1. Project Data

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| Original Commitment | 30,000,000.00 | 0.00  |
| Revised Commitment  | 30,000,000.00 | 0.00  |
| Actual              | 28,681,619.46  | 0.00  |

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Reviewed by Christopher David Nelson
ICR Review Coordinator Eduardo Fernandez Maldonado
Group IEGHC (Unit 2)

2. Project Objectives and Components

a. Objectives

According to the Loan Agreement (p. 6) and the Project Appraisal Document (PAD, p. 4), the project's objectives are "to improve school readiness of children entering primary education, improve physical conditions and the availability of educational resources in upper secondary schools, and support improved quality and relevance in higher education institutions of the Borrower."

One outcome target, relevant to the objective to improve physical conditions and availability of educational resources in upper secondary schools, was reduced at a 2018 restructuring. A split rating is therefore
conducted for that objective. At the time of that restructuring, US$11.72 million, or 40.9% of the total US$28.68 million in Bank financing spent as of January 1, 2022, had been disbursed.

This Review validates an Interim ICR, required because an Additional Financing (AF) under preparation at the time of the ICR (February 2022) was expected to result in an overall project implementation period that would exceed ten years. The AF is scheduled for consideration by the Board in June 2022, with a project closing date of December 2025. The Interim ICR presents outcomes and results as of January 1, 2022. Per guidelines, the final ICR is to be prepared and submitted following project completion.

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

Did the Board approve the revised objectives/key associated outcome targets?
No

c. Will a split evaluation be undertaken?
Yes

d. Components
The project contained three components:

1. Enhancing the quality of general education (appraisal: US$27.5 million, of which the Bank would finance US$22 million; actual: US$27.6 million) contained four subcomponents:

   • Promoting school readiness and equal opportunities at the start of general education was designed to increase preschool access, enrollment, and quality through dissemination activities for parents and communities about preschool opportunities and benefits, and provision of grants and technical assistance to micro-projects. The grants were to support refurbishment of classrooms, purchase of equipment and furniture, provision of pedagogical materials, and teacher training.

   • Enrichment of upper secondary schools was to rehabilitate selected high school facilities in poor physical condition and improve teaching and learning conditions in all high schools, including the provision of digital learning materials, modern equipment, and school furniture as well as teacher training. Rehabilitation works were to comply with seismic resistance standards.

   • Improving data collection and monitoring of education system performance was to improve the National Center of Education Technology’s (NACET’s) capacity to monitor schools and provide them with adequate information and communication technology (ICT) coverage, with the goal of NACET playing the role of national center for education statistics and providing decision makers and key stakeholders with timely and relevant information on the whole spectrum of the country’s education system. Activities were to include upgrading of NACET’s facilities, development of an ICT education strategy, provision of hardware and software, and training of staff and teachers. This sub-component was also to finance Armenia’s participation in large-scale international student assessments.

   • Supporting further improvements in the quality of education through curriculum revisions was to finance technical assistance and consultative workshops to bring the National Curriculum...
Framework for grades 1-12 into conformity with national education law, prioritizing key competencies that students should have acquired by the end of each level of education.

2. **Mainstreaming of the Competitive Innovation Fund (CIF) for higher education institutions (HEI) into full implementation** (appraisal: US$6.25 million, of which the Bank would finance US$5 million; actual: US$5.32 million) was to support the roll-out of a competitive grant program for HEIs that was developed and piloted under a previous project. The aim was to improve the quality, labor market relevance, and efficiency of academic programs. Proposals with a focus on underserved groups or regions were to be prioritized. Specific activities to be financed included updating the fund's operational processes and procedures, providing the grants, monitoring grant implementation, and tapping private-sector and international donors to bolster the fund's sustainability.

3. **Project management, monitoring, and evaluation** (appraisal: US$3.75 million, of which the Bank would finance US$3 million; actual: US$2.32 million) was to provide financing for project implementation to the Center for Education Projects (CEP), the project implementation unit (PIU) within the Ministry of Education and Science. CEP was to receive support for administering, coordinating, implementing, and monitoring and evaluating project activities, as well as associated procurement and financial management functions.

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

The project was to be financed by a US$15 million IDA Credit and US$15 million IBRD Loan, with a US$7.5 million contribution from the government (integrated within the annual budget allocation for the education sector). Of the total US$37.5 million planned project cost, actual spending as of January 1, 2022 was US$35.72 million. At that time, the IBRD Loan was fully disbursed, and US$13.68 million of the IDA Credit was spent, for total Bank spending of US$28.68 million. The government had contributed US$7.04 million.

