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IDA/R2017-0079/1

March 28, 2017

Closing Date: Friday, April 14, 2017 at 6 p.m.

FROM: Vice President and Corporate Secretary

Cambodia - Secondary Education Improvement Project

Project Appraisal Document

Attached is the Project Paper regarding a proposed credit to Cambodia for a Secondary Education Improvement Project (IDA/R2017-0079), which is being processed on an absence-of-objection basis.

Distribution:
Executive Directors and Alternates
President
Bank Group Senior Management
Vice Presidents, Bank, IFC and MIGA
Directors and Department Heads, Bank, IFC and MIGA

Document of
The World Bank

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Report No: PAD1830

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR29.5 MILLION
(US$40 MILLION EQUIVALENT)

TO THE

KINGDOM OF CAMBODIA

FOR A

SECONDARY EDUCATION IMPROVEMENT PROJECT

March 20, 2017

Education Global Practice
East Asia and Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective as of January 31, 2017)

Currency Unit	=	Cambodia Riels
KHR 4041	=	US$1
1.35883US$	=	SDR 1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AOP	Annual Operational Plan
ARAP	Abbreviated Resettlement Action Plan
CAS	Country Assistance Strategy
CBA	Cost-Benefit Analysis
CEN	Country Engagement Note
COM	Community Operations Manual
CQS	Selection Based on the Consultants Qualifications
CSES	Cambodia Socio-Economic Survey
CTA	Chief Technical Advisor
DA	Designated Account
DLI	Disbursement-Linked Indicator
DP	Development Partner
DOC	Department of Construction
DOE	District Office of Education
EC	European Commission
ECoP	Environmental Codes of Practice
EEP	Eligible Expenditure Program
EMIS	Education Management Information System
EMP	Environmental Management Plan
ERC	Education Research Council
ERM	Emergency Response Manual
ESMF	Environmental and Social Management Framework
ESP	Education Strategic Plan
ESSP	Education Sector Support Project
ESSSUAP	Education Sector Support Scale Up Action Program
ESWG	Education Sector Working Group
EQAD	Education Quality Assurance Department
EU	European Union
FM	Financial Management
FMIS	Financial Management Information System
FMM	Financial Management Manual
GDP	Gross Domestic Product

GDR	General Department of Resettlement
GNI	Gross National Income
GPE	Global Partnership for Education
GRS	Grievance Redress Service
HEI	Higher Education Institution
HEQCIP	Higher Education Quality and Capacity Improvement Project
IAD	Internal Audit Department
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
IFR	Interim unaudited Financial Report
IP	Indigenous People
IPF	Investment Project Financing
IPPF	Indigenous Peoples Planning Framework
IRC	Inter-ministerial Resettlement Committee
IRR	Internal Rate of Return
ISCED	International Standard Classification of Education
JICA	Japanese International Cooperation Agency
JTWG	Joint Sector Working Group
LSSES	Lower Secondary School Effectiveness Standards
LUP	Leadership Upgrading Program
M&E	Monitoring and Evaluation
MAFF	Ministry of Agriculture, Forestry and Fisheries
MEF	Ministry of Economic and Finance
MLMUPC	Ministry of Land Management Urban Planning and Construction
MoEYS	Ministry of Education, Youth, and Sports
MPWT	Ministry of Public Works and Transport
NAA	National Audit Authority
NAS	National Assessment System
NBC	National Bank of Cambodia
NCB	National Competitive Bidding
NIE	National Institute of Education
NPV	Net Present Value
OECD	Organization for Economic Co-operation and Development
PAD	Project Appraisal Document
PAH	Project Affected Households
PDO	Project Development Objective
PfD	PISA for Development Program
PFM	Public Financial Management
PFMRP	Public Financial Management Reform Programme
PISA	Program for International Student Assessment
PMC	Project Management Committee
PMT	Project Management Team
POE	Provincial Office of Education
POM	Project Operations Manual
RAP	Resettlement Action Plan

RGC	Royal Government of Cambodia
RPF	Resettlement Policy Framework
RTTC	Regional Teacher Training Center
RUPP	Royal University of Phnom Penh
SBM	School-Based Management
SEIP	Secondary Education Improvement Project
SESSP	Second Education Sector Support Project
SFMM	Supplementary Financial Management Manual
SIDA	Swedish International Development Cooperation Agency
SIF	School Improvement Fund
SIG	School Improvement Grant
SMC	School Management Committee
SOP	Standard Operating Procedure
SSC	School Support Committee
SSS	Single Source Selection
STEM	Science, Technology, Engineering, and Mathematics
STEP	Systematic Tracking of Exchanges in Procurement
SY	School Year
TA	Technical Assistance
TEPS	Teacher Education Provider Standards
TFP	Total Factor Productivity
ToR	Terms of Reference
TPAP	Teacher Policy Action Plan
TSA	Treasury Single Account
TTC	Teacher Training College
TUP	Teacher Upgrading Program
UN	United Nations
UNICEF	United Nations Children's Fund
UNESCO	United Nations Educational, Scientific and Cultural Organization
VVOB	The Flemish Association for Development Cooperation and Technical Assistance

Regional Vice President:	Victoria Kwakwa
Country Director:	Ulrich Zachau
Senior Global Practice Director:	Amit Dar
Practice Manager:	Harry Anthony Patrinos
Task Team Leaders:	Simeth Beng and Tsuyoshi Fukao

CAMBODIA
SECONDARY EDUCATION IMPROVEMENT PROJECT

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PAD DATA SHEET

Cambodia

Secondary Education Improvement Project (P157858)

PROJECT APPRAISAL DOCUMENT

EAST ASIA AND PACIFIC

0000009251

Report No.: PAD1830

Basic Information		
Project ID P157858	EA Category B - Partial Assessment	Team Leader(s) Simeth Beng,Tsuyoshi Fukao
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ] Financial Intermediaries [ ] Series of Projects [ ]	
Project Implementation Start Date 14-Apr-2017	Project Implementation End Date 31-Jan-2022	
Expected Effectiveness Date 03-Jul-2017	Expected Closing Date 29-Jul-2022	
Joint IFC No		

Practice Manager/Manager	Senior Global Practice Director	Country Director	Regional Vice President
Harry Anthony Patrinos	Amit Dar	Ulrich Zachau	Victoria Kwakwa

Borrower: Kingdom of Cambodia

Responsible Agency: Ministry of Education, Youth and Sport

Contact:	H.E. Nath Bunroeun	Title:	Secretary of State
Telephone No.:	85512513366	Email:	efa_cambodia@online.com.kh

Project Financing Data(in USD Million)					
[ ]	Loan	[ ]	IDA Grant	[ ]	Guarantee
[X]	Credit	[ ]	Grant	[ ]	Other

Total Project Cost:	40.9	Total Bank Financing:	40.00
Financing Gap:	0.00		

Financing Source	**Amount**
BORROWER/RECIPIENT	0.9

International Development Association (IDA)	40.00
Total	40.9

Expected Disbursements (in USD Million)

Fiscal Year	2017	2018	2019	2020	2021	2022	2023	0000	0000	0000
Annual	0.00	8.90	10.6	8.1	6.0	6.4	0.00	0.00	0.00	0.00
Cumulative	0.00	8.9	19.5	27.6	33.6	40.00	40.00	0.00	0.00	0.00

Institutional Data

Practice Area (Lead)

Education

Contributing Practice Areas

Social Protection & Labor

Proposed Development Objective(s)

To expand lower secondary education to achieve minimum standards in target areas, and to provide immediate and effective response in case of an eligible crisis or emergency.

Components

Component Name	Cost (USD Millions)
Improving Lower Secondary Education to Meet Minimum Standards	38.1
Strengthening Project Management and Monitoring and Evaluation	2.8
Contingent Emergency Response	0.00

Systematic Operations Risk- Rating Tool (SORT)

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Moderate
8. Stakeholders	Low
9. Other	
OVERALL	Substantial

Compliance		
Policy		
Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	**X**	
Natural Habitats OP/BP 4.04		**X**
Forests OP/BP 4.36		**X**
Pest Management OP 4.09		**X**
Physical Cultural Resources OP/BP 4.11		**X**
Indigenous Peoples OP/BP 4.10	**X**	
Involuntary Resettlement OP/BP 4.12	**X**	
Safety of Dams OP/BP 4.37		**X**
Projects on International Waterways OP/BP 7.50		**X**
Projects in Disputed Areas OP/BP 7.60		**X**

Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**
Institutional Arrangements (Section I.A., Schedule 2 of the Financing Agreement)	**X**		CONTINUOUS

Description of Covenant

Obligation of the Recipient to maintain, at all times during the implementation of the Project, the Project Management Committee (PMC) and the Project Management Team (PMT), all with functions, composition, staffing and resources satisfactory to the Association.

Name	**Recurrent**	**Due Date**	**Frequency**
Project Operations Manual(s) (Section I.B., Schedule 2 of the Financial Agreement)	**X**		CONTINUOUS

Description of Covenant

Obligation of the Recipient to carry out the Project in accordance with the Project Operational Manual (POM), and not amend, waive or abrogate any provisions of the manual unless the Association agrees otherwise in writing.

Name	**Recurrent**	**Due Date**	**Frequency**
Annual Work Plans and Budgets	**X**		Yearly

(Section I.C., Schedule 2 of the Financial Agreement)			

Description of Covenant

Obligation of the Recipient to furnish to the Association, no later than December 1 of each year, an annual work plan and budget for the Project for the following Fiscal Year, in a manner and substance satisfactory to the Association, and thereafter implement the activities under the Project during the relevant Fiscal Year in accordance with such plan and budget.

Name	Recurrent	Due Date	Frequency
Submission of Disbursement-Linked Indicators Reports (Section I.D., Schedule 2 of the Financial Agreement)	**X**		Yearly

Description of Covenant

The Recipient shall: not later than June 30 and December 31 of each year during the implementation of this project furnish reports to the Association on the status of achievement of the relevant DLI targets.

Name	Recurrent	Due Date	Frequency
Environmental and Social Safeguards (Section I.E., Schedule 2 of the Financial Agreement)	**X**		CONTINUOUS

Description of Covenant

The Recipient shall ensure that the project is carried out in accordance with the Environmental and Social Management Framework (ESMF), Indigenous Peoples Planning Framework (IPPF), the Resettlement Policy Framework (RPF), and ensure that any studies and Technical Assistance (TA) activities to be supported by the project are carried out under ToRs satisfactory to the Association and are consistent with the Association's safeguard policies.

Name	Recurrent	Due Date	Frequency
Contingent Emergency Response (Section I.G., Schedule 2 of the Financial Agreement)	**X**		CONTINUOUS

Description of Covenant

The Recipient shall adopt a satisfactory Emergency Response Manual (ERM) for Component 3 of the project and, in the event of an eligible crisis or emergency, ensure that the activities under said Component are carried out in accordance with such Manual and all relevant safeguard requirements.

Conditions

Source Of Fund	Name	Type
IDA	Withdrawal condition (Section IV.B., Schedule 2 of the Financial Agreement)	Disbursement

Description of Condition

The Recipient may not withdraw the proceeds of the Financing allocated to sub-components 1.1 and 1.2 unless it has furnished evidence that it has achieved the respective DLI targets and incurred the respective Eligible Expenditure Programs (EEPs).

Source Of Fund	Name	Type

IDA	Withdrawal condition (Section IV.B., Schedule 2 of the Financial Agreement)	Disbursement

Description of Condition

The Recipient may not withdraw the proceeds of the Financing as may be allocated to Component 3 unless an Eligible Crisis or Emergency has occurred, all related safeguards instruments and requirements have been completed, the emergency response implementing entities have adequate staff and resources, and the Recipient has adopted the ERM, acceptable to the Association.

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Simeth Beng	Team Leader (ADM Responsible)	Senior Operations Officer		GED02
Tsuyoshi Fukao	Team Leader	Education Spec.	Co-TTL ship	GED02
Sreng Sok	Procurement Specialist (ADM Responsible)	Procurement Specialist	Procurement	GGO08
Reaksmey Keo Sok	Financial Management Specialist	Consultant	Financial Management	GGO20
Dilaka Lathapipat	Team Member	Economist	Economics	GED02
Juan Martinez	Safeguards Specialist	Sr Social Scientist	Social Safeguards	GSU02
Makathy Tep	Safeguards Specialist	Consultant	Environmental Safeguards	GEN2B
Manush Hristov	Counsel	Senior Counsel	Legal	LEGES
Raja Bentaouet Kattan	Team Member	Lead Education Specialist	Education	GED02
Ravan Chieap	Team Member	Program Assistant	Administrative and Client Support	EACSF
Sophear Khiev	Team Member	Financial Management Analyst	Financial Management	GGO20
Takiko Igarashi	Team Member	Education Spec.	Education	GED02

Extended Team

Name	Title	Office Phone	Location
Fata No	Consultant	N/A	
Omporn Regel	Consultant	N/A	
Sandra Beemer	Consultant	202-473-7664	
Will Brehm	Consultant	N/A	

Locations					
Country	**First Administrative Division**	**Location**	**Planned**	**Actual**	**Comments**
Cambodia	Phnom Penh	Phnom Penh		X	

Consultants (Will be disclosed in the Monthly Operational Summary)

Consultants Required ? Consultants will be required

I. STRATEGIC CONTEXT

A. Country Context

1. **Following more than two decades of strong economic growth, Cambodia has attained lower-middle income status as of 2015, with GNI per capita reaching US$ 1,070.** Cambodia grew by an average annual rate per capita of 5.3 percent during 2005–15, ranking among the top 14 economies in the world.[1] The main drivers of growth have been the manufacturing sectors, in particular garment and more recently construction, and the services sectors, especially tourism and real estate. After experiencing a strong growth, the agriculture sector has decelerated. Economic growth flattened in the aftermath of the 2009 global financial crisis but recovered quickly since, averaging at 7.2 percent during 2010–15. Growth is estimated to ease slightly to 7.0 percent in 2016, in the context of a slowdown in the Chinese economy. In the medium term, growth is expected to remain strong at around 6-7 percent, underpinned by regional integration with resilient exports and strong domestic demand boosted by low oil prices.

2. **The sustained economic performance has lifted a large proportion of the population above the national poverty line, but Cambodia is still one of the poorest countries in the Southeast Asia region.** Between 2004 and 2014, the poverty incidence under the national poverty line declined from 63.3 percent to 13.5 percent of the population.[2] Most of the poverty reduction occurred between 2007 and 2009, when the poverty headcount rate declined by 20 percentage points, driven by a significant hike in the price of rice, the main agricultural product of Cambodia. Despite this progress, the vast majority of the families that rose above the poverty line did so by a small margin, leaving them at risk in the event of an adverse shock. Poverty reduction in Cambodia has been accompanied by shared prosperity—the real consumption growth of the bottom 40 percent of the distribution was larger than that of the top 60 percent—and a decrease in inequality, with the Gini coefficient going down from 36.5 to 27.4 between 2007 and 2014.[3] Further reductions in poverty are expected.

B. Sectoral and Institutional Context

3. **Cambodia has recognized education as a fundamental priority in its medium and long term development plan and is taking important steps to implement a coherent sectoral strategy.** In its *Rectangular Strategy Phase III*, the Royal Government of Cambodia (RGC) outlined its ambition to transition from a lower-middle income country to a middle-income country by 2030 and a high-income country by 2050.[4] The education sector will play an important role in national development and the government has made investments to strengthen the sector. Government expenditures to education have increased from 1.75 percent of GDP in 2010 to 2.16 percent in 2015.

[1] GDP per capita (constant LCU). Source: WDI
[2] World Bank staff estimates from CSES (2004-2013) and the Global Monitoring Report (2016).
[3] World Bank staff estimates from CSES (2004-2013).
[4] In its National Strategic Development Plan, the RGC has set out a *Rectangular Strategy* with four priority areas: (i) promotion of the agricultural sector; (ii) development of physical infrastructure; (iii) private sector development; and (iv) capacity building and human resource development. MoEYS developed the ESP 2014-18 to respond directly to the fourth priority of the *Rectangular Strategy*.

4. **Over the previous 20 years, Cambodia has expanded access to education.** In primary school, net enrollments increased from 83.8 percent in 1992 to 98.4 percent in 2015. Lower secondary enrollments also increased from 31.9 percent in 2009 to 51.5 percent in 2015 and early childhood education enrollment rate for 5-year-olds rose from 24.6 percent in 2004 to 64 percent in 2015. Girls have equal access to educational opportunities too: The Gender Parity Index for net enrollment in 2011/12 was 0.99 in primary school (grades 1 to 6), 1.13 in lower secondary school (grades 7 to 9), and 1.05 in upper secondary school (grades 10 to 12).

5. **While these achievements are impressive and well-acknowledged, the education system will need to continue to expand equitable access to quality lower secondary education in order to meet the United Nations (UN) development goal of providing basic education (grades 1 to 9) to all children.** Problems at lower secondary school remain a crucial challenge. In 2015, over 60 percent of children at lower-secondary school-age were out of school and the dropout rate reached 21 percent between 2013 and 2014. In a 2016 school mapping exercise carried out by the Ministry of Education, Youth and Sport (MoEYS) and the World Bank, 70 percent of sampled schools experienced room shortages, suggesting overcrowded classrooms. More broadly, there are serious teacher shortages in Cambodia. About 86 percent of all schools have an inadequate supply of teachers, and many teachers feel under paid and burdened by teaching loads and other tasks. Many teachers also hold low qualifications.

6. **The government has responded to these challenges by setting out a sector-wide strategy, focusing on teacher quality and designing school standards.** In March 2014, MoEYS developed the Education Strategic Plan (ESP), 2014-2018 to respond to the capacity building and human resource development priority area in the *Rectangular Strategy.* The plan places emphasis on pre-primary, post-secondary, non-formal, and technical and vocational education and calls for greater expansion of access and quality education services at the lower secondary level. It also emphasizes expanding access to quality lower secondary education because of that level's low enrollment rate, low completion rate, and poor education outcomes. The ESP aims to increase the gross enrollment rate at lower secondary education from 53.0 percent in School Year (SY) 2012-2013 to 87.0 percent in SY 2017-2018 and completion rate at lower secondary education from 40.6 percent in SY 2012-2013 to 76.4 percent in SY 2017-2018.

7. The ESP identified priority programs that focus on, but are not limited to: (i) a teacher performance management and appraisal program for quality teaching, which includes assessment, appraisal, promotion, and professional development through pre-service and in-service programs; (ii) a school establishment and development program that includes construction (particularly a substantial increase in the number of lower secondary schools, teacher training and provision, textbook and library packages, school principal training, and labs for science, computer, and foreign languages); and (iii) a national and international student assessment systems strengthening program, which includes preparing to participate in the Program for International Student Assessment (PISA) in 2021. All these priority programs are seen by the RGC as essential elements for improving lower secondary education.

8. Beyond access, MoEYS has responded with policy focusing on quality education. In 2013, MoEYS adopted the Teacher Policy to develop teachers' knowledge, skills, morale, and

professional competencies to improve the quality of teaching.[2] The Teacher Policy Action Plan (TPAP) is the road map for implementing the Teacher Policy. TPAP has four key reform areas: (i) teacher training and development, including teacher deployment; (ii) development of teacher training centers; (iii) upgrading teachers' qualifications; and (iv) creating teacher career pathways. To fulfill these policy goals, MoEYS aims to ensure all secondary teachers have a bachelor's degree. As of 2015, there were approximately 40,000 secondary school teachers, of which 13,000 (32.5 percent) hold bachelor degrees. Therefore, MoEYS intends to upgrade the remaining 27,000 (67.5 percent) to meet this goal.

9. Another area where the government has responded to the challenges facing lower secondary education has been the creation of Lower Secondary School Effectiveness Standards (LSSES).[3] These standards were designed over a five-year period and aim to provide guidelines for creating "effective" schools, from management to teaching practices. LSSES are holistic in focus and emphasize a school-based management approach. School directors are expected to have autonomy in management; community members are expected to be involved in the development of the school; and teachers are expected to use quality lesson plans and spend time inside the school when not teaching. These standards also link to the evaluation system of the sub-national structures of education, including Provincial Office of Education (POEs) and District Offices of Education (DOEs). School directors have been trained on LSSES and a monitoring system has been established by MoEYS. However, LSSES have not been implemented at the school-level.

10. Although the government has increased its budget to education since 2013, it has continued to request assistance from Development Partners (DPs). Education recurrent expenditures increased from 15.5 percent of the national budget in 2013 to 16.2 percent in 2014, and finally to 17.1 percent in 2015. Future budgets are projected to see additional increases. Yet, the government continues to face a gap in educational financing. In efforts to fill this gap, the RGC requested, in 2016, International Development Association (IDA) funding to improve outcomes in lower secondary education to complement the ongoing Global Partnership for Education (GPE)-funded basic education projects, focused on primary education.

11. Additional education financing targeting lower secondary education will allow the RGC to achieve its goal of providing basic education to all. Specific interventions build off the current responses made thus far by MoEYS: school management and the sub-national structure must be strengthened in order for LSSES to be met; TPAP must be executed in order to improve the quality of the teaching force; and new schools must be constructed to reduce overcrowded classrooms. Increases in government expenditures to education, as well as assistance from DPs, will achieve these goals.

[2] The Teacher Policy was informed by the World Bank-commissioned study on teachers, *Educating the Next Generation: Improving Teacher Quality in Cambodia* (Tandon & Fukao, 2014). The key findings showed that: (i) the best students are not attracted to teaching; (ii) pre-service education is not delivering graduates with high content mastery or exposure to a student-centered learning environment; and (iii) teacher performance has been inhibited by ineffective incentives, an evaluation that is disconnected from classroom realities, and a lack of opportunities to learn and share best-practice lessons with peers.

[3] The LSSES were developed in 2015 and have nine focus areas. They are: (i) school policy objectives; (ii) teaching and teaching program for teachers; (iii) parent and communities support on student learning; (iv) students and student services; (v) school leadership and management; (vi) human resources; (vii) teaching and learning materials; (viii) school infrastructure and environment; and (ix) financing and financial management.

12. This is where SEIP seeks to make an impact. By supporting a select group of lower secondary schools, SEIP aims to improve learning outcomes and increase completion rates at the lower secondary school level, by providing schools with holistic education inputs to ensure schools meet the LSSES for system strengthening. Specific interventions focus on teacher training, school management support, and community participation. Taken together, target schools will be classified as "effective schools" and will provide a framework for MoEYS to replicate lessons learned nationwide. Such sustainability is possible because the RGC's budget to education is projected to increase over the course of SEIP. Close monitoring and evaluation during implementation will ensure that the learning outcomes and completion rates increase and that the model is suitable for nationwide replication.

C. Higher Level Objectives to which the Project Contributes

13. **The Secondary Education Improvement Project (SEIP) is one of seven projects specified in the World Bank's *Cambodia Country Engagement Note for FY2016-2017* (CEN: 10483-KH), and is aimed at improving service delivery and reducing vulnerability.** The project is consistent with the both the ESP and the CEN and aims to deliver a holistic approach to improving lower secondary education. Its strategy is to improve learning outcomes and increase lower secondary completion rates through system upgrading at all levels and by promoting the efficient use of resources.

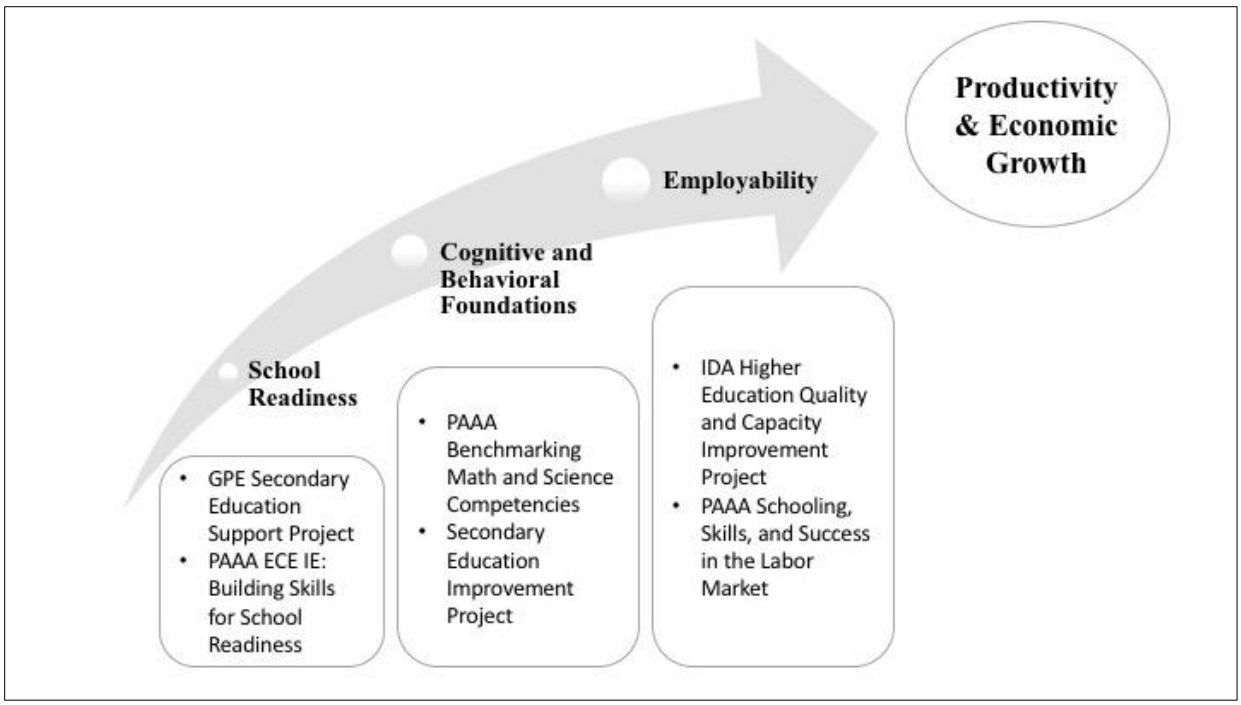
14. **The proposed interventions under SEIP are also aligned with the World Bank's twin goals of eradicating extreme poverty and increasing shared prosperity**. The literature on human capital has documented the positive correlation between investment in human capital and social and economic development. Investments in education significantly contribute to poverty eradication and wealth creation, as higher educational attainment significantly increases the probability of getting a paid job and has a large and positive impact on monthly wage earnings. This well-known contribution laid the foundation for one of the landmark pledges at the 2000 UN Educational, Scientific and Cultural Organization (UNESCO)-sponsored World Education Forum in Dakar that provided a sustainable and well-integrated sector framework (i.e., Education for All), linking education with poverty elimination and social and economic development.

15. Since the Dakar forum, international evidence has shown that access to and permanence in the education system, while necessary, are not sufficient to achieve reduced poverty and greater shared economic growth. Education systems need to be of sufficient quality to ensure that their graduates acquire the basic, soft, and sector-specific skills needed to function efficiently and effectively on the job, adapt as workers or managers in a rapidly evolving technological society, and innovate and compete as entrepreneurs not only in developing new products but also in adopting those produced elsewhere.

16. The strategy of the World Bank's support to the education sector in Cambodia has focused on three areas: school readiness, establishing the cognitive and behavioral foundations for success, and supporting employability (Figure 1). The GPE-funded Second Education Sector Support Project (SESSP, administered by the World Bank) is expanding access to early childhood education and bringing a sharper focus to developing the cognitive and non-cognitive

skills of primary students (through early grade reading and mathematics assessments) and pedagogical upgrading for teachers of primary education. The existing IDA-financed Higher Education Quality and Capacity Improvement Project (HEQCIP) has focused on improving the quantity and quality of the skills of tertiary students to promote greater employability. This proposed IDA investment in secondary education would fill a critical gap in the World Bank's engagement in Cambodia and focus on improving the cognitive and technical skills of secondary students by supporting lower secondary teacher upgrading, strengthening school based management, and improving school facilities.

Figure 1. A Schematic of World Bank Engagement in Cambodia's Education System



17. The lower secondary education sub-sector is characterized by a degree of gender inequality for boys, not girls, who appear to be at a disadvantage in relation to student access and achievement. At the lower secondary level, 55.3 percent of girls are enrolled while only 51.5 percent of boys are [Education Management Information System (EMIS 2014-15)]. The higher enrolment rate of girls is partly attributable to the national scholarship program, which has effectively targeted girls, and higher male wages in the labor market, which causes financial pressure for boys to drop out of school. Additionally, assessments of learning outcomes at grade 8 find that girls perform better than boys in Khmer, physics, and mathematics. In terms of teachers and administrators, MoEYS has the highest proportion of female workers among all ministries. Amongst lower secondary teachers, around 50 percent are women.

