institutes also encourage the faculty that has attended trainings programs to make a presentation to their colleagues to share their learning, which is a practice that all institutes should look to follow, in the JRM's opinion. On the downside, there is a scope for improvement in the training of technical staff, especially in institutes like GEC Barton Hill, Trivandrum, where the programs for technical staff were not getting conducted at all.

8. An issue that was identified by the JRM was that laboratories are getting modernized in the institutes, but the definition of modernization is vague. For example, in LBS, one 'modernized' laboratory only procured one computer of a reputed brand. Similarly, the libraries are purchasing books, but the students' accessibility to them is limited because of the library timings being limited and coinciding with the classes.

9. There are a number of good practices that the JRM feels could be replicated across other states and institutes as well, like feedback surveys conducted by SPFU to ascertain the satisfaction levels of students and technical staff, helping identify institutional weaknesses and developing support systems. To encourage stronger students as well, institutes have taken some initiatives, like forming an innovation center with government funding, deciding scholarships on the basis of pass rate and utilizing the alumni network to mentor students.

10. The JRM feels that in order to further enhance their capabilities, faculty should be allowed deputation to study with full salary and faculty-industry exchange program should be encouraged to improve the quality of existing faculty.

INDUSTRY-INSTITUTE INTERACTION

11. The industrial interaction in the institutes is limited, primarily owing to the limited industrialization in the state and the lack of proactive actions by the institutes to establish partnerships with the industry. However, even after taking into account the location specific issues, the activity of the institutes leaves a lot to be desired, especially in terms of the student internships, where the university schedules are not fixed and do not have any window where the students can do their internships. There are some partnerships between industries-academia. However, most of them involve state interventions.

12. There seems to be some apprehensions in the minds of the industries as well, borne out by the fact that most of them give projects to particular faculty, rather than an institute. Similarly, in one institute, companies are taking M. Tech. students as interns, but not signing an MoU with the institute. On the other hand, some institutes are proactively trying to develop relationship with the industry, by providing them consulting. Other institutes are using their alumni networks, to develop this relationship and have got them to fund entrepreneurship development centres. There are positive indicators suggesting that given some intent on the institutes' part, industry institute interaction may be improved significantly. As an example, in one institute, a few students solved a problem that a company was facing and now the company is actively involved with the institute, regularly seeking consultancies and picking interns.

13. The JRM feels that the institutes could leverage the contacts and experience of BoG members and mentors, to enhance the interaction between the industry and the institute. A simple way forward could be to approach industries in neighbouring states. An intervention from the government to get a commitment from the industry would also go a long way to ease the constraints currently being faced by the institutes.

MENTORS

14. The mentoring system is fairly well functioning. Mentors are mandated to attend the meetings of the board of governors and mentors' forums are organized by the SPFU. The institutes' feedback on mentors is highly encouraging as well, with mentors helping out the institutes with planning and resources. However, institutes have a limited interaction with the mentors, as they are present only for the meeting days. Consequently, mentors are also unable to interact with students. To increase the mentor-institute interaction, the institutes have started conducting preview meetings for mentors before the actual performance review meetings, which the JRM feels is an innovative and replicable way of enhancing the mentors' interaction. Another issue noted with the institutes is their expectation that mentors would 'tell' them what to do, instead of institutes asking for advice on specific issues, indicating that more clarity needs to be given to institutes on the exact role of mentors as envisaged in this program.

INSTITUTIONAL SUPPORT

15. There were a lot of issues related to all MIS. Unavailability of the system increases the administrative burden when preparing repots to SPFUs and NPIU as institutions have to work the data manually. Moreover, requests from NIPU and SPFU often come at a very short notice, creating additional administrative burden at institutional level. MIS data entry team is not effective, because professors have to sit with them to enter data. Once they are trained, they leave because the institutes can only pay them 20% lesser than the industry. There is also a lack of understanding amongst the institutes about the use of MIS systems for their self-assessment. Institutes feel that while they provide a lot of information and data, there is very limited, if at all, feedback from NPIU and SPFU. Institutes also feel that NPIU is reasonably prompt in response to procurement requests when the WB norms are met. But if there is a query after rejection of a proposal, due to non-following of norms, NPIU is slow to respond.

16. There are several technical issues, like PMSS not reflecting changes in the cancelled procurements, system automatically sending the NCBs for approval to SPFU etc. Additionally, since the MIS system is not available for 2011-12 and 2012-13, institutions cannot fully utilize the MIS for analysis of the progress at their institutions. The JRM team saw an urgent need to open the data entry channels in the MIS and also to strengthen the system to address these MIS related technical issues. Moreover, the e-FMR is virtually unused, because of the unavailability of the system. Also, there is no training on PMSS after procurement application.

17. Institutions are not clear on many project issues such as whether they could use TEQIP funds for maintenance of equipment purchased outside the TEQIP or faculty deputed for higher studies can be supported with teaching assistantships under the project. In procurement, strict vendor norms and

NCB limits are hindering the process. As an example, if an institute wants to purchase Rs 15 lacs worth of items, it must go through the NCB route, where norms are quite strict, removing small vendors from competition. Big vendors do not want to participate for a small order and therefore the procurement process faces a stalemate. To tackle this problem, the JRM believes that the limit on using the shopping method be re-visited.

18. The JRM feels that there is a strong need for ensuring that the MIS is automated and functional to as large an extent as possible, so that the institute only has to input data infrequently. There is also a suggestion to link the Tally software of the institutes as a network for quick data collection. Training for procurement co-ordinators is urgent as the progress of the project is at stake.

<div align="center">**West Bengal**</div>

Introduction

It was noted that the total number of participating institutes under TEQIP-II in West Bengal was 13 out of which 9 were under Sub-component 1.1 of the project. These were Govt. Funded, Govt. aided as well as private unaided institution. Under Sub-component 1.2, three Govt. Funded and one Private unaided institution.

There is a wide range of performance of institutions, with some well advanced in their activities, and more money has been requested from the NPIU through the SPFU, while other institutions have barely started (see Annex 1). Some progress is noted amongst most KPIs (see Annex 2).