The project was approved on March 13, 2014 and became effective on November 20, 2014. A mid-term review was held in October 2017. The original closing date, September 30, 2019, was extended twice:

- On August 27, 2018, the closing date was extended by 24 months to September 30, 2021, partly in response to disruptions caused by the Velvet Revolution (a peaceful transition of power resulting from widespread protests in April and May 2018). There were adjustments to the components, component costs, and results framework, though the project's overall logic remained intact. The outcome target on number of supported high schools meeting Armenia's construction and safety standards was reduced due to unexpected additional costs of earthquake-seismic reinforcement.
- On September 23, 2021, the closing date was extended by another seven months, in part due to the 2020 Nagorno-Karabakh conflict (six weeks of fighting in September through November that produced 90,000 refugees in Armenia, including 11,500 school-aged children) and the COVID-19 pandemic, to April 30, 2022.

The Interim ICR was submitted on February 14, 2022.

### 3. Relevance of Objectives
Rationale

The PAD (pp. 1-3) demonstrated that the project's objectives were relevant to country context. At the time of appraisal, considerable progress had been made in improving access to pre-school, general education, and higher education. Enrollment rates were nearly universal for primary and lower secondary education; the pre-school enrollment rate was anticipated to reach 75% by 2015; and there had been significant growth in higher education enrollment, from 19.6% in 2001 to 28.6% in 2008. More females than males were enrolled in upper secondary and tertiary education. The government had undertaken a wide range of reforms to improve quality of education at all levels, including curriculum development, teacher training and certification, introduction and integration of information technology, and standardized performance assessments, as well as the implementation of a per-student financing mechanism that produced substantial efficiency gains. However, there were challenges remaining at all levels. Pre-school expansion was not on track to meet the government's 2017 target of 90% enrollment. Prior reforms had not yet produced demonstrable changes in student performance at the general education level, with grade 4 and 8 test scores stagnant or declining between 2003 and 2011. High school facilities were aging and, in some cases, unsafe (lacking proper seismic stability and sanitary infrastructure). There was a mismatch between the skills offered by institutions of higher education and those required by the labor market.

The State Program of Education Development (2011-2015) reflected these challenges, emphasizing the need to: (i) ensure that all children enter general education ready to learn; (ii) build an education system that can provide high-quality education to all students; (iii) establish a diverse tertiary education and research system responsive to labor market needs; and (iv) improve productivity by endowing tomorrow's labor force with the appropriate set of skills. Armenia's overall development strategy for 2014-2025 prioritizes the development of human capital, with particular emphasis, under its education pillar, on strengthening upper secondary education, increasing the efficiency of basic education, reducing regional disparities in education access and quality, and improving teacher training.

The project was aligned with two of the four key results areas identified in the Bank's County Partnership Strategy for Armenia at appraisal (2014-2017): enhancing human capital through better access to quality services, including health care, education, culture, and basic infrastructure (which is reflected in all of the project's objectives); and expanding employment through high-productivity, decently paid jobs (which is primarily reflected in the project's objective to improve the relevance of higher education). It was designed to build on two previous Adaptable Program Loans (APLs) in the education sector (First Education Quality and Relevance Project, 2004-2009, and Second Education Quality and Relevance Project, 2009-2015). It remains aligned with the second focus area of the current Country Partnership Framework (CPF, 2019-2023), Human Capital Development and Equity, and specifically with its objective of "enhanced access to good-quality educational services for skills development and employability." Planned results under that CPF objective include increasing the share of children enrolled in early childhood education, improving the quality of diagnostic tools implemented across different areas of the education system, and creating a new cluster of HEIs and research centers.