18. In addition to being aligned to the World Bank's twin goals, SEIP also complements various on-going interventions by DPs, mainly focused on implementing TPAP (Table 1). While the World Bank's SEIP project focuses on in-service teacher training by upgrading lower secondary school teachers to bachelor's degrees, project interventions by DPs focus on other areas of TPAP. Specifically, the Asian Development Bank (ADB) supports a project to expand

upper secondary education with a focus on teacher improvement in mathematics and science. The Japan International Cooperation Agency (JICA) provides technical support to MoEYS on developing Teacher Education Provider Standards (TEPS) and is preparing a new grant for upgrading two Regional Teacher Training Centers (RTTCs) to become Teacher Education Colleges (TECs). This intervention aims to improve pre-service teacher training for lower secondary teachers. In addition, the United Nations Children's Fund (UNICEF), the European Union (EU), and Swedish International Development Cooperation Agency (SIDA) implement, collectively, an upgrading program for teacher trainers at RTTCs. The MoEYS-organized TPAP committee has been coordinating the related activities closely with DPs to ensure minimal overlap of project intervention.

19. Beyond TPAP, SEIP also complements on-going interventions related to school-level financing. In particular, the design of a School Improvement Fund (SIF) for SEIP referred to SIDA's evaluation report on its School Improvement Grant (SIG). These information exchanges among DPs, and coordinated by MoEYS, have been made possible through Education Sector Working Group (ESWG)

Table 1. Related projects by DPs, the World Bank, and other donors

Agency	Support
Ongoing Projects	
ADB Upper Secondary Education Sector Development Program (US$45 million)	• Expansion of upper secondary education with a focus on teacher improvement in mathematics and science.
UNICEF/EU/ Sida Capacity Development Partnership Fund Phase II (US$15.9 million)	• Capacity development in planning, budgeting, policy implementation, auditing, and monitoring and evaluation. Project also finances a teacher upgrading program (TUP) for 56 lower secondary school teachers through a private university program.
EU Cambodia Education Sector Reform Contract (Budget Support – Euros 68.5 million)	• Finances MoEYS to achieve the objectives of the ESP, 2014-18 with a focus on improving equitable access, quality, and efficient management of the education sector.
JICA Education Resource Development in Science and Mathematics at the lower secondary school level (STEPSAM3) (US$2.5 million)	• Strengthen science and mathematics teaching with introduction of lesson studies at the lower secondary level.
Expansion of Lower Secondary School in Phnom Penh (US$7.0 million)	• Strengthen physical facilities of Lower Secondary Schools by constructing buildings or rooms in crowded schools.

Sida SIGs (US$20.0 million)	• Top-up operational budgets to all public pre-schools, primary, and secondary schools.
United States Agency for International Development **Volunteer Services Overseas** **The Flemish Association for Development Cooperation and Technical Assistance (VVOB)**	• Develop Early Grade Reading at primary schools. • Develop a preservice teacher training program for new teachers as well as strengthen management capacity of POEs and DOEs. • Improve mathematics and science teaching methods at classroom level.
World Bank SESSP funded by GPE (US$38.5 million) - Project Closing Date: July 31, 2017 HEQCIP (US$23 million) - Project Closing Date: September 30, 2017	• Expand access to Early Childhood Education for children 3-5 years old and improve of access and quality of basic education, particularly for disadvantaged children. This project provides scholarships at lower secondary school level. • Improve the quality of teaching, learning, management, and research in higher education institutions (HEIs). This project provides some training for teacher trainers at the Royal University of Phnom Penh (RUPP).
Projects under preparation	
JICA Support Human Resource Development for Industrialization in Education Sector (amount pending)	• Establish Teacher Education Colleges for Lower Secondary School teacher pre-service and in-service teacher training.
World Bank SEIP (US$40 million)	• Improve lower-secondary education quality by supporting school based management, teacher upgrading, and improving school facilities.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

20. The Project Development Objective (PDO) of SEIP is to expand lower secondary education to achieve minimum standards in target areas, and to provide immediate and effective response in case of an eligible crisis or emergency. The first part of the PDO will be achieved through two main components: (i) improving lower secondary education to meet minimum standards (i.e. achieving of a minimum score of 65 out of 100 in LSSES) through the provision of School Improvement Funds (SIFs), upgrading qualifications of lower secondary teachers to

bachelor's degrees, and improving school facilities, in the target areas mentioned in para. 22 below; and (ii) strengthening project management and monitoring and evaluation. Figure 2 presents the results-chain, detailing the linkage among the first PDO, its components, activities, outputs, and SEIP's intended outcomes in short-term and long term. The second part of the PDO will be achieved through component 3. The project's interventions were designed to be fully aligned with the ESP priority programs.

B. Project Beneficiaries

21. The direct beneficiaries of SEIP include: (i) approximately 16,250 students (50.7 percent female) in target 130 lower secondary schools who will benefit from newly constructed classrooms; (ii) approximately 2,200 teachers (50 percent female) who will be enrolled in the Teacher Upgrading Program (TUP), and approximately 310 school directors and deputy directors enrolled in the Leadership Upgrading Program (LUP), including those who are in the target 130 lower secondary schools and from across the nation; (iii) 1,500 school staff members and 500 POE and DOE staff who will benefit from the SIF in the target 130 lower secondary schools; and (iv) 50 government officials who will benefit from the PISA for Development Program (PfD). Other beneficiaries include approximately 500 parents and community leaders within the target schools who will be encouraged to increase their participation in their community's schools.

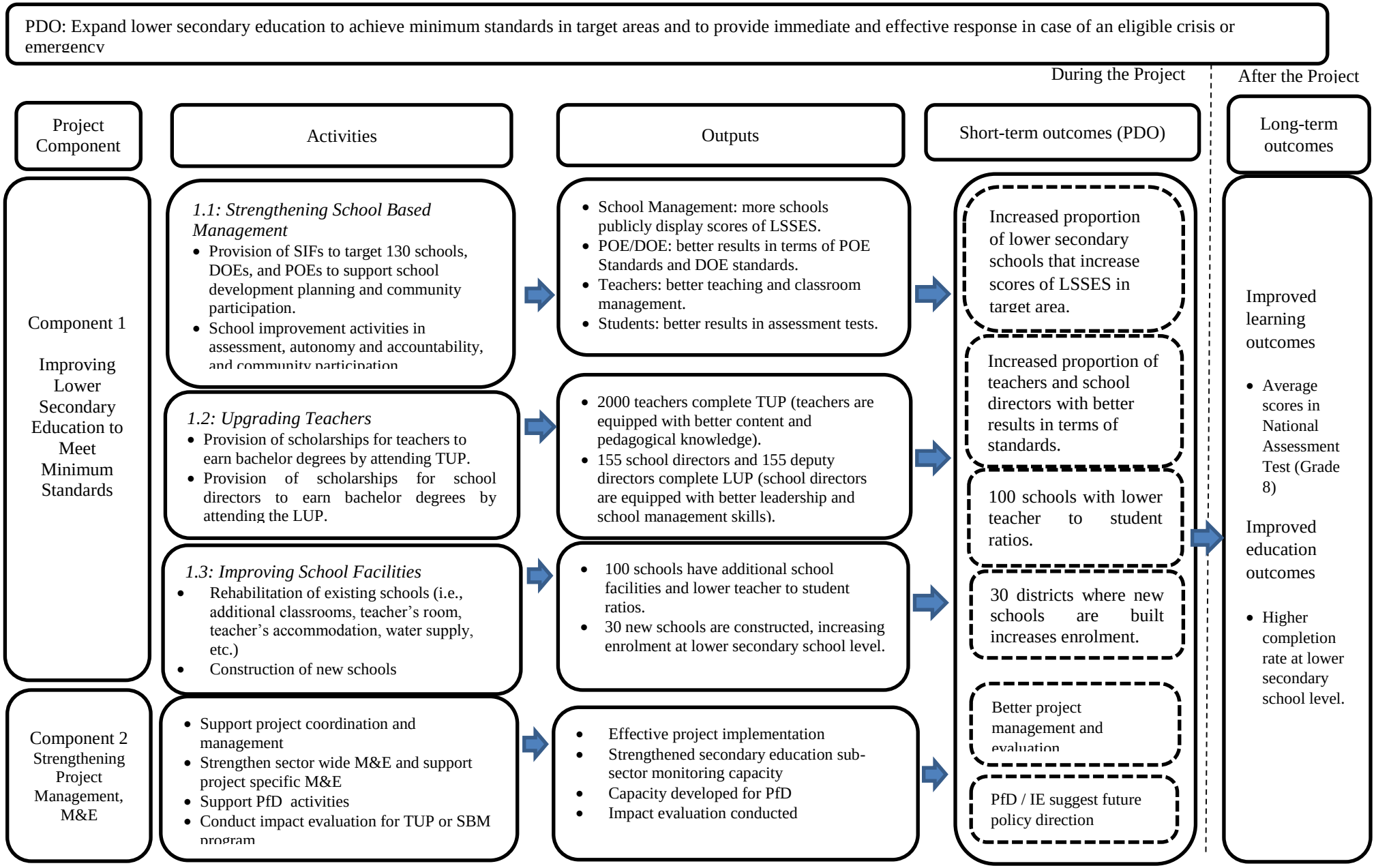
C. PDO Level Results Indicators

22. The PDO-level indicators are:

- Number of target lower secondary schools that have achieved minimum standards.
- Number of teachers who graduate from TUP
- Number of enrolled students in newly constructed lower secondary schools (total/female)

23. These indicators aim to achieve outcomes—in terms of school-based management, teacher performance, and school environments — that will collectively improve lower secondary education. Together with the intermediate outcome indications, they are also the basis for SEIP's DLIs. The specific indicators are summarized in section III and elaborated in Annex 1. Each indicator will be monitored by MoEYS and verified in spot check surveys by the World Bank. The World Bank will support MoEYS in monitoring and evaluation activities on the implementation and results of SEIP. These activities will include surveys in selected lower secondary schools

Figure 2. Results Chain for Components 1 and 2



(among the 130 target schools) and higher education institutes that provide TUP, and will be conducted in cooperation with MoEYS.

24. In addition, core IDA indicators, including: (i) direct project beneficiaries; and (ii) female beneficiaries, will also be updated as information is available in order to monitor long-term outcomes in the education sector.

III. PROJECT DESCRIPTION

A. Project Components

25. **Component 1: Improving Lower Secondary Education to Meet Minimum Standards (approximately US$38.1 million equivalent).** This component aims to support the goals of the ESP and TPAP through the establishment of 130 effective lower secondary schools (i.e., schools that meet LSSES) in efforts to provide lessons for replication to MoEYS as it increases expenditures in the sub-sector. This component targets approximately 8 percent of total lower secondary schools nationwide. This component will be implemented using a holistic approach, targeting national, sub-national, and school levels, improving school-based management, teacher performance, and school environments. This will be achieved through three sub-components: (i) strengthening school based management through the provision of the SIF at the POE, DOE and school levels; (ii) upgrading the qualifications of lower secondary school teachers[4] (especially in mathematics, physics, biology, chemistry, Khmer, and History subjects) and school directors; and (iii) improving school facilities through construction and rehabilitation of 100 existing schools and construction of 30 new schools to provide enabling conditions for effective teaching and learning. The selection of the 100 existing schools and 30 new schools were: (i) need-based and drawn upon an extensive school mapping exercise; (ii) based on schools that exhibit a strong community commitment to the project concept and willingness to meet the project's preconditions for selection; and (iii) located in rural and remote areas. Sub-components 1.1 and 1.3 target both 100 existing schools and 30 new schools, while sub-component 1.2 targets teachers nation-wide with preference given to teachers and school directors/deputy directors from the total 130 target schools. Each of these overlapping subcomponents are detailed below.

26. ***Sub-component 1.1: Strengthening School-Based Management (approximately US$13.6 million equivalent through DLI approach).*** This subcomponent aims to support capacity development of POEs, DOEs and the 130 targeted lower secondary schools to strengthen service delivery via efforts to: (i) improve school based management through school development planning, teacher and student monitoring and assessment, and community participation; and (ii) support teachers in improving teaching and classroom management practices, including lesson plans, workbooks, test items, and student assessment/feedback. To achieve the goals of this sub-component, the project will support: (i) SIF related activities at the POE, DOE and school-levels as well as; (ii) activities that build capacity of staff members at

[4] The teacher upgrading in mathematics and science connects to the *Cambodia Industrial Development Policy, 2015-2025*, specifically as it relates to the areas of Science, Technology, Engineering, and Mathematics (STEM).

each of these levels.[5] The SIFs will be financed by the Government out of its own funds, ensuring ownership of the project activities. The IDA Credit will finance MoEYS staff and teacher salaries as part of the Eligible Expenditure Program (EEP) upon the achievement of Disbursement-Linked Indicators (DLIs) related to the implementation of the SIF program. Connecting the EEP to the country's financing system of teacher salaries ensures (i) that SIFs will support active MoEYS staff and teachers who are on the payroll; (ii) sustainability of SIFs as they will be financed by government funds; and (iii) flexibility of SIFs for future expansion with additional donor funding. In short, this arrangement seeks to support greater ownership and focus on results by using the country systems in the financing of SIF inputs, while targeting the Bank's implementation support to their outputs and outcomes through the DLI's results-based financing mechanism and streamlined fiduciary design.

27. The Government-funded SIFs will be made available to POEs, DOEs, and schools. At the POE and DOE levels, the SIF will be used to fund annual operational plans (AOP), training materials needed for school-level training, and travel support allowances. The performance of the POEs will be evaluated using a POE evaluation tool administered by MoEYS officials. The performance of the DOEs will be evaluated using a DOE evaluation tool administered by POE officials. The results from the evaluations will be fed into the development of subsequent annual operation plans. At the school level, SIF funds will be used for school-level operating costs, focusing on teaching and learning activities.

28. In order to operationalize improvement plans of teachers, the SIF to schools will also provide yearly operational funding support. This funding can be used to provide teaching and learning capacity development to teachers in efforts to improve teacher performance, as assessed on the Teacher Professional Standards. Activities can include, but are not limited to, training on content and/or pedagogical knowledge; materials and textbooks; contract teachers; travel; and/or equipment for students with low vision or hearing.

29. This sub-component also develops the capacity at the POE, DOE, and school levels. In particular, MoEYS officials will develop a systematic capacity development plans for the POE and DOE staff to improve their management practices (e.g., the development, implementation, and monitoring of Annual Operation Plans). The POE and DOE staff will receive training from MoEYS officials during the first half of the project on national education management systems. MoEYS staff will also join the POE and DOE staff on some school-level visits and trainings during this initial stage. As the POE and DOE staff's capacity increases, they will be required to work (without the direct oversight of MoEYS officials) at the school-level with the SMC and School Support Committee (SSC) to improve the creation of school development plans and budgets. At the school level, the SIF will improve performance of the school management committee (SMC) and provide on the job training for teachers, with a primary focus on teaching and learning.

30. ***Sub-component 1.2: Upgrading Teachers (approximately US$9.2 million equivalent through DLI approach).*** This sub-component will support activities to improve the curriculum,

[5] The SIF operational guidelines will describe: (i) the process of school self-assessment, planning and budgeting, monitoring and review; (ii) procurement of goods, services; and works; (iii) financial management; (iv) transparency and public reporting; (v) and on the job training procedures.

pedagogical and school management qualifications of selected lower secondary school teachers and school management staff. Working through the national structure of TPAP, this subcomponent aims to upgrade the qualifications of 2,000 teachers to bachelor's degrees. The teachers who will be upgraded will, initially, come from the 130 target schools and then from across the nation as identified by TPAP, thus creating a spillover effect beyond SEIP's target schools. In addition, this sub-component aims to upgrade school directors and deputy directors of lower secondary schools.

31. The proposed sub-component activities will focus on demand side scholarships to, at least, 2,000 teachers and 310 school directors and deputy directors to support the tuition and stipend (transportation and accommodation costs) associated with the upgrading. The scholarships will be financed by the Government out of its own funds, ensuring ownership of the project activities. The IDA Credit will finance MOEYS staff and teacher salaries as part of the EEP upon achievement of DLIs related to the implementation of the TUP. This financing arrangement ensures (i) that TUP will support active teachers who are on the payroll; (ii) sustainability of scholarships as they will be financed with government funds; and (iii) flexibility of the scholarship programs for future expansion by additional donor funds. In short, this arrangement seeks to support greater ownership and focus on results by using the country systems in the financing of TUP/LUP inputs, while targeting the Bank's implementation support to their outputs and outcomes through the DLI's results-based financing mechanism and streamlined fiduciary design.

32. The actual upgrading of teachers will be completed under the TUP (approximately 450 learning hours) that consists of weekend and vacation courses over a period of approximately 18-months and will lead to a bachelor degree. TUP is a dual focus program on content and pedagogy knowledge. Teachers will be able to continue working in their schools while participating in TUP. All graduates of TUP from the target 100 schools will receive follow up support by a periodic on-site training program.

33. The upgrading of school directors and deputy directors will be completed under the LUP, which will consist of short term trainings (approximately 450 learning hours). Training programs and operational guidelines will be developed during the first year of the project period. The LUP aims to strengthen leadership and school management and targets school directors and deputy directors.

34. ***Sub-component 1.3: Improving School Facilities (approximately US$15.3 million equivalent through traditional input-based disbursement approach)***. To complement the two above sub-components, this sub-component will support the physical improvement of 130 target lower secondary schools to expand access. This will include: (i) construction and rehabilitation of 100 existing schools; (ii) construction of 30 new schools in the communes lacking a lower secondary school; and (iii) rehabilitation of existing 25 POE offices, 99 DOE offices, and three RTTCs (renovation of existing facilities) where needed. The schools will cover all 25 provinces in 99 districts. The construction plan of the 130 selected schools will include teacher accommodations where needed and will be carried out through community participation construction method. This selection ensures that the model schools includes regional

characteristics that could be replicated in the future. The RTTCs will be renovated to support in-service teacher training in target areas.

35. The rehabilitation/construction activities will include new or renovated classrooms (approximately 650), age appropriate furniture, teacher accommodations, teacher lounges, water and sanitation facilities and accessibility standards for physically disabled children. Water supply (wells or water tanks) will be provided for the latrines, and for hand washing in schools where there is no existing water supply. The SSC in all target communities will be trained on school development planning, community participation in procurement, school construction, maintenance and management using a Community Operations Manual (COM) as an Annex of the Project Operational Manual.

36. **Component 2: Strengthening Project Management and Monitoring and Evaluation (approximately US$2.8 million equivalent through traditional input-based disbursement approach).** This component provides technical and operational assistance for the coordination, administration, monitoring, evaluation, and audit of the Project. It will also include activities to support the PISA for Development (PfD) to strengthen the assessment capacity of MoEYS in preparation for PISA 2021.

37. This component will support day-to-day implementation, coordination, and management of project activities on planning and execution, financial management (FM), procurement, supervision and reporting, internal and external audits, environmental and social safeguards management, and monitoring and evaluation. These activities will ensure efficient program management and early identification of corrective measures to solve implementation problems. In addition, this component will provide necessary vehicles, training/workshops, logistics, and operational costs to relevant MoEYS departments. Furthermore, the project will provide critical and strategic technical assistance (TA) and capacity building to support and strengthen relevant departments at all levels to implement the project, including TA to TPAP in order to ensure a strong pedagogical component in the upgrading and implementation of curriculum of each service provider.

38. To support the monitoring and evaluation of project activities and sector wide indicators, the project will strengthen the existing mechanisms for monitoring and data collection, and supporting project specific data collection when needed. This component will finance TA, training, and the development and use of monitoring tools to the monitoring and evaluation units under key relevant departments, including TPAP, General Secondary Education Department, Department of Finance, Monitoring and Evaluation Department, Director General Policy and Planning, and Department of Planning. In addition, this component will finance an impact evaluation for the teacher training and the strengthening of school based management sub-component that has been incorporated into the operational design.

39. To support PfD activities, MoEYS will enhance its ability to collect important data about the quality of the country's education system.[7] It provides a unique opportunity to

[7] PfD aims to increase middle-income countries and low-income countries' use of PISA assessments for monitoring progress towards nationally-set targets for improvement, for the analysis of factors associated with student learning outcomes, particularly

introduce a system of student assessments in Cambodia that is census-based and comparable across cross-sections of the country and across time. The proposed main activities include a series of workshop sessions to build MoEYS Education Quality Assurance Department (EQAD) team's capacity, preparation and implementation of field tests, provision of Technical Assistance, and development and dissemination of the assessment report.

40. **Component 3: Contingent Emergency Response (US$0 million).** The objective of the contingent emergency response component, with a provisional zero allocation, is to allow for the reallocation of financing in accordance with the IDA Immediate Response Mechanism in order to provide an immediate response to an eligible crisis or emergency, as needed. An Emergency Response Manual (ERM) will be developed for activities under this component, detailing streamlined FM, procurement, safeguard, and any other necessary implementation arrangements.

41. In the event that the component is triggered, the results framework would be revised through formal restructuring to include appropriate indicators related to the emergency response activities.

B. Project Financing

42. The lending instrument will be Investment Project Financing and will be financed by an IDA Credit in the amount of SDR 29.5 million (US$40 million equivalent). The Borrower will provide US$0.9 million. The Borrower's contribution to the non-DLI components (Components 1.3 and 2) will comprise support of staff costs, office space and utilities. The project partially follows a result-based financing approach with disbursement against an Eligible Expenditures Program linked to measurable results, referred to as DLIs.

43. Sub-component 1.1 and 1.2 will use results-based financing with disbursement against an EEP (consisting of staff MoEYS staff and teacher salaries) linked to the achievement of targeted results for DLIs. Sub-component 1.3 and Component 2 will use traditional input-based financing. Component 3 provides an immediate response to an eligible crisis or emergency, as needed. The ERM will be developed for activities under this component. The total project cost (including IDA and Government counterpart funds) will finance works, goods, services, grants, training, workshops, scholarships, and incremental operating costs. The project is expected to be implemented over a five-year period.

44. To facilitate measuring progress towards DLI achievement and disbursement, Annex 2 includes a table with DLI-specific information under the SIF and TUP and LUP sub-components as follows: (i) DLI targets and amount allocated; (ii) DLI achievement measures; and (iii) a timeline for DLI achievement. Details of DLIs achievement measures, verification protocol, and disbursement rules have been described in the project operations manual (POM).

45. The DLIs and project activities will be monitored through the Bank's supervision and verification tasks. Regular World Bank implementation support missions jointly undertaken with

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for poor and marginalized populations, for institutional capacity-building and for tracking international educational targets in the post-2015 framework being developed within the UN's thematic consultations. (OECD, 2016)

the RGC will supervise the validation process. The Bank may augment its verification effort by contracting additional consultants.

46. There are two schedules for reporting, verification and disbursements. Reporting against achievement of DLIs is expected to be completed by December 31 (schedule 1) or June 30 (schedule 2) of each year. This deadline will be preceded by a semi-annual program review meeting between the World Bank and MoEYS (during an implementation support mission) prior to October 31 (schedule 1) or April 30 (schedule 2) of each year in which a detailed schedule for DLI evaluation and monitoring will be agreed. The verification of DLI reporting is expected to take place during the January-February period (schedule 1) or July-August (schedule 2) each year. The reporting and verification process will aim to confirm DLI achievement and authorize the annual IDA disbursement by April (schedule 1) or October (schedule 2) of each year. (See Table 5 for DLI descriptions and protocols for DLI evaluation.)

47. The EEP to be used for reimbursement of DLI values is MoEYS' budget line Chapter 64: personnel costs (MoEYS staff and teacher wages, salaries and other compensations), ensuring that SIF and TUP will support active teachers who are on the payroll. This arrangement also ensures sustainability of each program after the project period. The financing arrangement seeks to support greater ownership and focus on results by using the country systems in the financing of inputs (SIF and TUP/LUP), while targeting the Bank's implementation support to their outputs and outcomes through the DLI's results-based financing mechanism and streamlined fiduciary design

C. Project Cost and Financing

48. The lending instrument will be Investment Project Financing with a five-year implementation period. In addition to the IDA Credit of US$40 million equivalent, the Borrower will provide US$0.9 million. The Borrower's contribution to non-DLI components will comprise support of staff costs, office space and utilities. In addition to these contributions, the Borrower will finance the full cost of SIFs and scholarships under sub-components 1.1 and 1.2.

Table 2. Project costing

Project Components	Project cost	IDA Financing	% IDA Financing	Counterpart Financing	% of Counterpart Financing
1. Improving Lower Secondary Education to meet Minimum Standards	38.1	37.2	97.3	0.9	2.4
2.Strengthening Project Management and Monitoring and Evaluation	2.8	2.8	100.0	0.0	0.0
3.Contingent Emergency Response	0.0	0.0	100.0	0.0	0.0
Total Costs					

Total Project Costs Front-End Fees **Total Financing Required**	40.9	40		0.9	2.2

D. Lessons Learned and Reflected in the Project Design

49. The project is informed by various analytical and advisory work on the critical need to expand and improve lower secondary education. The project incorporates lessons from the on-going GPE funded SESSP (TF17490) and HEQCIP (IDA Grant TF H607-KH and IDA Credit 4796), the recently closed Education Sector Support Scale Up Action Program (ESSSUAP) (TF92097), Cambodia Education Sector Support Project (ESSP) (IDA Grant H1610-KH and IDA Credit No. 40550-KH), and World Bank global experience in lower secondary education and DLI-based operations in the region (Viet Nam and Myanmar). Key lessons learned that have been incorporated into the SEIP design include:

- **The project design should be simple, with a well-developed and clear PDO.** The project comprises mutually supportive activities focused on a limited set of achievements**.**

- **Good teachers are important to learning**. A high quality teaching workforce is the single most important factor in improving student learning. A series of good or bad teachers over several years can widen gaps in student learning.

- **Addressing capacity constraints is a priority**. In the context of decentralization, providing education systems with the right resources and the mechanism to account transparently is crucial to improving the outcomes and impact of education activities

- **Significant improvements in student access to lower secondary schooling have given way to concerns over educational quality.** Student outcomes and academic achievement need to be systematically measured and monitored in order to appraise the effectiveness, progress and impact of the MoEYS education reform agenda.

- **Impact evaluation results inform policy direction.** Impact evaluations in past operations have provided valuable policy guidance particularly in the area of scholarship provision of underprivileged lower secondary students.

- **Effective contract management is essential to quality service delivery.** Civil works contracts and construction deadlines can be managed well by implementing a set of measures to prevent delays. These measures include: (i) agreeing on detailed milestones to monitor the implementation of contracts; (ii) making amendments to the contract if the expected final completion date is modified; (iii) enforcing penalties for failure to achieve milestones; and (iv) setting and monitoring cash flow requirements.

- **Community Participation in construction.** Participation of communities for construction activities can be an efficient means for procurement of large number of school buildings simultaneously over geographically disabused areas. This is the community driven and cost effective approach (inputs can be provided/procured by the

community at below-market costs compared with private contractor costs), and it provides an opportunity to directly inject a majority of funds into the community. Communities can identify and outsource regionally-based experienced skilled labor, local unskilled labor, and construction materials/tools suppliers for the construction. In addition, they can play an important role as an accountability and quality assurance mechanism during construction and implementation.

- **Focus on results**. The DLI approach, when striking the right balance between feasibility, ambition, and flexibility, can sharpen a government's focus on results. By using DLIs for two main activities, SEIP will support MoEYS' reform agenda, as the disbursement of funds will be based on the achievement of specified results agreed as DLIs. It is important that there is a focus on outputs and outcomes. This is true for the whole of MoEYS reform program, of which SEIP supports in part. Developing a culture of efficiency in service delivery through rewarding achievement of measurable results is especially important in Cambodia. This program will be driven by the achievement of outcomes, and this approach will be institutionalized by the implementing agencies in other areas of their work. Each DLI, which contains a specific set of disbursement arrangement and a verification protocol, will guide the timing and amount of disbursement as shown in Annex 2.

- **Climate Resilient Designs.** Completed and ongoing school buildings are experiencing water logging and flooding due to seasonal rainfall and extreme weather conditions. This had affected the access pathways to school buildings and surrounding areas. Water logging and flooding often occur in the low-laying areas and/or areas prone to flood. This is often the result of inappropriate selection of locations of school buildings associated with insufficient drainage systems. The project thus will incorporate appropriate measures of climate resilience in the designs such as to elevate the plinth level of the school building and to incorporate appropriate drainage systems where necessary. The project will also help the government to properly select locations of school buildings taking into account hazard risks caused by the climate change and to include other mitigation measures, for example to cope with drought – sufficient air ventilation options will be included in the designs.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

50. SEIP will be implemented following a similar structure as SESSP, which is being implemented from May 2014 to July 2017, at the national, provincial, district, and school levels. MoEYS will assume overall responsibility for coordination and implementation of the project including procurement, disbursement, and FM.