Governance

1. *Current situation :*

All the participating institutions have dully constituted Board of Governors (BoGs) / Executive Council, chaired generally by an eminent academician, which are functioning in an effective manner. The State Government is also active in steering all round preparation of the institutions to attain the mission objective. It has inducted academician nominees on the BoGs of all private self-financing engineering and technological colleges as a measure of good governance. The BoGs of the engineering colleges / institutes are following the AICTE norms for composition of the Governing Board. The feedback received during the course of presentations made by the institutions indicate that the BoGs / Executive council are functioning in a robust manner and very often in many cases its minutes were put on the website of the institute. Each institute/university has TEQIP Coordinator in place who is proactively guided by the State Project Facilitation Unit (SPFU). The State Government has constituted an Advisory Committee with eminent academicians for scrutinizing proposals on Faculty Staff Development as also a State Steering Committee (SSC) to monitor the implementation of the project and issue of specific directions wherever needed.

2. *Key issues / concerns :*

While the Technical Institutions by and large enjoy administrative and managerial autonomy, the academic autonomy needs to be strengthened as all affiliating institutions under Sub-component 1.1 are to be transformed to an autonomous college. In many cases, the applications for grant of autonomous status were stated to have remained pending with University Grant Commission. The Management capacity building programme also needs to be given a new thrust.

3. *Key recommendations / actions :*

The academic autonomy needs to be ensure by expeditious grant of autonomous status where the prerequisite are met with. Intervention of the Ministry is considered essential to expedite UGC inspection to the participating institutes of the Project. The SPFU may be advised to organize more workshops / awareness programmes to guide the participating institutes in the effective implementation of the project.

4. *Good Practices :*

The SPFU had advised the participating institutes to hold one dedicated BoG meeting each after signing of MoU with the State Government to sensitize the BoG and the Project Management Units for ensuring effective implementation of TEQIP in conformity with the project guidelines. This needs to be emulated elsewhere.

Quality of Education

1. Current situation :

Based on the data presented by the SPFU, it was noted that the share of supported programmes that were accredited as on 2011-12 was barely 49% even though the same in respect of Sub-component 1.2 institutions was above 90%. It, however, is understood that the validity of number of courses has since expired and the delay in reaccreditation has back largely on account of delay in finalization of revised norms by the NBA. As on date, the percentage of Faculty with at least a M.Tech level is satisfactory with a positive percentage of 98%. The Teaching Assistantship programme under TEQIP has reportedly helped overall enrolment of students in M.Tech programs. The number of publications however has remained static over the years since 2009-10, even though the SPFU claimed that it was likely to increase substantially in the year 2012-13 if half yearly figures (up to Jan 2013) were any indication. There has been increased faculty enrolment in PhD programmes to the extent of 10% in Sub-component 1.1 institutions and 5% in Sub-component 1.2 institutions. The percentage of externally research and development projects and consultancies in the total revenue has, during the last three years, remained static (6.75%), but during the current year the growth has been projected on a much higher side. The transition rate of students from one year to the second year of undergraduate study is having a healthy figure of 81% whereas the same for the students from disadvantage background was reported to be 70%. Obviously a diagnostic check-up and introduction of remedial courses and programmes for the said target group would be in order. Surprisingly, the state reported barely 14% share of female students in project institutions. Most of the institutions have reported that UG and PG curriculum are under revision and the newly introduced PG courses are demand driven.

2. Key issues / concerns :

There was a general concern in regard to NBA guidelines for accreditation that was still to be published in clear terms, resulting in delay in achieving target set for accreditation of courses in case of a good number of participating institutes. A large number of applications sent to NBA are reportedly pending. The delay in processing of requests submitted for grant of autonomous status was also causing concern. The private self-financing institutions were of the view that sudden change in project financing pattern had jeopardized entire institutional development plan implementation. In some cases, absence of a research culture and also faculty inertia regarding knowledge upgradation were also a cause of concern.

3. Key recommendations / actions :

The NBA as well as UGC must put their house in order expeditiously so that an impetus could be given to the academic growth and advancement of the project institutions. There is a need for commencement of basic pedagogy training which could be organized either by the SPFU or NPIU. Since there has been positive reports regarding orientation programmes conducted recently by the IIM Lucknow, more such programs with larger number of participants from each institutes need to be conducted and perhaps some of these could be located in the management schools embedded in the IITs who have better appreciation of the training needs of a technical institution. To improve the transition rate of students it may be advisable to introduce greater number of remedial lectures and bridge courses by greater use of ICT.

Industry-institutional Interaction

1. Current issues

The Bengal Engineering Science University(BESU) and Jadavpur University have very good industry interaction. The effort of some of the private institutions in this regard is satisfactory.

• **Governance:** The BOGs have been in place as per the norms. The BOG meetings and its documents are in order. Some intuitions have posted their BOG minutes in the website.

• **Student internship**: Large number of Institutions have informal or formal student internship with industry and other institutions during semester break.

• **Faculty** : Many Institutions have joint R&D projects with industry. In some courses industries are involved in framing course contents. Large number of lectures and training programmes have been arranged. Industries have setup some laboratories a few Institutions.

Infrastructure: Good infrastructures have been created for students projects/consultancy and R and D in couple of Insttuitions. Some private Institutions have also initiated to create the infrastructure for this activities.

• **Consultancy services**: NIT and two reputed Universities have been doing good consultancy services. Most of other institutions have initiated consultancy services recently.

• **Student placement**: Student placement is good for UG programmes and not so encouraging for PG programmes.

• **Entrepreneurship:** Couple of institutions are providing entrepreneurship training in collaboration with industry and created independent cells. This activity is missing in new institutions.

2. Main issues

There are a few patents in couple of Institutions. The activity could be enhanced and encouraged in all institutions

3. Good practices

The JRM team has identified very good industry institute collaboration in NIT, Durgapur Bengal Engineering and Science University and Jadavpur University. Other Institutions could make use of this opportunity to learn from these Institutions.