Within the context of Bank and government strategy, the PAD's description of country conditions provided a compelling argument that the specific areas contained in the objectives were important: pre-school enrollment levels that were increasing but not on track to meet government targets; sub-standard physical conditions and resource availability in high schools, of particular concern given the recent extension of the general education system from 10 to 12 years (PAD, p. 2); and a mismatch between the skills being acquired in tertiary education and the needs of the labor force. However, it did not provide information or context that situated these areas as the most binding constraints to achievement of education sector
goals as outlined in the government's strategy and the Bank's current CPF. In other words, there was not clarity in project documents on the reasons that these objectives were chosen over other possible education objectives. There is no explanation, for example, for prioritizing pre-school, upper secondary, and tertiary education over the primary and lower secondary levels, or for focusing on quality and relevance but not efficiency in higher education. There is also insufficient justification for the scope and breadth of the project's objectives, spanning from pre-school to higher education. Furthermore, the second objective, to improve the physical conditions and availability of educational resources in high schools, was output-oriented; it did not specify educational outcomes that were to result from planned improvements in high school infrastructure and resources. A more outcome-oriented objective would have been expected particularly given the Bank's previous experience in the sector. The Second Education Quality and Relevance (APL2) project (2009-2015, P107772) had an objective to enhance school learning in general education; this project's second objective is not consistent with progress over time.

While the objectives were clearly aligned with country context and with Bank and government strategy, there were significant shortcomings in their justification, framing, and overall cohesion. Relevance of objectives is therefore rated Modest.

Rating
Modest

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective
Improve school readiness of children entering primary education

Rationale
The theory of change for this objective held that expansion and enhancement of pre-school education, through provision of furniture and education materials to community-based pre-schools, teacher training, and communications efforts to inform parents and other stakeholders on the benefits of early childhood education, would lead to higher enrollments in better-quality pre-school facilities. These higher enrollments would, in turn, improve the readiness of those children to enter primary education.

Outputs
Micro-project grants were provided to 136 community-based pre-schools, exceeding the original target of 120 and the revised target of 134 schools. Grant support included establishment of the schools and provision of furniture and equipment, educational literature, and age-appropriate toys. To put this result in context, the total number of pre-schools in Armenia rose from 717 to 906 from 2015 through 2019, meaning that 70% of this increase in the number of pre-schools was financed by the project. 93% of these schools are located
outside the capital city. 258 pre-school teachers were trained using project funds. As of January 2022, all of the schools are fully operational. 3,462 five- to six-year-old children were enrolled in these project-supported pre-schools in their first year of operation, exceeding the original target of 2,400 and the revised target of 3,450 children. A total of 13,580 children have been enrolled in these schools (52% boys and 48% girls) from 2015-2020, covering about 6% of children entering the first grade in a given year.

Outcomes

Early Development Index (EDI) scores of children enrolled in preschools supported by the project increased by an average of 32% in academic year 2015/2016, 43% in 2016/2017, 57% in 2017/2018, and 85% in 2018/2019. EDI scores of children in comparable communities who were not enrolled in preschools increased by an average of 9% in 2015/2016, 24% in 2016/2017, 29% in 2017/2018, and 75% in 2018/2019. The EDI measures basic math knowledge, logic and thinking, oral language understanding, early literacy, and fine motor development. The differences between the treatment and comparison groups were statistically significant in all years, meeting the target. However, the formulation of the target in binary terms does not provide space for distinguishing between Substantial and High achievement. Furthermore, the comparison group used in the analysis was children who did not attend pre-school at all. A more persuasive comparison could have been drawn between children who attended pre-schools supported by the project, and those who attended pre-schools not supported by the project. In addition, the ICR does not provide a general analysis of which factors -- establishment of the pre-schools themselves, teacher training, provision of materials, increased community awareness -- were most important in producing these results.

Rating

Substantial

OBJECTIVE 2

Objective

Improve physical conditions and the availability of educational resources in upper secondary schools (original outcome targets)

Rationale

The theory of change for this objective was situated at the output level: the provision of furniture, computers, and laboratory equipment to high schools, as well as the rehabilitation of schools to meet modern standards of safety and energy efficiency, was to result in improved physical conditions and availability of educational resources in those schools.

Outputs
Rehabilitation works were implemented in 13 schools, with 11 completed and two scheduled to be completed by project closure.

188 classrooms were rehabilitated in eleven schools, not meeting the original target of 225 classrooms but exceeding the revised target of 162 classrooms.

Under this objective, the ICR reports on other outputs that are indirectly connected to the objective:

Standards and syllabi for six general education subject disciplines across grades one through twelve -- Armenian language and literature, foreign languages, society and social sciences, physical education and safety activities, arts, and technology -- were revised, with revisions endorsed by the government. This did not meet the original target of ten subjects or the revised target of nine subjects. Revisions for math, ICT, and science were removed from the project and instead carried out under a European Union-financed operation; according to the ICR (p. 30), this reallocation of responsibilities was not documented through a formal project restructuring.