51. At the highest level, the Project Management Committee (PMC), established by the MoEYS, will be responsible for the oversight of the ESP in order to streamline policy development, strategic planning and implementation decision making processes. The PMC is comprised of MoEYS leaders, including Secretaries of State. The Project Management Team

(PMT), led by a Secretary of State and comprised of Directors Generals and directors of various departments of MoEYS, provides support to the PMC and bears a central role in project implementation. Implementation arrangements have been designed to ensure that overall education policy direction is analyzed from a variety of angles and policy decisions are followed into implementation through the overall coordination of the Directors General. The overall project management structure is as follows:

- The PMT, led by the Secretary of State in charge of TPAP, will act as Project Director;
- The Under Secretary of State in charge of administration and finance will act as Deputy Project Director;
- The Deputy Director General for Education will act as Project Manager;
- The Director General for Policy and Planning will act as School Improvement Fund Team Leader;
- The Deputy Director General of Education in charge of Teacher Training will act as Team Leader of Teacher Upgrading Program and Leadership Upgrading Program; and
- Deputy Director of General Secondary Education Department, in charge of secondary education, will act as Project Coordinator. Other members, comprised of Directors Generals and directors of various departments of MoEYS, will provide support to the PMC and will play a central role in project implementation.

52. The PMC's responsibilities for overseeing project implementation include: (i) endorsing SEIP annual activities and budget allocations; (ii) overseeing progress and compliance with agreed guidelines; (iii) commissioning and approving required accounts and reports; and (iv) ensuring agreed audit requirements are satisfied. The Secretary of State will have overall responsibility for fund management and act as MoEYS' liaison officer to the World Bank.

53. The technical committee for TPAP will provide technical inputs to related departments. Project implementation will be carried out by existing MoEYS departments, including Construction, General Secondary Education, Curriculum Development, Education Quality Assurance, Teacher Training, Finance, Personal, Planning, monitoring and evaluation, Early Childhood, Primary, and non-formal education. Some institutions and offices, including the Teacher Training Centers (TTCs), National Institute of Education (NIE), Royal University of Phnom Penh, POEs and DOEs as well as SSCs at lower secondary schools will build long-term systemic capacity and ensure sustainability. The implementation by those departments and institutions will be closely monitored by the PMT. Bi-monthly PMT meetings are intended to ensure operational progress by sub-sector of early childhood and primary education and across each level of program implementation, as well as ensure fiduciary progress, including FM and procurement.

54. The Construction Department will coordinate several construction engineer consultants, regional engineers as well as local engineer consultants (one per every ten sites) responsible for supervising civil works. The Construction Department will work closely with General Secondary Education, Teacher Training Department, Personnel Department, and POE for selecting the target schools/TTC for classrooms and student/teacher accommodation.

55. The Project Director and Manager of SEIP will be in charge of all project-related planning, monitoring, procurement and FM safeguards implementation and compliance, and reporting responsibilities. Specifically on resettlement issues, if any, PMT will work closely with and seek support from Inter-ministerial Resettlement Committee (IRC)/MEF on any resettlement matters. SEIP will not rely on a project implementation unit, but relevant departments will be eligible for TA support as necessary. National and international consultants will provide guidance to MoEYS departments, POEs, and DOEs. Implementation support is currently envisioned to include: (i) a policy advisor to the PMC; (ii) a technical advisor to upgrading programs for teachers and trainers; and (iii) FM, procurement, and internal audit advisors. In addition, consultant services may be recruited to provide additional support in scaling up ongoing operations, such as administering the supervising school facilities construction or providing training and workshops. MoEYS has already started to develop the POM for the project implementation, which will be ready by March 31, 2017. POM includes guidelines, procedures and manuals for FM, procurement, safeguard, construction, monitoring and evaluation (e.g. DLIs protocol). COM is an annex to POM, including FM, procurement, construction and safeguards procedures at the sub-national levels. In addition to POM, several specific manuals and plans for SIF, TUP, LUP, as well as training plans for POE, DOE, and schools will be developed during the first year of project implementation. MoEYS also plans to initiate procurement activities for having TAs at the outset of the project period, using retroactive financing. The project will collaborate with Education Research Council (ERC) or several higher education institutes in the field to conduct training for trainers related to TPAP. Full integration in implementation strives to ensure that the capacity of all stakeholders involved in providing education services will be improved and overall MoEYS institutional capacity is strengthened. Another responsibility of the Project Director will be to oversee, together with the PMC, the Project's Feedback/Grievance Redress Mechanism.

56. If there are resettlement impacts caused by the project, MoEYS will request the GDR/IRC to deal with resettlement impacts. The GDR/IRC, through designated Inter-ministerial Resettlement Committee Working Group (IRC-WG), will work closely with Provincial Resettlement Sub-Committee (PRSC) for coordinating resettlement issues where the school construction project is located and have resettlement impact. In this case, an ad-hoc Provincial Resettlement Sub-Committee Working Group (PRSC-WG) will be established as secretariat to PRSC.

57. The Inter-Ministerial Resettlement Committee (IRC) is a collegial body headed by the representative from MEF and composed of representatives from concerned line ministries, such as the Ministry of Interior; MPWT, MLMUPC; MEF and MAFF. Created by the Prime Minister through Decision No.13, dated 18 March 1997, in connection with the resettlement of PAHs in the Highway 1 Project (Loan 1659-CAM), it continues to be involved in other foreign-assisted government infrastructure projects with involuntary resettlement. An IRC will be established on an ad hoc basis for each project upon the request from the Designated Implementing/Executing Agency. The IRC will assume the function of a quasi-regulatory body, ensuring that funds for resettlement are spent properly and that the RPF-RAP is carried out as intended. The technical arm of the IRC is its secretariat, the General Department of Resettlement.

58. The IRC is responsible for the following aspects of involuntary land acquisition and resettlement of projects: (i) take the lead in conducting the DMS, (ii) approval of compensation

rates; (iii) reporting to the Government on resettlement activities and request approval, if necessary, including endorsement of land acquisition and resettlement plan (RP); and (iv) disbursement of funds to the Provincial Department of Economy and Finance (PDEF) for paying compensation and delivery of all other entitlements to Displaced Peoples, in accordance with the approved RAP. See further the role of GDR in the following section on monitoring and evaluation.

B. Results Monitoring and Evaluation

59. The relevant departments of MoEYS will monitor the indicators of the project; this will be done within the monitoring and evaluation framework of the LSSES. The proposed monitoring indicators are provided in Annex 1. The data related to output indicators will be provided semi-annually, while MoEYS will provide outcome-related data annually. The progress in meeting the monitoring indicators will be reviewed by the World Bank semi-annually and mid-term review (approximately 2 years after the effectiveness) will be carried out to assess implementation status. Where appropriate, all data collected will be disaggregated by gender and in some cases by district, in order to understand and respond to specific issues. Regarding DLIs, as mentioned above and described in detail in Annex 2, MoEYS and the World Bank will work together to monitor a focused results framework, which corresponds to the DLIs. Most reporting will be integrated into standard statistical and finance reporting requirements within MoEYS. In parallel, the World Bank would support MoEYS to conduct an impact evaluation for the TUP and the strengthening of school based management sub-component that would complement MoEYS' regular monitoring of the programs. The project will also support implementation of a national assessment test in mathematics and science, which will further build capacity of measuring learning outcomes. Information on reporting of data related to DLIs, and the project in general, can be found in Annex 1 and 2.

C. Sustainability

60. The project will be sustainable because of the RGC's track record implementing projects to meet the goals of the ESP that extend access and improve quality of education to benefit all children. For this project, only key activities for achieving the ESP have been selected by MoEYS and MEF. As MEF is involved at this stage, this likely will be supported if project performance is well received. MoEYS also has budgeted in its Mid Term Expenditure Framework and ESP forecast that it will assume responsibility for each project activity in the outer years. The RGC's recurrent cost in the amount of US$3 million per annum for teachers given in the state budget includes the cost of the new teachers to staff the schools constructed by the project.[9] This provides additional assurance that these costs are embedded in the public expenditure framework and will be sustained after project closure.

61. The sustainability of the project derives from the lessons learned from the 130 target schools. MoEYS will apply these lessons-learned to other schools outside SEIP's target. The yearly assessments of SEIP's activities coupled with the projected increases in education expenditures, will allow MoEYS to allocate additional financing to the lower secondary school sub-sector using knowledge-based policy making. As the project concludes in 2022, MoEYS will have increased educational expenditures to continue some of the main project activities. Another

[9] Cambodia Medium Term Expenditure Framework, Ministry of Economy and Finance, 2013

factor of sustainability of the Project is the facilitation of citizen engagement, grievance redress mechanisms, and gender dimensions.

62. To assist with capacity for executing project activities, the POM has been developed to guide project implementation. This manual provides MoEYS staff with a comprehensive set of written policies and procedures for, among other things, routine tasks, administrative activities, records management, and documentation including DLI protocols. Moreover, individual technical and fiduciary consultants, whose terms of reference are included in the POM, will complement the fiduciary training provided by the World Bank and will assist MoEYS in daily implementation activities. Finally, the overwhelming enthusiasm of parents and communities for lower secondary education has provided an additional insurance that the project will be sustained from the demand side. Since there is full technical and operational alignment with the ESP, a financial commitment already displayed by the government in its financial forecasts, and project activities being embedded in the current public expenditure framework, the sustainability risk is relatively low.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

63. Given the new project modality – that of linking disbursements to the achievement of specific development indicators attached to challenging reform standards — SEIP's overall implementation risk is **substantial.** Political events, in particular the Commune/Sangkat elections (2017) and the National elections (2018), might increase project political and governance risks. Key project specific risks identified during preparation and corresponding mitigation measures are specified in the next paragraph.

64. **New funding modality**. The design and institutional capacity risks are substantial, particularly in dealing with DLIs. Although MoEYS is familiar with the IPF, this is first time the Ministry is using the DLI approach (56.9 percent of project funding). The potential risk of disbursement rigidity comes with the modality of IPF coupled with DLIs: (i) only eligible expenditures can be disbursed; (ii) it requires the RGC to provide evidence of spending on the relevant budget line; and (iii) it may generate a time lag between achieving a DLI and disbursing the corresponding funds. The recently approved Health Equity and Quality Improvement Project is the first project in Cambodia to use this funding modality, but it is too early to draw implementation experiences to support SEIP. The implementation capacity under SEIP may be negatively affected by inadequate implementation capacity of MoEYS, resulting in the risk of achieving the DLIs and subsequently hindering disbursement. Strategically designed training plans and technical supports as part of project activities as well as during Bank implementation support will strengthen MoEYS staff capacity at all levels. Moreover, the DLIs were carefully selected to ensure that they are realistic, achievable, and measurable, the EEP (MoEYS staff and teacher salaries under budget chapter 64) for the DLIs is straightforward and the DLIs arrangements include multiple disbursements per year. Additionally, they are closely aligned with the government's priorities.

65. **Inadequate incentives for the MoEYS to implement the project**. The fiduciary risk is also substantial. Since the credit proceeds will be disbursed directly to the Treasury, it is

important to ensure steady flow of funds to the education sector in order for the MoEYS to achieve the agreed results in the proposed project. Therefore, a yearly verification process will be conducted that will allow MoEYS and the World Bank to determine if the costing for reform and associated activities are in the annual budgets. The MEF in consultation with MoEYS has developed a well thought out allocation plan for the lifetime of the SEIP. It was agreed that as part of the implementation support, the World Bank will regularly support the MoEYS in the sector annual plan discussions to monitor the funds needed to achieve the project priorities and reflected in each year's education budget. This specific implementation arrangement will be reflected in the POM. Furthermore, the project's TA support will directly support and strengthen MoEYS, particularly for the implementation of all project interventions in the ensuring quality and efficiency lower secondary education. Annexes 3 and 4 detail the implementation arrangements and support plan.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

66. One of the main hurdles facing SEIP was justifying the school construction and rehabilitation activities. A cost-benefit analysis was conducted of sub-component 1.3 to determine if these activities were justified. (The results of the cost-benefit analysis are summarized in the Table 3 and detailed in Annex 5.) Assuming a project life of 20 years, a real discount rate of 10 percent, and the total cost of US$10.6 million for civil works activities within sub-component 1.3 of the project, the Net Present Value (NPV) is estimated at US$17.61 million. The internal rate of return (IRR) for this "base case" is estimated at 12.73 percent. Given the conservative assumptions used for the base case scenario, this component of the project is deemed economically viable.

67. Three other cases are also analyzed, which are outlined in Table 3. In Case 1, the strength of externalities is employed at a value of 10.63 percent ($exp(0.101) - 1$) from the upper bound estimate (see Annex 5 for more details). This increases the NPV to US$34.49 million, with estimated IRR of 14.28 percent. Cases 2 and 3 assume that the increase in teacher contact hours and the reduction in class size will have no impact on the learning outcomes for some beneficiaries (i.e., group 2). The only difference between Case 2 and Case 3 is that Case 2 uses the externalities value of 8.89 percent while Case 3 uses a value of 10.63 percent. At a real discount rate of 10 percent, both cases yield negative NPVs. The estimated IRRs decline to 8.75 and 9.99 percent for Case 2 and Case 3 respectively.

Table 3. Cost-Benefit Analysis of Sub-component 1.3

	Base case US$ (thousand)	Case 1 US$ (thousand)	Case 2 US$ (thousand)	Case 3 US$ (thousand)
Social benefits from increase in lifetime earnings				
Beneficiary group (1)	19,010.23	30,900.89	19,010.23	30,900.89
Beneficiary group (2)	40,208.99	45,198.14	0.00	0.00

Less:				
Public and private recurrent cost				
Beneficiary group (1)	12,502.31	12,502.31	12,502.31	12,502.31
Beneficiary group (2)	18,511.53	18,511.53	18,511.53	18,511.53
Project cost	10,600.00	10,600.00	10,600.00	10,600.00
Net Present Value	**17,605.39**	**34,485.19**	**(22,603.61)**	**(10,712.95)**
Internal Rate of Return	**12.73%**	**14.28%**	**8.75%**	**9.99%**
Selected parameters:				
Private return to secondary schooling	3.86%	3.86%	3.86%	3.86%
Externalities	8.98%	10.63%	8.98%	10.63%
Improvement in Group (2) learning outcome (years)	0.5	0.5	0.0	0.0

Note: A project life is assumed to be 20 years and the real discount rate of 10 percent is used for computing the NPV of this component of the project

68. Another major group of activities under SEIP involves the upgrading of lower secondary school teachers to bachelor's degree or ISCED 5A qualification (TUP); the LUP for school directors; and the training program for teacher trainers. The total estimated cost for TUP and LUP is US$7.99 million. A cost-benefit analysis was also conducted for this sub-component 1.2 to determine if the training activities were economically viable. (The details of the economic and financial analyses are given in Annex 5, while a summary of the results of the cost-benefit analysis is presented in Table 24 in the same section) Applying again a real discount rate of 10 percent to the expected net social benefit streams for 20 successive cohorts of student beneficiaries, the NPV for this sub-component is estimated at US$59.33 million. The IRR for this baseline case is estimated at 25.61 percent. Given the conservative assumptions used for the baseline scenario, this component of the project is also deemed economically viable.

B. Technical

69. The technical design for the project was arrived at after extensive review of the analytical work already undertaken by MoEYS, the World Bank, and other DPs in the country. It also relied on: experience of the ESSP and SESSP; lessons learned from successful previous education projects in Cambodia and other countries; extensive stakeholder consultations; and the expertise and experiences of the invited experts, consultants, and the World Bank team. The country's context on the current status of the education system, concerns around quality of lower secondary education, and planned reforms in PFM systems, along with insights available from global experiences in similar contexts, have informed the project design. This has been important to ensure that all the planned activities are well grounded in the realities of the situation, and take into account the various constraints and challenges that Cambodia still faces. They are progressive and transformative to bring about the necessary expansion of access, quality, and financial protection needed in the country.

70. The technical design of the project is based on a growing global understanding that transforming the result-based systems can change the persistent underperformance of a country's education services. This design benefitted specifically from the performance-based financing and the DLI approaches being used globally. The services and interventions financed under the project are cost-effective and are expected to have a significant impact on the government's key priorities/standards for lower secondary education.

C. Financial Management

71. MoEYS has an acceptable FM system under the on-going World Bank financed SESSP. SEIP will apply current FM system with some modification to further enhance the project's new elements in FM, such as projected cash requirement and DLI-based disbursements. The main risks are associated with: (i) possible insufficient time devoted by the FM staff of RGC to the project due to their commitment in normal government's task; (ii) lack of experience in applying projected cash requirement based on a six-month work plan and reporting based disbursement and DLIs related disbursements; (iii) untimely payment to civil works contractors; and (iv) the project's FM outside the MoEYS's designed FMIS. Some of the key measures to address those risks are: (i) a supplementary FM manual (SFMM) detailing the payment processes, service standards, and monitoring mechanisms of the payments made and alignment of SEIP's FM to the RGC's chart of accounts and how to do realistic six-month projected cash requirements; (ii) provision to have one contracted FM consultant to support the administration in FM; (iii) adoption of the current accounting software used in SESSP as an interim measure before all SEIP's FM are integrated in the Ministry's FMIS; and (d) risk-based internal audits of the project by the MoEYS' Internal Audit Department.

72. Disbursements of the DLI part will be based on MoEYS fulfilling the following requirements: (a) demonstration that the amount of agreed EEPs in the related period exceeded the amount being requested from IDA for the period and (b) achievement of the agreed annual DLI targets, which will be documented in an annual DLI report verified in accordance with the agreed arrangement.

D. Procurement

73. Procurement under the Project will be governed by 'Guidelines: Procurement of Goods, Works, and Non-Consulting Services by World Bank Borrowers under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011 (revised July 2014) and 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011 (revised July 2014). Government Standard Operating Procedures and Procurement Manual issued under Sub-Decree 74 (dated May 22, 2012) would apply for procurement under national competitive bidding (NCB) subject to the improvement that would be included in the NCB annex to the project Credit Agreement. Community Operation Manual (COM) includes the procurement procedures for the procurement activities to be carried out by the school communities for school rehabilitation/construction under Sub-component 1.3: Improving School Facilities. Systematic Tracking of Exchanges in Procurement (STEP) will be applicable for this project. The procurement arrangements and responsibilities of each procurement level are elaborated in Annex 3.

74. The procurement risk is assessed as substantial. Key procurement risks emanate from: (a) the procurement unit of MoEYS still has limited number of experienced staff to support all projects financed by DPs and the government own budget, (b) possible delays in procurement start up due to slow technical inputs from concerned departments, (c) governance-associated risks including possible mis-representation of staffing/documents in the bids/proposals of bidders. Risk mitigation measures have been agreed with government and detailed in an action plan in Annex 3. The residual procurement risk after implementation of the risk mitigation measures is moderate.

75. In the event that Component 3 may finance goods, works and/or consultant services required for an eligible crisis or emergency, the applicable procurement methods and procedures under the relevant provisions of the World Bank's procurement guidelines would be further detailed in the ERM.

E. Social (including Safeguards)

76. As part of the project preparation, a Social Assessment was conducted in a participatory process, seeking free prior and informed consultation with Ethnic Minorities communities. The main objectives of assessment were to: (i) identify project beneficiaries; including ethnic minorities communities; (ii) identify how these groups are organized and their preferences to participate during project design and project implementation; and (iii) assess the potential social risks associated with project activities, including positive and adverse impacts, mainly on ethnic minorities communities as well as identify measures to mitigate any significant social risk. The social assessment process included consultation and participation workshops with multiple stakeholders in several provinces where ethnic groups resides, including workshops and focus groups discussions with relevant stakeholders in multiple provinces such as Kampot, Kampong Speu, Banteay Meanchey, and Rattanakiri.

77. The SA identified several areas where the project will generate positive impacts to project beneficiaries. Specifically, it is expected that the project will benefit ethnic minorities vulnerable children from public lower secondary schools who will benefit from attending better-financed schools. Also parents will increase their participation as members of SSCs by receiving benefits from capacity building training under the project.

78. Additionally, the SA reviewed the existing barriers for ethnic parents and children to receive proper education services in a culturally appropriate manner, including those related to language, traditions, customs, and values. SEIP will involve indigenous communities as key beneficiaries. Experience has shown that incorporating culturally appropriate considerations for ensuring the full participation of indigenous communities in the education services is key to project success.

79. As a result of the Social Assessment (SA) OP/BP 4.10 Indigenous Peoples (IPs) is triggered and an Indigenous Peoples Planning Framework (IPPF) was prepared. The IPPF indicates clear measures for ensuring IPs participation during project implementation and by adapting the project activities for increasing IPs attendance and benefits from the Education project. An Indigenous Peoples Plan (IPP) will be prepared based on the guidance of the IPPF.

The IPPF was disclosed publicly disclosed on November 25, 2016 in Phnom Penh on the MoEYS' website, as well as on the World Bank external website on November 29, 2016.

80. The Bank's OP/BP 4.12 on Involuntary Resettlement is triggered. Under Component 1.3, the project will finance rehabilitation of existing structures or new construction for lower secondary schools buildings as well as accommodation facilities for teachers. Most of the proposed construction sites will be located in the existing primary school or lower secondary school compound. Even if there is a need for new land, construction sites will be pre-selected in the land publicly owned by local communes and assessed using a comprehensive social screening.

81. A Resettlement Policy Framework (RPF), therefore, has been prepared in the event that resettlement occurs due to the implementation of the project. The RPF will address any issues that may occur for sub-projects identified during implementation. Screening criteria and relevant protocols have been included as part of the RPF. The RPF includes (i) a framework for voluntary land donations and procedures to undertake due diligence in case where land will be or has already been acquired prior to Bank-financing for sites supported by the project and (ii) the policies and procedures for preventing or mitigating adverse impacts related to involuntary land acquisition and resettlement as a result of proposed construction of school facilities. The revised RPF was initially disclosed on November 25, 2016 and subsequently re-disclosed on March 1, 2017 in Phnom Penh on the MoEYS' website, as well as on the World Bank external website.

82. The project safeguards implementation arrangements and capacity building is an integral part of the existing institutional arrangements for project implementation and is built on existing mechanisms and capacity. MoEYS has experience and built capacity to implement previous World Bank funded projects as well as other DPs. MoEYS has previously created Project Management Units for World Bank supported projects and has built capacity for safeguards implementation. During project preparation, MoEYS's safeguards focal persons were appointed to be responsible for coordinating with IRC for leading preparation of instruments, implementation, monitoring and ensuring consistency with government law and regulation. During project implementation, safeguards consultants will be hired under the PMT, and will be assisting MoEYS for the overall implementation and monitoring of the instruments.

F. Environment (including Safeguards)

83. Due to the nature of the project and small scale of construction activities (This will include: (i) construction and rehabilitation of 100 existing schools; (ii) construction of 30 new schools in the communes lacking a lower secondary school; and (iii) rehabilitation of 25 POEs, 99 DOEs, and three RTTC), the project is therefore classified as a Category "B", and is not expected to have any major environmental impacts. OP/BP 4.01 on Environmental Assessment (EA) is triggered and only partial assessment is required. The results of the EA and SA have been reflected in an Environmental and Social Management Framework (ESMF) and Environmental Codes of Practice (ECoPs), generic Environmental Management Plan (EMP), IPPF and RPF for this project. The ESMF, ECoPs and generic EMP were publicly disclosed on November 25, 2016 in Phnom Penh on the MoEYS' website, as well as on the World Bank external website on November 30, 2016. The project implementation will be nationwide, and it is expected that about 90 percent of project sites will be located within the existing school and

office premises. Both for existing land in existing school/office premises and new land which is acquired for school construction, MoEYS through its Provincial Department will seek endorsement on land acquisition (and Unexploded Ordnance (UXO) and possible PCR in and surrounding the construction areas) from local authorities and/or relevant Government departments. The process of site screening is summarized here: (i) SSC (including local authorities, elderly people, students' parents and relevant Government departments) will conduct site screening to confirm the identified location is environmentally and socially safe and sound for construction using the screening form that was developed by MoEYS. The minutes of consultation and relevant documents will be attached with the proposed package for school construction; and (ii) the PMC of MoEYS, with the support of DoC, will review the proposed package and verify the environmental and social conditions on the ground before approving the sub-projects. The EMP and ECoPs will be incorporated in the bidding documents to inform the contractors/community of their role and responsibility to comply with the safeguard instruments.

G. Gender

84. Gender is a critical cross-cutting theme of the project. The SA has described the gender related impact to identify the risks which might affect the switch to implementation strategy for each project component. As the lower secondary education sub-sector is characterized by a degree of gender inequality for boys, each component activity will pay more attention to gender dimensions to improve participation, completion, and quality of teaching-learning practices for male students and teachers: School development plans will address the context-specific gender disparities in target schools; SSCs will promote equitable gender representation; the TUP will ensure equitable representation of each gender; and the construction of teacher accommodations will have separate male and female quarters. Gender strategy will be prepared during year 1 of project implementation; the strategy will be embedded in the social safeguard instruments as well specifically with the RPF and the IPPF.

H. Citizen Engagement

85. The project will train School Support Committees in regards to their role/responsibilities, and their capacity for financial oversight, as well as will introduce some auditing oversight of the SIF to ensure greater community engagement. The number of School Support Committees participating in decision making process of schools is one of the project's intermediate indicators in the results framework. It is a proxy indicator to measure citizen engagement in the project because it specifically measures the number of non-school personnel (i.e., private individuals) involved in school-related meeting (i.e., influencing public decisions). Additionally, MoEYS in consultation with the stakeholders and the Project Beneficiaries, will establish and maintain a Grievance Redress Mechanism, in accordance with procedures and guidelines set forth in the Project Operational Manual and the safeguard instruments, and acceptable to the World Bank. The project will follow the innovative Social Accountability Framework adopted by the Sub National Democratic Development reform; this reform outlines the responsibilities of service providers (in particular, schools, school committees) to make information about budget expenditures and performance available to the communities they serve and to engage with these communities to evaluate performance and develop actions plans for improvement. On the demand side of the accountability framework, civil society organizations inform communities of their rights to public services and the standards they should expect. SEIP will make use of

Implementation Plan for Social Assessment Framework monitoring indicators as perhaps the best mechanism for systematically engaging citizens in the assessment of education services in the country.

I. World Bank Grievance Redress

86. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

Annex 1: Results Framework and Monitoring

Country: Cambodia

Project Name: Secondary Education Improvement Project (P157858)

Results Framework

Project Development Objectives

PDO Statement

To expand lower secondary education to achieve minimum standards in target areas, and to provide immediate and effective response in case of an eligible crisis or emergency.

These results are at	Project Level

Project Development Objective Indicators

Indicator Name	Baseline	Cumulative Target Values					
		YR1	YR2	YR3	YR4	YR5	End Target
Direct project beneficiaries (Number) - (Core)[5]	0.00	4000.00	8000.00	12000.00	16000.00	20810.00	20810.00
Female beneficiaries (Percentage - Sub-Type: Supplemental) - (Core)	0.00	50.00	50.00	50.00	50.00	50.00	50.00
Number of target lower secondary schools[6] that	0.00	0.00	15.00	20.00	40.00	70.00	70.00

[5] Number of students equals 650 classrooms with 25 students; Number of POEs equals 25 and the number of DOEs equals 75. Assume each office has 5 staff members who benefit directly from project. Number of school staff members benefiting from SIF equals 15 members per school with 100 schools. Number of teachers and school directors enrolled in training programs equals 2200 teachers, and 310 school directors and deputy directors, Number of government officials for PISA for Development Program equals 50.

[6] Target schools excludes 30 newly constructed schools for PDO Indicator 1, and Intermediate indicators 1, 2 and 15.

have achieved minimum standards[7] (Number)							
Number of teachers who graduate from TUP (Number)	0.00	0.00	100.00	500.00	1200.00	2000.00	2000.00
Number of enrolled students in newly constructed lower secondary schools (total/female) (Number)	0.00	0.00	0.00	1750.00	3500.00	5250.00	5250.00

Intermediate Results Indicators

Indicator Name	Baseline	Cumulative Target Values					
		YR1	YR2	YR3	YR4	YR5	End Target
Number of schools that publicly display development plan (Number)	0.00	40.00	60.00	80.00	90.00	100.00	100.00
Number of schools that conduct teacher assessment based on Teacher Professional Standards (Number)	0.00	20.00	40.00	60.00	80.00	100.00	100.00
School Improvement Fund Manual produced/revised for school based management activity (Text)	No Manual	Manual produced and adopted		Manual revised			Initial Manual revised

[7] Which means achieving of a minimum score of 65 out of 100 in LSSES.