4. Recommendations

The SPFU is very proactive in implement ting the TEQIP programme in the state. They should take the lead to bring all intuitions lagging in industry interactions to make use of the expertise available in the leading Institutions like BESU and Jadavpur University.

Mentors

The mentoring of all the Institutions except one has been completed. The performance of the mentoring is a mixed ones. Some of the mentors were good and useful in giving guidance in the implementation of the TEQIP project. A few mentors were not so useful in providing proper direction. The SPFU has been requested to organize a training programme to mentors and provide mentoring tool kit with one model mentor report. One of the Institution informed the committee that mentor and performance auditor would visit together. It has been advised to the Institute that it is not a good practice to audit the performance along with Mentor and both these activities to be done independently.

Planning

1. Current situation

All of the institutions in the state have been able to make some progress against the performance indicators for the project, even though money has reached them relatively recently. This indicates that the planning process in institutions, which identified problems and developed solutions, has had an impact on the way the institutions work. About half of the institutions have also spent almost all the money they have been allocated, and have requested additional resources – these requests are now

with the NPIU. This is all very encouraging; and it seems very likely that activities will accelerate rapidly now in most institutions.

All institutions had attended the IIM-Indore training; and gave positive feedback.

2. Key issues/concerns

Only one person per institution was invited to the IIM-Indore leadership training. This is inadequate, and the whole leadership team, starting with the institutional head, should be encouraged to participate. This will make it much more likely that the training will have a longer-term impact.

3. Key recommendations/actions

The SPFU has requested guidance from the NPIU about continuing the use the same auditors for the 2012-13 audit as for the previous year; and if so, whether the PMSS is needed for this action. A prompt response is needed so that the auditors are in place before the end of March so that the audit can be started and completed on time.

MHRD to approve the release of additional funds urgently.

Institutional support – systems and people

1. Current situation

The SPFU is very strong, with positions filled with competent and long-standing staff. The JRM team was impressed with its knowledge of the issues and the proactivity of its work. At the institutional level, good teams are also in place.

Institutions have used the PMSS successfully and there is a positive response; some minor technical issues were raised. The MIS has not been completed by most institutions, with colleges reporting that the system was not easy to use.

2. Key issues/concerns

The colleges/SPFU requested clarification about some procurement issues:

- What to do when an Expression of Interest does not elicit any response which fully meets the needs. The colleges requested that they be allowed to complete the contract with the provider that meets the greatest amount of the needs at the lowest price, and then conducting a new bid for the remaining items (this new bid might the result in a different procurement method, depending on the remaining number of items to be procured).
- What to do when price inflation means that the estimated price is exceeded. Is it possible to reduce the number of units requested, so as to come under the originally estimated price?
- Can the resources be used to pay for annual maintenance contracts for items that were <u>not</u> purchased with TEQIP funds? Institutions reported that most items they purchase with TEQIP funds come with some guarantee/service contract for the period of the TEQIP project, so using additional funds for a maintenance contract is not necessary.
- It does not seem possible to procure out individual (as opposed firm) consultant services through the PMSS.
- The asset register function would be more useful if it generated a list of all the items purchased, and if such a list could be downloaded into an electronic file.

There remain some misunderstandings about the MIS indicators, which should be clarified:
- Should the list of publications be cumulative or report what was published in each year?
- How to define IRG, in particular whether tuition fees should be included in the denominator

3. Key recommendations/actions

Clarifications are needed on the technical issues described above.

4. Good practices

The SPFU is organizing monthly meetings of the TEQIP coordinators.

The SPFU is organizing orientation sessions for institutions to help them understand and prepare for autonomous status and accreditation.

Madhya Pradesh

Introduction

In the State of Madhya Pradesh, a total of five institutions (four Government and Government aided and one unaided) have been selected under TEQIP-II as detailed below :

SGSIT&S, Indore, selected under TEQIP 1.2 (Govt. aided institute);

Rajiv Gandhi PV, Bhopal selected under TEQIP 1.2 (Govt. aided institute);

MIT&S, Gwalior, selected under TEQIP 1.1 (Govt. aided institute);

Samrat Ashok Tech. Institute,Vidisha, selected under TEQIP 1.1 (Govt. aided institute);

Sagar Instt. of Research &Tech., Bhopal selected under TEQIP 1.1 (Govt. aided institute).

The SPFU is headed by the Director of Technical Education, Madhya Pradesh, who was present for the JRM and extended all possible cooperation. The state government has released a major part of funding as early as March 2012. Yet the expenditure on account of various activities under TEQIP is almost non-existent. This lapse was very seriously viewed by the Review Team and the concern was communicated to the institutes in a very straightforward manner. All the participating institutes have shown keen desire to accelerate the procurement and soft component activities in lieu of the poor expenditure figures till date. The observations and recommendations of the Review Team after detailed deliberations with the participating institutions are mentioned below:

(1) Governance

- The Board of Governors (BoG) in all the Government and Government-aided institutions participating under TEQIP-II have been set up, but not as per the UGC/AICTE norms. To fulfill the requirements of TEQIP, the BoG have been reconstituted by appointing another Chairman with academic/industrial background and retaining all the other members of the BoG. The institutes have therefore **two different** Chairmen (one each for TEQIP and one for the remaining matters), which although appears to fulfill the technical requirement, does not add any quality value to the governance. In addition, there appears to be a lack of focused effort from the BoG as can be seen from the fact that the expenditure in all the institutes under procurement and soft skill component of TEQIP is almost non-existent. In addition, there is a lack of institutional planning.
- All the institutions have been granted "academic autonomy" by the Government. The institutes have furthermore informed that there is industry participation in the BoG. The institutes have adopted credit based grading as per the directions of the affiliating University, which questions the very objectivity of the purpose of granting autonomy.
- Faculty recruitment to fill the various vacant posts have not been done for more than 3-4 years, as a result, there is a sizeable number of contract faculty in almost all the institutes. The Government institutes are not empowered to fill the faculty positions without Government intervention, thereby affecting the quality of education.
- There is very little budgetary support of the State Government in aided institutes, which affects the developmental initiatives of the institutes. As an example, it was informed that in case of MIT, Gwalior, the annual grant of the State Government is only Rs. 1.67 crore. The monthly salary bill of the staff is about Rs. 1.1 crore and even after retaining the student fees, the institute has a deficit budget of Rs. 3-4 crores, which is supported by the Trust.

