



1. Project Data

Project ID P154523	Project Name TEQIP III	
Country India	Practice Area(Lead) Education	
L/C/TF Number(s) IDA-58740	Closing Date (Original) 30-Sep-2020	Total Project Cost (USD) 164,324,724.08
Bank Approval Date 24-Jun-2016	Closing Date (Actual) 30-Sep-2021	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	201,500,000.00	0.00
Revised Commitment	164,324,724.08	0.00
Actual	164,324,724.08	0.00

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2. Project Objectives and Components

a. Objectives

According to the Financing Agreement (p. 4), the project's objective was to enhance quality and equity in participating engineering education institutes and improve the efficiency of the engineering education system in Focus States.

"Focus States" included 14 of India's 36 states and union territories, chosen because of their lower performance relative to other better-performing states.



At a March 2021 restructuring, one outcome indicator was adjusted to be more ambitious. A split rating methodology is not warranted.

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

Yes

Date of Board Approval

30-Mar-2021

c. Will a split evaluation be undertaken?

No

d. Components

The project contained two components:

1. Improving quality and equity in engineering institutes in focus states (appraisal: US\$318 million, of which IDA US\$159 million; actual: US\$296.2 million) covered all government and government-aided colleges and technical universities, including affiliating technical universities (ATU), in Andaman and Nicobar Islands (a union territory), low-income states, states in the north-east part of the country, and hill states. (ATUs are state government universities to which both government and private engineering colleges are affiliated; as of project appraisal, there were 15 ATUs affiliating a total of 4,171 colleges. ATUs offer most PhD programs and are the research centers for technical disciplines.) Planned activities included: (i) institutional development grants to participating institutes to develop and implement institutional development plans (IDPs) designed to improve student learning and employability, ensure equity, and enhance faculty productivity and research activity; (ii) support to ATUs to develop action plans to reform their academic curricula, learning assessment and examination, and student job placement administration, with the goal of demonstrating pathways for performance improvement to their affiliated colleges; and (iii) support for twinning arrangements between high-performing TEQIP I/II institutes, and institutes (including ATUs) in the project's focus states, aimed at assisting the latter with implementation of their IDPs.

2. System-level initiatives to strengthen sector governance and performance (appraisal: US\$85 million, of which IDA US\$42.5 million; actual: US\$32.6 million) was to support the Ministry of Human Resource Development (MHRD) and key apex bodies in engineering education, including the All-India Council for Technical Education (AICTE) and National Board of Accreditation (NBA), through: (i) support for design and implementation of an assessment system to track student learning (academic, higher-order thinking, and non-cognitive skills) at different points of the undergraduate program; (ii) technical assistance to the MHRD/National Project Implementation Unit (NPIU) for developing and implementing faculty appraisal systems; (iii) support for strengthening the quality of twinning arrangements; (iv) promotion of industry collaboration in research and student job placement; (v) help with streamlining data management across all institutes; (vi) design of massive open on-line courses and other activities to drive innovations in technology-based learning; and (vii) support for project management.



e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

The project was to be financed by a US\$201.5 million International Development Association credit, using an investment project financing lending instrument with results-based financing. A predecessor project had initiated a system whereby institutes received project funds based on achievement of six-monthly benchmarks, and the use of disbursement-linked indicators (DLIs) for this project followed logically from that system. Funding for Component 1 was disbursed against an eligible expenditures program up to a capped amount and against achievement of agreed DLI targets. Component 2 used direct reimbursement of project expenditures incurred by national agencies. The government's planned contribution was US\$201.5 million, bringing total estimated project costs to US\$403 million.

Actual Bank financing was US\$164.32 million, and the actual government contribution was also US\$164.32 million, bringing the project's total final costs to US\$328.6 million. A total of US\$37 million was cancelled, as detailed below.