Training plans for POE, DOE and school levels produced for school based management activity (Text)	No plan	Plan produced and adopted		Plan revised			Initial plan revised
Number of submitted POE improvement plans based on the SIF manual (Number)	0.00	5.00	7.00	15.00	20.00	25.00	25.00
Number of submitted DOE improvement plans based on the SIF manual (Number)	0.00	25.00	50.00	75.00	75.00	99.00	99.00
Annual status report for SIF produced (Text)	No		Yes	Yes	Yes	Yes	Yes
MoEYS formally adopted a Teacher Upgrading Strategy as well as a corresponding implementation plan and its Operational Manual (Text)	No strategy no manuals	Strategy and manual produced (DLI3)		Manual revised		Initial manual revised	Initial manual revised
Number of enrolled teachers in TUP (Number)	0.00	120.00	550.00	1350.00	2200.00	2200.00	2200.00
MoEYS formally adopted Leadership Upgrading Training Manual (Text)	No manuals	Manual produced and adopted		Manual revised			Initial manual revised
Number of school directors/deputy who graduate LUP (Number)	0.00	0.00	0.00	100.00	200.00	310.00	310.00

Number of school directors /deputy directors who are enrolled in LUP (Number)	0.00	0.00	150.00	310.00	310.00	310.00	310.00
Number of classrooms constructed in new locations (Number)	0.00	0.00	75.00	150.00	150.00	150.00	150.00
Number of school rehabilitated (Number)	0.00	0.00	25.00	50.00	75.00	100.00	100.00
Number of SSCs participating in decision making process of schools. (Number)	0.00	20.00	40.00	60.00	80.00	100.00	100.00
PISA For Development Report completed (Text)	No		Yes				Yes
Results of an independent SIF program impact evaluation are discussed in a policy meeting with MoEYS, MEF, MoPW, and relevant DPs (Text)	No					Yes	Yes

Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Direct project beneficiaries	Direct beneficiaries are people or groups who directly derive benefits from an intervention (i.e., children who benefit from an immunization program; families that have a new piped water connection). Please note that this indicator requires supplemental information. Supplemental Value: Female beneficiaries (percentage) . Based on the assessment and definition of direct project beneficiaries, specify what proportion of the direct project beneficiaries are female. This indicator is calculated as a percentage.	Annually	School enrollment will come from target schools; number of people trained will come from the annual capacity development status reports, and the number of teachers and directors enrolled in the upgrading program will come from the HEIs offering the courses.	General Secondary Education Department and TPAP
Female beneficiaries	Based on the assessment and definition of direct project beneficiaries, specify what percentage of the beneficiaries are female.	Annually	School enrollment will come from target schools; number of people trained will come from the annual capacity development status reports, and the number of teachers and directors enrolled in the upgrading program will come from the HEIs offering the courses.	General Secondary Education Department and TPAP
Number of target lower secondary schools that have achieved minimum standards	The number of lower secondary schools among the 100 target schools that achieved minimum standards. The DLIs are contingent upon 40 schools achieving a LSSES score of 65 out of 100 in year 4 and 70 in year 5. (DLI 16, 19).	Annually	Score of LSSES	General Secondary Education Department

Number of teachers who graduate from TUP	This indicator tracks the number of lower secondary school teachers who complete the bachelor degree program. The DLIs are contingent on 500 teachers completing TUP by year 3, 1200 by year 4, and 2000 by year 5. (DLI 11, 13)	Annually	Completion rates reported by HEIs qualified to provide program.	TPAP team
Number of enrolled students in newly constructed lower secondary schools (total/female)	This indicator tracks the number of lower secondary students who enroll in schools that have been newly constructed during this project.	Annually	Enrollment rates reported by schools	General Secondary Education Department

Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Number of schools that publicly display development plan	Each school must submit a school development plan; however, many plans are low quality. This indicator, therefore, determines the number of schools out of 100 that have publicly displayed plans, which meet the SIF guidelines. The DLIs are contingent upon 20 schools meeting the guidelines in year 1, 40 in year 2 and 60 in year 3. (DLI 4, 8)	Annually	Schools submit plans to POEs. They will be evaluated by MoEYS, at first, and eventually by POEs.	General Secondary Education Department/POEs/DOEs
Number of schools that conduct teacher assessment based on Teacher Professional Standards	Each teacher must conduct a self-assessment based on teacher professional standards to inform his or her development plan. Teachers will then be assessed by the SMC on these standards. This indicator, therefore, determines the number of schools out of 100 that have assessed all teachers receiving on the job.	Annually	These assessments will be conducted by the SMC, with oversight by the DOE. At first, MoEYS and POEs will be involved in the assessments.	General Secondary Education Department/POEs/DOEs and SMCs
School Improvement Fund Manual produced/revised	MoEYS has adopted guidelines that: (i) spell out clear objectives and performance	Once	Report, which is to be revised mid-way through	General Secondary Education Department

for school based management activity	indicators to be monitored against these objectives and (ii) strengthen FM. The DLI is contingent upon MoEYS. (DLI 1)		project period based on lessons learned.	
Training plans for POE, DOE and school levels produced for school based management activity	MoEYS, each POE, DOE and school should develop training plans for improving school based management activities. The DLI is contingent upon MoEYS approving the training plans at each level. (DLI 2)	Annually	Training plans will need to be developed at each level POEs, DOEs, and schools.	General Secondary Education Department, POEs, DOEs, schools
Number of submitted POE improvement plans based on the SIF manual	Each POE must submit an improvement plan and self-assessment to MoEYS. This indicator determines the number of POEs out of 25 that have submitted plans, which meet the SIF guidelines.	Annually	POEs submit plans to MoEYS, and MoEYS	General Secondary Education Department
Number of submitted DOE improvement plans based on the SIF manual	Each DOE must submit an improvement plan and self-assessment to MoEYS/ POE. This indicator determines the number of DOEs out of 99 that have submitted plans, which meet the SIF guidelines.	Annually	DOEs submit plans to MoEYS	General Secondary Education Department
Annual status report for SIF produced	This indicator tracks the implementation of capacity development plans at schools, POEs, and DOEs. This includes type and quantity of training received each year. The DLIs are contingent upon MoEYS submitting a status report each year, which includes information of capacity development at each sub-national level. (DLI 5, 9)	Annually	Training will have to be organized based on training plan. Each level will be responsible for tracking their development compared against their plans, which will be reported upwards from Schools to DOE to POE to MoEYS.	Each level will be responsible for tracking their training and will be aggregated by General Secondary Education Department
MoEYS formally adopted a Teacher Upgrading Strategy as well as a corresponding implementation plan and its Operational Manual	MoEYS has adopted strategy of overall teacher upgrading program and its Operational Manual that: (i) spell out clear course objectives and performance indicators to be monitored against these	Once	Report, which is to be revised mid-way through project period based on lessons learned.	TPAP team

	objectives; (ii) selection criteria for teachers to be upgraded; (iii) teaching modality for the upgrading course; (iv) teacher education policy standards (TEPS); and (v) plan to help additional HEIs reach TEPS. The DLI is contingent upon MoEYS approving the TUP strategy, implementation plans, and operational manual. (DLI3)			
Number of enrolled teachers in TUP	This indicator tracks the number of lower secondary school teachers who enroll in the bachelor degree program. The DLIs are contingent upon 120 teachers enrolling in TUP in year 1 and 550 in year 2. (DLI 6, 10)	Annually	Enrollment rates reported by HEIs qualified to provide program.	TPAP team
MoEYS formally adopted Leadership Upgrading Training Manual	MoEYS has adopted strategy of overall LUP and its Operational Manual that: (i) spell out clear course objectives and performance indicators to be monitored against these objectives; (ii) selection criteria for teachers to be upgraded; (iii) teaching modality for the upgrading course; and (iv) teacher education policy standards (TEPS). The DLI is contingent upon MoEYS approving the TUP strategy, implementation plans, and operational manual. (DLI 7)	Once	Report, which is to be revised mid-way through project period based on lessons learned.	TPAP team
Number of school directors/deputy who graduate LUP	This indicator tracks the number of school directors and deputy directions who have completed their BA degree program in school administration, offered by the Royal University of Phnom Penh. The DLI is contingent upon 300 directors/deputy directors graduating by year 4. (DLI 18)	Annually	Enrollment rates provided by RUPP	TPAP team

Number of school directors /deputy directors who are enrolled in LUP	This indicator tracks the number of school directors and deputy directions who are enrolled in LUP. The DLI is contingent upon 310 directors/deputy directors graduating by year 4. (DLI 11, 15)	Annually	Enrollment rates provided by relevant institute	TPAP team
Number of classrooms constructed in new locations	This indicator tracks the number of lower secondary school classrooms constructed in the 30 new locations where new lower secondary schools will be built.	Annually	Construction reports	Construction Department
Number of school rehabilitated	This indicator tracks the number of lower secondary schools out of 100 that have been rehabilitated. Rehabilitation includes civil work, including but not limited to toilets, teacher accommodation, or classroom repairs. The exact needs will be detailed in each school's improvement plans. Those schools that satisfactorily meet the civil works in their improvement plan will be considered rehabilitated.	Annually	Construction reports	Construction Department
Number of SSCs participating in decision making process of schools.	This indicator measures the number of SSCs that participate in school related meetings, which therefore provide a gauge for citizen engagement in school activities and development.	Annually	SIF report	General Secondary Education Department/POE/DOE
PISA For Development Report completed	This indicator tracks the completion of MoEYS involvement in OECD's program.	Once	PISA for Development Report	Education Quality Assurance Department
Results of an independent SIF program impact evaluation are discussed in a policy meeting with MoEYS, MEF, MoPW, and relevant DPs	This indicator tracks the discussion among MoEYS, MEF, MoPW and relevant DPs regarding the results of an independent SIF program impact evaluation.	Once	Meeting minutes	MoEYS General Secondary Education Department and TPAP team

Annex 2: Detailed Project Description

Cambodia: Secondary Education Improvement Project

87. In order to expand lower secondary education and meet minimum standards, it is important to strengthen the capacity of sub-national school structures, strengthen teacher performance, and improve school environments. Each of these areas will contribute towards improving LSESS.

Component 1: Improving Lower Secondary Education to meet Minimum Standards (US$38.1 million equivalent).

88. ***Sub-component 1.1: Strengthening School Based Management (approximately US$13.6 million equivalent through DLI approach)***. The main activity of this sub-component is the School Improvement Fund (SIF).[11] This funding mechanism will be financed entirely from Government funds for the project and will be made available to POEs, DOEs, and Schools, effectively creating an SIF at each level of the sub-national education system structure. At the POE and DOE levels, the SIF will be used to fund annual operation plans (as well as additional activities over and above said plans), training materials needed for school-level training, and travel support allowances. At the school level, the SIF will improve performance of the school management committee (SMC) and provide on the job training for teachers, with a primary focus on teaching and learning.

89. At the POE level, the SIF will be used by each POE to improve its performance. Performance will be assessed yearly by MoEYS using a POE evaluation tool. Each POE can use the SIF to implement and report progress on its annual operations plan, as well as monitor DOEs (using a DOE evaluation tool). In order to be eligible for the SIF each year, POEs must submit annual operation plans to MoEYS based on the national guidelines. Central MoEYS staff will provide capacity building to POE staff members to improve their operations based on the evaluation tool, and the yearly performance assessments will be fed into the following year's annual operation plan.

90. At the DOE level, the SIF will be used by each DOE to improve its performance. Performance will be measured yearly and the results of the performance will be incorporated into the following year DOE annual operations plan. To be eligible for the SIF, DOEs must submit annual operation plans to the POE based on national guidelines. The evaluation of DOEs, which will be conducted by POE officials, will use a DOE evaluation tool. The DOEs can also use the SIF to perform school-level visits that will allow for continuous capacity development and monitoring of schools. School-level assessments conducted by the DOE will use the LSSES evaluation tool. MoEYS staff as well as POE staff will provide capacity building to DOE staff members on increasing their performance as well as implementing the school-level assessments.

91. At the school level, the SIF will improve performance of the SMC with a primary focus on teaching and learning. SIFs will be disbursed to schools that submit a school development

[11] A special package of eligible expenditures (to be financed from the Government's own funds) has been approved by MEF to ensure SIF functions

plan to the relevant DOE and complete the LSSES assessment (performed by the DOE). SIF funds will be used for school-level operating costs, focusing on teaching and learning activities.

92. In order to operationalize the individualized performance enhancement plan of teachers, the SIF to schools will provide yearly operational funding support (approximately US$3,000 per school). This funding can be used to provide on-the-job training of teachers in the LSSES in target schools in efforts to improve teacher performance. This training will be provided by a team of MoEYS subject based and pedagogy experts, and will include: a) assessment of teacher subject content knowledge and teaching skills/pedagogy and performance and using the assessment results to formulate the on-job training plan; b) classroom training on teacher standards and subject content knowledge, practice to produce quality lesson plans, lessons and supporting work books, c) using student tests and national assessment results assist slow learners and d) conduct in-class practices to sharpen teaching skills and promote effective use science labs

93. A SIF operations manual will be developed at all levels. Activities related to the SIF will include, but are not limited to: (i) development of guidelines for all levels; (ii) SIF orientation workshops; (iii) SIF proposal development and submission to SIF committee for review and approval; (iv) implementation of SIF in selected schools, POEs and DOEs; (v) internal and external monitoring (i.e., a self-assessment tool for teachers based on the Teacher Professional Standards and a teacher evaluation tool based on the teacher professional standards and LSSES 2 and 3); and (vi) school based managed capacity development. This sub-component will improve the following LSSES: (i) school policy objectives; (iii) parent and communities support on student learning; (iv) students and student services; (v) school leadership and management; (vi) human resources; (vii) teaching and learning materials; and (ix) financing and FM.

94. The second main set of activities in this sub-component is capacity development at the POE, DOE, and school levels. In particular, MoEYS officials will work continuously during project implementation with POE and DOE staff to improve their management practices (e.g., the development, implementation, and monitoring of Annual Operation Plans). MoEYS staff will join POE and DOE staff on some school-level visits and trainings during this initial stage. The purpose of these trainings would focus on school development plans and budgets, ensuring teachers develop quality lesson plans and meet instructional hours, and monitoring the availability of teaching and learning materials and follow-up lessons with slow learners. As the POE and DOE capacity increases, they will be required to work (without the direct oversight of MoEYS officials) at the school-level with the SMCs, SSCs, and teachers. In effect, this sub-component takes a holistic approach to sub-national school management.

95. In addition to providing capacity building at various levels mentioned above, parental training will also be provided by MoEYS national trainers to parent representatives to monitor the provision of school inputs according to MoEYS norms and to make for school inputs from national and sub-national levels demand driven. The school inputs include instructional hours, textbooks, teachers and classrooms. SMCs will arrange regular meetings with parent representatives in order to plan for better school inputs and review progress at the beginning of and mid school year. National and sub-national levels will include in their annual plans the school input need requested from schools and deliver the school inputs to schools.

96. To strengthen teachers' performance to meet LSSES in target schools, the on-job training for all teachers will be provided. This training will be conducted by MoEYS subject based and pedagogy specialists and training will include: a) an assessment of teacher subject content knowledge and teaching skills/pedagogy based on teacher standards and the use of the assessment results to formulate an on-the-job training plan; b) classroom training on teacher standards and subject content knowledge, practice to produce quality lesson plans, lessons and work books, c) the use of student tests and national assessment results to assist slow learners, and d) in class practices to strengthen teaching skills and promote effective use of science labs.

97. In the following table, each level of the education system is outlined with regard to the sub-component's targets and activities.

Table 4. Sub-component 1.1 interventions

Target	Administrative Unit	Responsibility	Activities
1	Ministry of Education Youth and Sport	Central level administration, overseeing all aspects of education system.	Secondary Education Department officials perform training to POE, DOE, and School levels. They also monitor the POE level. Counter-part funds provided by the Borrower will be made available to ensure operations.
25	Provincial Offices of Education	Sub-national level responsible for textbook distribution, teacher allocation, and some school funding.	MoEYS staff will provide continuous capacity development of POE officials. A SIF will also be provided in order to allow each POE to implement its annual operation plan, including the monitoring of the DOE level. The POE's performance will be assessed using MoEYS' existing evaluation tool. Counter-part funds provided by the Borrower will be made available to ensure operations.
75	District Offices of Education	Sub-national level responsible for overseeing school and classroom management practices.	MoEYS and POE staff will provide capacity development to DOE officials. The focus will be on the development, implementation, and monitoring of each DOE's annual operation plan, including their involvement at the school-level. A SIF will be provided to each DOE in order to enable staff to implement their plans. The DOE officials will be assessed by the POE level using the existing performance evaluation tool. Counter-part funds provided by the Borrower will be made available to ensure operations.
100	Lower Secondary Schools	School level, composed of SSCs and SMCs, responsible for school management	MoEYS, POE, and DOE staff will provide capacity development to SSCs and SMCs in order to develop school development plans, complete self-assessment on LSSES, and develop budgets. As the POE and DOE staff

			members' capacity increases, MoEYS officials will slowly reduce their involvement inside the school level. An SIF will be provided to each school in order for it to implement parts of its school development plans and provide on-the-job training to teachers.
100	Lower Secondary Schools	Approximately 1500 teachers responsible for teaching in those classrooms	Periodic hands-on support to teachers will be provided based on the assessment of Teacher Professional Standards. SMCs will use part of the SIF school-level budget to support these activities. Core-teacher trainers will be available to provide pedagogical capacity development as well as content knowledge, if needed.

98. Through the activities of sub-component 1.1, seven school effectiveness standards will be directly impacted: Standard 1: school policy objectives; Standard 3: parents and communities support student learning; Standard 4: students and student services; Standard 5: school leadership and management; Standard 6: human resources; Standard 7: teaching and learning materials; and Standard 9: Financing and FM.

99. The goal of this sub-component is to create effective schools in terms of management and teaching practices. The annual evaluations will provide opportunity to learn lessons from these interventions, which will subsequently be applied in nation-wide reform efforts in lower secondary schools, which MoEYS plans given the projected future increases of recurrent expenditures to education. In this way the lessons learned can be made sustainable.

100. ***Sub-component 1.2: Upgrading Teachers (approximately US$9.2 million equivalent through DLI approach)***. Working through the national structure of TPAP, this subcomponent aims to upgrade the qualifications of 2,000 teachers to bachelor's degrees. The teachers who will be upgraded will, initially, come from the 100 target schools and then from across the nation as identified by TPAP, thus creating a spillover effect beyond SEIP's target schools. In addition, this sub-component aims to upgrade school directors and deputy directors of lower secondary schools.

101. The proposed sub-component activities will focus on demand side scholarships to, at least, 2,000 teachers and 310 school directors and deputy directors to support the tuition and stipend (transportation and accommodation costs) associated with the upgrading. The costs of the scholarships will be fully funded from the Government funds for the project.

102. The actual upgrading of teachers will be completed under the TUP (approximately 450 learning hours) that consists of weekend and vacation courses approximately over a 15-month period and will lead to a bachelor degree. TUP is a duel focus program on content and pedagogy knowledge. Teachers will be able to continue working in their schools while participating in TUP. All graduates of TUP from target 100 schools will be followed up by a periodic on-site training program (need to update after the discussion with RUPP).

103. The target subjects of TUP are: Mathematics, physics, chemistry, biology, history, and Khmer language. The TPAP team has already developed guidelines and syllabi for these six subject areas. Scholarship beneficiaries for TUP will be selected on a merit basis (i.e., through examinations), but priority will be given to teachers from SEIP's target schools. The detailed selection process will be described in the TUP operational manual. An exit proficiency exam will be set to determine graduation from TUP.

104. The upgrading of school directors and deputy directors will be completed under the LUP, which will consist of short term trainings (approximately 450 learning hours). Training programs and operational guidelines will be developed during the first year of the project period. LUP aims to strengthen leadership and school management and targets school directors and deputy directors. Scholarship beneficiaries for LUP will be two leaders, school directors and deputy directors, from each school targeted for rehabilitation and new school construction as well as 25 lower secondary schools in provincial centers across the nation.

105. Both TUP and LUP will be provided by higher education service delivery providers. These providers must meet TEPS in order to be eligible to award bachelor degrees. Service providers will have a profit incentive to provide TUP and LUP as all students will be fee-paying.

106. Potential Higher Education Institutes (HEIs) for these programs include RUPP, National Institute of Education (NIE), and TECs in Phnom Penh and Battambang. Trainers at these potential HEIs for TUP who do not have master degree in their subject areas will be entitled to receive training of trainers at RUPP to become a trainer of TUP. This training will be offered during the first and second years of project, primarily for trainers at NIE and TECs. It is therefore expected that TUP will be offered at NIE and TECs from the second or third year of SEIP implementation.

107. The scholarships provided by Government funds as part of this sub-component are composed of two parts: tuition fees and teacher/director stipends. The tuition for TUP and LUP will be fully covered by the scholarship and paid to HEIs directly, while the stipend, which may not be able to cover the full cost of transportation and accommodation, will be paid directly to teachers and directors enrolled in the upgrading programs. Detailed guidelines will be described in the TUP/LUP operational manual.

108. ***Sub-component 1.3: Improving School Facilities (approximately US$15.3 million equivalent through traditional inputs-based disbursement approach)***. The problem of inadequate physical classroom space is severe. Out of 452 existing lower secondary schools, over 70 percent schools do not have enough classrooms to accommodate the number of students enrolled. To address the issue of overcrowded schools and to expand lower secondary education access, the physical improvement of schools in target communities will be provided under the project. The construction and renovation activities will cover all 25 provinces and 99 districts. The activities will include: (i) rehabilitation/construction of 100 existing severely over-crowded schools; (ii) construction of 30 new schools in communities without lower secondary schools and those experiencing severe problem of out-of-school at the lower secondary level; and (iii) rehabilitation of 25 POE, 99 DOE, and three Regional Teacher Training Centers (RTTCs) where needed. These locations were based on the extensive school mapping exercise carried out by the

MoEYS and the Bank. The RTTCs will be renovated to support in-service teacher training in target areas.

109. This selection ensures that the model schools include regional characteristics that could be replicated in the future. The selection of the 100 existing schools and 30 new schools are: (i) need-based and drawn upon the extensive school mapping exercise; (ii) based on schools that exhibit a strong community commitment to the project concept and willing to meet the project preconditions for selection; and (iii) located in rural and remote areas. School data for dropouts, enrollment, and student/teacher ratio has been taken into account in the selection process and the 100 existing schools does not include schools that receive support from other donors. The remaining 30 new schools have been selected based on school mapping and will be constructed on the premises of existing school sites, either with existing primary schools or existing upper secondary schools. The rehabilitation and the new construction will be carried out through community participation method.

110. The rehabilitation/construction activities for schools will include new or renovated classrooms (approximately 650), age appropriate furniture, teacher accommodations, teacher lounges, water and sanitation facilities, covered walk ways, and accessibility standards for physically disabled children. Water supply (wells or water tanks) will be provided for the latrines, and for hand washing in schools where there is no existing water supply. The rehabilitation activities for POE, DOE and RTTCs include renovation of existing classrooms, laboratories, teacher office rooms, and water and sanitation facilities.

111. A standard MoEYS school design will be adopted for school facilities and will follow the successful model used and lessons learned in previously financed World Bank education projects - the Flood Emergency Rehabilitation and Cambodia Education Sector Support Projects (ESSP). All construction will be permanent structures, with minimum expected lifespan of 25 years, meeting the requirements of the MoEYS School Construction Guidelines, which are described in detail in the Community Operations Manual (COM). The technical specifications of the standard MoEYS school design have been reviewed by IDA and found acceptable. The updated COM incorporates environmental safeguards aspects, a more cost effective school construction design to be implemented in rural areas and inclusion of protection against strong wind and floods. Teachers and school directors will receive relevant professional development opportunities (see sub-component 1.2). For the 30 new schools, the availability of teachers for these schools has been checked at the POEs and the POEs will coordinate with the teacher training department to ensure that teachers are available.

112. Unit costs have been estimated at US$70,000 per building (five classrooms, three latrine cubicles, a well and furniture). Appropriate supervision provisions throughout the construction cycle will be built into to the procurement methods and documents to include provincial engineers and local site engineer consultants as well as involvement of stakeholders at the school and commune levels. Some training programs for school personnel, students and communities will be conducted throughout the life of the project to foster sanitary awareness, promote environmentally friendly schools, prevent the spread of diseases and reduce maintenance costs. Specifically, the School Support Committees (SSC) in all target communities will be trained by the MoEYS in school development planning, school construction, maintenance and management

using COM, following the procedures established in the Project Operational Manual and the supervision and monitoring of the implementation of the COM and M&E. The SSCs will help mobilize the parents to send their children to and stay in school, and monitor the attendance of teachers. They are responsible for procurement of local materials and labor for rehabilitation and construction and for monitoring the construction with assistance from the site engineers. Under the funding provided by GPE Program, it is clear that with technical support from the DOEs and POEs, consistent and good quality construction is achieved by the SSC using COM, and that method of construction promotes strong local ownership in the school.

113. The Department of Construction (DOC) will be responsible for all civil works-related activities. The project will fund one TA and 4 engineers at the central level. In addition, approximately 30 site engineers will be hired at the provincial and district levels to support the construction program. Appropriate supervision provisions throughout the rehabilitation/ construction cycle will be built into the contract documents to include provincial and local engineers, and involve stakeholders at the school and commune levels. The POEs and DOEs in target areas are experienced in training, managing and supervising construction activities under previous World Bank funded projects. Where these units have qualified MoEYS engineers available, the project will work and train these engineers to support the community to monitor and supervise the construction. In districts and provinces without permanent qualified engineers, the project will deploy about experienced consultant engineers from previous or on-going projects to support the POEs and DOEs.

Component 2: Strengthening Project Management and Monitoring and Evaluation (approximately US$2.8 million equivalent through traditional input-based disbursement approach).

114. This component will cover project management including coordination and management of project activities on planning and execution, FM, procurement, supervision and reporting, internal and external audits, environmental and social safeguards management and monitoring and evaluation. These activities will ensure efficient program management and early identification of corrective measures to solve implementation problems. In addition, this component will provide necessary vehicles, training/workshops, logistics, and operational costs to relevant MoEYS departments. Furthermore, the project will provide critical and strategic TA[8] and capacity building to support and strengthen relevant departments at all levels during implementation.

115. To support the M&E of project activities and sector wide indicators, the project will strengthen the existing mechanisms for monitoring and data collection, and supporting project specific data collection when needed. This component will finance technical assistance, training and the development and use of monitoring tools, to the M&E units under key relevant departments including TPAP, GSE Department, Department of Finance, M&E Department, Director General Policy and Planning, and Department of Planning.

116. M&E will be carried out at different levels by different departments:

[8] Expected TAs under this component are Chief TA, FM TA and four national TAs who will support Component 1.1 and 1.2 activities.

- At the school level, the school director compiles data on enrollment and daily attendance, while teachers compile data on student performance on school based tests. These data are reported to the district or provincial office of education.

- The provincial office of education aggregate data from the schools, villages, districts, and provincial centers and report to the Department of Monitoring and Evaluation in MoEYS. The district office of education (DOE) do the same.

- The Department of M&E compiles these data and publishes an annual report on education statistics of the country in its EMIS. MoEYS tracks the progress of education through a set of monitoring indicators in line with school effectiveness standards that are related to students, teachers and school facilities.

- The World Bank will conduct semi-annual implementation support missions to review progress in the achievement of the project's development objectives and outcomes. FM reviews will be conducted three to four times a year.

- The DLIs and project activities will be monitored through the Bank's supervision and verification tasks. Regular World Bank implementation support missions jointly undertaken with the government will also supervise the validation process. The Bank may augment its verification effort by contracting additional consultants.

117. This component will also finance for PfD program. To support PfD activities, MoEYS EQAD will enhance its ability to collect important data about the quality of the country's education system. It provides a unique opportunity to introduce a system of student assessments in Cambodia that is census-based and comparable across cross-sections of the country and across time. MoEYS will gain a better understanding of the determinants of student performance and will be better positioned to monitor the quality of education and make decisions about policy and strategic planning. This activity will finance PfD related activities guided by OECD, which consist of a series of workshop sessions to build EQAD team's capacity, preparation and implementation of field tests, provision of Technical Assistance, and development and dissemination of the assessment report.

118. In addition, this component will finance an impact evaluation for the teacher-training program and the strengthening of school based management sub-component that has been incorporated into the operational design. The "Training for Upgrading Teachers" subcomponent provides an opportunity to evaluate the impact of the in-service training program on the competency of lower secondary school teachers. However, since priority will be given to teachers in the 100 selected schools, the process of selecting teachers into "treatment" is therefore non-random. Nevertheless, it is still possible to come up with a rigorous quasi-experimental research design for estimating the causal effect of the training program on teacher competency.

119. There is also an opportunity to employ this same approach to evaluate the impact of the teacher-training program on the learning outcome of students should it be desired. Again, the

sample of control and treated students can be matched using their background information and their standardized national test results attained at the end of the primary school level (pre-test). These students will be followed throughout the study period and they will be tested again at endline (possibly using the existing instrument of standardized national test at the end of lower secondary school) in order to determine whether the exposure to the upgraded teachers has led to improvement in student learning.

120. A similar approach of finding a matched control group could also be applied, albeit, at the school level to evaluate the impact of the "Strengthening School Based Management" sub-component on the school effectiveness scores in various dimensions. These effectiveness scores will be developed based on the nine standards of LSSES.

Component 3: Contingent Emergency Response (US$0 million).

121. The objective of the contingent emergency response component, with a provisional zero allocation, is to allow for the reallocation of financing in accordance with the IDA Immediate Response Mechanism in order to provide an immediate response to an eligible crisis or emergency, as needed. An Emergency Response Manual (ERM) will be developed for activities under this component, detailing streamlined financial management (FM), procurement, safeguard and any other necessary implementation arrangements.