Recommendations

- It is desirable to have a more proactive BoG with more frequent interaction with the institutional stakeholders. Institutions need to put greater emphasis on the planning of their institutional development;

- BoGs should be given more freedom to appoint vacant faculty positions against large number of vacancies;
- Adequate budget provision from State Government to meet the expenditure of the salary grant is necessary.

(2) Support Systems:

- *MIS:* Similar to the states of Punjab, H.P. and Chandigarh U.T. most of the institutions of Madhya Pradesh have entered the data pertaining to 2010-11 in the MIS. Some of the institutions have their own MIS and find it difficult to migrate data from their existing system into MIS. As a result they have to insert in all information in MIS again;
- *Procurement Plan:* All institutions have had their procurement plans approved by their respective BoGs and uploaded them in PMSS. But procurement as such is effectively nil except a few shopping by SPFU and some by MANIT, Bhopal. In MP almost all institutions received NPIU grant in the month of March 2012 and the State share in September 2012. In spite of that' the procurement is almost nil. One of the reasons for slow procurement was a delay in getting a State Govt. Order to follow WB guidelines for shopping instead of following State norms, which are more restrictive. This was only done on 9th Jan 2013. All institutions promised to finish the procurement process in the next three to six months' time.
- *PMSS:* Some institutions reported difficulty in using PMSS. MANIT, Bhopal reported that there were some problems initially in PMSS which have been sorted out and the procurement is expected to be finished within next six months.
- *E-FMR* : The institutions reported that the e-FMR system was not in use. They are using their own systems such as Tally. However, all institutions promised to enter the information in next six months;
- *Planning:* Most institutions had prepared their yearly plans in advance. The slow expenditure uptake is mainly due to the delayed approval of the procurement plans, lack of awareness of the system, and frequent change of faculty handling TEQIP II project.

Recommendations:

- There is a need for a round of quick training for all institutional staff involved in TEQIP II, specifically on PMSS, MIS and e-FMR;
- When bottlenecks in software are highlighted by institutions, they should be addressed by the software developers as a priority in consultation with NPIU.

(3) INDUSTRY INSTITUTE COLLABORATION:

The institutions in the state of Madhya Pradesh did mention a wide range of industry partnerships including:

- **Governance**: Many of the institutions have representatives from industry in their BoG (sometimes as chair) as well as in different sub-committees e.g. on curriculum development;
- **Student internship**: Most institutions have mandatory industry internships from 2 to 6 months' time either during summer breaks or in a semester;
- **R&D**: Few joint R&D projects with industry are taking place; some courses by faculty are taught to industry; and faculty and students are participating in industry training programs such as Infosys Campus Connect Programme; Wipro Mission 10X Programme; and Microsoft Dream Spark;
- **Consultancy services**: Most institutions have delivered consultancy services but it is often small scale.
- **Student placement**: A very diverse picture ranging from 5 percent student placement in private colleges to up to 70 percent of eligible students at the NITs. The State Technological University RGPV, Bhopal has organized a state level Industry Academia Meet "MANTHAN" to increase student placement;
- **Entrepreneurship**: Few of the institutions are providing entrepreneurship and incubator training in collaboration with industry.

Main issues

All the above mentioned initiatives are worthwhile initiatives. However, they tend to be ad-hoc and not based on a long-term systematic collaboration with several industrial partners. E.g. institutions had only been awarded and applied for patents applications.

In the TEQIP project it was foreseen to set up a National Private Sector Advisory Group (NPSAG) and corresponding State PSAGs. These are yet to be functional.

Good practices

The review team was not able to identify significant good practices of industry institute collaboration such as the Institute of Chemical Technology Mumbai(ICTM)and the College of Engineering Pune (COEP).

Recommendations

Given the overall lack of strong industry institute partnerships in many TEQIP institutions, it is suggested that NPIU in collaboration with the World Bank, AICTE as well as business associations will develop a specific TEQIP initiative to strengthen industry institute partnerships. It could have the following components;

- TEQIP institutions should be encouraged to produce strategies and action plans for promoting partnerships with industry and the wider community. The strategies and action plans would preferable be based on self-reviews and benchmarking tools such as the AICTE-CII survey[2] of industry-linked engineering institutions;
- Engagement of the mentors in helping the TEQIP institutions in formulating and implementing institutional strategies and action plans on promoting academic-industry partnerships;
- Strong focus on institutions and businesses helping one another by willingly sharing their experiences on partnership building as well as engaging in self-reviews through learning forums;
- Good partnership case of TEQIP institutions such as ICTM and COEP will be developed that can serve as inspiration for all institutions and businesses interested in developing partnerships.

(4) Mentoring

The mentors appointed by NPIU have visited the institutes on one occasion until date. In some cases, the report of the mentor is still awaited, despite the visit being conducted more than a month back. The institutes have conveyed their satisfaction on the support and input received from the mentors. However, it is found that the mentor's visit has only marginally accelerated the pace of TEQIP activities, which have hardly started yet.

Recommendations

- Mentors shall pay more frequent visits to the institutes;
- Emphasis shall be on the progress of institutes in attainment of TEQIP objectives. The mentors may help the institute to prepare a 3 to 6 months action plan for accelerating the spending of the TEQIP resources and motivate the institutions to faster implementation;
- Mentors should also have more frequent interaction with the BoG of the institutes.