A system of learning assessment was put in place at the primary education level, achieving the target. Armenia now participates in international assessments, uses assessment data regularly to inform policy, and makes annual reports publicly available. The Trends in International Mathematics and Science Study (TIMSS) 2019 assessment was administered to fourth graders in 2019, with the results released in 2020.

With project support, including for software design and for maintenance of hardware and software, an Integrated Education Management Information System (EMIS) is fully operational nationwide, covering general, vocational, and tertiary education. 4,475 administrative staff were trained in the use of the EMIS, exceeding the target of 4,000 staff.

All schools in Armenia were equipped with hardware and software that allows them to feed NACET with timely information on student enrollment and attendance. A NACET data center was completed, and the NACET building was rehabilitated. Attendance data is being collected in high schools targeted by the project, but this information is not yet being used to track and improve student attendance, or to demonstrate that student attendance is higher in treatment high schools than in comparison group high schools, as originally planned.

Outcomes

Educational resources were provided to 107 high schools, including laboratory equipment for science and technology instruction, computers, and furniture, meeting the target of 107 schools. The project included this result as an outcome indicator, but it is a straightforward output.

The number of high schools targeted by the project that meet Armenia's construction and safety standards increased from zero in 2013 to 11 in 2022, not meeting the original target of 17.

The ICR (p. 14) reports on survey data indicating that students and teachers are satisfied with the new school rehabilitation works, laboratory equipment, teacher training, and educational resources. 55% of teachers said
that they needed additional training to teach practical lessons in the new laboratories, and 53% said that laboratory materials were lacking, indicating the need for ongoing investment and maintenance of resources.

Rating
Modest

OBJECTIVE 2 REVISION 1
Revised Objective
Improve physical conditions and the availability of educational resources in upper secondary schools (revised outcome targets)

Revised Rationale
The number of high schools targeted by the project that meet Armenia's construction and safety standards increased from zero in 2013 to 11 in 2022, almost meeting the revised target of 12 schools. The ICR (p. 13) notes that rehabilitation works are expected to be completed in an additional two schools by the end of the project period. The project team later confirmed that the additional two schools are scheduled to re-open in the near future.

Revised Rating
Substantial

OBJECTIVE 3
Objective
Support improved quality and relevance in higher education institutions

Rationale
The theory of change for this objective held that provision of competitive grants to HEIs, together with technical assistance and training on the implementation of those grants, would improve the quality of higher education. Partnerships between public and private institutions were expected to make public institutions more responsive to market incentives and labor demand. Together, these results would support improved quality and relevance in the participating HEIs.

Outputs
A CIF Coordinating Council was established, bringing together a range of key actors in tertiary education.

18 CIF grants were awarded to 14 HEIs, exceeding the original target of 10 but not meeting the revised target of 15 institutions. As of the 2019/2020 academic year, 57,400 students, or 81% of all students enrolled in higher education in the country, were enrolled in HEIs receiving these grants. Four of these grants were aimed at improving management, information systems, and quality assurance systems in the HEIs. Two of
the grants were aimed at increasing enrollment of socioeconomically disadvantaged students and increasing student diversity. The other 12 aimed directly at improving relevance through the promotion of employer involvement in education processes and course development, provision of internships, and development of labor market study centers and career centers.

Six partnerships between HEIs or research centers and private industry were established under the CIF, exceeding the original target of four and the revised target of five partnerships.

Outcomes

The share of grants established under the CIF achieving at least 80% of their proposed objectives increased from zero in 2013 to 83% in 2022, not reaching the target of 100%. According to the ICR, 15 of the 18 grants have completed implementation, and the remaining three -- at Yerevan State Medical University, the State Linguistic University, and the Armenian National Agrarian University -- are on track to be completed by project closure.

The project team provided additional information on the indicators that were tracked by HEIs implementing CIF projects, demonstrating that 76% of those indicators supported quality improvement, and 35% supported relevance improvement. Of those indicators, most were achieved at a rate of 90% or higher. Although this information is aligned primarily with outputs of the grant program, rather than demonstrating outcomes related to quality and relevance in HEIs, it does demonstrate progress toward improved quality and relevance. Additional outcome-oriented evidence, such as data on labor market outcomes of graduates, could have more convincingly demonstrated improved quality and relevance of higher education.

Rating

Substantial

OVERALL EFFICACY

Rationale

Under the original outcome targets, the project substantially achieved its objectives to improve the school readiness of children entering primary education and to support improved quality and relevance of higher education. The key outcome target was not met for improving the physical condition of upper secondary schools. Efficacy under the original outcome targets is therefore rated Substantial.