The project was approved on June 24, 2016 and became effective on March 3, 2017. It underwent six restructurings:

- January 25, 2017: The results framework was streamlined at the government's request, with the number of DLIs reduced from seven to four and one outcome indicator replaced.
- June 11, 2018: The DLIs were again revised, mostly to conform with requirements of national regulatory bodies; and there were parallel changes in disbursement arrangements.
- March 2, 2020: US\$14.53 million was cancelled from the second component to reflect savings on operating costs of state-level project implementation units, as the NPIU decided not to set up state-level units in states with only one or two participating institutes, as well as savings achieved because the NBA became self-sufficient and did not require external funds to implement planned activities.
- August 5, 2020: An additional US\$10.63 million was cancelled due to savings from exchange rate fluctuations, as well as a slowdown in implementation due to the COVID-19 pandemic.
- September 21, 2020: The closing date was extended by six months due to institute closures imposed under COVID-19 lockdowns.
- March 30, 2021: The results framework was revised to expand the scope and scale of the student skills assessment, and the closing date was extended by another six months because of pandemic-related implementation delays.
- August 23, 2021: An additional US\$10 million was cancelled because of implementation slowdowns caused by the second wave of the COVID-19 pandemic.

The project closed on September 30, 2021, one year later than the original closing date of September 30, 2020.

3. Relevance of Objectives

Rationale

The objectives were highly relevant to country context. India's strong economic growth -- 7.9 percent per year on average from 2001-2011 -- has been driven primarily by engineering-intensive sectors such as



information and communication technology, construction, and manufacturing. At the time of project appraisal, however, there were serious concerns about the low quality of technical skills among labor market entrants in these sectors. A study conducted in 2014-2015 by the Bank together with the Federation of Indian Chambers of Commerce and Industry found that employers were not satisfied with the technical skills of recent technical school graduates. Skills were also highly inequitably distributed among labor market entrants, with stark differences across caste, gender, and income groups, all magnified by differences between regions of the country. India's technical research output was also meager (160 workers in research and development per million population, compared with 710 in Brazil and 890 in China), and concentrated in too few institutes and states to meet the needs of the economy. The PAD (p. 3) identified three main challenges to improving outcomes in technical education: overcoming focus on input-based norms rather than learning outcomes; addressing faculty vacancies and qualifications; and overcoming weak incentives and inadequate resources for research.

The objectives were also strongly relevant to government and Bank strategy at both appraisal and closing. The government had addressed identified challenges through two consecutive Bank-financed Technical/Engineering Education Quality Improvement Projects (TEQIP I and II, 2004-2009 and 2010-2017, respectively), whose results included the upgrading of 17 regional engineering colleges to National Institutes of Technology standards, with significant improvements in student placement and research outputs. However, only a small number of institutes from poorer states benefited from those projects. This project, TEQIP III, aimed to build on its predecessors' experience, lessons, and networks. Its focus on equity represented a logical progression from TEQIP I/II. It was aligned with India's 12th Five-Year Plan (2012-2017), which was based on pillars of faster, sustainable, and inclusive growth and emphasized increasing the supply of highly skilled workers to drive the economy. It was also highly relevant to the Bank's Country Partnership Strategy at appraisal (2013-2017), whose engagement areas of integration and inclusion sought to increase the number of high-quality workers to drive and sustain economic growth. The Country Partnership Framework (CPF) at closing (FY18-22) stresses that inclusion through more and better jobs and investment in human capital is critical to sustaining India's positive development trajectory. The project's objectives reflect two of the CPF's focus areas: enhancing competitiveness and enabling job creation, and investing in human capital. The latter highlights the need for attention at the tertiary education level, aligning education systems to prepare youth for future jobs. The CPF also calls for concentration on disadvantaged states, as reflected in the project's targeting of specific focus states.

Rating

High

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

Enhance quality in participating engineering education institutes in Focus States



Rationale

The theory of change for this objective held that providing resources for creation and implementation of IDPs at participating institutes, facilitated by twinning arrangements with experienced institutes, would develop enabling mechanisms in institutes where capacity had been lacking. The realization of these plans would contribute to increased institutional autonomy, placement and skills of faculty, productive research activity, and student skills assessments, all of which would contribute to enhanced quality of engineering education institutes, demonstrated by improved student test scores, satisfaction of employers, and institute accreditation.