(5) Planning

In all the participating institutes, it was observed that there is a general absence of systematic and methodical institutional planning that showed preparedness of the institute to spend the TEQIP grants. As a result, the action plans for the next 6 months proposed by the institutes have very little significance, as it appears very generic in nature and without much specificity. Accreditation

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[2]AICTE-CII "Survey of Industry-linked Engineering Institutes", November 2012.http://www.pwc.com/en_IN/in/assets/pdfs/industries/education/publication/aicte-cii-pwc-survey-report.pdf

of UG/PG programmes is not on the priority agenda of the institutes often due to lack of sufficient number of regular faculty positions.

The generic impression was that the institutions do not have a systematic institutional planning in place although they have established an institutional development plan (IDP) for their TEQIP application. Most of them plan mainly on a short-term and annual basis, and the IDP is often not revisited and adjusted as a living plan document for the institutions when major new decisions are taken.This is unfortunate since there is even a greater urgency for systematic institutional planning at TEQIP institutions as they are moving towards greater institutional autonomy.

Other key issues linked to the institutional planning were:

- the need for accreditation was often seen as a burdensome process rather than a learning process whereby faculty within a course program would work together with NBA to identify possible improvements to be made to the existing courses;
- A few institutions have carried out self-examination using SWOT analysis institution-wide including a discussions at their BoG;

Recommendations

- The institutes shall be encouraged to carry out a systematic SWOT analysis and identify the priorities and prepare an annual work plan / procurement plan, a fund utilization strategy and an institutional strategic action plan that is both realistic and implementable;
- There is a need for further capacity building and training in leadership and institutional management for directors and deans to lead the process of institutional planning. To which extend the IIM training already provided to TEQIP institutions should be assessed.

(6) Quality:

Similar to the states of Punjab, HP. and Chandigarh U.T., the colleges of MP can also be divided in three categories. There are two colleges in the first category, i.e. having 60-80 per cent of the total regular faculty members as Ph.D. holders. These are MANIT, Bhopal, and UIT RGTU, Bhopal. Approximately 75-85 per cent of the total eligible students got the placement through campus interview.

There are three colleges in the second category (having 20-40 per cent of the total regular faculty as Ph.D. holders). These are GSIT, Indore, MIT, Gwaliar, and SATI, Vidisha. The students' placement in these colleges is of the order of 55-80 per cent of the total eligible students. It is interesting to note that this figure is higher than that of the similar category colleges of Punjab, HP. and Chandigarh U.T.

There was only one private college in the third category (i.e. 5-10 per cent of the total faculty as Ph.D. holders). Its students' placement was low, of the order of 20 per cent, in contrast to 75 per cent for the similar type of college in the State of Punjab.

In short, there are some colleges, such as MANIT, Bhopal, and UIET, RGTU, Bhopal, which have relatively good quality. However, these colleges have to go a long way to achieve academic excellence. The government run colleges are doing less well. The State Government should think seriously about how to improve the academic governance of these colleges.

Recommendations:

There is furthermore a need for a pragmatic approach for the review of the quality, in particular of PG programmes, based on Departments rather than the Institute as a whole. A survey should be commissioned by MHRD in this regard;

Parameters for better managing and measuring the quality in PG programme and related R&D activities have to be developed;

Furthermore, there is a need to enhance the interactions between participating institutions and IITs to achieve the goal of excellence in faculty development programmes. A possible way could be that

TEQIP institutions appoint competent retired IIT/CFI professors, in order to bring additional academic input in the chosen area;

The State Government as well as institutions must incentivize the enrollment of the existing faculty to M.Tech and PhD programmes. However, to avoid in-breeding at the institutional level, faculty should be encouraged to take such programmes in other institutions.

Preamble

In the States of Punjab, Himachal Pradesh and UT of Chandigarh and Haryana, a total of teninstitutions (five Government/Government aided, one CFI, two University institutes/Departments, one Deemed University and one unaided institute) were part of the JRM review as detailed below:

Punjab:

1. Thapar University, Patiala;
2. GurunankDev Engineering College, Ludhiana;
3. Beant College of Engineering & Tech. , Gurdaspur;
4. GZS College of Engineering & Tech, Bhatindia;
5. SBS College of Engineering & Tech, Ferozpur;
6. Chandigarh Engineering College, Landran, Mohali.

UT Chandigarh:

1. University Institute of Engineering & Tech., Panjab University, Chandigarh;
2. PEC University of Tech., Chandigarh.

Himachal Pradesh:

1. Jawaharlal Nehru Govt. Engineering College, Sundernagar.

Haryana:

1. National Institute of Technology, Kurukshetra.

The SPFU, Punjab represented by Shri M S Sidhu Additional Director SPC was present for the JRM and extended all possible cooperation. It was informed to the committee that the state govt. of Punjab had released the funding as late as December 2012. As a result, only few TEQIP activities have been launched. All the participating institutes showed however keen desire to accelerate the procurement and soft component activities of TEQIP to counteract the slow performance of the institutes so far.

The observations and recommendations of the Review Team after detailed deliberations with the participating institutions are the following:

1. Governance

In the State of Punjab, the participating institutes comprise of four Govt./Govt. aided and one unaided institute under sub-component 1.1 and one institutes (Thapar university) under sub- component 1.2. All the participating Institutes have BoG as per the requirements except in case of GES College of Engg.& Tech,Bhatinda, which does not have a regular BoG due to legal issues. All the participating institutes have received the funding from state govt. as late as in December 2012 except in case of NIT Kurukshetra, which received funding much earlier.

The BoG's in the institutes have not taken very few planned initiatives to accelerate the process of implementation of TEQIP objectives as can be seen from absolute lack of progress on all fronts of TEQIP. Of the five Govt. and unaided institutes in Punjab, only one Institute (Guru Nank Dev Engg .College, Ludhiana) is autonomous, whereas the other four institutes have applied for autonomy or are partially autonomous in terms of having academic autonomy under Punjab Technical University. There is Govt. intervention in faculty recruitment in these institutions with a complete ban on recruitment in GZS College of Engineering, Bhatinda. As a result, the level of faculty positions is not satisfactory, with many faculty positions filled on a contract basis. Accreditation of UG/PG Programmes is not achieved in themajority of institutions including NITK (excluding ThaparUniversity and CEC, Landran, Mohali).