Overall Efficacy Rating

Substantial
OVERALL EFFICACY REVISION 1

Overall Efficacy Revision 1 Rationale

Under the revised outcome targets, the project substantially achieved its objectives to improve the school readiness of children entering primary education and to support improved quality and relevance of higher education, and it was on track to achieve the revised target for improving the physical condition and availability of educational resources in high schools. Efficacy under the original outcome targets is therefore rated Substantial.

Overall Efficacy Revision 1 Rating
Substantial

5. Efficiency

The PAD (Annex 6) conducted a cost-benefit analysis for each component separately, assuming that costs and benefits were additive. Benefits were assumed to stem from the planned direct results of the project as well as longer-term changes in the quality of the labor force. Education premia were estimated with the Mincer equation using data from the 2010 Integrated Living Conditions Survey. The model was calibrated, and the discounted expected cash flow generated by level of education and gender was estimated, using labor market statistics from the 2011 Statistical Yearbook of Armenia. A 3% discount rate was used. Costs considered not only direct project costs but also the long-term costs and fiscal effort the government would have to make in order to sustain the project's investments. The fiscal burden included higher maintenance costs for renovated high schools, the expansion of pre-primary education, and the additional costs of increased enrollment at all education levels. The analysis found a total net benefit of US$138.9 million and a benefit-cost ratio of 3.2, robust to a sensitivity analysis that varied returns to education and the discount rate.

The ICR (Annex 4) repeated this analysis using a 3% discount rate, finding a net present value (NPV) of US$118.8 million and benefit-cost ratio of 2.9, equivalent to a rate of return of 12.7%. Its assumptions -- that every year of pre-school education raises EDI scores by 0.26 standard deviations, that rehabilitated secondary schools would improve cognitive skills by 0.24 standard deviations, and that the CIF interventions would reduce the average student's first job search time to one month -- drew from global evidence, though their applicability to this project is not convincing given the lack of data provided on educational outcomes. Sensitivity analysis varying the discount rate to 1% or 5% and the number of beneficiaries by 10% confirmed the positive returns to the investment, with a benefit-cost ratio of 4.7 and NPV of US$45 million under the best-case scenario, and benefit-cost ratio of 1.9 and NPV of US$290.3 million under the worst-case scenario. The ICR (p. 17) noted that there may be non-quantifiable, longer-term additional benefits from the project, including enhanced school environments, social benefits of increased educational attainment (improved health, reduced crime, lowered adolescent pregnancy), and higher productivity levels and economic growth.

The ICR also noted key sources of implementation efficiency: the PIU's flexible adaptation to eternal shocks, to turnover at the ministerial level (four education ministers during the implementation period), and to temporary changes to PIU staff, as well as effective reallocation of unused funds. However, there were moderate implementation inefficiencies as well: cost overruns for the high school rehabilitation activities and for rehabilitation of the NACET building, as well as delays in procurement of equipment, and overall implementation
delays resulting from the 2018 Velvet Revolution, the 44-day conflict in Nagorno-Karabakh in 2020, and the COVID-19 pandemic.

It is also noteworthy that some of the project's activities, noted in Section 4 under the discussion of the second objective -- the curriculum reform, learning assessments for primary education, and support for the EMIS and NACET -- were not directly linked to any of the project's three objectives.

On balance, given strong economic returns and only moderate implementation inefficiencies, project efficiency is rated Substantial.

**Efficiency Rating**

Substantial

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

**6. Outcome**

The project was Modestly relevant. Although the objectives fell within government and Bank strategy, project documents do not present a compelling case that its three objectives addressed the most binding constraints to achieving desired outcomes in the education sector, and the second output-oriented objective did not represent progress over time in relation to previous Bank-financed interventions in the sector. The project substantially achieved its objectives to improve the school readiness of children entering primary education and to support improved quality and relevance of higher education. The original outcome target was not met for improving the physical condition of upper secondary schools, but that objective was substantially achieved under the revised outcome targets. Efficiency is rated Substantial because of positive economic returns and evidence of only moderate implementation inefficiency.