Outputs

Outputs related to teaching quality:

161 institutes and 13 ATUs, including 91 institutes and 10 ATUs from focus states, were supported by twinning arrangements, developed based on IDPs and focused on activities such as mentoring, faculty exchanges, joint research, curriculum revision, examination reform, institutional strengthening through accreditation, and exchanges on good academic practices. 70 institutes and 3 ATUs from 13 non-focus states -- states that had participated in TEQIP I/II -- were also supported. The number of engineering education institutes in focus states that met the enabling mechanisms for participation in the project increased from a baseline of 21 in 2015 to 83 in 2021, almost reaching the target of 88 institutes. (The project team clarified that the enabling mechanism requirements were relaxed in a small number of instances, in particular enrollment thresholds for institutes in areas of geographic disadvantage, allowing some institutes to participate in twinning arrangements even if they did not meet participation requirements.) The percentage of participating institutes in focus states with autonomy increased from 44 percent in 2015 to 57.14 percent in 2021, exceeding the target of 55 percent.

AICTE partnered with Stanford University to design a test of technical and higher-order skills to assess student gains from engineering education. It was piloted in May 2017. The percentage of participating institutes in focus states that trained more than 70 percent of their final-year engineering students to take exit examinations increased from 25 percent in 2015 to 81.31 percent in 2021, exceeding the target of 60 percent.

Employer feedback was gathered on satisfaction with three cohorts of graduates, and reports were published, exceeding the revised target of employer feedback on one graduation cohort. However, no specific data on the dates and results from these survey rounds were reported in the ICR, and therefore it is not known whether the original target -- a 10 percent increase in average satisfaction over the previous round -- was achieved. Student, faculty, and staff satisfaction surveys were conducted in three rounds, across the second, third, and fourth years of the project: 2017-2018, 2018-2019, and 2019-2020. There was an 11.6 percent increase in average satisfaction of students, staff, and faculty (average score 3.8 in 2017-2018, increased to 4.24 in 2019-2020), not achieving the target of a 15 percent increase.

Outputs related to research quality:

The project supported a competitive collaborative research scheme in which junior faculty from participating institutes in focus states submitted proposals for research partnership with more senior faculty from other institutes (including from non-focus states). Over 1,400 proposals were funded. The percentage of externally



funded research and development projects and consultancies in total revenue of participating institutes increased from 2 percent in 2015 to 7 percent in 2021 in focus states, meeting the target of 7 percent; and increased from 10 percent to 19 percent in other states, exceeding the target of 15 percent. Through the supported research collaborations, over 200 journal articles and 250 conference papers have been published, and 19 patents have been filed. A similar program was established for research opportunities in ATUs, through which over 10,000 faculty and 17,000 students were supported. The number of affiliated institutes in ATUs participating in newly designed research hub-related activities reached 289 institutes in 2021 in focus states, exceeding the target of 30, and 181 institutes in other states, exceeding the target of 150.

The percentage of PhD students in total enrollment in engineering disciplines in participating institutes increased from 1.6 percent in 2015 to 3.4 percent in 2021 in focus states, exceeding the target of 3.2 percent, and from 2.5 percent to 5.6 percent in other states, exceeding the target of 5 percent. This achievement was intended to develop the future pool of skilled faculty.

The project carried out a faculty feasibility study to assess the causes of vacancies and shortages in focus states. The results of this study fed into states' faculty recruitment and sustainability plans. Over 1,300 faculty across 33 disciplines from focus states were recruited in accordance with AICTE norms and trained by the Indian Institutes of Technology and Indian Institutes of Management in the areas of pedagogy, research and development, management, domain knowledge, and industry training. The percentage of sanctioned faculty positions in participating institutes filled by regular or contract faculty contracted per AICTE norms increased from 40 percent in 2015 to 80.15 percent in 2021 in focus states, almost reaching the target of 85 percent, and from 65 percent to 83.62 percent in other states, again almost reaching the target of 85 percent. The number of faculty in participating institutes trained under the project in their subject domain, pedagogy, or management in reached 15,207 in 2021 in focus states, exceeding the target of 5,000, and 10,939 in other states, exceeding the target of 6,000.