Results-Based Funding Arrangement

122. As mentioned previously, this project will partially, under sub-component 1.1 and 1.2, use results-based financing with disbursement against an eligible expenditures program consisting of MoEYS staff and teacher salaries and linked to the achievement of targeted results for DLIs. Annual disbursements will be made based on: (i) satisfactory proof of MoEYS having achieved the DLIs for the subsequent school years; and (ii) the amount of EEP in relevant period exceeding the DLI related amount being requested from IDA.

123. The DLIs have been grouped into three results areas, which correspond to the two PDO indicators and one intermediate indicator: (i) number of submitted school development plans based on the SIF manual; (ii) number of enrolled teachers in the upgrading program; and (iii) annual status report produced for SIF. The DLIs are organized along approximate annual review periods, which are sequential in nature (e.g. within each areas, earlier DLIs must be achieved before subsequent DLIs can be achieved). Annual review will be conducted, but the DLIs can be achieved and presented at any time during project period as long they follow the sequential order indicated above.

124. The main characteristics of the disbursement mechanism are: (i) each DLI is associated with a specific SDR value that will be disbursed upon achievement of the indicator; (ii) the DLI indicators can be achieved at any time but are sequential within results areas; (iii) MoEYS will provide evidence of the achievement of each DLI in accordance with a verification protocol (included in the Project Operation Manual) detailing the technical details/standards of each DLI and the verification process to be followed; (iv) MoEYS will provide evidence that spending against eligible expenditures (EEPs) has been incurred and reported in an amount greater than or

equal to the value of the achieved DLI; and (v) the World Bank will disburse the amount triggered by the DLIs based on its assessment of the verification and reporting against the DLIs and the eligible expenditures.

Disbursement-Linked Indicators

125. Three sets of DLIs were negotiated with government, reflecting the two primary government programs to be supported: SIFs (including capacity to monitor), and TUP. The amounts assigned to each DLI reflect the relative size of each program. In the case of the SIFs and TUP, the overall amount increases only slightly over time as an incentive to encourage increasing government support for programs over the five-year period. DLIs must be achieved in the year designated, except DLI 1, 2, 3, 6, 7, 10, 11, 13, 14, 16, and 17 (see Table 5 below) which can be achieved any time after the designated year.

126. There are two schedules for reporting, verification and disbursements. Reporting against achievement of DLIs is expected to be completed by December 31(schedule 1) or June 30 (schedule 2) of each year. This deadline will be preceded by a semi-annual program review meeting between the World Bank and MoEYS (during an implementation support mission) prior to October 31 (schedule 1) or April 30 (schedule 2) of each year in which a detailed schedule for DLI evaluation and monitoring will be agreed. The verification of DLI reporting is expected to take place during the January-February period (schedule 1) or July-August period (schedule 2) of each year. The reporting and verification process will aim to confirm DLI achievement and authorize the annual IDA disbursement by April (schedule 1) and October (schedule 2) of each year.

127. The definition of the DLIs, the indicative timing for their achievement and the results indicators against which they will be evaluated are presented in the matrix below (Table 5). A full description of the DLI protocols for evaluating the DLIs is included in the POM. The protocols provide a detailed process and institutional responsibilities for measuring, reporting on and verifying the DLIs.

Table 5. Disbursed-Linked Indicators

DLIs with DLI Target Achievement Dates[9] and DLI Values

DLI Result Areas	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
I. Improved school based management and capacity	**DLI Target:** **DLI 1. SIF Manual:** MoEYS has adopted a School Improvement Fund Manual	**DLI Target:** **DLI 4. Improved SBM:** At least 40 target lower secondary schools have publicly displayed their school development plan based on the School Improvement Fund Manual	**DLI Target:** **DLI 8. Improved SBM:** At least 60 target lower secondary schools have publicly displayed their school development plan based on the School Improvement Fund Manual	**DLI Target:** **DLI 12. Improved SBM:** At least 20 target lower secondary schools have achieved the minimum standards defined in the LSSES	**DLI Target:** **DLI 16. Improved SBM:** At least 40 target lower secondary schools have achieved the minimum standards defined in the LSSES	**DLI Target:** **DLI 19. Improved SBM:** At least 70 target lower secondary schools have achieved the minimum standards defined in the LSSES
	DLI Value: SDR 1,100,000 (US$1,500,000)	**DLI Value:** SDR 2,210,000 (US$3,000,000)	**DLI Value:** SDR2,000,000 (US$2,700,000)	**DLI Value:** SDR 880,000 (US$1,200,000)	**DLI Value:** SDR 880,000 (US$1,200,000)	**DLI Value:** SDR 750,000 (US$1,000,000)
II. Improved capacity to implement and monitor School Improvement Fund	**DLI Target:** **DLI 2.Training Plans:** MoEYS has adopted a training plan for target POEs, DOEs and lower secondary schools	**DLI Target:** **DLI 5. Program Monitoring:** MoEYS has submitted its first annual status report on the SIF program that provides updates on all progress indicators defined	**DLI Target:** **DLI 9. Program Monitoring:** MoEYS has submitted its second annual status report on the SIF program that provides updates on all progress	**DLI Target:** **DLI 13. Program Monitoring:** MoEYS has submitted its third annual status report on the SIF program that provides		**DLI Target:** **DLI 20. Program Monitoring:** The results of an independent SIF program impact evaluation have been discussed at a policy meeting with MOEYS, the Ministry of

[9] Years in the DLI arrangement is defined as follows; Year 0: June 1, 2016 to Oct 31, 2017, Year 1: November 1, 2017 to October 31, 2018, Year 2: November 1, 2018 to October 31, 2019, Year 3/Year 4: same cycle in following years, and Year 5: November 1, 2021 to July 29, 2022

DLI Result Areas	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
		in the SIF Manual	indicators defined in the SIF Manual	updates on all progress indicators defined in the SIF Manual		Economy and Finance, the Ministry of Public Works and relevant development partners.
	DLI Value: SDR 750,000 (US$1,000,000)	**DLI Value:** SDR 370,000 (US$500,000)	**DLI Value:** SDR 370,000 (US$500,000)	**DLI Value:** SDR 370,000 (US$500,000)		**DLI Value:** SDR 330,000 (US$450,000)
III. Improved lower secondary school teacher performance	**DLI Target:** **DLI 3. Training Strategy and Manual:** MoEYS has adopted a strategy for upgrading the qualifications of lower secondary school teachers, together with a corresponding implementation plan and operational manual	**DLI Target:** **DLI 6. Upgrade Training:** At least 120 lower secondary school teachers have been enrolled in the upgrading program	**DLI Target:** **DLI 10. Upgrade Training:** At least 550 lower secondary school teachers have been enrolled in the upgrading program	**DLI Target:** **DLI 14. Upgrade Training**: At least 500 lower secondary school teachers have graduated from the upgrading program	**DLI Target:** **DLI 17. Upgrade Training**: At least 1,200 lower secondary school teachers have graduated from the upgrading program	**DLI Target:** **DLI 21. Upgrade Training**: At least 2,000 lower secondary school teachers have graduated from the upgrading program
	DLI Value: SDR 440,000 (US$600,000)	**DLI Value:** SDR 880,000 (US$1,200,000)	**DLI Value:** SDR 2,000,000 (US$2,700,000)	**DLI Value:** SDR 1,850,000 (US$2,500,000)	**DLI Value:** SDR 370,000 (US$500,000)	**DLI Value:** SDR 370,000 (US$500,000)
IV. Improved lower secondary school director performance		**DLI Target:** **DLI 7. Training Strategy and Manual:** MoEYS	**DLI Target:** **DLI 11. Upgrade Training:** At least 150 lower	**DLI Target:** **DLI 15. Upgrade Training**: At least 310 lower	**DLI Target:** **DLI 18. Upgrade Training**: At least 310 lower	

DLI Result Areas	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
		has adopted a strategy for upgrading the qualifications of lower secondary school directors and deputy directors, together with a corresponding implementation plan and operational manual	secondary school directors and/or deputy directors have been enrolled in the upgrading program	secondary school directors and/or deputy directors have been enrolled in the upgrading program	secondary school directors and/or deputy directors have graduated the upgrading program	
		DLI Value: SDR 220,000 (US$300,000)	**DLI Value:** SDR 220,000 (US$300,000)	**DLI Value:** SDR 220,000 (US$300,000)	**DLI Value:** SDR 220,000 (US$300,000)	

Table 6. Summary of DLI Protocol

DLI	Protocol to evaluate achievement of the DLI and data/result verification		
	Data source/agency	**Verification entity**	**Procedure**
I. Improved School Based Management and Capacity			
DLI 1. SIF Manual: MoEYS has adopted a SIF Manual	SIF Manual and formal adoption letter signed by MoEYS	Bank	Review of SIF Manual and adoption letter to inform and substance satisfactory to the Bank
DLI 4. Improved SBM: At least 40 target lower secondary schools have publicly displayed their school development plan based on the SIF Manual	Annual status report on the SIF program prepared by MoEYS.	Bank and Bank hired consultants	Review of SIF report and cross-checks with reports generated from MEF and MoEYS. Unannounced visits by the Bank and/or Bank hired consultants to 10 schools to confirm public display of development plan.
DLI 8. Improved SBM: At least 60 target lower secondary schools have publicly displayed their school development plan based on the SIF Manual	Annual status report on the SIF program prepared by MoEYS.	Bank and Bank hired consultants	Review of SIF report and cross-checks with reports generated from MEF and MoEYS. Unannounced visits by the Bank and/or Bank hired consultants to 15 schools to confirm public display of development plan.
DLI 12. Improved SBM: At least 20 target lower secondary schools have achieved the minimum standards defined in the LSSES	Summary report on LSSES prepared by MoEYS. Achievement of minimum standard in LSSES is defined as schools that achieve a score of 65 out of 100.	Bank and Bank hired consultants	Review of LSSES report and cross-checks with reports generated MoEYS. Unannounced visits by the Bank and/or Bank hired consultants to 5 schools to review LSSES school-level reports (i.e., self-assessment and evaluations).
DLI 16. Improved SBM: At least 40 target lower secondary schools have achieved the minimum standards defined in the LSSES	Summary report on LSSES prepared by MoEYS. Achievement of minimum standard in LSSES is defined as schools that achieve a score of 65 out of 100.	Bank and Bank hired consultants	Review of LSSES report and cross-checks with reports generated MoEYS. Unannounced visits by the Bank and/or Bank hired consultants to 10 schools to review LSSES school-level

			reports (i.e., self-assessment and evaluations).
DLI 19. Improved SBM: At least 70 target lower secondary schools have achieved the minimum standards defined in the LSSES	Summary report on LSSES prepared by MoEYS. Achievement of minimum standard in LSSES is defined as schools that achieve a score of 65 out of 100.	Bank and Bank hired consultants	Review of LSSES report and cross-checks with reports generated MoEYS. Unannounced visits by the Bank and/or Bank hired consultants to 20 schools to review LSSES school-level reports (i.e., self-assessment and evaluations).
II.	**Improved Capacity to implement and monitor SIF**		
DLI 2. Training Plans: MoEYS has adopted a training plan for target POEs, DOEs and lower secondary schools	Training plans at each level and adoption letter signed by MoEYS	Bank	Review of training plans and adoption letter to ensure compliance with the approved training plan for sub-component 1.1 activities (details of compliance verification in Operations Manual)
DLI 5. Program Monitoring: MoEYS has submitted its first annual status report on the SIF program that provides updates on all progress indicators defined in the SIF Manual	SIF Report from MoEYS	Bank	Review of SIF report using EMIS data and other data sources.
DLI 9. Program monitoring: MoEYS has submitted its second annual status report on the SIF program that provides updates on all progress indicators defined in the SIF Manual	SIF Report from MoEYS	Bank	Review of SIF report using EMIS data and other data sources.
DLI 13 Program monitoring: MoEYS has submitted its third annual status report on the SIF program that provides updates on all progress	SIF Report from MoEYS	Bank	Review of SIF report using EMIS data and other data sources.

indicators defined in the SIF Manual			
DLI 20. Program monitoring: The results of an independent SIF program impact evaluation have been discussed at a policy meeting with MoEYS, the Ministry of Economy and Finance, the Ministry of Public Works and relevant DPs.	Impact evaluation report, and documentation of policy level discussions/papers on topics related to TUP.	Bank	Review of impact evaluation report, and documentation (e.g. minutes) of policy level discussions with MoEYS, MEF, MoPW, and relevant DPs.
III. Improved Lower Secondary School Teacher Performance			
DLI 3. Training Strategy and Manual: MoEYS has adopted a strategy for upgrading the qualifications of lower secondary school teachers, together with a corresponding implementation plan and operational manual	MoEYS approved teacher upgrading strategy, implementation plan, and operation manual.	Bank	Review of documents and adoption letters to ensure compliance with sub-component 1.2 (details of compliance verification in Operations Manual)
DLI 6. Upgrade Training: At least 120 lower secondary school teachers have been enrolled in the upgrading program	Summary report on TUP prepared by MoEYS. Enrollment statistics from universities.	Bank	Review of TUP report and cross-checks with statistics generated from universities providing courses. If required, unannounced visits by the Bank to 1 university to confirm enrollment rate matches statistics provided.
DLI 10. Upgrade Training: At least 550 lower secondary school teachers have been enrolled in the upgrading program	Summary report on TUP prepared by MoEYS. Enrollment statistics from universities.	Bank	Review of TUP report and cross-checks with statistics generated from universities providing courses. If required, unannounced visits by the Bank to 2 universities to confirm enrollment rate matches statistics provided.

DLI 14. Upgrade Training: At least 500 lower secondary school teachers have graduated from the upgrading program	Summary report on TUP prepared by MoEYS. Graduation statistics from universities.	Bank	Review of TUP report and cross-checks with statistics generated from universities providing courses. If required, unannounced visits by the Bank to 2 universities to confirm graduation rate matches statistics provided.
DLI 17. Upgrade Training: At least 1,200 lower secondary school teachers have graduated from the upgrading program	Summary report on TUP prepared by MoEYS. Graduation statistics from universities.	Bank	Review of TUP report and cross-checks with statistics generated from universities providing courses. If required, unannounced visits by the Bank to 3 universities to confirm graduation rate matches statistics provided.
DLI 21. Upgrade Training: At least 2,000 lower secondary school teachers have graduated from the upgrading program	Summary report on TUP prepared by MoEYS. Graduation statistics from universities.	Bank	Review of TUP report and cross-checks with statistics generated from universities providing courses. If required, unannounced visits by the Bank to 3 universities to confirm graduation rate matches statistics provided.
IV. Improved lower secondary school director performance			
DLI 7. Training Strategy and Manual: MoEYS has adopted a strategy for upgrading the qualifications of lower secondary school directors and deputy directors, together with a corresponding implementation plan and operational manual	MoEYS approved leadership upgrading strategy, implementation plan, and operation manual.	Bank	Review of documents and adoption letters to ensure compliance with sub-component 1.2 (details of compliance verification in Operations Manual)
DLI 11. Upgrade Training: At least 150	Summary report on LUP prepared by	Bank	Review of LUP report and cross-checks with

lower secondary school directors and/or deputy directors have been enrolled in the upgrading program	MoEYS. Enrollment statistics from universities.		statistics generated from universities providing courses. If required, visit by the Bank to 1 university to confirm enrollment rate matches statistics provided.
DLI 15. Upgrade Training: At least 310 lower secondary school directors and/or deputy directors have been enrolled in the upgrading program	Summary report on LUP prepared by MoEYS. Enrollment statistics from universities.	Bank	Review of LUP report and cross-checks with statistics generated from universities providing courses. If required, visit by the Bank to 1 university to confirm enrollment rate matches statistics provided.
DLI 18. Upgrade Training: At least 310 lower secondary school directors and/or deputy directors have graduated the upgrading program	Summary report on LUP prepared by MoEYS. Graduation statistics from universities.	Bank	Review of LUP report and cross-checks with statistics generated from universities providing courses. If required, unannounced visits by the Bank to 2 universities to confirm graduation rate matches statistics provided.

Annex 3: Implementation Arrangements

Cambodia: Secondary Education Improvement Project

Project Institutional and Implementation Arrangements

128. SEIP will be implemented following a similar structure as SESSP, which is being implemented from May 2014 to July 2017 at the national, provincial, district and school levels. MoEYS will assume overall responsibility for coordination and implementation of the project, including procurement, disbursement and FM (see figure 3).

129. At the highest level, the Project Management Committee (PMC), established by the MoEYS, will be responsible for the oversight of the ESP in order to streamline policy development, strategic planning and implementation decision making processes. The PMC is comprised of MoEYS leaders, including Secretaries of State. The Project Management Team (PMT), led by a Secretary of State and comprised of Directors Generals and directors of various departments of MoEYS, provides support to the PMC and bears a central role in project implementation. Implementation arrangements have been designed to ensure that overall education policy direction is analyzed from a variety of angles and policy decisions are followed into implementation through the overall coordination of the Directors General. The overall project management structure is as follows:

- The PMT, led by the Secretary of State in charge of TPAP, will act as Project Director;
- The Under Secretary of State in charge of administration and finance will act as Deputy Project Director;
- The Deputy Director General for Education will act as Project Manager;
- The Director General for Policy and Planning will act as School Improvement Fund Team Leader;
- The Deputy Director General of Education in charge of Teacher Training will act as Team Leader of Teacher Upgrading Program and Leadership Upgrading Program; and
- Deputy Director of General Secondary Education Department, in charge of secondary education, will act as Project Coordinator. Other members, comprised of Directors Generals and directors of various departments of MoEYS, will provide support to the PMC and will play a central role in project implementation.

130. The PMC's responsibilities for overseeing project implementation include: (i) endorsing SEIP annual activities and budget allocations; (ii) overseeing progress and compliance with agreed guidelines; (iii) commissioning and approving required accounts and reports; and (iv) ensuring agreed audit requirements are satisfied. The Secretary of State will have overall responsibility for fund management and act as MoEYS liaison officer to the World Bank.

131. The technical committee for TPAP will provide technical inputs to related departments. Project implementation will be carried out by existing MoEYS departments—including Construction, General Secondary Education, Curriculum Development, Education Quality Assurance, Teacher Training, Vocational Orientation, Finance, Personal, Planning, monitoring and evaluation (M&E), Early Childhood, Primary and non-formal education (NFE) — and some

institutions and offices including the Teacher Training Centers (TTCs), NIE, RUPP, POEs and DOEs as well as SSCs at lower secondary schools in order to build long-term systemic capacity and ensure sustainability. The implementation by those departments and institutions will be closely monitored by the PMT. Bi-monthly PMT meetings are intended to ensure operational progress by sub-sector of early childhood and primary education and across each level of program implementation, as well as ensure fiduciary progress, including FM and procurement.

132. The DOC will coordinate several construction engineer consultants, regional engineers as well as local engineer consultants (one per every ten sites) responsible for supervising civil works. The DOC will work closely with General Secondary Education, Teacher Training Department, Personnel Department, and POE for selecting the target schools/TTC for classrooms and student/teacher accommodation.

133. The Project Director and Manager of SEIP will be in charge of all project-related planning, monitoring, procurement and FM safeguards implementation and compliance, and reporting responsibilities. Specifically on resettlement issues, if any, PMT will work closely with and seek support from Inter-ministerial Resettlement Committee (IRC)/MEF on any resettlement matters. SEIP will not rely on a project implementation unit, but relevant departments will be eligible for TA support as necessary. National and international consultants will provide guidance to MoEYS departments, POEs, and DOEs. Implementation support is currently envisioned to include: (i) a policy advisor to the PMC; (ii) a technical advisor to upgrading programs for teachers and trainers; (iii) a technical advisor for construction activities; and (iv) FM, procurement and internal audit advisors. In addition, consultant services may be recruited to provide additional support in scaling up ongoing operations such as administering the supervising school facilities construction or providing training and workshops. The project will collaborate with Education Research Council (ERC) or several higher education institutes in the field to conduct research and/or surveys that related to TPAP. Full integration in implementation strives to ensure that the capacity of all stakeholders involved in providing education services will be improved and overall MoEYS institutional capacity is strengthened.

134. If there are resettlement impacts caused by the project, MoEYS will request the GDR/IRC to deal with resettlement impacts. The GDR/IRC, through designated Inter-ministerial Resettlement Committee Working Group (IRC-WG), will work closely with Provincial Resettlement Sub-Committee (PRSC) for coordinating resettlement issues where the school construction project is located and have resettlement impact. In this case, an ad-hoc Provincial Resettlement Sub-Committee Working Group (PRSC-WG) will be established as secretariat to PRSC.

135. The Inter-Ministerial Resettlement Committee (IRC) is a collegial body headed by the representative from MEF and composed of representatives from concerned line ministries, such as the Ministry of Interior; MPWT, MLMUPC; MEF and MAFF. Created by the Prime Minister through Decision No.13, dated 18 March 1997, in connection with the resettlement of PAHs in the Highway 1 Project (Loan 1659-CAM), it continues to be involved in other foreign-assisted government infrastructure projects with involuntary resettlement. An IRC will be established on an ad hoc basis for each project upon the request from the Designated Implementing/Executing Agency. The IRC will assume the function of a quasi-regulatory body, ensuring that funds for resettlement are spent properly and that the RPF-RAP is carried

out as intended. The technical arm of the IRC is its secretariat, the General Department of Resettlement.

136. The IRC is responsible for the following aspects of involuntary land acquisition and resettlement of projects: (i) take the lead in conducting the DMS, (ii) approval of compensation rates; (iii) reporting to the Government on resettlement activities and request approval, if necessary, including endorsement of land acquisition and resettlement plan (RP); and (iv) disbursement of funds to the Provincial Department of Economy and Finance (PDEF) for paying compensation and delivery of all other entitlements to Displaced Peoples, in accordance with the approved RAP. See further the role of GDR in the following section on monitoring and evaluation.

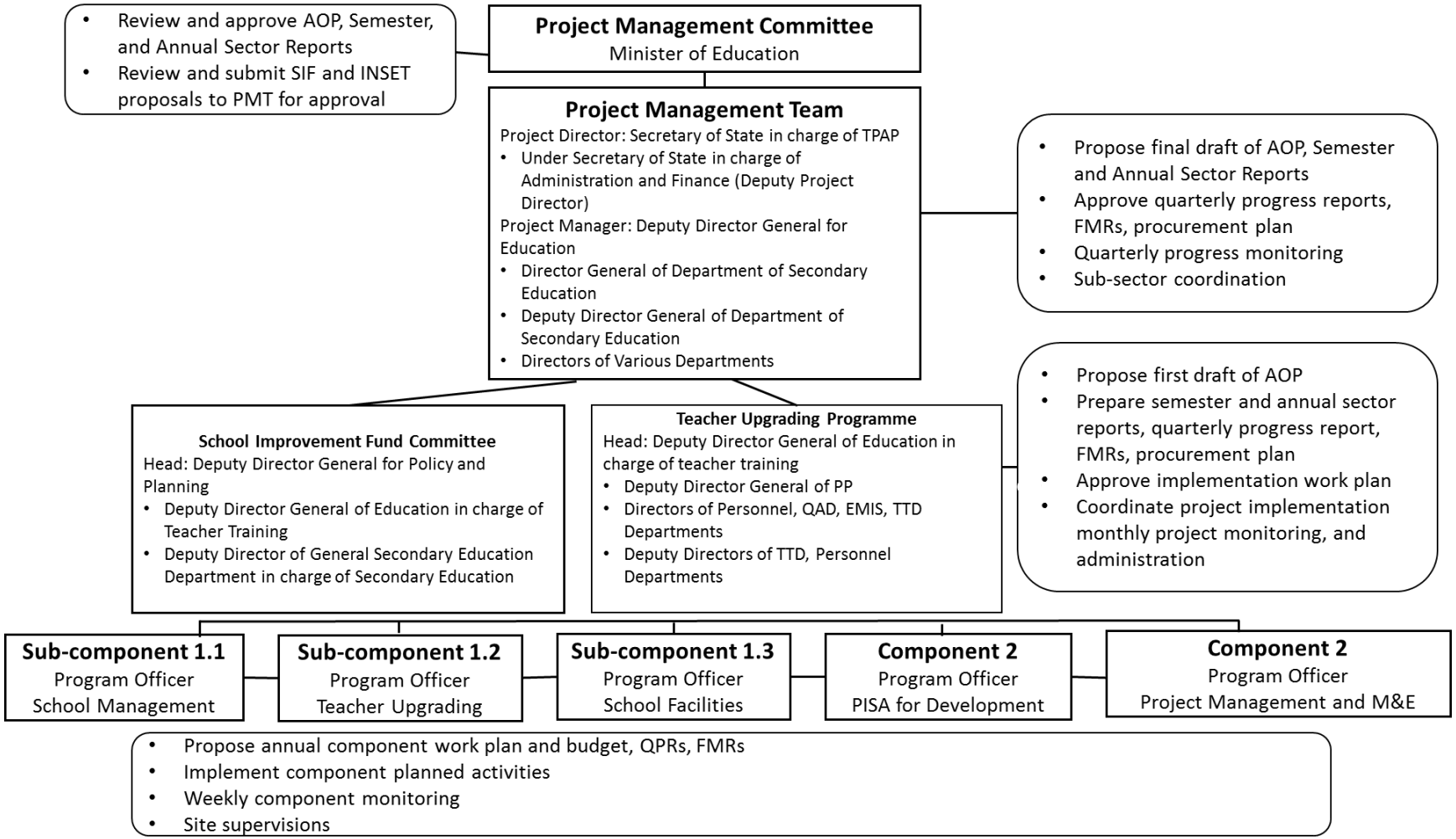
137. A sub-sector budget strategic plan will be prepared to provide the three-year planning framework for Annual Operation Plan (AOP). The AOPs developed by each sub-sector indicate department's responsibilities, and it includes government, other DPs, and SEIP-financed activities. Related procurement plans will be prepared at the national level after consolidating inputs from provincial, district and school levels.

138. At the provincial level, the POE Management Team will be chaired by the POE Director. The team will comprise: Deputy Directors in charge of secondary education, finance, planning, secondary education, and inspection. The Team will have an oversight responsibility on the SIF project implementation. The Team will conduct self-assessment, develop its annual plan, budget and proposal to be submitted to MoEYS for approval. The Team will implement, monitor, and report progress on the annual plan implementation and its performance standards and provide continuous hands on support to DOEs and schools.

139. At the district level, the DOE Director and officials in charge of secondary education will form a DOE Management Team. The Team will have an oversight responsibility on the SIF project implementation at district level. The Team will conduct self-assessment, develop annual plan, budget and proposal to be submitted to MoEYS for approval. The Team will implement, monitor, and report progress on annual plan implementation and its performance standards, provide on-job training to schools and provide continuous hands on support to schools.

140. At the school level, the SMC, chaired by the School Director, comprising the Deputy Directors/s, teachers and community representatives, will have oversight responsibility on SIF implementation at school level. The SMC will conduct annual self-assessment, develop annual plan and budget, and proposal to be submitted through the POE and the DOE for MoEYS approval. The SMC will implement, monitor and report on progress of SIF implementation. The SMC will receive technical supports from the central, the POE and the DOE to enable them to implement their tasks effectively and to improve the LSSES scores. The SMC will cooperate with HEIs or teacher education colleges in selecting teachers to participate in TUP and in implementing teaching practicum at school. The SMC will cooperate with MoEYS team to implement and follow up the on-job training on SBM, teaching to teachers, and parental training.

Figure 3. Project Management Structure



Financial Management, Disbursements and Procurement

Financial Management

141. An FM Assessment was carried out in accordance with OP/BP 10.0. The assessment is based on discussion with the MoEYS's FM team and knowledge gained from FM reviews during the implementation of the ongoing Second Education Sector Support Project (SESSP).

142. The Finance Department of the Directorate General of Administration and Finance (DGAF) of the MoEYS will be responsible for all FM under the project. The implementing agency, MoEYS, has an acceptable FM system that was developed under the current World Bank-financed SESSP. The FM risk specific to the project assessed as substantial. A number of risk mitigating measures to enhance the FM system will be implemented to control the specific risks of the project. The FM risk is assessed as substantial.

143. *Budgeting and counterpart funding*: MoEYS is implementing Program-Based Budgeting under the Public FM Reform. The project will follow Government budgeting principles as outlined in the Standard Operating Procedure/Supplementary Financial Management Manual (SOP/FMM) for externally financed projects issued by the Government in May 2012. The quality of budgeting and cast forecasting will be further strengthened to enable the project to adopt variable ceiling of the designated account based on six month cash forecast. The Government will provide contributions, including office space, personnel's time spent on the project, electricity and other administrative cost for smooth operations.

144. *Flow of funds*: For traditional input-based financing (Component 1.3, 2 and 3), funds from IDA will be channeled directly to a segregated US$ denominated Designated Account (DA) maintained at the National Bank of Cambodia. The project will be responsible for certifying and verifying expenditures incurred during project implementation and administer the DA's operations. For the DLI part (Components 1.1 and 1.2), the funds from the Bank will be transferred to the RGC's separate bank account under the Government's Treasury Single Account (TSA). The project will prepare work plan and budget plan for implementing activities leading to achieving of agreed indicators. MEF will provide further guidance and ensure that the funds for implementing DLI related activities will be managed according to the provision in the Government's SOP/FMM.