These ratings produce an Outcome rating of Moderately Satisfactory under both the original and revised outcome targets, and therefore a final Outcome rating of Moderately Satisfactory, indicative of moderate shortcomings in the project's preparation, implementation, and achievement.
a. Outcome Rating
Moderately Satisfactory

7. Risk to Development Outcome

Achievements at the pre-school level are likely to be sustained. Pre-school education is marked by strong local ownership and government support. Project-supported pre-schools operate on the physical premises of existing general education schools, and their maintenance is included in general education budgets. Strong government prioritization of science, technology, engineering, and mathematics (STEM) education at the high school level indicates that the equipment and infrastructure supported by the project will continue to receive maintenance support, including ongoing training of relevant staff. However, according to the ICR (p. 25), ongoing funding for maintenance of investments at the university level is less certain. The AF under preparation includes interventions to monitor investments and improve practices to help sustain project gains. The government’s 2021-2026 development program allocates resources toward school construction and renovation (including renovating and equipping at least 500 kindergartens and pre-schools), provision of additional school laboratories, introduction of new and updated educational materials at all levels, and performance-based funding mechanisms for tertiary education.

The project contributed to institutional strengthening, along several dimensions, that is likely to be sustained: it supported coordination and alignment among education departments, local communities, and grantee schools toward the goal of improving access and quality of pre-schools, and established the CIF Coordinating Council as a platform for establishing priorities in education and research in HEIs.

8. Assessment of Bank Performance

a. Quality-at-Entry

As would be expected given the Bank’s long engagement in Armenia’s education sector, project design reflected key lessons learned, especially the importance of realistic assessment of institutional capacity to manage reform, and the need to base a project’s concept and objectives on stakeholder consensus and priorities. Planned interventions were also grounded in existing evidence and literature on the impact of high-quality pre-school on children’s capacity to learn when they reach first grade, the positive relationship between adequate secondary school infrastructure and student learning outcomes, and the effectiveness of CIFs in boosting quality and relevance in tertiary education.

The PAD’s risk assessment (pp. 13-14) identified overall implementation risk as moderate, based on the need to engage and coordinate with a wide variety of stakeholders and the challenges of meeting a diversity of stakeholder needs, the possibility of CEP staff turnover, the limited experience of the ministry and CEP with the Bank’s safeguard policies, the need to build local authorities’ capacity to implement planned pre-school expansion, and the risk of limited demand for community-based pre-school education. The PAD’s Annex 4 detailed adequate risk mitigation measures.

Implementation readiness was high, given the extent to which the project relied on systems and structures in place from previous projects. New activities were planned to be implemented in a staggered
manner prior to launch on a larger scale; for example, the rehabilitation of high schools was started in five pilot schools and then expanded to an additional eight schools in a later phase.

There were, however, significant shortcomings. The seismic vulnerability of high school buildings was not assessed during the project design stage (ICR, p. 24), leading to challenges in the preparation of rehabilitation designs, increases in the required budget for rehabilitation works, and a consequent need to restructure the project to decrease the number of high schools that could be covered. There were further shortcomings with specification of the objectives and M&E design. The PAD did not make a compelling case for the project's specific objectives representing the most important goals within the government's overall education strategy and the Bank's country strategy. Additionally, as the ICR (p. 21) points out, the project's theory of change did not always follow a tight logic. There were several planned activities -- the setup and maintenance of the EMIS, the participation of fourth and eighth graders in TIMSS, and the revision of subject standards and curricula for grades 1-12 -- that did not contribute directly to the achievement of any of the three objectives. Moreover, the second objective, to improve physical conditions and availability of resources in high schools, was expressed as an output rather than an outcome; there is no objective or indicator that captures the intended outcomes of the investments. There were no outcome indicators to measure directly the achievement of the third objective, to improve the quality and relevance of higher education. Finally, the project covered multiple levels of the education system, making it difficult to ascertain a cohesive theory of change that worked across the entire set of interventions.

Quality-at-Entry Rating
Moderately Unsatisfactory

b. Quality of supervision
The Bank team had an adequate skills mix representing a wide range of technical and sector expertise, including specialized expertise in education economics, early childhood education, higher education, and ICT (ICR, p. 24). Supervision missions benefited from strong field support from the Bank's office in Yerevan and from a local senior consultant who supported implementation. There were four changes in task team leadership across the project's lifetime; the ICR does not comment directly on any adverse impact of this turnover, though it hints at challenges with a statement in the "Lessons" section that "Bank staff turnover, including that of task team leaders, should be accompanied by better handover and longer overlaps to ensure supervision support and communication flow with incoming governments, PIU staff, and key stakeholders is maintained" (p. 26). The project team restructured the project in 2018 to accommodate cost overruns and a challenging political environment. The team flexibly adapted project procedures to accommodate emerging issues and priorities; for example, to expand the number of HEIs benefiting from the CIF program, it adjusted eligibility criteria so that HEIs that had received grants in prior funding rounds would not be eligible for the final round.