Outcomes

A large-scale assessment of student skills was conducted as planned. There was an increase of 5.99 percent over the project's second and third years (2017-2018 to 2018-2019) in the average score of students participating in tests designed to measure technical and critical thinking skills, exceeding the target of 5 percent. The project team clarified that this increase represented a converted average of change in standard deviation units (assuming normal distribution of scores) across mathematics, physics, quantitative literacy, and critical thinking. The ICR's Annex 11 also noted that an increasing share of graduating students from project-supported institutes received a qualifying score on the Graduate Aptitude Test in Engineering compared with the national average: the share was 16 percent for those both from project-supported institutes and nationally in 2017, but the share rose to 29 percent for project institutes in 2019 (compared with an increase only to 19 percent nationally), and 28 percent in 2020 (compared with 18 percent nationally). There is also evidence of superior performance of project-supported institutes in focus states when it comes to job placement rates. From 2016 through 2020, the average placement rate in focus states was 47 percent, compared with 42 percent nationally; although the ICR does not provide baseline information, it is noteworthy that more disadvantaged states out-performed the national average on this indicator.

The number of institutes that were NBA-accredited or applied for accreditation in focus states increased by 53 percent at the undergraduate level, exceeding the target of a 50 percent increase, and by 12 percent at the graduate level, not reaching the target of a 24 percent increase. In other states, the increase reached 60



percent at the undergraduate level, exceeding the target of 32.8 percent; at the graduate level, the increase in other states reached 32 percent, exceeding the target of 23.2 percent. The ICR (p. 12) explains that the pace of accreditation was slower at the graduate level because graduate-level institutes were encouraged to introduce new programs during the project period, and accreditation of graduate programs requires that the parallel undergraduate program be accredited first. The project team added that the National Board of Accreditation does not permit "double counting" of faculty when counting faculty numbers at the undergraduate or graduate levels, even though many faculty teach at both levels, resulting in an under-count at the graduate level and therefore heightened challenge in reaching the bar for accreditation. The project team also clarified that accreditation involves an arduous process involving a detailed self-assessment and meeting of all accreditation requirements prior to approval of an external review; the last step, the external review, is often delayed due to an insufficient supply of accreditors. For purposes of achievement, the project's indicator therefore counted those institutes that completed all steps except the external review as having "applied" for accreditation, an important milestone, as reaching that stage requires demonstration of having met accreditation requirements. The project team further added that, of the 437 programs eligible for accreditation in the project's final year, 75 achieved full accreditation and 167 had "applied for" accreditation.

Rating
Substantial

OBJECTIVE 2

Objective

Enhance equity in participating engineering education institutes in Focus States

Rationale

The theory of change for this objective held that design and implementation of intentional activities to support students from disadvantaged groups would lead to increased equity in engineering education institutes, demonstrated through increased enrollment of students from these groups.

Outputs

All participating institutes developed Equity Action Plans to support all students, but especially those from disadvantaged groups, with academic support and the creation of gender-friendly spaces. Specific activities included construction of accessible toilets for persons with disabilities, installation of closed-circuit cameras and street lighting, formation of gender and sexual harassment committees, remedial classes, student counseling, and the use of communications and behavioral messaging to encourage students to take timely action on such matters as financial aid, course registration, and steps necessary to maintain enrollment. The ICR (p. 12) notes that efforts were focused specifically on improving transition rates to prevent dropout and improve college completion.



Outcomes

The percentage of students from traditionally disadvantaged groups in participating institutes increased from 15 percent from Scheduled Castes (SC)/Scheduled Tribes (ST) in 2015 to 19 percent in 2021, not reaching the target of 20 percent (80 percent achievement of the target); and from 26 percent female in 2015 to 28 percent in 2021, not reaching the target of 30 percent (50 percent achievement of the target). The project team later added that analytic work done under the project showed the need for interventions at the high school level in order to improve female engineering and technical enrollments in higher education, and that a follow-on project under preparation includes outreach to high schools for this purpose.

The number of direct project beneficiaries increased from 1.47 million (under TEQIP II) in 2015 to 4.37 million in 2021, exceeding the target of 3.21 million beneficiaries. Of those, the percentage who were female increased from 26 percent in 2015 to 28.03 percent in 2021, not achieving the target of 30 percent (slightly over 50 percent achievement of the target).