Figure 4. Fund Flow Diagram for Traditional Input Based Financing Part (Component 1.3, 2 and 3)

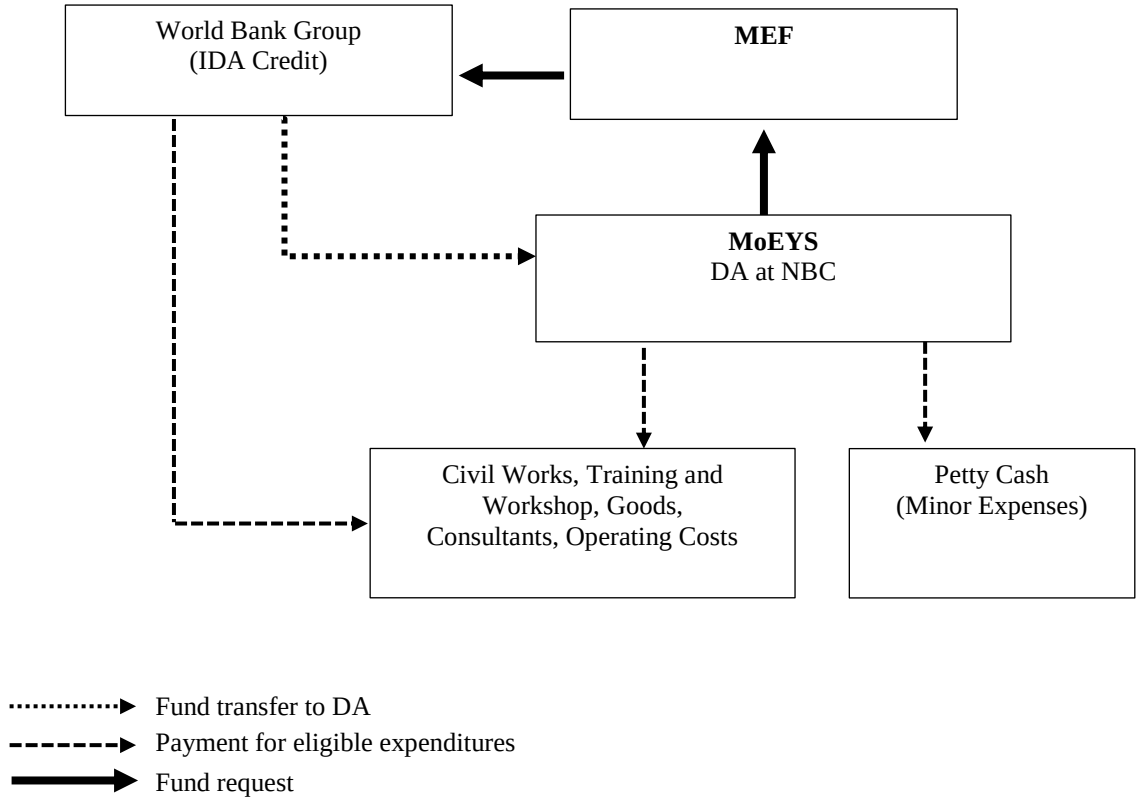
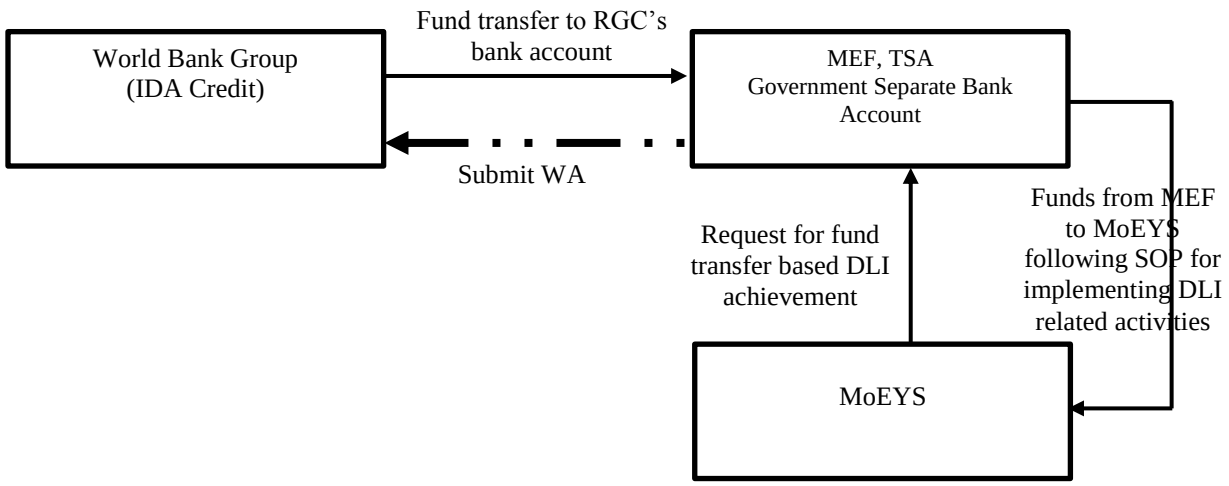


Figure 5. Fund Flow Diagram for DLI Based Financing Part (Components 1.1 and 1.2)



145. *Staffing*: MoEYS will assign sufficient Government FM staff under its Finance Department to carry out the day-to-day FM functions and to ensure controls and procedures in FM are adhered to. A local FM consultant to support the FM operations may be hired.

146. *Accounting and maintenance of accounting records*: The project will adopt a cash basis of accounting, which is in line with the Government's public financial management reform. The existing Sage accounting software used in the current SESSP will be used as the FM tool to manage financial transactions and producing timely and reliable financial reports. The original supporting documents will be retained by MoEYS during the life of the project and until at least the later of: (i) one year after IDA has received the audited financial statements covering the period during which the last withdrawal from the Credit was made, or (ii) two years after the Closing Date.

147. *Internal controls and internal audit*: The project adopts the SOP/FMM which contain sound internal control over FM. The existing supplementary financial management manual (SFMM), developed for SESSP, will be updated to include some new elements in the project's FM such as projected cash requirement and IFR based disbursements. There is a need to apply the Government's chart of accounts into the project's FM system and to design the financial reports in the accounting software. More controls will be established in SFMM to address the project's specific risks, such as payment for training and operating costs, and especially in payment to many contractors for works. It is suggested that the MoEYS's Internal Audit Department (IAD) will carry out internal audit activities of the project annually and send a copy of the internal audit reports on the project's activities to the Bank within 60 days after completion of the audit. Subject to further assessment of the quality of the internal audit report, the project may engage additional support to provide capacity building to IAD in carrying out the internal audit of the project. In case, where the internal audit reports are not submitted to the Bank or IAD is unable to carry out the internal audit, the Bank may request the project to engage a consulting firm to build capacity of IAD and work with IAD to perform an internal audit of the project.

148. *Periodic financial reporting*: IFRs will be prepared quarterly and submitted to IDA within 45 days after the end of each calendar quarter, starting from the first quarter following the project's first disbursement. This financial reporting timeline is aligned with IFR based disbursement. The format and contents of the IFR will be modified and agreed with the World Bank and included in the SFMM.

149. *Arrangements for external audit*: The National Audit Authority (NAA), being the Supreme Audit Institution, audits MoEYS as part of its audit of the Government's Budget Settlement Statement. Given that we are using government's budget expenditures of MoEYS as EEPs, the IDA will require MoEYS to forward a copy of the audit report of the MoEYS conducted by NAA to the IDA after these reports are submitted to the National Assembly.

150. An independent external auditing firm would be engaged by MEF under the external audit bundling to audit the project's annual financial statements in accordance with Terms of Reference (ToR) acceptable to IDA. The audited financial statements and management letters are required to be submitted to IDA within six months after the end of each fiscal year. The cost of the audit would be financed from the project proceeds. The audited financial statements should be disclosed on MoEYS's website. IDA would also make the audits available for the public on its external website as required by the Policy on Access to Information. The Bank is in discussion with NAA to further strengthen the use of country system, (NAA, as the SAI is part of

the country's public finance oversight function) to explore the possibility for NAA to carry out the financial audit of the World Bank financed projects in Cambodia. If this discussion reaches a substantive conclusion and agreement during the life of this project, the Bank may agree for NAA to audit this project's annual financial statements.

151. The project audited financial statements will be subject to public disclosure in MoEYS's website.

Disbursements

152. The IDA Credit proceeds will be disbursed against eligible expenditures as follows:

Table 7. Eligible Expenditures

Category	Amount of the Financing Allocated (expressed in SDR)	Percentage of Expenditures to be Financed (inclusive of Taxes)
(1) Eligible Expenditure Programs under Parts. 1.1 and 1.2 of the Project	16,800,000	100
(2) Goods, works, non-consulting services, consultants' services, Operating Costs and Training under Parts 1.3 and 2 of the Project	12,700,000	100
(3) Emergency Expenditures under Part 3 of the Project	0	100
TOTAL AMOUNT	29,500,000	

153. *Eligible Expenditures Programs (EEP) and Disbursement Arrangements for Components 1.1 and 1.2—DLI Based Approach:* The project will use the MoEYS' Chapter 64 budget expenditure lines as the basis of expenditures to support the reimbursement of funds from IDA Credits. These expenditures will be the EEP. These EEP will be used as basis of expenditures when the DLIs have been met. A review of the MoEYS's budget lines and a discussion with the finance team of MoEYS was carried out to identify items for EEP. Given the fact that staff of MoEYS will be required to undertake related activities leading to the attainment of DLIs, it has been agreed that MoEYS expenditures in the government budget lines, Chapter 64 for personnel costs (wages, salaries and other compensations) for MoEYs's staff and teachers are appropriate to be used as EEPs for the project. The budget figure for Chapter 64 is considered enough for the purpose of EEPs.

154. The project has to demonstrate that expenditures on Chapter 64 exceed the amount being requested from IDA in the particular reporting period. This demonstration will be through submission of the budget execution expenditure implementation report (also referred to as "financial report on agreed EEPs) prepared by MoEYS and certified by the Director General of DGAF for a reporting period to which DLI achievement report relates.

155. Disbursement on the project's effectiveness and in subsequent periods will be contingent upon the recipient demonstrating that (a) the amount of MoEYS's Chapter 64 in relevant period

exceed the DLI related amount being requested from IDA and (b) that the agreed targets of DLIs have been achieved and documented in annual DLI achievement report verified according to the agreed arrangement.

156. Disbursements withheld due to non-achievement of DLIs in a given period may be released in subsequent periods once the DLI target is achieved. Partial achievement of a DLI target (for those that are scalable) may result in a partial disbursement on a pro-rated basis. Disbursements for any DLI will be capped at the amount allocated for that period for the concerned DLI target, that is, over-achieving the DLI targets will not lead to ever increasing disbursements and dipping into the allocation of the following period. IDA, in consultation with the RGC, may cancel or reallocate funds if there is severe underachievement. At the end of the project, if there is underachievement of any DLIs, the RGC may request an extension of the closing date to enable complete fulfillment of the relevant targets or request to allocate the underachievement of any DLIs for other activities under traditional input based financing.

157. *Disbursement Arrangements—Components 1.3, 2, and 3-tranditional input based financing*: The project is authorized to operate a DA under acceptable terms and conditions. The DA has a variable ceiling equivalent to a six-month cash forecast minus: (i) the cash balance at DA; and (ii) requested-amount-but-yet received amount at the bank statement date. The primary disbursement methods will be reimbursement, advances, special commitment, and direct payments. Supporting documentation required for eligible expenditures paid from the DA is the IFR. Direct payments will be documented by records. Prior review expenses will be supported by a summary sheet. The frequency of reporting of expenditures paid from the DA shall be quarterly. The minimum application size for reimbursements, special commitment, and direct payments will be equivalent to US$100,000.

158. *Disbursement for Component 3*—Contingent Emergency Response: No withdrawal can be made under Component 3 until the Government has (i) prepared and disclosed all safeguards instruments required for activities under Component 3 of the project, if any, and the Government has implemented any actions which are required to be taken under said instruments; (ii) established adequate implementation arrangements, including a positive list of goods and/or specific works and services required for emergency recovery, satisfactory to IDA, including staff and resources for the purposes of said activities; and (iii) prepared and adopted an Emergency Response Manual (ERM), acceptable to IDA, so as to be appropriate for the inclusion and implementation of activities under Component 3. The ERM is expected to be developed during the first year of project implementation, or in any event before the release of any funds under Component 3.

159. The project will provide retroactive financing for the project's eligible expenses, including reimbursement of Year 0 DLI values, paid by the Government incurred on or after September 1, 2016, for the maximum amount not exceeding SDR 2,290,000 (US$3,100,000 equivalent).

160. The project will have a disbursement deadline date (final date on which the World Bank will accept applications for withdrawal from the recipient or documentation on the use of the

credit proceeds already advanced by the World Bank) of four months after the closing date of the project.

161. Implementation Support and Supervision Plan: Implementation support for FM functions will be provided more frequently to the task and client teams in the first year of project implementation. The Bank will then limit its review biannually thereafter depending on the updated project FM risk assessment and progress. The FM missions will include reviews of the continuous adequacy of the FM arrangements, progress with FM capacity building activities, adequacy, and timeliness of preparation of the IFRs, and progress in implementation of the agreed FM actions and recommendations from project audits.

Procurement

162. Public procurement in Cambodia is governed by Public Procurement Law enacted in January 2012. Article 3 of the law provides an exception to follow procurement guidelines and procedures agreed between the Royal Government of Cambodia (RGC) and a Development Partner (DP) for the project financed by the DP. Accordingly the Updated Standard Operating Procedures (SOP) and Updated Procurement Manual for all Externally Financed Projects and Programs issued under Sub Decree 74 dated May 22, 2012 has been agreed and applicable for the World Bank financed/administered projects/programs. The Update Standard Operating Procedures and Procurement Manual (SOP/PM) contain principles, rules and guidelines for planning, supervision, procurement procedures for all externally financed projects/programs. These SOP/PM include comprehensive complaints, disclosure and transparency regime to be followed. SOP/PM apply at the central level. Public Procurement Law enacted in January 2012 also provides for the policy and procedures for procurement under government own financed projects/programs. The law establishes the General Department for Public Procurement (GDPP) within Ministry of Economy and Finance as responsible regulatory body for public procurement. The Law also provides for disclosure and complaints rules to be followed by both bidders and public officials. Both documents are publicly available on the MEF website.

163. The enabling legal frameworks are generally comprehensive and incorporate fundamentals of a modern procurement legislation. The key challenge, however, lies with the capacity to implement the legal framework. Staff capacities need further development and procurement is yet to be a profession developed within the public service.

164. Procurement under the project will be governed by Bank Procurement Guidelines: Procurement of Goods, Works, Non-consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers and Consultant Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers dated January 2011, revised July 2014. Bank Anti-Corruption Guidelines dated October 2006 revised January 2011 will also apply. Systematic Tracking of Exchanges in Procurement (STEP), which is the internet based system developed for all the World Bank funded/administered projects, will apply for this project. All requests for approvals for procurement plans, prior review requests, and records of procurement transactions of individual packages will be done through STEP. Government Updated Standard Operating Procedures issued under Sub Decree 74 dated May 22, 2012 would apply for procurement under national competitive bidding and low value contracts subject to the improvement included in the NCB annex to the project loan agreement. The

Project Operation Manual (POM) includes the references to the above guidelines, manuals, specific procedures, roles and responsibilities of concerned entities for implementing the procurement activities under the project, while the Community Operation Manual (COM) includes the procurement procedures, and role and responsibilities of the concerned entities for the procurement activities to be carried out by the SSC for schools rehabilitation/construction under Sub-component 1.3: Improving School Facilities.

165. According to the project cost table, a total budget to be spent through the procurement is US$15.75 million, and among which US$13.81 million under sub-component 1.3: Improving School Facilities would be for procurement activities associated with school facility rehabilitation/construction (100 existing severely over-crowded schools; construction of 30 new schools in communities without lower secondary schools; 30 teacher accommodations, and rehabilitation of 25 POE, 99 DOE, and three RTTCs and associated furniture/equipment in all 25 provinces and 99 districts of Cambodia. The other US$1.54 million and US$0.40 million would be spent through the procurement of consulting services and goods, respectively for the project implementation management and supports at the central level as well as at the sub-national levels including school community level.

166. The implementation of this project will be carried out through the government institutional structure of MoEYS and the school community participation. The procurement unit of MoEYS is assigned to be responsible for all procurement activities at the national level as well as providing procurement technical support and training to the SSCss who will be responsible for carrying out most of procurement activities under the sub-component 1.3: Improving School Facilities. All associated technical inputs such as specifications for goods and civil works, drawings for construction works, term of references for consulting services will be provided by concerned departments of MoEYS with the support of outsourced consultants in applicable cases to the procurement unit of MoEYS and the SSCs for carrying the procurement activities delegated to them. Roles and responsibilities of the concerned departments are elaborated in the project operation manual and the community operation manual.

167. The procurement unit of MoEYS used to carry out similar procurement activities under the on-going SESSP project administered by the World Bank and was assessed to have sufficient experience to undertake the procurement activities under this project, but will require capacity enhancement and additional staffing since the procurement unit is responsible for all projects financed by the government own funds and DPs' funds. MoEYS should assign more young talent staff with English proficiency to take the role in the procurement unit and to obtain procurement capacity building. To address the procurement workload under this project, at least three procurement staff with sufficient procurement experience should be assigned to carry out all procurement activities under the supervision of the director of the procurement unit.

168. The targeted school construction/rehabilitation communities are new and the SSCs are not familiar with the procurement procedures applicable for this project, thus the procurement training on the community participation in procurement and necessary technical supports will be provided to them jointly by the Bank and MoEYS's concerned departments before they initiate any procurement activities. Same approach has been successfully applied for construction of 500 community pre-school buildings, 20 formal pre-school building, 18 primary school building and

14 district office buildings under the on-going SESSP project administered by the World Bank and it proved the great success of community participation in procurement and construction of similar buildings to the ones under this SEIP project.

Risks and Mitigation Measures

169. All past and on-going projects financed/administered by the World Bank and implemented by MoEYS experienced slow procurement start-up. This slow procurement start-up emanated from the unavailability of technical inputs on time and unavailability of minor fund to start necessary advance actions for the start of procurement process. These technical inputs include specifications, drawings, estimated costs, school locations, ToRs for consulting services, etc. Coordination among the concerned departments faced also some challenges in some circumstances. These issues tend to occur again for this SEIP project, unless MoEYS take necessary actions to ensure these will not repeat.

170. The identified key procurement risks are: (i) the procurement unit of MOEYS still has limited number of experienced staff to support all projects financed by DPs and the government own budget; (ii) possible delays in procurement start up due to slow technical inputs from concerned departments; (iii) governance-associated risks; including possible misrepresentation of staffing/documents in the bids/proposals of bidders. The following risk mitigation measures have been agreed with the Government.

Table 8. Procurement Risk Mitigation Measures

Risk/Risk Area	Mitigation Measure	Period of Implementation of the Measure
The procurement unit of MoEYS still has limited number of experienced staff to support all projects financed by DPs and the government own budget	1. To address the procurement workload under this project, MoEYS will assign at least three procurement staff with sufficient procurement experience to carry out all procurement activities at the central level and to support the SSCs under the supervision of the director of procurement unit. 2. MoEYS should assign more staff with English proficiency to take the role in the procurement unit and to obtain procurement capacity building. 3. The World Bank procurement specialist will provide procurement training/clinics to all procurement staff and SSCs in collaboration with the procurement unit of MoEYS upon request.	Prior to the project effectiveness and during the project implementation.
Possible delays in procurement start up due to slow technical inputs from concerned departments	1. Each concerned department will assign focal persons to be responsible for preparing and providing necessary technical inputs to the procurement department; 2. The Procurement Unit of MoEYS will closely coordinate with appointed focal persons from each concerned department to obtain technical inputs for each procurement package in a timely manner; 3. The Procurement Unit of MoEYS will assign procurement staff to keep track of all procurement actions and monitor procurement progress on the	Prior to the project effectiveness and during the project implementation.

	biweekly basis. The procurement tracking form in the government SOP/PM will be used for this purpose in addition to the implementation of STEP. 4. MoEYS will keep the World Bank updated on a monthly basis on the procurement progress and any bottlenecks for necessitating the World Bank's intervention; 5. Advance procurement would be carried out for key procurement packages to minimize the project start-up delay. Accordingly, MoEYS would reserve a reasonable small budget for this purpose.	
Governance associated risks	1. The project design includes a communication strategy to inform stakeholders about the project which would bring more awareness. SOP and Procurement Law provides grounds for enhanced mitigation of governance risks and each bidding documents/RFP would provide for channels and contacts of both Government and Bank through which interested parties may lodge their procurement complaints 2. MoEYS will integrate the annual procurement post review on a sample of 10% of all post review contracts at the national level and school community level in the annual financial audit carried out by the external auditor to be engaged MoEYS for the project; 3. The World Bank will also carry out the annual post review on a sample of 10% of all post review contracts financed by the project.	During implementation
Misrepresentation of staffing/documents in the bids/proposals of bidders	1. MoEYS will carry out due diligence in verifying the proposed staffing and documents submitted directly with the proposed staff/consultants, former clients of bidders, and other associated entities/manufacturers. 2. Fraud and corruption policies in the Bank guidelines as well as in the bidding documents/RFP and contracts shall be applied in case of misrepresentation.	During the bid/proposals evaluation process and contract execution.

171. Based on the above identified risks, the overall procurement risk for this project is Substantial. However, the identified risks would be managed and mitigated through the above agreed action plan, and the residual procurement risk of this proposed SEIP project is Moderate.

172. Procurement Plan. A procurement plan for the whole life of the project has been prepared and the summary is presented below. The Procurement Plan will be entered in STEP and would

be updated in agreement with the World Bank annually or as required to reflect the actual project implementation needs.

173. Prior Review Threshold. The thresholds are based on procurement risk rating for the project and are provided below:

Table 9. Prior Review Threshold

Procurement Method	Prior Review Threshold (US$)
Goods and non-consulting services	Each package estimated to cost more than US$4,000,000.
Works	Each package estimated to cost more than US$15,000,000.
Selection of Consulting firms	Each package estimated to cost more than US$2,000,000.
Selection of Individual Consultant	Each package estimated to cost more than US$400,000.

Table 10. Summary of Planned Procurement Packages

Description	Estimated Cost (in US$ million)	Procurement Method	Domestic Preference	Review by the Bank	Comments
Procurement of Works					
Construction of New school buildings (30 sites), additional classrooms (100 sites), teacher accommodations (30 sites), on-demand school rehabilitation (70 sites), and rehabilitation of 25 POE, 99 DOE, and three RTTCs	11.35	Community participation in procurement	No	Post review	Two phases.
Procurement of Goods					
Procurement of vehicles, office equipment, office furniture, motorcycles, school furniture, etc.	2.86	NCB	No	Post review	Multiples contract packages and will be procured centrally

Table 11. Consultancy Assignments

Description of Assignment	Estimated Cost (US$)	Selection Method	Review by the Bank	Comments
Selection of consulting firms for: (i) Baseline and end line survey	0.20	CQS	Post Review	2 contract packages
(ii) Integrated financial audit and procurement post review consulting firm.	0.05	SSS	Post Review	The bundled audit firm has been selected by Ministry of Economic and Finance for the whole Bank funded portfolio in Cambodia. To accommodate the use of STEP, SSS method will be used to generate a contract to be funded by SEIP project.
Individual national and international consultants for the project implementation support at national level and school community level (finance, procurement, construction supervision, etc.)	1.29	Selection of Individual Consultants	Post Review	

Environmental and Social (including safeguards)

174. **Environment Aspects** The project's Environmental Category is rated as "B", for which three policies are triggered: OP/BP 4.01; OP/BP 4.12 and OP/BP 4.10. A partial Environmental and Social Assessment conducted by MoEYS's consultants in April 2016 suggested that there are no significant social and environmental impacts are associated, however, there is some potential that land acquisition; loss of lands and/or resettlement could be happen. The actual land situation will be confirmed through MoEYS's site screening that is scheduled to be completed during project implementation.

175. The Project's potential impacts on the environment are deemed to be minor, site-specific, and reversible in nature, and for which mitigation measures can be readily designed. This was ratified by the results of partial Environmental Assessment (EA) that was conducted by MoEYS. There are likely to be some concerns that will be generated by construction activities particularly dust, noise, and construction waste. For the purpose of enhancing environmentally-friendly measures and mitigating any adverse impacts caused by the construction activities, an Environmental and Social Management Framework (ESMF), ECoPs, and a generic Environmental Management Plan (EMP) have been prepared. EMP and ECoPs will be included in the requisite bidding documents. Where specific locations of sub-project are known and where

adverse environmental impacts are likely anticipated, site specific EMPs will be prepared for each sub-project site.

176. The ESMF suggests a revised screening form (based on MoEYS's version) for sub-projects and includes relevant information on the management of environmental and social issues in the project. The EMP cover mitigation measures for generic impacts on school construction and operations related activities, and the provisions for chance finds procedures for addressing physical cultural resources encountered during implementation. The ESMF and EMP contain contractor specifications to address environmental issues, including construction dust and noise control, waste management, site management, safety controls, provision of clean water and sanitation facilities, unexploded ordinance removal, and asbestos containing material demolition management. The ESMF and EMP have been reviewed by the World Bank team and shared with Inter-Ministerial Resettlement Committee (IRC) for feedback. The Integrated Safeguards Datasheet (ISDS) at appraisal stage was cleared by Regional Safeguard Secretariat (RSS) in December 2016. The ESMF, ECoPs and generic EMP were publicly disclosed on November 25, 2016 in Phnom Penh on the MoEYS' website, as well as on the World Bank external website on November 30, 2016.

177. **Social Aspects.** SA was conducted in April and May 2016 using free, prior, and informed consultations with a culturally appropriate approach by using the existing decision making structures of the different communities. Key Informant Interview (KII) was conducted among key stakeholders including Director of Provincial Department and DOE, Youth and Sports; SSC; local authority (Chief of village and Commune Council), and representatives of students 'parents. A total of 235 persons were met and publically consulted. Focus Group Discussions (FGDs) are conducted among the IP communities and disadvantage groups (at village level) in the sample provinces. Since there is no gender sensitivity of the issues discussed the FGDs are conducted with the presence of both female and male villagers. Every visited school a FGD is conducted for this, eight schools were selected from four provinces, Kampong Speu, Banteay Meanchey, Rattanak Kiri, and Kampot, for the field study.

178. Indigenous Peoples Planning Framework (IPPF) was prepared in line with the scope and proposed activities of the Project, which sets out principles and procedures to address potential risks identified in line with OP 4.10. The IPPF will ensure that ethnic minority groups have equal opportunities to participate in and benefit from the project, and that community members will be empowered to monitor implementation of the project. Under OP 4.10, free, prior, and informed consultation leading to broad community support have been applied during the preparation of the program.

179. A Resettlement Policy Framework (RPF) has been prepared in the event that resettlement occurs due to the implementation of the project. Screening criteria and relevant protocols have been included as part of the RPF. The RPF includes: (i) a framework for voluntary land donations and procedures to undertake due diligence in case where land will be or has already been acquired prior to Bank-financing for sites supported by the project; and (ii) the policies and procedures for preventing or mitigating adverse impacts related to involuntary land acquisition and resettlement as a result of proposed construction of school facilities.

180. Two safeguard focal persons of MoEYS were appointed in 2016. These focal point specialists will coordinate with IRC for the preparation of safeguards instruments, and monitoring the implementation of instruments. During the implementation, safeguards consultants will be hired under the PMC, and will be assisting MoEYS for the safeguards implementation including EMP (ECoPs), IPPF, and RPF. EMP (ECoPs) will be incorporated in the bidding documents to inform the contractor/ and MoEYS' site engineers about their role and responsibility in complying with agreed safeguard instruments.

Monitoring & Evaluation

181. The Inter-Ministerial Resettlement Committee (IRC) is a collegial body headed by the representative from MEF and composed of representatives from concerned line ministries, such as the Ministry of Interior; MPWT, MLMUPC; MEF and MAFF. Created by the Prime Minister through Decision No.13, dated 18 March 1997, in connection with the resettlement of PAHs in the Highway 1 Project (Loan 1659-CAM), it continues to be involved in other foreign-assisted government infrastructure projects with involuntary resettlement. An IRC will be established on an ad hoc basis for each project upon the request from the Designated Implementing/Executing Agency. The IRC will assume the function of a quasi-regulatory body, ensuring that funds for resettlement are spent properly and that the RPF-RAP is carried out as intended. The technical arm of the IRC is its secretariat, the General Department of Resettlement.

182. The General Department of Resettlement (GDR) is a secretariat of IRC and will work closely with other relevant institutions to deal with all resettlement issues as a result of the project. GDR is taking leading role in RAP preparation and implementation. According to Sub-Decree 115 dated May 26, 2016 General Department of Resettlement (GDR) will be responsible for preparation of ARAP/RAP, particularly ARAP/RAP that is prepared or updated during project implementation. At project preparation stage the ARAP/RAP or framework will be prepared by implementing agency assisted by consultant.