The ICR (pp. 24-25) notes two key shortcomings. First, there was inadequate documentation of changes throughout implementation, including rationale for the majority of revisions to the results framework under the 2018 restructuring (including the decision for a different donor to handle curricular revisions for three subject areas). Second, the Bank team was slow in responding to "No Objection" requests. It should also
be noted that the lack of outcome orientation for the second objective and the lack of outcome indicators to measure the third objective were not addressed.

Quality of Supervision Rating
Moderately Satisfactory

Overall Bank Performance Rating
Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design
CEP was responsible for coordinating monitoring activities and for bringing together representatives of the education ministry to monitor results. Results indicators were selected on the basis of data requirements already established as part of the ministry's regular data collection, and were also to be monitored using baseline and follow-up surveys as well as reports prepared by CEP. Project design envisioned "strong beneficiary/stakeholder participation in project monitoring and supervision activities on an ongoing basis" (PAD, p. 12), including using project websites and social media as a forum for students, parents, educators, and other beneficiaries to provide feedback. Project efforts were to be directed at building ministry capacity in policy planning, monitoring, and evaluation, with CEP working eventually to transfer to the ministry responsibility for quality reporting, internal and external evaluations and assessments, and monitoring and evaluating the project's outcomes.

As noted in Section 8a, there were important shortcomings in the project's overall logic, the outcome orientation of the second objective, and the adequacy of the outcome indicators for the third objective.

b. M&E Implementation
According to the ICR (p. 22), CEP collected data on project indicators as planned, reported in biannual project implementation reports shared with the Bank. The establishment of the EMIS provided additional capacity for measuring results. Capacity at NACET was developed to the point that it regularly provides monitoring information directly to the ministry. According to additional information provided by the project team, almost all grant-funded pre-schools, high schools, and HEIs gathered feedback from beneficiaries and stakeholders through on-line platforms, and most of the participating HEIs engaged with beneficiaries and stakeholders through dedicated social media accounts and websites. M&E capacity at the ministry, however, was not developed such that responsibility for M&E could be transferred from CEP. The ICR notes some additional M&E shortcomings that persisted during implementation: regular ministry administrative data reported primarily on outputs rather than outcomes; annual targets were missing for some indicators; gender-disaggregated data was not collected and reported as planned for several indicators; and progress on one intermediate indicator -- improved student attendance in high schools targeted by the project -- was not reported at all. The ICR (p. 22) cites an agreement between the PIU and the Bank that data on this indicator would not be reported until project closing, as results would become apparent only 1-2 years after school rehabilitations were completed. The ICR questions why the
Bank agreed to this arrangement, but it should be noted that an attendance indicator would measure an outcome that goes beyond the output-oriented objective to improve physical conditions and availability of educational resources.

c. M&E Utilization

The ICR (p. 22) notes that project M&E data was used to inform major changes in implementation, including increasing the targets for support of community-based pre-schools and revising the eligibility criteria for HEIs to apply for CIF grants.

Overall, uncorrected shortcomings in M&E design made it impossible to assess achievement across all three objectives. M&E Quality is therefore rated Modest.

M&E Quality Rating
Modest

10. Other Issues

a. Safeguards

The project was Environmental Assessment category "B" and triggered OP/BP 4.01, Environmental Assessment, and OP/BP 4.11, Physical Cultural Resources. Because all civil works were to take place within the existing footprint of educational facilities, OP 4.12, Involuntary Resettlement, was not triggered. Rehabilitation works were expected to have some temporary negative impacts typical for reconstruction and rehabilitation of small to medium-size buildings. Managing and minimizing these impacts was to be achieved by adhering to good construction practices and to an Environmental Management Plan (EMP) for each civil work. An Environmental Management Framework (EMF) was developed as part of project preparation, with site-specific EMPs to be worked out as beneficiary institutions were identified and rehabilitation designs drafted. In the event that any school buildings targeted for rehabilitation carried historical value, renovation designs were to be cleared with the national authorities responsible for the preservation of cultural heritage; these provisions were included in the EMF. According to the ICR (p. 23), the site-specific EMPs were developed as planned, and designated staff monitored their implementation. The ICR reports that safeguards performance was rated Satisfactory throughout the project's lifetime.

b. Fiduciary Compliance

A financial management (FM) assessment was performed by the Bank in October 2013 and found that CEP had adequate arrangements in place. The ICR (p. 23) reports that there was compliance with FM requirements throughout the project implementation period. FM was rated Satisfactory in all
Implementation Status and Results Reports (ISRs). Interim financial reports were always submitted on time and found acceptable to the Bank, and audits were on time and clean.