Equity-related results beyond enrollment (for example, first-to-second year transition rates for female and SC/ST students) are reported under Objective 3 (improve the efficiency of the engineering education system). These results indicate substantial achievement in enhancing equity.

Although targets related to female beneficiaries and enrollment were not reached, the project made a substantial contribution in this critical area in terms of first-to-second year transition rates among traditionally disadvantaged groups (female and SC/ST students). Achievement of this objective is therefore rated Substantial.

Rating

Substantial

OBJECTIVE 3

Objective

Improve the efficiency of the engineering education system in Focus States

Rationale

The theory of change under this objective held that technical assistance and capacity building for the Ministry of Education and other key education administration institutions would strengthen capacity in project management, the quality of twinning, and overall administrative capacity, leading to improvements in student assessment, faculty recruitment and placement, and monitoring, evaluation, and reporting. These administrative improvements would in turn lead to improved education data generation and transparency, as well as the capacity at all levels to analyze and act on that data, leading to gains in the efficiency of the engineering education system.

Outputs



The outputs under the quality objective also supported outcomes related to efficiency. In addition:

- Institutes were required to establish Boards of Governors, to support autonomy and capacity for revenue generation. The percentage of participating institutes with a Board of Governors composed of prescribed structures reached 95.6 percent in 2021, exceeding the target of 95 percent, and those with Boards meeting at least four times every calendar year reached 81.31 percent. Institutes were also required to develop and share sustainability plans, including plans for continued use of investments, use of sustainability funds, and continuation of twinning partnerships. The timeliness of budget allocations and utilization at participating institutes reached 97 percent in 2021, exceeding the target of 90 percent, and expenditure recognition against utilization reached 99.85 percent, exceeding the target of 90 percent.
- All institutes, including ATUs, were supported in development of data collection and reporting. The percentage of participating institutes that produce and publish an annual report in the prescribed format in accordance with requirements set out in their IDPs reached 89 percent in focus states in 2021, exceeding the target of 85 percent, and reached 93.24 percent in other states, exceeding the target of 85 percent. The number of participating ATUs with a management information system (MIS) capable of producing an annual report against prescribed indicators reached five in focus states, meeting the target of five ATUs, and three in other states, meeting the target of three ATUs. The number of participating ATUs in focus states that publicly declare final semester examination results before the start of the next academic year increased from zero at baseline to seven in 2021, exceeding the target of six ATUs.

Outcomes

The transition rate of undergraduate engineering students from the first to second year in participating institutes in focus states increased from 50 percent overall in 2015 to 73 percent in 2021, exceeding the target of 60 percent; among SC/ST, increased from 40 percent to 61 percent, exceeding the target of 50 percent; and among females, increased from 45 percent to 74 percent, exceeding the target of 55 percent. In other states, the overall transition rate increased from 67 percent in 2015 to 86 percent in 2021, exceeding the target of 77 percent; among SC/ST, increased from 54 percent to 77 percent, exceeding the target of 65 percent; and among females, increased from 64 percent to 87 percent, exceeding the target of 75 percent.

Rating
High

OVERALL EFFICACY

Rationale



Overall project efficacy is rated Substantial due to substantial achievement of its objectives to improve the quality and equity of engineering education institutions and high achievement of its objective to improve the efficiency of the engineering education system and its institutes.

Overall Efficacy Rating

Substantial

5. Efficiency

The economic analysis at appraisal (PAD, Annex 5, pp. 67-76) assumed accrual of benefits through higher enrollments, completion rates, labor force participation, and wages for technical/engineering education in the focus states, as well as increased research and development output from universities. The present value of the incremental earnings of technical graduates, net of direct and opportunity costs, was 280 percent higher than that of general education graduates at 2016 prices, accruing from higher labor force participation and better jobs (type of job and contractual conditions). Costs included those related to increased enrollments, borne by institutes and the central and state governments; project-related investment costs; and project-related incremental recurring costs. The internal rate of return (IRR) was estimated at 41 percent, and the net present value (NPV) at US\$642 million.