In the case of UT of Chandigarh,of the two participating institutes, only one institute has a BoG / BoM in place. The BOM is an interim arrangement andfound to be particularly supportive at PEC, University of Technology, Chandigarh. At PEC there is a planned hierarchy of manpower, aimed at

decentralization of power with Deans and other officers in place. The institutions are autonomous and have fair representation of Industry personnel in their BOS. The faculty recruitment is institutionalized, although the level of faculty positions is not satisfactory given the non-availability of senior faculty. Accreditation of PG programmes has been done at PEC University of Tech, Chandigarh whereas the other institute has no accredited programme running currently.

In the State of Himachal Pradesh, for the one participating institute, the BoG is in place but its power is not yet well defined. The BoG is not empowered in any way, and has at best, an advisory role. Faculty recruitment is also government controlled, and teaching posts in four disciplines are yet to be created. The institute has applied for autonomy, on which no action has yet been taken by the affiliating University. The UG/PG programmes delivered by the institute have not yet been accredited by NBA.

Recommendations

- All the institutes must have regular BoG / BoM in place and they should be adequately empowered to take decisions with respect to faculty recruitment, autonomy and other issues of importance for institutional development;
- Accreditation of UG/PG programmes shall be done in a phased manner as top priority.

(2) Support Systems:

MIS: Most of the institutions have entered the data pertaining to 2010-11 in MIS. This has been done either in house or by hiring data operators.

Procurement Plan: All institutions have their procurement plans approved by their respective BoGs / MCs and uploaded in PMSS. But procurement per se is very low, and in some institutions it is nil. Out of INR 10.4 crore allotted to SPFU Punjab, only INR 60 lakhs have been spent. One of the major reasons for slow procurement is delay in transferring funds by SPFU to the institutions, which was done in the third week of December 2012 one year after the transfer of funds to the state by MHRD. The SPFU indicated that to get the govt. approval for opening one PL Account took a lot of time. All institutions promised to finish the procurement process in next three to six months' time.

PMSS: Some institutions reported difficulty in handling the PMSS. Though some presenters gave general comments of some issues in PMSS, they could rarely substantiate their claims with specific examples. One of the possible reasons is lack of trained person in place to handle the PMSS. NIT, Kurukshetra reported that there are few issues in PMSS which was also seconded by JNGEC, Sunder nagar, HP.

E-FMR: The institutions reported that the e-FMR system was not in use. They are instead using their own system such as Tally. The possible reason for not using e-FMR is its recent implementation in September 2012. However all institutions committed to do the entry in the next six months.

Recommendations:

- There is a need for a round of quick training for all members of institutions handling TEQIP II specifically on PMSS, MIS and e-FMR;
- When bottlenecks in software are highlighted by institutions, they should be addressed by the software developers as a priority in consultation with NPIU.

(3) Industry institute collaboration

The institutions in the State of Punjab, Himachal Pradesh and UT of Chandigarh did mention a wide range of industry partnerships including:

- **Governance**: Many of the institutions have representatives from industry in their BoG (sometimes as chair) as well as in different sub-committees e.g. on curriculum development;
- **Student internship**: Most institutions have mandatory industry internships from 2 to 6 months' time either during summer breaks or in a semester. In Punjab, engineering students have a mandatory internship in a company in the 6th, 7th or 8th semester;

- **Faculty**: Few joint R&D projects with industry are taking place; some courses by faculty are taught to industry; and faculty and students are participating in industry training programs;
- **Infrastructure**: A few examples of industry contributing to R&D facilities (e.g. Thapar University in Punjab);
- **Consultancy services**: Most institutions have delivered consultancy services but it is often small scale. An example of consultancy services is the development of e-governance software at the Chandigarh Group of Colleges for the UT Chandigarh.
- **Student placement**: A very diverse picture ranging from 25 percent student placement in private colleges to up to 70 percent of eligible students at the NITs;
- **Entrepreneurship**: Few of the institutions are providing entrepreneurship and incubator training in collaboration with industry.

Main issues

All the above mentioned initiatives are worthwhile initiatives. However, they tend to be ad-hoc and not based on a long-term systematic collaboration with several industrial partners. The review team did only hear about a couple of technology transfer initiatives that had impact as well as few awarded and applied for patents applications.

Several institutions also mentioned that the industry did not always provide quality internships and that only the students who took initiatives on their own and were able to seamlessly integrate into the company's work environment had a fruitful work and learning experience during the internship in a company.

In the TEQIP project it was foreseen to set up a National Private Sector Advisory Group (NPSAG) and corresponding State PSAGs. These are yet to be functional.

Good practices

The review team was not able to identify significant good practices of industry institute collaboration such as the Institute of Chemical Technology Mumbai (ICTM)and the College of Engineering Pune (COEP).

Recommendations

Given the overall lack of strong industry institute partnerships in many TEQIP institutions, it is suggested that NPIU in collaboration with the World Bank, AICTE as well as business associations will develop a specific TEQIP initiative to strengthen industry institute partnerships. It could have the following components:

- TEQIP institutions should be encouraged to produce strategies and action plans for promoting partnerships with industry and the wider community. The strategies and action plans would preferable be based on self-reviews and benchmarking tools such as the AICTE-CII survey[3] of industry-linked engineering institutions;
- Engagement of the mentors in helping the TEQIP institutions in formulating and implementing institutional strategies and action plans on promoting academic-industry partnerships;
- strong focus on institutions and businesses helping one another by willingly sharing their experiences on partnership building as well as engaging in self-reviews through learning forums;
- good partnership case of TEQIP institutions such as ICTM and COEP will be developed that can serve as inspiration for all institutions and businesses interested in developing partnerships.