A procurement assessment was performed by the Bank in June 2013. It found that CEP had adequate procurement capacity, but limited experience in procuring and implementing works contracts, which were a major element of the project. Procurement risk was therefore rated Moderate at appraisal. The ICR (p. 23) reports that procurement arrangements were "generally adequate," with the Bank exercising prior review on a comparatively large share of contracts. A project procurement review was conducted annually. Changes in the civil works contracts for rehabilitation of schools, the Nagorno-Karabakh conflict, and the COVID-19 pandemic produced delays. Procurement was rated Moderately Satisfactory in all ISRs.

c. Unintended impacts (Positive or Negative)

The ICR (p. 18) notes some possible unintended gender outcomes. By increasing access to pre-school, the project may have indirectly encouraged mothers of young children to join or return to the labor market earlier than they otherwise would have. Improvements in high school infrastructure, including better provision of water supplies and promotion of general sanitation and hygiene, may have led to increased female student attendance. It would have been useful if the project had sought to better capture and record potential changes to this end, given the effort devoted to undertaking an impact evaluation measuring the effects in early childhood development.

A supplemental technical assistance to this project, "Gender Dynamics in STEM Fields of Study and Occupation," was developed to understand the factors contributing to wide underrepresentation of women in STEM in both higher education and the workforce. It found that cultural stereotypes related to the types of work deemed suitable for women were the dominant barrier to gender equality, with women and girls self-selecting out of STEM education tracks and career choices. These findings were shared with the government in 2017.

d. Other

11. Ratings

<table>
<thead>
<tr>
<th>Ratings</th>
<th>ICR</th>
<th>IEG</th>
<th>Reason for Disagreements/Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome</td>
<td>Satisfactory</td>
<td>Moderately Satisfactory</td>
<td>The project's objectives were only modestly relevant, and progress on improving physical conditions and the availability of educational resources in upper secondary schools was modest under the original outcome targets.</td>
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</table>
There were important shortcomings in the project's overall logic, the outcome orientation of the second objective, and the adequacy of the outcome indicators for the third objective. These issues were not addressed during project implementation.

12. Lessons

The ICR (p. 26) offered several insightful lessons, some of which are highlighted here:

**Projects in sectors where the Bank has prior experience can benefit from a mix of tried-and-tested activities with more innovative interventions that entail higher levels of risk.** In the case of this project, the pre-school community-based microprojects and CIF had already been through proof-of-concept at the project design stage, allowing for rapid start-up and freeing human and financial resources to focus on more ambitious new undertakings like the rehabilitation and equipping of high schools.

**Projects that span several different levels of education can benefit from a unifying focus; at minimum, a plausible, coherent theory of change is required for each separate objective covering a different education level.** In the case of this project, some interventions (those related to data monitoring and performance, as well as curriculum revision) were not tightly connected to any of the three objectives, and the formulation of the second objective discouraged an emphasis on outcomes. This was particularly disappointing given previous experience working in the sector.

**Achievement of objectives cannot be demonstrated in the absence of appropriate indicators.** In the case of this project, achievement of the second objective was limited to counting outputs because of the way the objective was framed, and there were no indicators to measure achievement of the third objective (nor did the ICR provide additional data to compensate).

13. Assessment Recommended?

No

14. Comments on Quality of ICR
The ICR is concise and candid, with clear statements of the shortcomings in the project's design and M&E framework. Its evidence is of generally high quality. The analysis is outcome-oriented, noting where the project lacked data on some key outcomes. Its lessons are insightful and derived from project experience. With the reduction in ambition of the key indicator measuring achievement of the second objective, a split rating methodology was required; the ICR did not follow guidelines in this area. In the absence of outcome indicators to measure achievement of the third objective, the ICR could have offered evidence outside the formal results framework or commented on the lack of availability of such evidence; this Review's assessment of that objective relied on information provided later by the project team.

a. Quality of ICR Rating
   Substantial