The ICR (Annex 6, pp. 43.45) repeated the analysis done at appraisal, with updated data and assumptions. Benefits were calculated as the difference in earnings of employed students from project-supported institutes versus overall employed technical education graduates in focus states, stemming from both higher placement rates and higher wages over a 15-year period. It used a 12 percent discount rate. The analysis did not include other probable benefits and positive externalities such as increased revenue at project institutes and societal benefits (health, civic education, equity, innovation) associated with improved technical education. It found an NPV of program benefits of US\$658.6 million and IRR of 62 percent. Sensitivity analysis varied the estimated wage premium, with results finding an IRR of 12 percent (at 25 percent of the base case) and 44 percent (at 75 percent of the base case), showing that the results were robust to variation.

Implementation arrangements were built on the well-functioning responsibilities and processes established by TEQIP I and II. The NPIU was experienced, and an effective M&E system was in place to facilitate flagging and addressing issues as they arose. Procurement was decentralized, with monitoring and transparency maintained through a web-based procurement management system. Financial management was streamlined using a Public Fund Management System that enabled direct funds transfers to project institutes (see Section 10b). Results were achieved at lower cost than envisioned at appraisal. A decision was made not to establish state-level implementation units in all participating states, saving money through the provision of direct support by the NPIU for low-capacity states. Extensions of the closing date were required only due to pandemic-related lockdowns. However, there were shortcomings. Disbursement was slow during the project's first two years, and the ICR (p. 19) noted that "the project was not funded for about 150 days from September 2018 to February 2019 as the NPIU's request for supplementary funds was not granted." There were unanticipated challenges in filling faculty vacancies, and according to the ICR (p. 20), a comprehensive solution to the problem of faculty shortages has still not been developed. The COVID-19 pandemic led to temporary closure of project institutes and conversion



of some institute buildings to quarantine centers or health facilities, slowing implementation, though reforms initiated under the project facilitated a transition to on-line education.

Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	41.00	100.00 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	42.00	100.00 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The project's objectives were highly relevant to country context, Bank strategy, and government strategy, introducing equity as a focus following the predecessor TEQIP I and II projects. Improved quality in participating engineering education institutes was substantially achieved, as demonstrated by improved student test scores and institutional accreditations. Improved efficiency of the engineering education system was highly achieved, as demonstrated by improvements in student transition rates that exceeded targets. Improved equity was substantially achieved. Project efficiency is rated substantial based on a favorable economic analysis and strong implementation efficiency. These ratings are indicative of minor shortcomings in the project's preparation, implementation, and achievement, producing an Outcome rating of Satisfactory.

a. Outcome Rating

Satisfactory

7. Risk to Development Outcome

Technical education continues to be a priority for the Indian government, given its centrality to growth and innovation. TEQIP processes have been institutionalized through the MHRD and NPIU. The operation brought significant institutional strengthening at the central level and at the level of participating institutes and ATUs. According to the ICR (p. 25), the main risk relates to continued financing of faculty salaries by states and institutes, despite action during the project period to put sustainability plans in place at the state level. However, this and other risks (technical support, lack of funding) are mitigated by the government's recent request for the Bank's continued financial and technical assistance for further strengthening of the technical education sector. Preparation is under way for a US\$280 million follow-on project that will aim to transform



student learning and research in engineering education with a focus on equity, resilience, and governance in selected states.

8. Assessment of Bank Performance

a. Quality-at-Entry

The project's objectives were straightforward and pitched at an appropriate level, building effectively on the experience of predecessor projects. Implementation arrangements were detailed and clear (PAD, Annex 3, pp. 45-62). Supervision and monitoring were designed to be close, given the project's decentralized design and lack of capacity and experience in some focus states. Key lessons learned from prior projects included that performance-based funding can produce results (under TEQIP II, the percentage of institutes meeting benchmarks for satisfactory performance increased from 33.5 percent in 2013 to 87.5 percent in 2016); that twinning arrangements can effectively model excellence and engender knowledge generation and transfer; that equity goals require focused efforts on transition rates; that priority should be given to low-cost, high-impact interventions (including empowering high-quality Boards of Governors and using mentorship input systematically); and that systemic reform in engineering education should include private institutes.