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[3]AICTE-CII "Survey of Industry-linked Engineering Institutes", November 2012.http://www.pwc.com/en_IN/in/assets/pdfs/industries/education/publication/aicte-cii-pwc-survey-report.pdf

(4) Mentoring

All the participating institutes in the State of Punjab have reported one visit of their mentor to their institutes except Beant College of Engineering & Tech, Gurdaspur. Some institutes such as Gurunanak Dev Engineering College, Ludhiana and BCE, Gurdaspur have expressed their reservations about the attitude of the mentors appointed to their respective institute. In some cases, the mentor report of the visit is yet to be received even though the visit was finalized in the month of December. The Review Team observed that there is little impact of mentors' visits, given the fact that there has been no significant activity conducted by any institute.

In the case of UT of Chandigarh, the mentor was found to have helped PEC University of Tech, Chandigarh by providing valuable suggestions as stated by the Institute's representatives. The mentor had sent his report to the Institute within a week. Also the University Institute of Engineering & Tech., Punjab University, Chandigarh, had requested for the services of the same mentor. On the whole, the mentor's role has had positive impact on the institutes in UT Chandigarh.

In the case of Himachal Pradesh, the mentor had visited the Institute on one occasion and has submitted his observations to the Institute. However, the suggestions proposed were beyond the scope of powers delegated to the Institute.

Recommendations

- It is suggested that the mentors should pay more frequent visits to the institutes;
- Emphasis shall be on the progress of the Institutes in attainment ofTEQIP objectives. Mentors may help the institute to prepare a 3 to 6 months action plan for accelerating the spending of the TEQIP resources and motivate the institutions to faster implementation;
- Mentor shall also have frequent interaction with the BoG of the institutes.

(5) Planning:

There appeared to be a general apathy in almost all the participating institutes in the states of Punjab, Himachal Pradesh and Union Territory of Chandigarh in respect of systematic planning both at institutional level and specifically for TEQIP activities. The only exception was PEC University of Tech. Chandigarh, which has put the institutional Five Year Road Map on its official web site. The six month action plan of all the institutes appeared to be very generic and devoid of any specific direction.

The generic impression was that the institutions do not have a systematic institutional planning in place although they have established an institutional development plan (IDP) for their TEQIP application. Most of them plan mainly on a short-term and annual basis, and the IDP is often not revisited and adjusted as a living plan document for the institutions when major new decisions are taken. This is unfortunate since there is even a greater urgency for systematic institutional planning at TEQIP institutions as they are moving towards greater institutional autonomy.

In general there is a tendency that those institutions that have a strong leadership also are the institutions which are able to carry out systematic institutional planning which broad about impact and change.

Other key issues linked to the institutional planning were:

- the need for accreditation was often seen as a burdensome process rather than a learning process whereby faculty within a course program would work together with NBA to identify possible improvements to be made to the existing courses;
- A few institutions such as Thapar University have IT systems in place for student and financial administration and are thus able to use a data-based approach to planning;
- A few institutions have carried out self-examination using SWOT analysis institution-wide including a discussions at their BoG;
- In some institutions there was a tendency to distribute R&D resources equally between departments and even professors without any assessment of the institutional needs and often in conflict to the intentions in the IDP. From an institutional perspective it would often be

more beneficial to either strengthen weaker R&D areas or focus on already strong R&D areas to build up Centers of Excellence or do both.

Recommendations

- The institutes shall be encouraged to carry out a systematic SWOT analysis and identify the priorities and prepare an annual work plan/procurement plan, a fund utilization strategy and an institutional strategic action plan that is both realistic and implementable;
- There is a need for further capacity building and training in leadership and institutional management for directors and deans to lead the process of institutional planning. To which extend the IIM training already provided to TEQIP institutions should be assessed.

(6) Quality

The percentage of the total number of the regular faculty members holding Ph.D. degree was used as a parameter for assessing the quality of the academic programme. On the basis of this parameter, the reviewed colleges of Punjab, H.P. and UT Chandigarh can be divided into three broad categories.

The first category of colleges is the one in which the number of the faculty members having a Ph.D. degree is in the range 60-80 per cent of the total regular faculty members. The institutions falling in this category are NIT, Kurukshetra, PEC, Chandigarh, and Thapar University, Patiala. These colleges have very high students' placement through campus interview, of the order of 90 per cent of all the eligible UG students. It must be said that the percentage of the faculty members who have Ph.D. degree in various engineering disciplines is low. For example, the number of faculty members having Ph.D. degree in engineering at the PEC, Chandigarh, which is one of the better known colleges in the region, is only 34 per cent of the total number of the faculty members. A large number of the faculty members of various engineering disciplines of this college are registered for a Ph.D. programme, but most of them are registered at the PEC, Chandigarh itself. This leads to in-breeding of the knowledge, which should be avoided.

The second category consists of colleges in which 20 to 40 per cent of the total regular faculty members have a Ph.D. degree. The colleges falling in this category are Government Engineering Colleges at Bhatinda, Gurudaspur and Ferozepur; GNDEC, Ludhiana, JNEC; Sundernagar (H.P.); and UIET, Punjab University, Chandigarh. Most of these colleges have relatively lower students' placement through campus interview in the order of 40 to 60 per cent of all the eligible UG students. However, in case of UIET, Punjab University, Chandigarh, this figure was much higher, of the order of 90 per cent.

The third category consists of colleges having a very low per cent of the total regular faculty members as Ph.D. holders in the order of 5-10 per cent. There is only one college namely Chandigarh Engineering College, Landran, which is a private college. Approximately half of the total faculty members of this college have only a B.Tech. degree. A surprising observation is that 75 per cent of the eligible UG students of this college got their job through the campus interview.

It is also interesting to note that the students belonging to the first category got relatively higher average pay package (4.0-6.0 Lac) than those in the second and third categories (2.5-3.5 Lac).

Many of the colleges of this region have one full semester industrial training programme in their B.Tech. curriculum. It is either in the 6th, 7th or 8th semester of the B. Tech. programme. Its credit is equivalent to 4 courses. The advantage of this course is that the students get a detailed industrial exposure.