183. For the preparation and approval of ARAP/RAP, MoEYS/PMC in coordination association with IRC will provide the general direction for planning the relocation and involuntary acquisition process, ensures coordination between various stakeholders concerned with the SEIP including those directly connected with relocation and monitoring implementation. Prior to commencement of school construction, stakeholders from the target school where there is potential resettlement impact will be consulted to establish planning principles and work arrangements aimed at identifying and mitigating adverse social impacts induced by the construction activities. For practical purposes, it is proposed that ARAP/RAP will be prepared on provincial basis. It means that target schools within same provinces with potential involuntary resettlement impacts will be included in one ARAP/RAP. ARAP/RAP will be prepared by GDR in close cooperation with PMT-SSFP and submitted to IRC for review and approval prior to submitting to the World Bank for no objection.

184. The Department of Monitoring and Evaluation in MoEYS will monitor the project. This will be done within the monitoring and evaluation framework of the Master Plan implementation. The proposed monitoring indicators are provided in Annex 1 Results Framework and Monitoring. The data related to output indicators will be provided semiannually. MoEYS will provide outcome-related data annually. The progress in meeting target indicators

described in Annex 1 will be reviewed by the World Bank semi-annually and will be reported to the MoEYS and the Education Sector Working Group (ESWG). Details for how the process of the monitoring and evaluation will be conducted are provided in Annex 2. All data collected will be disaggregated by gender and in some cases by district, in order to understand and respond to specific issues.

Role of Partners

185. MoEYS and its partners jointly review on an annual basis the ESP 2014-2018. The joint review mission will provide continued opportunities for Ministry leaders and staff, provincial administrators, related ministries, international partners and NGOs to supervise the progress of implementation of ESP, SESSP, SEIP and other projects, as well as to generate ideas and propose recommendations. The review process has been designed to promote participatory decision-making and ensure broad cooperation among key stakeholders.

186. A Joint Technical Working Group (JTWG) is chaired by the Minister and brings together MoEYS leaders with international partners and other stakeholders in education. It meets approximately every three months. The JTWG provides a forum for major policy dialogue and proposes to the PMC new strategic directions initiated between annual joint sector reviews.

187. Education donors and representatives from NGOs meet approximately every month as the ESWG. The ESWG addresses issues of donor coordination, serves as an information exchange on projects supported by international partners and supports the JTWG on policy dialogue. Activities of SEIP have been discussed with the ESWG members particularly with those who implements or will implement programs supporting TPAP, including Asian Development Bank (ADB), Japan International Cooperative Agency (JICA), Korea International Cooperative Agency (KOICA) and UNs.

188. Teacher Training: Teacher Training has been supported significantly by JICA, ADB, VVOB and the World Bank at the secondary levels. SEIP aims to strengthen teacher capacity through the upgrading program in specific areas and/or specific target groups of the teaching force, namely Upgraded-BETT program. The program will focus on upgrading mathematics, science and lower secondary teachers. ADB will provide training in mathematics and science for upper secondary teachers, while JICA plans to support the expansion of TTC facilities in order to cover the expansion of pre-service training. Close coordination with JICA, ADB and VVOB is expected in order to avoid overlapping or duplication of efforts as well to promote harmonization and integration in procedures and interventions in the teacher training activities.

189. Curriculum Reform: Interventions of curriculum reform for lower secondary education will be supported centrally by the departments of Curriculum Development and Curriculum Reform Committee under H.E. Minister. ADB plans to support curriculum reform for upper secondary education, while JICA plans to support development of new curriculum for expanded 12+4 TTC curriculum.

190. Quality Assurance: Quality Assurance Department has been supported by SIDA UNICEF and the World Bank in development of a Quality Assurance System and enhancement of national

assessment. SEIP aims to support the capacity building activities for PISA for Development Program. Close coordination with SIDA and UNICEF is expected.

191. Public Financial Management: The Ministry of Economy and Finance and the Bank-financed PFMRP project will provide an overarching framework for FM capacity building initiatives. These interventions will complement ongoing technical assistance financed by the European Commission (EU), SIDA, and UNICEF.

192. Capacity Building: MoEYS has been conducting wide range of capacity building activities with partners. These activities focus on contract management, sub-sector planning, monitoring and evaluation, pedagogical methodologies, and curricular reform. The Capacity Development Program Fund (CDPF), funded by the EU, SIDA and UNICEF, has been supporting the implementation of MoEYS Capacity Development Plan at the central and provincial levels since 2011. The capacity building activities of SEIP will be coordinated with Capacity Development Fund Program (CDFP) towards the achievement of MoEYS Capacity Development Plan.

Annex 4: Implementation Support Plan

Cambodia: Secondary Education Improvement Project

Strategy and Approach for Implementation Support

Implementation Support Plan

193. Implementation support will focus on the capacity risks related to sectoral and technical aspects of the project, as well as those related to fiduciary concerns. Intensive supervision missions, frequent review of the implementation plans, and diligent follow up with MoEYS on the project fiduciary activities, which includes detailed analysis of protocols to verify compliance with DLIs. Regular dialogue and implementation support will facilitate early identification of problems and obstacles and will enable time provision of technical advice. Given the innovative nature of linking disbursements to the achievement of specific development indicators, a new project implementation modality for the MoEYS, dialogue and strong implementation support will be critical to the success of the project. The Implementation Support Plan (ISP) is founded on semi-annual intensive supervision missions and continuous sectoral and technical oversight. The ISP covers the following dimensions:

(a) Project Implementation Support Missions: Implementation support from the World Bank will be provided through supervision missions conducted every six months. These missions will be conducted in collaboration with MoEYS. At least one of these missions each year will include field visits. MoEYS will prepare a detailed six-month implementation report to be shared with the World Bank one month prior to the implementation support mission. The World Bank will provide technical assistance as requested by MoEYS to help prepare these reports. The occasion of supervision missions will provide the World Bank with extensive information regarding project implementation submitted prior to the mission, and will lead to the identification of key implementation issues and bottlenecks as well as the necessary corrective measures agreed between MoEYS and the Bank. Specialists on DLIs from the Education Global Practice team will be consulted if the progress report highlight/indicates any need on specific topics.

(b) Continuous Sectoral and Technical Oversight: Knowledgeable World Bank staff and technical consultants will provide advice and exchange views to ensure:

(i) Component 1. Improving Lower Secondary Education to Meet Minimum Standards. Expertise is available within the World Bank on the key themes in this component, including the provision of the SIF, upgrading of Lower Secondary (LS) teachers and improving school facilities.

(ii) Component 2. Strengthening Project Management and Monitoring and Evaluation. This will include support to MoEYS as well as national and international technical advisors for the PfD program implementation to generate capacity in the implementing agency and associated beneficiary institutions.

(c) Financial Management Oversight: This aspect will ensure adherence to the project implementation manual and provide training on proper FM. Capacity building will be continued to address the fiduciary risk issues. Training for Procurement, FM staff will be provided on an ongoing basis to help ensure necessary controls are in place and that sound procurement and FM practices are being implemented. In addition, International and/or National Individual Technical Consultants for these areas will be engaged by the project. The implementing agency and the project team will provide additional implementation support in the early stage of implementation period so as to avoid implementation delays of those activities. In addition, the fiduciary training provided to MoEYS will anticipate these issues and possible solutions to them before they arise.

(d) External Audit. The project's annual financial statements are subject to an external audit arrangements which is acceptable to the Bank. The audit will be carried out with greater emphasis on internal controls, according to a ToR acceptable to the Bank. An annual audit report will be required to be submitted to the World Bank within six months after the end of calendar year. Auditors' reports would be shared with MoEYS, Ministry of Economy and Finance and the Bank, and would be posted on the Project website, with specific review and agreement on corrective actions undertaken during the Project supervision missions each year.

(e) Procurement aspect: Provide training to all agencies conducting procurement on procurement procedures acceptable to the Bank.

(f) Local Technical and Fiduciary Support. A local education specialist in the Country Office will serve as Chief Technical Advisor (CTA) to provide technical support for the annual planning and implementation of the Projects, and liaise with other education partners in the field. In consultations with the Task Team Leader (TTL), this specialist would also work with local World Bank FM and Procurement staff to ensure project receives timely fiduciary support.

(g) Donor Coordination: The team will continue to promote effective donor coordination through active dialogue with other donors as an ongoing agenda for the monthly ESWG. The project will keep donors updated about the project through joint missions, frequent consultation, and meetings. Annex 3 provides further details of the project's partnership arrangements.

194. The World Bank team will assist the MoEYS to access international TA resources by providing contact information about such resources, but it is not envisaged at the current stage that the World Bank will directly finance these activities as implementation support.

195. Composition of the World Bank Implementation Support Team. The Bank's team consists of a senior education specialist/TTL, local specialist, operations officer, social development specialist, environmental specialist, engineer/architect, FM specialist and procurement specialist. MoEYS would also be encouraged to nominate several members from its staff to participate in the supervision missions.

I. The main focus of support in terms of support to implementation

Table 12: Support to implementation

Time	Focus	Skills Needed	Staff Weeks	Estimated budget (US$)
First twelve months	Project Management; Details of Implementation Arrangement; Setting up of lower secondary education subsector monitoring system.	Expertise on lower secondary education monitoring system; Operational expertise; PISA for Development program expertise	12	36,000
	Procedures and normative framework for planning and finance and implementation of lower secondary education (school construction and teacher upgrading) activities.	Architect/engineer, secondary education and teacher training specialist	5	25,000
	FM training and supervision: FM section of Project Implementation Manual	FM specialist	4	8,000
	Fiduciary oversight: Protocols to verify compliance with DLIs	Education specialist	6	18,000
	Procurement training and supervision: Procurement section of Project Implementation Manual and preparation of bid documents	Procurement specialist; Engineering consultant	4	8,000
	Environmental Safeguards training and supervision; EMP, ECoP, checklist, and IPPF implementation	Environmental and social safeguards specialists	2	12,000
	Monitoring and evaluation training and supervision: M&E framework for the project developed	M&E specialist	4	12,000
12-36 months	Project Implementation Support; Mid-Term Review of project; Continued support on ECE and basic education policy research	Expertise on secondary education and teacher upgrading policies and reform; operational expertise; M&E expertise	8	24,000
	Procurement: Periodic reviews as required by World Bank policy	Procurement specialist	4	8,000
	Fiduciary oversight: Protocols to verify compliance with DLIs	Education specialist	6	18,000
	FM: Annual Financial Statement review and auditing report review	FM specialist	4	8,000

II. Skills Mix Required

Table 13: Skills Mix Required

Skills Needed	Number of Staff Weeks (per year)	Number of Trips (per year)
Senior Education Specialist/Task Team Leader	8	2
Education Specialist	6	2
Operations Officer	4	1
FM Specialist	4	2
Procurement Specialist	4	2
Social Development Specialist	2	2
Environmental Specialist	2	2

Annex 5: Economic and Financial Analysis

Cambodia: Secondary Education Improvement Project

Estimating the Private Returns to Education

196. This report employs a standard Mincer human capital earnings function specification (Mincer, 1974) to estimate the private rates of return to an additional year of schooling at the primary, secondary, and post-secondary levels using data from the Cambodian Household Socio-economic Surveys in 2009 and 2014. Specifically, weighted least squares is used to regress log real hourly wage[10] $ln(w_i)$ for an individual i on a gender indicator, interactions between years of schooling completed with indicators for the three broad levels of education attained, and a quartic in years of potential experience.[11] Only individuals between the age of 15 and 64 who have completed their formal education at the time of the surveys are included in the sample. Each observation in the regression is weighted by the survey sampling weight multiplied by weekly hours worked (during the last 7 days). Estimates of the log wage regression coefficients for the 2009 and 2014 samples are reported below in Table 14.

Table 14. Results from Log Hourly Wage Regression, 2009 and 2014

	2009	2014
Female	-0.076***	-0.093***
	(0.018)	(0.012)
Years of schooling if Primary	0.064***	0.048***
	(0.005)	(0.004)
Years of schooling if Secondary	0.068***	0.043***
	(0.003)	(0.002)
Years of schooling if Post-secondary	0.096***	0.064***
	(0.003)	(0.002)
Experience	0.078***	0.037***
	(0.011)	(0.007)
Experience^2	-0.006***	-0.002***
	(0.001)	(0.001)
Experience^3	0.000***	0.000***
	0.000	0.000
Experience^4	-0.000***	-0.000**
	0.000	0.000

[10] Consumer price index (CPI) data from World Development Indicators are used to deflate nominal wages to constant2014 Cambodian Riel unit.

[11] For those individuals who have completed more than secondary education (more than 12 years of schooling), we have $exper = age - schooling - 5$. For those who have completed no more than primary education (6 years or less), we assume that he/she enters the labor market at the age of 15 so that $exper = age - 15$. And for those who have completed between 6 and 12 years of formal schooling, we assume that he/she enters the labor market at the age of 17 so that $exper = age - 17$.

Intercept	6.393***	7.215***
	(0.040)	(0.026)
Observations	8,965	13,715
R-squared	0.179	0.159

*Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

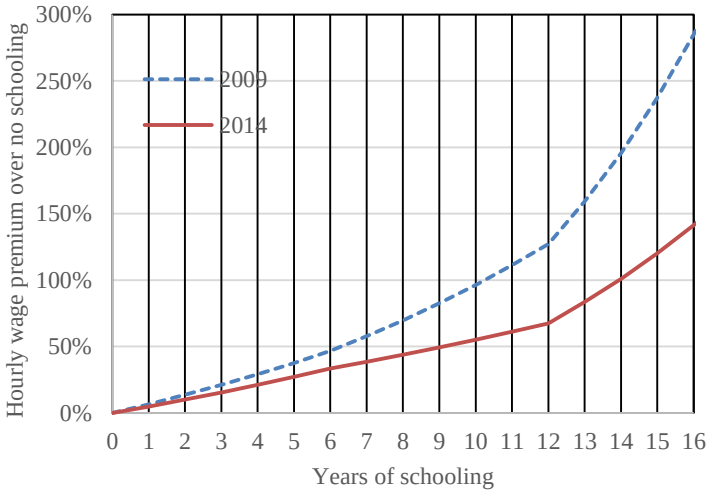
197. Using the coefficients on the schooling variables, we estimate the returns to an additional year of schooling for the three broad education levels of interest. The results from this exercise are presented below in Table 15.

Table 15. Percentage of Estimated Returns to an Additional Year of Schooling for the Three Broad Education Levels, 2009 and 2014

	2009	2014
Primary	6.6	4.9
Secondary	7.6	3.9
Post-secondary	14.1	9.6

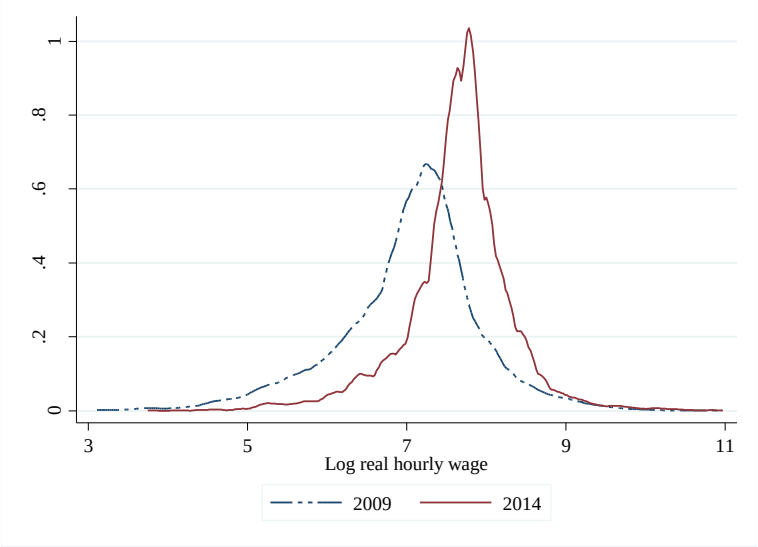
198. Immediately striking is the observation that the magnitudes of the private returns to schooling at all levels have declined substantially over the five-year period from 2009 to 2014. An additional year of schooling at the secondary level is associated with an increase in the average real hourly wage rate of 3.9 percent in 2014. This is slightly more than half the return observed in 2009 for this particular education level. Figure 6 plots the expected hourly wage premiums relative to workers with no formal education. We can now clearly see the decline in private returns to education as the wage schedule for 2014 lies below that for 2009. In 2009, a worker who has completed secondary education (12 years of schooling) could expect to earn 127 percent higher wage rate than a similar worker (same sex and years of work experience) with no formal schooling. By 2014, the expected hourly wage premium has fallen to just 67 percent. The expected hourly wage premiums for other schooling levels at each survey year can be similarly determined from the line graphs shown in Figure 6.

Figure 6. Estimated Hourly Wage Premiums Relative to Workers with No Formal Education 2009 and 2014



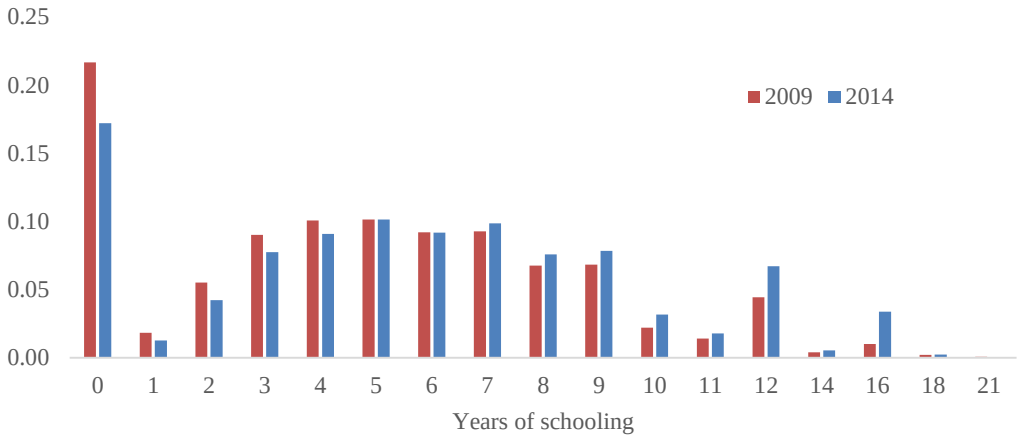
199. It is important to recognize that the results from the private returns to education analysis given above tell only half the story. To see this, consider the estimated density functions of log real hourly wages in 2009 and 2014 shown in Figure 7. We observe a significant rightward shift in the 2014 real wage density relative to that in 2009. The average real hourly wage rate has increased by as much as 59 percent over the five-year period and the rise in wages is clearly more prominent towards the lower end of the wage distribution. It is unsurprising, therefore, that the return to education has fallen so significantly over the time period.

Figure 7. Kernel Densities of Log Real Hourly Wage, 2009 and 2014



200. Figure 8 plots the (discrete) schooling attainment densities for 15-64 year-old Cambodian workforce (who have already completed their formal education at the time of the surveys) in 2009 and 2014. Educational attainment has clearly improved, with average workforce schooling rising from 4.8 years in 2009 to 5.7 years in 2014. The less-than-one-year increase in average schooling suggests that private returns to education alone may account for only a fraction of the rightward shift in the real hourly wage density. This evidence may indicate that growth in total factor productivity (TFP) arising from human capital externalities could have played an important role in raising the aggregate wage level for all skill groups. The next section addresses this issue using a formal framework to identify human capital externalities.

Figure 8. Educational Attainment of Cambodian Workforce (15-64 Years Old), 2009 and 2014



Identifying Human Capital Externalities

201. The method used in this report to estimate the magnitude of human capital externalities is developed by Ciccone and Peri (2006). In this framework, workers are the only factor of production so that total output is equal to aggregate income. Consider the simplest possible case where there are two types of workers; high skill (H) and low skill (L). Normalizing total employment to unity, we have P_H highly-educated workers and $P_L = 1 - P_H$ less-educated workers. Total income is thus given by:

$$Y = (1 - P_H)w_L + P_H w_H \tag{2.1}$$

where w_L and w_H are the wages of less- and more-educated workers respectively. If employment of more-educated workers produce positive externalities of strength EXT on output Y (equivalently the effects on total factor productivity or TFP), then their marginal social product $\partial Y/\partial P_H$ exceeds the high-skill wage premium $(w_H - w_L)$ by EXT:

$$\frac{\partial Y}{\partial P_H} = EXT + (w_H - w_L) \tag{2.2}$$

202. The identification strategy entails differentiating both sides of equation (2.1) to obtain:

$$\frac{\partial Y}{\partial P_H} = (w_H - w_L) + (1 - P_H)\frac{\partial w_L}{\partial P_H} + P_H \frac{\partial w_H}{\partial P_H} \tag{2.3}$$

where $\partial w_i/\partial P_H$ denotes the effects of the increase in the supply of more-educated workers on wages.

Combining equations (2.2) and (2.3) yields:

$$EXT = (1 - P_H)\partial w_L/\partial P_H + P_H \partial w_H/\partial P_H \tag{2.4}$$

203. Divide both sides of the above equation by Y so that externalities are measured in percentage of total output, and denote by β the share of total earnings accruing to more-educated workers ($\beta = w_H P_H/Y$) result in the following important equation:

$$\theta = \frac{EXT}{Y} = (1-\beta)\frac{\partial w_L/\partial P_H}{w_L} + \beta\frac{\partial w_H/\partial P_H}{w_H} \quad (2.5)$$

204. Hence, (2.5) shows that externalities can be expressed as the earnings-weighted average percentage change in wages in response to the change in the supply of highly-educated workers. Another key result from Ciccone and Peri (2006) is to express equation (2.5) as the logarithmic change in the average wage, holding skill composition constant. Specifically:

$$\theta = \frac{\partial}{\partial P_H}\ln([1-\bar{P}_H]w_L + \bar{P}_H w_H) \quad (2.6)$$

where the bars denote that the number of workers in the two skill groups are held constant. This is what Ciccone and Peri (2006) refer to as the "constant composition" approach to the identification of aggregate human capital externalities.

Subtracting θ from both sides of equation (2.5) provides a useful alternative perspective:

$$0 = [1-\beta]\left(\frac{\partial \omega_L/\partial P_H}{\omega_L} - \theta\right) + \beta\left(\frac{\partial \omega_H/\partial P_H}{\omega_H} - \theta\right) = [1-\beta]NCSP_L + [\beta]NCSP_H \quad (2.7)$$

where $NCSP$ denotes the neoclassical supply effects from the increase in the number of more-educated workers. Notice that the term $NCSP_H = (\partial\omega_H/\partial P_H)/\omega_H - \theta \leq 0$ represents the decrease in the wage of highly-educated workers net of externalities, and $NCSP_L = (\partial\omega_L/\partial P_H)/\omega_L - \theta \geq 0$ represents the increase in the wage of less-educated workers net of externalities. Hence, the constant composition approach exploits the fact that the neoclassical supply effects exactly offset each other when weighted by the share of earnings.

205. Ciccone and Peri (2006) also show that the existing "Mincerian" approach to identifying human capital externalities (Rauch, 1993; Rudd, 2000; Acemoglu and Angrist, 2001; Conley, Flyer, and Tsiang, 2003; Moretti, 2004) yields positive externalities even when there are none. To see this, notice that the approach obtains the strength of externalities, denoted by θ^M, as the marginal effect of human capital on the intercept of a Mincerian wage regression. Again, consider the simplest case with two types of labor, H and L, only. The regression equation for this simplified case is as follows:

$$ln(w_i) = \theta^M P_H + a + bD_i \quad (2.8)$$

where i indexes an individual and $b = ln(w_H) - ln(w_L)$ is the high education log wage premium.

206. Averaging the previous equation across individuals to obtain:

$$(1-P_H)ln(w_L) + P_H ln(w_H) = \theta^M P_H + a + bP_H \quad (2.9)$$

207. The strength of externalities can be identified by differentiating and rearranging equation (2.9) to get:

$$\theta^M = \frac{\partial}{\partial P_H}\big((1-P_H)ln(w_L) + P_H ln(w_H)\big) - b$$
(2.10)

208. Computing the differential in equation (2.10) yields:

$$\theta^M = (1-P_H)\frac{\partial w_L/\partial P_H}{w_L} + P_H\frac{\partial w_H/\partial P_H}{w_H}$$
(2.11)

209. By comparing equation (2.11) to equation (2.5), we can see that instead of computing the earnings-weighted average percentage change in wages as in the constant composition approach, the Mincerian approach computes the employment-weighted average percentage change in wages in response to an increase in the supply of more-educated labor to identify the strength of human capital externalities. The resulting bias can be calculated by subtracting θ from the both sides of equation (2.11):

$$\begin{aligned}\theta^M - \theta &= [1-P_H]\left(\frac{\partial \omega_L/\partial P_H}{\omega_L} - \theta\right) + P_H\left(\frac{\partial \omega_H/\partial P_H}{\omega_H} - \theta\right)\\ &= [1-P_H]NCSP_L + [P_H]NCSP_H \end{aligned} \quad (2.12)$$

210. Therefore, equations (2.7) and (2.12) show that the two approaches yield consistent estimates of the strength of externalities when there are no neoclassical supply effects (that is, when the slope of the relative demand curve for more-educated labor is flat). However, in the presence of the neoclassical supply effects, $\theta^M > \theta$ as the Mincerian approach puts more weight on the rising wage of less educated workers and less weight on the falling wage of more-educated workers (that is, $\beta > P_H$). As a result, the Mincerian approach yields positive externalities even when there are none.

Empirical Methodology for the Constant Composition Approach in Identifying Human Capital Externalities

211. The empirical counterpart of the expression $\partial \ln([1-\bar{P}_H]w_L + \bar{P}_H w_H)$ in equation (2.6) for each province p, extended to encompass a wider range of schooling and experience groups can be constructed by first computing the constant composition average wage rates at two points in time, t_0 and t_1, as follows:

$$\widehat{w}_{p,t0} = \sum_{s,e}\widehat{w}_{p,t0}(s,e)P_{p,t0}(s,e), \quad \widehat{w}^{t0}_{p,t1} = \sum_{s,e}\widehat{w}_{p,t1}(s,e)P_{p,t0}(s,e)$$
(3.1)

where (s,e) indexes the skill group with educational attainment s and potential labor market experience level e, and $P_{p,t0}(s,e)$ is the share of workers in the (s,e) skill group in province p at the initial time period t_0. The provincial average wage rates for each skill group at each time

period, $\widehat{w}_{p,t0}(s,e)$, are in turn computed by regressing $ln(w_{i,p,t})$ for individual i on a set of dummies that saturate the schooling and experience space,[12] $ln\left(w_{p,t}(s,e)\right)$, as follows:

$$ln(w_{i,p,t}) = ln\left(w_{p,t}(s,e)\right) + \beta_t X_{it} + u_{ipt}$$

where X_{it} is a vector of additional individual level control variables (gender and marital status). The "cleaned" skill specific average wage rate $\widehat{w}_{p,t}(s,e)$ corresponding to married male workers in province p is computed using the formula:

$$\widehat{w}_{p,t}(s,e) = exp\left(ln\left(\widehat{w}_{p,t}(s,e)\right)\right) \times \exp\left(\frac{1}{2}\frac{\sum_{\{i|i\in p,t\}}\omega_i h_i \widehat{u}_{ipt}^2}{\sum_{\{i|i\in p,t\}}\omega_i h_i}\right)$$

where ω_i is the survey sampling weight and h_i is the weekly working hours for individual i.

212. The change in the log constant composition average (real) wage for province p over the time period of interest, which effectively captures the change in TFP in the province, is therefore given by:

$$\Delta ln(TFP_{p,t1-t0}) = \Delta\, ln\left(\widehat{w}_{p,t1-t0}^{t0}\right) = ln\left(\widehat{w}_{p,t1}^{t0}\right) - ln(\widehat{w}_{p,t0}) \quad (3.2)$$

213. This variable will serve as our dependent variable in the regression of the log change in TFP on the change in the average schooling attainment of workers $\Delta S_{p,t1-t0}$ at the provincial level:

$$\Delta\, ln\left(\widehat{w}_{p,t1-t0}^{t0}\right) = \alpha + controls_p + \alpha^{cc}\Delta S_{p,t1-t0} + u_p \quad (3.3)$$

where the coefficient α^{cc} is the estimate of the strength of externalities arising from a one year increase in the average schooling per worker in province p, $controls_p$ is a vector of provincial-level control variables, and u_p is the error term.