Project design had one shortcoming: it did not consider the National Board of Accreditation rule forbidding "double counting" of faculty. This rule resulted in an under-count of faculty at the graduate level and therefore affected progress toward the accreditation target for post-graduate programs. Risks at appraisal were assessed as moderate. Institutional and fiduciary capacity risks were rated substantial, primarily due to the inclusion of several weak-capacity states that did not participate in TEQIP I/II. Mitigation measures included building commitment from state governments and institutes in those states during preparation, designing and implementing a sustainable faculty recruitment plan, twinning arrangements, and regular training of executing agency staff. Regarding fiduciary risk, the project secured commitment from states to introduce a direct fund transfer system from the central government to institutes to increase the speed and transparency of fund flows.

Quality-at-Entry Rating

Satisfactory

b. Quality of supervision

The Bank team provided timely support, processing six restructurings expeditiously to address emerging issues. Supervision reporting was timely, well focused, extensively documented, and results-oriented. Because the preparation team had anticipated risks effectively, the task team was able to focus on project activities and progress. States were supported to develop long-term solutions to faculty shortages. Delays arose primarily due to exogenous factors, particularly the COVID-19 pandemic. Supervision failed to detect that the National Board of Accreditation rule prohibiting "double counting" of faculty would have a negative effect on the likelihood of achieving the accreditation target for post-graduate programs.



Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

M&E was led by the NPIU at the central level and state units in most participating states. TEQIP II had built a strong web-based MIS for project monitoring that facilitated performance-based mechanisms. This project was to build on existing MISs, with appropriate tailoring to each institute's needs and also keeping in mind the need to generate required data for AICTE approval and NBA accreditation processes. The project was also to work with the AICTE, NBA, and ATUs to harmonize their reporting requirements and to simplify reporting processes for institutes. Training was to be provided to M&E staff at the national, state, and institutional levels.

The results framework was adequate. DLIs included outcomes, intermediate results, implementation performance targets, and institutional change indicators targeted on both improving the teaching and learning environment in participating institutes and institutionalizing long-term improvements in the overall system of engineering education in the focus states. DLI results were logically connected to output and outcome indicators, and to achievement of the objectives; though there was slight misalignment of some DLIs with the results framework at appraisal (related to indicator definitions and targets), those minor shortcomings were corrected in the project's initial restructurings. M&E design also incorporated several external surveys and evaluations, including beneficiary feedback surveys, employability assessments, and third-party verifications of DLI achievement.

b. M&E Implementation

Reporting was regular and timely, and required systems and staff were consistently in place. The DLI matrix required some adjustment to allow disbursements in view of the sequencing of activities. The MIS provided data required by AICTE and NBA, as planned. Beneficiary feedback surveys, including student and faculty satisfaction surveys and employer feedback surveys, were carried out at regular intervals in both focus and non-focus states. Three rounds of performance audits were carried out so that senior faculty and other stakeholders could assess the ongoing performance of supported institutes.

c. M&E Utilization

Monitoring and validation were used, as planned, for purposes of authorizing disbursements against DLIs. According to the ICR (p. 22), the performance audits incentivized performance and generated productive competition among institutes, feeding into priority-setting at the institute level and identifying areas where institutes required further support. Performance benchmarks were used to link



achievements in key areas to decisions on reallocation of funds to institutes. An interim project evaluation highlighted the impacts of project interventions and recommended the creation and implementation of sustainability plans at the institute level.

M&E Quality Rating

Substantial

10. Other Issues

a. Safeguards

Some project interventions, including refurbishment/repair of academic blocks, laboratories, or libraries, were anticipated to have potential but limited adverse local environmental impacts. The project was therefore rated category "B" and triggered the Bank's safeguard policies on Environmental Assessment (OP/BP 4.01) and Physical Cultural Resources (OP/BP 4.11). An Environmental Assessment study was undertaken by the NPIU, and based on its results, an Environment Management Framework (EMF) was prepared and incorporated into the Project Implementation Plan. The EMF was disclosed by the government, by each participating institute locally, and on the Bank's Infoshop. The ICR (p. 23) reports that the project's performance on environmental management was "consistently strong."