In short, there are some colleges, such as PEC, Chandigarh, UIET, Chandigarh, Thapar University, which have relatively good quality. However, these colleges have to go a long way to achieve academic excellence. The government run colleges are doing less well. The State Government should think seriously about how to improve the academic governance of these colleges.

Recommendations

There is furthermore a need for a pragmatic approach for the review of the quality, in particular of PG programmes, based on Departments rather than the Institute as a whole. A survey should be commissioned by MHRD in this regard;

Parameters for better managing and measuring the quality in PG programme and related R&D activities have to be developed;

Furthermore, there is a need to enhance the interactions between participating institutions and IITs to achieve the goal of excellence in faculty development programmes. A possible way could be that TEQIP institutions appoint competent retired IIT/CFI professors, in order to bring additional academic input in the chosen area;

The State Government as well as institutions must incentivize the enrollment of the existing faculty to M.Tech and PhD programmes. However, to avoid in-breeding at the institutional level, faculty should be encouraged to take such programmes in other institutions.

Annex 6: Good Practice in Institutional Industry Interactions
(Industry-Institute-Interaction at ICT-Mumbai)

It is not surprising that ICT is known for its best and well maintained industry relations, since its existence itself came through the desire of the then industry in India. The stalwarts of industry ensured its beginning as a Department of Chemical Technology of University of Bombay in 1933. Later many industries were born from the work done at ICT. The organic links with Chemical industry, dealing with ALL disciplines, are thus assiduously nurtured and promoted by ICT.

ICT believes in practicing what it preaches and thus the education and research at ICT , apart from its academic excellence, has practical relevance. Research projects and transfer of basic science results to industrial concerns, well supported industrial internships to UGs and advisory consultations are common themes of ICT's interactions with Industry. Many of the graduates of ICT, have started their own concerns after graduation from ICT, sometimes with active support from ICT faculty. Some of the faculty also started their own companies. The brand value created by ICT graduates in chemical industry could be to the tune of $70 billion, as per some of the independent surveys. Many of these are first generation entrepreneurs.

1. **Industrial internships**: Every third year student after examination spends minimum six weeks in industry for practical training. Each student works on a project and delivers the result to the industry. Industry pays handsome stipend to the interns.

2. **Industry Chairs**: ICT has created a number of endowments with donations from Industry and plan to create at least one Chair every year. The chair endowment is supposed to take care of salary, research and improve the corpus enough to take care retirement benefit to the faculty.

3. **Visiting Professorships**: Industries have created endowments for supporting visits of eminent industry persons as well as academic visitors to deliver lectures, interact with faculty and students on regular basis. More than 50 such positions are created over period.

4. **Honorary professors from Industry**: Many industry experts would like to share their knowledge with students without charging anything to the Institute. These experts are appointed as honorary professors on year-to-year basis where some of them teach a course of their expertise as an elective.

5. **Adjunct Professors**: Superannuated industrial experts are also considered for an appointment as adjunct professors who teach one or two courses in a semester. Their experience in industry is their main forte and adds major value to training of undergraduates.

6. **Industry experts on committees**: Most committees have an industrial expert and for Ph.D. thesis evaluation one of the examiners is usually from industry, so that the industry perspective is obtained on the work. The final year projects are also evaluated by industry experts along with faculty from ICT on one-to-one basis. The industry feedback is taken every year for the quality of the projects.

7. **Industry research projects**: ICT has absorbed the business values in its dealings with industries. Confidentiality, timelines and deliverables are most important aspects in these projects. IPRs are equally shared with the industry. The basic scientific curiosity is balanced with practical implementation of the results. Industry is looking equal partners in their dealings and for technology for adoption to add value to itself. Faculty is allowed to charge consultation fees for conducting the project and providing their expertise.

8. **Industrial consultations**: Almost every faculty members are active advisors to industry and the fees are shared in 2:1 ratio with institute. The faculty members do not use the facility for

the consultation. One day in a week is allowed for the consultation. Many faculty members pay back their salary to Institute through the 1/3rd share.

9. **Board memberships of Industry**: Some of the faculty members are on the board of companies and thus guide the companies in their plans.

10. **Entrepreneurs**: Faculty is allowed to develop his business on his own using his own research. Sabbatical leave/special leave is granted to do so.

11. **Industry problem solving skills in UG/PGs**: This is a relatively new activity of ICT, where industries and students are brought on common platform for solving live industrial problems. The team opt for a problem of their choice from a pool of problems offered by a host of industries and attempt to solve it within a span of 72 hours. The winner takes home handsome cash prize and many cases an offer for internship or job. This activity is open to students from all over India and last year saw entry of 245 teams for 20 problems. Next year this competition will go international.

ICT's interaction with industries is in terms of regular visits to companies, to share the expertise, to engage the key industry persons in dialogue, to showcase the research and development, joint technology development and transfer and to take up joint project proposals.

ICT today works as a corporate entity, with 24X7 open labs, and speaks the same professional language of business as the industry captains while dealing with the industry. It is necessary for academicians to understand that Industry does not run for charity, although social corporate responsibility of companies may force them to donate some amounts. It has to be *give and take* from both sides to gain the respect of the industry.

Most importantly, the researchers in academic institutions need to appreciate that the return on investments is more important for the industries to survive in the business. The input from academia has to add value to lift the bottom line on the industry's balance sheet, in order to get recognition and further funding from industry. Time-bound and objectives based progress, regular reviews for corrections, owning responsibility and timely deliverables are key parameters in the association of academia with industry.

Similarly, if the graduates of the school are not suitably trained by faculty to take the challenges of the industry, there is little that the industries can do to hire such engineers. The quality of the engineers is thus an equally important aspect to gain recognition from industries, as our own graduates become our brand ambassadors in industry.

At the same time, academia should maintain their independent character for projecting the developments in near and distant future and align their activities accordingly, to get better support from relevant industries.

One of the perks, that we enjoy, is the respect from industries, for immense contribution made by faculty and alumni of ICT to different fields of chemical industry and engineering sciences.

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