Because project institutes, especially those in focus states, were located in areas inhabited by tribal communities, the project also triggered OP/BP 4.10 on Indigenous Peoples. The government prepared an Equity Action Plan (EAP)/Indigenous Peoples Policy Framework (IPPF) to address issues of gender equality and social inclusion, with special attention to the needs of ST/SC students and faculty members. The EAP/IPPF was a revised version of the document prepared for TEQIP II, with updates based on intensive stakeholder interviews and focus group discussions with male, female, ST and SC students, and faculty from various social backgrounds. It was disclosed by the government, by each participating institute locally, and on the Bank's Infoshop. Of the 174 institutes that prepared EAPs, 83 received additional funding to implement those plans. The ICR does not state whether there was compliance with the Indigenous Peoples safeguard policy. The project team later clarified that there was full compliance with all safeguard policies.

b. Fiduciary Compliance

The project's fiduciary management built on the experience gained under the two earlier TEQIP projects, but there was added risk because many of the TEQIP III institutes and ATUs were participating in a Bank-financed project for the first time. To address these risks, the project introduced a new Direct Fund Transfer system, applying a Central Sector Scheme whereby the project was completely funded by the government and implemented at the central government level. A fund transfer system then electronically transferred funds directly from the central treasury to the Ministry of Education and implementing agencies, streamlining the approval of fund flows. Advantages of this system included direct on-line budget allocation to institutes, no parking of funds, more accurate monitoring of fund flows, greater transparency, "just-in time" provision of funds to institutes, and more efficient processing of payments, accounting, reconciliation, and reporting. However, there were still some delays stemming from the time it took for institutes to



register and open bank accounts, and technical glitches during initial implementation. The ICR (p. 24) states that financial management performance was "effective, timely, and thorough." It notes that there were "minor issues" highlighted by the project's auditors, but it does not provide details.

Procurement performance was strong, supported by continued use of the Procurement Management Support System rolled out under TEQIP II as well as regular refresher procurement training and workshops delivered by the NPIU. The main challenge to procurement management related to a mandate from the MHRD to follow a new procurement framework (introduction of e-procurement) with only four months remaining in the project's lifetime. While this change streamlined procurement processes and enhanced competition and transparency, it required strong support from the Bank to help institutes register in the new system. Procurement post reviews reported no major issues.

c. Unintended impacts (Positive or Negative)

According to the ICR (p. 26), some states (Karnataka, Haryana, West Bengal) expanded project-supported reforms to all publicly funded institutions in the state.

d. Other

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Highly Satisfactory	Satisfactory	Although the development objectives were almost fully achieved, there were shortcomings in achievement of the quality objective due to failure to meet accreditation targets for graduate-level institutes.
Bank Performance	Satisfactory	Satisfactory	
Quality of M&E	Substantial	Substantial	
Quality of ICR	---	Substantial	

12. Lessons

The ICR (pp. 26-27) highlights a number of useful lessons, some of which are summarized here:

Feasibility studies and technical assistance, together with convening support and favorable political economy conditions, can facilitate reform in challenging areas such as faculty



hiring in higher education. In this case, project support for a detailed examination of the current status of faculty shortages, drivers of faculty vacancies, implications of faculty shortages for quality of education, and solutions for addressing faculty vacancies provided a sound foundation for developing a menu of options to present to states.

Demonstrated positive outcomes in previous projects can be used decisively to generate receptivity and momentum for further innovations and reform. In each successive phase of TEQIP, new innovations built on successes of the previous phase. TEQIP III built on progress in improving quality in participating institutes (accreditation and autonomy) to reinforce the need for clear accountability and reliable data, leading to the introduction of a student learning assessment system.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR was clear, concise, internally consistent, and results-oriented. It provided evidence beyond that in the formal results framework to enhance the assessment of project performance. The ICR's annexes provided detailed and complete information on project financing, restructurings, activities, implementation arrangements, and safeguards performance. Its lessons usefully covered the entire TEQIP series. However, there was one shortcoming of note. The reconstructed theory of change for the project (Annex 7, p. 48) did not provide a clear line of sight from the project's activities to expected outcomes for each objective. In particular, it did not clarify how the project's interventions were to lead to equity-related outcomes; it is not explained how the "enabling mechanisms" related to equity, and the institutes' Equity Action Plans were not cited.

a. Quality of ICR Rating

Substantial