214. We follow Iranzo and Peri (2009) in constructing the change in the schooling attainment variables. Specifically, let S denote the education level of a worker measured in years of schooling (the highest level being PhD which is obtained after 21 years of schooling and the lowest level being zero year of schooling). The distribution of workers' education in a province is described by the cumulative distribution function (CDF) $G_t(S)$. Therefore, the average years of schooling of workers in a province at time t is given by:

$$\bar{S}_t = \int_0^{21} S dG_t(S) \quad (3.4)$$

[12] The schooling (s) and experience (e) space encompasses 24 cells combining six schooling groups and four potential experience groups. The schooling groups are: $s1 = [0,1)$, $s2 = [1,4)$, $s3 = [4,7)$, $s4 = [7,10)$, $s5 = [10,13)$, and $s6 \geq 13$. The experience groups are: $e1 = [0,10)$, $e2 = [10,20)$, $e3 = [20,30)$, and $e4 \geq 30$.

and the corresponding change in the average years of schooling per worker over the period from $t = 0$ to $t = 1$ is expressed as:

$$\Delta\bar{S}_{p,t1-t0} = \bar{S}_{p,t1} - \bar{S}_{p,t0} \quad (3.5)$$

215. However, we are also interested in estimating the contribution of changes in the supply of workers with different skill levels to TFP growth. As in Iranzo and Peri (2006), for each province we construct the aggregate skill for, say, secondary (SR) and post-secondary (PS) levels as:

$$\bar{S}_{p,t}^{SR} = \int_{7}^{12} SdG_{p,t}(S) \text{ and } \bar{S}_{p,t}^{PS} = \int_{13}^{21} SdG_{p,t}(S) \quad (3.6)$$

and the changes in the average years of secondary and post-secondary schooling per worker in province p over the period from $t = 0$ to $t = 1$ are respectively:

$$\Delta\bar{S}_{p,t1-t0}^{SR} = \bar{S}_{p,t1}^{SR} - \bar{S}_{p,t0}^{SR} \text{ and } \Delta\bar{S}_{p,t1-t0}^{PS} = \bar{S}_{p,t1}^{PS} - \bar{S}_{p,t0}^{PS} \quad (3.7)$$

216. The empirical counterparts to the human capital measures for each province given in equations (3.4) and (3.6) are:

$$\bar{S}_{p,t} = \frac{\sum_{\{i|i\in p,t,S_i\in[0,21]\}} \omega_i S_i}{\sum_{\{i|i\in p,t\}} \omega_i} \quad (3.8)$$

for the average years of schooling per worker and

$$\bar{S}_{p,t}^{SR} = \frac{\sum_{\{i|i\in p,t,S_i\in[7,12]\}} \omega_i S_i}{\sum_{\{i|i\in p,t\}} \omega_i} \text{ and } \bar{S}_{p,t}^{PS} = \frac{\sum_{\{i|i\in p,t,S_i\in[13,21]\}} \omega_i S_i}{\sum_{\{i|i\in p,t\}} \omega_i} \quad (3.9)$$

for the average years of secondary and post-secondary schooling per worker respectively. The variable ω_i is the survey sampling weight for individual i in the dataset.

217. The effect of one extra year of schooling at any education level of interest can simply be estimated by including the changes in the variables in (3.8) and (3.9) in the right hand side of the regression equation (3.3).

Empirical Evidence of Human Capital Externalities from Cambodian Provinces, 2009-2014

218. Table 16 presents the constant composition approach ordinary least squares (OLS) estimates of externalities from average years of schooling (columns (1) and (2)), average years of secondary education (column (3)), and average years of secondary and post-secondary levels per worker estimated simultaneously (columns (4) and (5)). All of the reported standard errors are clustered at the regional level.

219. The basic specification from equation (3.3) is used in columns (1) and (2), with column (1) including the change in average potential experience over the five-year period and an

intercept as controls, while column (2) further controls for regional dummies.[13] The estimates of the strength of average schooling externalities (or the effect on TFP) range from 0.127 in specification (1) to 0.142 in specification (2), with both statistically significant at conventional levels.

220. Employing the same control variables as in column (2), column (3) shows that the estimated effect on TFP from an additional year of secondary education per worker is in the order of 0.118. However, the estimate is not significantly different from 0 at conventional statistical levels (P-value of 0.151), although it is significant at the 10 percent level under a one-tail test. Column (4) reports estimates of the strength of externalities for both secondary and post-secondary levels, estimated simultaneously. The TFP effect from an extra year of secondary education per worker is 0.117 (P-value of 0.169), which is very similar to the estimate obtained from the preceding model. Interestingly, the TFP effect from an additional year of post-secondary schooling per worker is 0.033 and very statistically insignificant (P-value of 0.814). This finding is consistent with the general view that lower levels of education produce more externalities than higher levels for less-developed economies (Jimenez and Patrinos, 2008). Column (5) eliminates the always-insignificant change in average potential experience variable. Nevertheless, the estimates of externalities from secondary and post-secondary education levels remain very similar to those shown in column (4).

Table 16. OLS Estimates of Human Capital Externalities from Average Years of Schooling, Years of Secondary, and Years of Post-Secondary at the Provincial Level, 2009-2014

	(1)	(2)	(3)	(4)	(5)
$\Delta\bar{S}$	0.127*	0.142**			
	(0.059)	(0.050)			
$\Delta\bar{S}^{SR}$			0.118	0.117	0.116
			(0.070)	(0.073)	(0.071)
$\Delta\bar{S}^{PS}$				0.033	0.032
				(0.131)	(0.138)
Δ Experience	-0.005	-0.005	0.002	0.003	
	(0.053)	(0.062)	(0.065)	(0.066)	
2.region		-0.174*	-0.233	-0.216	-0.212
		(0.081)	(0.135)	(0.188)	(0.152)
3.region		0.175**	0.167**	0.172*	0.174***
		(0.055)	(0.061)	(0.076)	(0.037)
4.region		0.034	-0.062	-0.046	-0.043
		(0.086)	(0.088)	(0.130)	(0.072)
5.region		0.043***	0.018	0.027	0.027

[13] Region 1: Headquarters are in Stung Treng and the region covers the provinces of Stung Treng, Ratanakiri and Mondulkiri. Region 2: Headquarters are in Kampong Cham and the region covers the provinces of Kampong Cham, Prey Veng, and Svay Rieng. Region 3: Headquarters are in Kampong Speu and the region covers the provinces of Kampong Speu, Takéo, Kampot, Preah Sihanouk, Koh Kong and Kep. Region 4: Headquarters are in Siem Reap and the region covers the provinces of Siem Reap, Oddar Meanchey, Preah Vihear, and Kampong Thom. Region 5: Headquarters are in Battambang and the region covers the provinces of Battambang, Pursat, Banteay Meanchey and Pailin. Region 6: Headquarters are in the capital, Phnom Penh and the region covers the provinces of Kampong Chhnang, Kandal and the greater municipality of Phnom Penh.

		(0.006)	(0.022)	(0.051)	(0.047)
6.region		0.096*	0.051	0.057	0.059
		(0.041)	(0.065)	(0.084)	(0.062)
Intercept	0.301***	0.244***	0.331***	0.313**	0.313**
	(0.027)	(0.026)	(0.014)	(0.081)	(0.079)
Observations	24	24	24	24	24
R-squared	0.220	0.361	0.280	0.282	0.282

*Robust clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

221. The lowest OLS estimate of the strength of externalities from an additional year of secondary education per worker is 12.3 percent ($= exp(0.116) - 1$), which is more than three times the estimated private return of 3.9 percent obtained earlier. However, the drawback to the OLS estimates shown in Table 16 is the possible endogeneity of the change in average schooling per worker variables which could arise from non-random assignment of workers with different skills to provinces (or selection bias) and omitted variable bias. The non-random assignment could plausibly be caused by highly educated workers selecting to work in provinces with highly productive sectors. If this is the case, then OLS overestimates the strength of externalities from an additional year of schooling per worker.

222. In order to address the issue of endogeneity, this report follows Ciccone and Peri (2006) and Iranzo and Peri (2006) and adopt the two-stage least squares instrumental variable (2SLS) strategy to exogenously identify the effects on TFP of an additional year of secondary and post-secondary education respectively. Similar to Ciccone and Peri (2006), the chosen instruments in this report are the provincial share of population 55 years of age or more in 2009 (55plus_2009) and the number of young people between 9 and 14 years old per adult in 2009 (9plus14_2009). The 2SLS regression results, estimated using the same set of controls as the model in column (5) of Table 16, are reported below in Table 17.

Table 17. 2SLS Estimates of Human Capital Externalities from Average Years of Secondary and Years of Post-Secondary Education per Worker at the Provincial Level, 2009-2014

	Dependent variable			
	First stage		Second stage	
	$\Delta\bar{S}^{SR}$	$\Delta\bar{S}^{PS}$	$\Delta\, ln(\widehat{w}^{t0}_{p,t1-t0})$	$\Delta\, ln(\widehat{w}^{t0}_{p,t1-t0})$
$\Delta\bar{S}^{SR}$			0.101	0.086
			(0.202)	(0.222)
$\Delta\bar{S}^{PS}$			-0.023	
			(0.366)	
2.region	1.608***	-0.551***	-0.216	-0.179
	(0.025)	(0.012)	(0.457)	(0.360)
3.region	0.438***	-0.176**	0.17	0.179**
	(0.076)	(0.047)	(0.110)	(0.072)
4.region	-0.085	-0.652***	-0.073	-0.062***
	(0.112)	(0.050)	(0.186)	(0.013)
5.region	0.269	-0.437***	0.018	0.028
	(0.154)	(0.069)	(0.139)	(0.068)
6.region	0.555	-0.565**	0.060	0.075
	(0.302)	(0.144)	(0.186)	(0.156)
9plus14_2009	4.602**	1.353		

	(1.461)	(1.557)		
55plus_2009	9.903	12.823**		
	(7.660)	(4.756)		
Intercept	-1.998***	-0.779	0.341	0.327***
	(0.479)	(0.646)	(0.214)	(0.022)
Observations	24	24	24	24
R-squared	0.300	0.469	0.273	0.270

*Robust clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

223. The first two columns present the first-stage regression estimates of the two endogenous schooling variables on regional dummies and the two instruments. It can be seen that the system of equations satisfy both the order and rank conditions, as the instrument 9plus14_2009 is statistically significant in the first stage regression of $\Delta\bar{S}^{SR}$, while the instrument 55plus_2009 is statistically significant in the first stage regression of $\Delta\bar{S}^{PS}$ on the set of controls and the instruments. The positive signs on the instruments indicate that provinces with greater number of young people relative to adults in 2009, as well as those with larger shares of old population in 2009 experienced greater increases in workforce educational attainment between 2009 and 2014. This is expected, however, since young people entering the workforce during this period had more education than the average labor force, while older workers retiring from the workforce had less education than the average worker.

224. The third column of Table 17 reports the second-stage regression results. We can immediately see that the 2SLS estimates of externalities from years of secondary school per worker ($\Delta\bar{S}^{SR}$) and years of post-secondary education per worker ($\Delta\bar{S}^{PS}$) are indeed smaller than comparable estimates obtained using OLS shown in column (5) of Table 16. Specifically, the TFP effect from an extra year of secondary education per worker is 0.101, though insignificantly different from 0 (P-value of 0.616), while the TFP effect from an additional year of post-secondary schooling per worker is -0.023, again very statistically insignificant (P-value of 0.814). The fourth column of Table 16 reports the second-stage regression results after eliminating the change in years of post-secondary education per worker ($\Delta\bar{S}^{PS}$) from the system. The TFP effect from an extra year of secondary education per worker is now 0.086, again insignificantly different from 0 (P-value of 0.697).

225. The fact that the strength of externalities are very imprecisely estimated when 2SLS identification strategy is used is due to the very small number of observations we have at our disposal. Nonetheless, from the various models estimated in this study, we can conclude with some confidence that the magnitudes of externalities from an additional year of secondary education per worker range from 0.086 to 0.118 (or between 8.98 to 12.5 percent). These parameters will be employed in the next section to conduct the cost-benefit analysis (CBA) of the Secondary Education Improvement Project in Cambodia.

Cost-Benefit Analysis for "Improving School Facilities"

226. This section uses cost-benefit analysis (CBA) to estimate the net economic benefits and internal rate of return (IRR) of the "Improving School Facilities" subcomponent of the Secondary Education Improvement Project (SEIP). The subcomponent involves construction of

30 new and rehabilitation of 100 existing "overcrowded" lower secondary schools. For each of the 30 new schools, a building consisting of five classrooms will be constructed at an estimated cost of US$60,000 each. As for the 100 existing overcrowded schools, the majority of which provide multi-shift schooling, five additional classrooms will be added at a cost of US$60,000 per school. Teacher accommodations totaling 30 units will also be constructed where they are needed at a cost of US$35,000 per unit. A further budget of US$1.75 million is earmarked for on-demand rehabilitation of 70 existing school buildings (US$25,000 each). This brings the total estimated cost for the civil works activities within the subcomponent 1.3 of the Project to US$10.6 million. It is assumed that these budgeted items will become operational as per the schedule presented in Table 18 (Project commences at Y0).

Table 18. School Construction and Rehabilitation Schedule

Budget item	Unit	Y0	Y1	Y2	Y3	Y4	Unit cost (US$)
New school construction (30 sites)	School building	0	15	15	0	0	60,000
Additional classrooms (100 schools)	5 classroom building	0	30	30	40	0	60,000
Teacher accommodations	Teacher housing	0	10	10	10	0	35,000
On-demand rehabilitation	Per building	0	30	30	10	0	25,000

227. Two groups of children will benefit from this subcomponent of the Project: (i) those who would otherwise complete only primary education (six years of schooling) in the absence of the 30 new schools. Specifically, it is assumed that these children will go on to complete three more years of schooling at the lower secondary level; and (ii) those who would otherwise complete lower secondary education in overcrowded (and mostly multi-shift) schools. It is assumed that this group of students will benefit from the transfer to the new classroom environment which will be able to provide single-shift schooling, resulting in significantly longer instructional time (and hence, higher quality lower secondary education). Furthermore, it is assumed that the benefits will accrue only to the students who will actually make the transfer to the new classrooms. This assumption is very conservative since no benefits are attributed to those students who will remain in the old classrooms in these overcrowded schools.

228. The private benefits of this component of the project are based on the total increase in net earnings of the benefited children over their 45-year working life, assuming that the lower-secondary graduates enter the labor market at the age of 16 and retire at the age of 60. For the children in group (1) who will enroll in the first group of 15 newly constructed lower secondary schools, we assume that the total number of beneficiaries in each annual cohort is 875 $(15\ new\ schools \times 5\ classrooms \times 35\ class\ size \div 3\ year\ cycle)$. The present value of the stream of net increase in earnings for an individual in each annual cohort (consider the cohort which starts lower secondary education at time $t = 0$) is calculated as follows:

$$PV\ benefit_{Private} = \sum_{t=3}^{47} \frac{\widehat{w}^{S=9,exper=t-3}}{(1+r)^t} - \sum_{t=0}^{47} \frac{\widehat{w}^{S=6,exper=t}}{(1+r)^t} \qquad (4.1)$$

where S and $exper$ denote the years of schooling and potential experience respectively, r is the (real) discount rate of 10 percent used for this project, and $\widehat{w}^{S,exper}$ is the expected real wage rate for an individual with S years of schooling and $exper$ years of experience.[14] The expected real wage rate is computed using the 2014 log wage regression results discussed around Table 14. Incorporating our most conservative estimate of externalities from each additional year of secondary education per worker of 8.98 percent to the private benefit calculation, the present value of social benefit arising from an individual completing lower secondary education (as opposed to only primary schooling) is estimated at US$1,337. The stream of social benefits is applied to 20 successive annual cohorts of beneficiary children, beginning one year after project commencement (at Y1 according to Table 18). Specifically, a real discount rate of 10 percent is applied to compute the present value of each stream of social benefits from each annual cohort. Thus, the present value of the social benefits arising from an individual beneficiary fall from US$1,215 (=1,337/1.1) for the first cohort to US$199 (=1,337/1.1^{20}) for the 20th cohort.

229. For beneficiary children in group (2), we assume that the increase in teacher contact hours and the reduction in class size will improve their learning outcome by an equivalent of 0.5 year of secondary schooling. Under this assumption, the corresponding social benefits are estimated to be in the order of 6.23 percent.[15] For the first group of 30 existing lower secondary schools to be rehabilitated (which will become operational at Y1), assume that the total number of group (2) beneficiaries in each annual cohort is 1,750 ($30\ rehabilitated\ schools \times 5\ classrooms \times 35\ class\ size \div 3\ year\ cycle$). The number of group (2) beneficiaries in each annual cohort for the remaining 70 rehabilitated schools can similarly be calculated as per the schedule given in Table 17. Notice that the schedule for each group of new and rehabilitated schools to become operational is important for our CBA since the timing affects the present values of the monetary benefits accruing to the cohorts of beneficiary students attending these schools.

230. The CBA also needs to take into account the incremental private and public recurrent cost of the project. It is assumed that average teacher salaries will remain the same at US$170 per month in real terms as in 2014 (estimated from CSES 2014) and the student-teacher ratio will be 22.5 for the beneficiary schools. Under these assumptions, the resulting teacher salary per student is US$90.51 per year. Furthermore, we assume that salary accounts for 60 percent of per-student public spending. Therefore, total recurrent public spending per student used in this CBA is US$150.85 per year. This incremental per-student public cost is applied to both groups (1) and (2) in the analysis.

231. The incremental private recurrent cost, on the other hand, is estimated from household per-student education spending (for secondary students only) in 2014 using CSES 2014 data.

[14] Annual wage earning is calculated by multiplying the predicted hourly wage rate with average weekly working hours (50.5 hours – calculated using CSES 2014 data for workers with [7,9] years of schooling), 4.286 weeks per year, and 12 months per year. The exchange rate used is 1 Cambodian Riel to US$ 0.00025.

[15] Using the estimated private return to a year of secondary schooling of 3.86 percent and externalities of 8.89 percent yield an estimated social benefits of 12.84 percent for each year of secondary education. The social benefit of 6.23 percent for 0.5 year of secondary schooling is calculated as follows: $1.1284^{0.5}$-1=0.0623.

This comes out to US$170.52 per student per year. The incremental private spending is applied only to the beneficiaries in group (1) in this CBA, since we are assuming that the beneficiaries in group (2) would incur the cost anyway, with or without the intervention. That is, in the absence of the project, these students would still go on to complete lower secondary education, albeit, in the existing overcrowded schools.

232. The results of the cost-benefit analysis are summarized below in Table 19. Based on the set of assumptions elaborated above, a project life of 20 years, a real discount rate of 10 percent, and the total cost of US$10.6 million for civil works activities within this component of the project, the net present value (NPV) is estimated at US$17.61 million. The internal rate of return (IRR) for this "base case" is estimated at 12.73 percent. Given the conservative assumptions used for the base case scenario, this component of the project is deemed economically viable.

Table 19. Cost-Benefit Analysis of the "Improving School Facilities" Sub-component of the Secondary Education Improvement Project

Social benefits from increase in lifetime earnings	Base case US$ (thousand)	Case 1 US$ (thousand)	Case 2 US$ (thousand)	Case 3 US$ (thousand)
Beneficiary group (1)	19,010.23	30,900.89	19,010.23	30,900.89
Beneficiary group (2)	40,208.99	45,198.14	0.00	0.00
Less:				
Public and private recurrent cost				
Beneficiary group (1)	12,502.31	12,502.31	12,502.31	12,502.31
Beneficiary group (2)	18,511.53	18,511.53	18,511.53	18,511.53
Project cost	10,600.00	10,600.00	10,600.00	10,600.00
Net Present Value	**17,605.39**	**34,485.19**	**(22,603.61)**	**(10,712.95)**
Internal Rate of Return	**12.73%**	**14.28%**	**8.75%**	**9.99%**
Selected parameters:				
Private return to secondary schooling	3.86%	3.86%	3.86%	3.86%
Externalities	8.98%	10.63%	8.98%	10.63%
Improvement in Group (2) learning outcome (years)	0.5	0.5	0.0	0.0

Note: A project life is assumed to be 20 years and the real discount rate of 10 percent is used for computing the NPV of this component of the project.

233. Three other cases are also analyzed in our sensitivity testing. In Case 1, we employ the strength of externalities value of 10.63 percent ($exp(0.101) - 1$) from our upper bound 2SLS estimate shown in Table 17. This increases the NPV to US$34.49 million, with an estimated IRR

of 14.28 percent. Cases 2 and 3 assume that the increase in teacher contact hours and the reduction in class size will have no impact on the learning outcomes of group (2) beneficiaries. The only difference between Case 2 and Case 3 is: Case 2 uses the externalities value of 8.89 percent while Case 3 uses a value of 10.63 percent. At a real discount rate of 10 percent, both cases yield negative NPVs as shown in the relevant columns of Table 19. The estimated IRRs decline to 8.75 and 9.99 percent for Case 2 and Case 3 respectively.

Financial Analysis for "Improving School Facilities"

234. The previous section estimates the net economic benefits of the "Improving School Environment" component of the SEIP project using the cost-benefit analysis framework. It suggests that the project is deemed economically viable as the expected social benefits accruing to the society at large justify the expected social cost. The financial analysis given in this section, on the other hand, considers the project from the point of view of the government as the entity undertaking the public investment and sustaining the 30 new and 100 rehabilitated lower secondary schools in the long-run. Specifically, the financial analysis ignores the private benefits accruing to the student beneficiaries and the externalities arising from the expected increase in the beneficiaries' educational attainment. Similarly, it ignores the foregone earnings of the beneficiaries and their household education spending incurred as a result of participating in the project.

Table 20. Estimated Public Expenditure on Beneficiary Group (1) – constant 2014 US$

	Students beneficiaries				Public expenditure (US$)			
Year	Entry	Exit	Number of students	Number of teachers	Salary (A)	Non-salary (B)	Teacher training (C)	Total public expenditure (A)+(B)+(C)
t=0								
1	875	0	875	39	79,195	52,796	846	132,837
2	1,750	0	2,625	117	237,584	158,389	2,538	398,511
3	1,750	0	4,375	194	395,973	263,982	4,230	664,185
4	1,750	875	5,250	233	475,168	316,779	5,076	797,023
5	1,750	1,750	5,250	233	475,168	316,779	5,076	797,023
6	1,750	1,750	5,250	233	475,168	316,779	5,076	797,023
7	1,750	1,750	5,250	233	475,168	316,779	5,076	797,023
8	1,750	1,750	5,250	233	475,168	316,779	5,076	797,023
9	1,750	1,750	5,250	233	475,168	316,779	5,076	797,023
10	1,750	1,750	5,250	233	475,168	316,779	5,076	797,023

235. Consider first the expected impact on government annual recurrent education spending from having the 30 new lower secondary schools constructed. It is assumed that the total number of group (1) beneficiaries in each annual cohort will reach 1,750 in year $t = 2$ once all of the 30 schools have been built. Continuing with the key assumptions given in the previous section; average teacher salaries will remain the same at US$170 per month in real terms as in 2014 and the student-teacher ratio will be 22.5 throughout the forecast horizon. Furthermore, it is again assumed that salary accounts for 60 percent of per-student public spending. Under these assumptions, it is straightforward to compute the total number of beneficiary children studying in the lower secondary level in each year as a result of the project, the required number of teachers,

and the resulting impact on government spending on salary and non-salary items. Moreover, it is assumed that the cost of in-service training per teacher is US$21.75 per annum.[16] The results from this exercise are presented in Table 20 where all of the monetary figures are expressed in constant 2014 US$ unit.

236. It can be seen from Table 20 that by the fourth year of project implementation, government spending on teacher salary, non-salary items, and teacher training charges will be stabilized at US$475,168; US$316,779; and US$5,076 respectively. The total increase in government real recurrent education spending will thus be stabilized at US$797,023 per annum as a result of having the 30 new lower secondary schools constructed.

237. Regarding the project subcomponent of rehabilitating 100 existing overcrowded lower secondary schools, the number of group (2) beneficiaries in each annual cohort can be determined using the rehabilitation schedule in Table 18 as discussed above. These children are assumed to go on to complete three more years of schooling at the lower secondary level. Continuing with the same key assumptions used in the previous exercise, we compute the total number of beneficiary children studying in the new classrooms in each year as a result of the project, the required number of teachers, and the resulting impact on government spending on salary and non-salary items, as well as the amount of in-service teacher training to be incurred. The resulting forecasts are presented below in Table 21.

Table 21. Estimated Public Expenditure on Beneficiary Group (2) – constant 2014 US$

	Students beneficiaries				Public expenditure			
Year	Entry	Exit	Number of students	Number of teachers	Salary (A)	Non-salary (B)	Teacher training (C)	Total public expenditure (A)+(B)+(C)
t=0								
1	1,750	0	1,750	78	158,389	105,593	1,692	265,674
2	3,500	0	5,250	233	475,168	316,779	5,076	797,023
3	5,833	0	11,083	493	1,003,133	668,755	10,716	1,682,603
4	5,833	1,750	15,167	674	1,372,708	915,138	14,663	2,302,510
5	5,833	3,500	17,500	778	1,583,894	1,055,929	16,919	2,656,742
6	5,833	5,833	17,500	778	1,583,894	1,055,929	16,919	2,656,742
7	5,833	5,833	17,500	778	1,583,894	1,055,929	16,919	2,656,742
8	5,833	5,833	17,500	778	1,583,894	1,055,929	16,919	2,656,742
9	5,833	5,833	17,500	778	1,583,894	1,055,929	16,919	2,656,742
10	5,833	5,833	17,500	778	1,583,894	1,055,929	16,919	2,656,742

238. It can be seen that by the fifth year of project implementation, government spending on teacher salary, non-salary items, and teacher training charges are stabilized at US$1,583,894; US$1,055,929; and US$16,919 respectively. The total increase in government real recurrent

[16] Estimated from the Ministry of Education budget item number 614 or "Training fees" in the amount of 7,207,000,000 Riel for the 2012 budget year (the maximum amount incurred during the 2010-2014 budget period) under the Youth & Sports Section. This amount is inflated by the CPI to 2014 Riel unit (7,705,096,164 Riel) and then converted to US$ 1,926,274 using the exchange rate of 1 Cambodian Riel to US$ 0.00025. The in-service training fee per teacher amount of US$ 21.75 per annum is obtained by dividing the total training fees by 88,550 (the total number of teachers from the EMIS database).

education spending is therefore stabilized at US$2,656,742 per annum as a result of having the 500 new classrooms constructed in the 100 rehabilitated lower secondary schools.

239. From the analysis given in this section, we expect that the government will need to increase its recurrent education expenditure by US$3.45 million per year (expressed in constant 2014 US$ unit) to sustain the additional classroom activities in the 30 new and 100 rehabilitated lower secondary schools in the long run. To put this figure into perspective, notice that the total education budget for 2014 is US$345.75 million (1,383 billion Riel) or around 2.04 percent of GDP of that year. Therefore, the additional recurrent spending required to sustain the extra classrooms would increase total government education budget by only 1 percent.

Cost-Benefit Analysis for "Upgrading of Lower Secondary Teacher Qualification"

240. In this section we conduct the CBA of the "Upgrading of Lower Secondary Teacher Qualification" subcomponent of the project. Specifically, this involves the upgrading of teachers to bachelor's degree or ISCED 5A qualification (TUP); the Leadership Upgrading Program (LUP) for school directors; and the training program for teacher trainers. The scholarship packages for the educational personnel will cover tuition costs and stipends, the unit cost estimates of which are given in the last column of Table 21 (expressed in constant 2014 US$). The starting schedules for the training programs for 2,200 teachers, 310 school directors, and 200 teacher trainers are detailed below in Table 21, where Y0 denotes the date of project commencement. On top of the scholarship packages, this subcomponent also assumes a lump sum monitoring and other operational cost of US$12,000 per annum allocated throughout the entire five years. This brings the total estimated cost for implementation of TUP and LUP to US$7.99 million.

Table 21. Training of Educational Personnel Schedule

Budget item	Unit	Y0	Y1	Y2	Y3	Y4	Unit cost (US$)
Scholarships for teachers for TUP	Scholarship package	120	330	900	850	0	3,000
Scholarships for school directors for LUP	Scholarship package	0	100	100	110	0	3,000
Scholarships for Trainer Training	Scholarship package	100	100	0	0	0	2,000
Monitoring and other operational cost	Lump sum/year	1	1	1	1	1	12,000

241. It is assumed that the lower secondary students who will be attending classes taught by the more highly-qualified teachers will benefit from higher quality instruction. Furthermore, it is assumed that the quality of instruction provided by a teacher enrolled in the upgrading program will improve only after the teacher has completed the training (assumed to take 2 years). For example, the cohorts of lower secondary students exposed to the first group of 120 teachers (who started the training program at the beginning of Y0) during Y0 and Y1 will not benefit from higher quality instructions. Only the cohorts of students enrolled into lower secondary education from the beginning of Y2 onwards (and are exposed to this first group of "upgraded teachers")

will benefit from higher quality instructions. The same logic applies to students who will be taught by the second group of 330 teachers who started their training in Y1, and so on. We take a conservative approach and assume that no monetary benefits will accrue to students from the Leadership Upgrading Program (LUP) for school directors.

242. In order to quantify the expected improvement in learning outcome for students arising from the increase in the quality of instruction, we first estimate an empirical educational production function using the non-OECD sample of students from the PISA 2012 dataset. Specifically, the test scores of students on the PISA 2012 assessment (average score in mathematics and science) are regressed on age, grade level, gender, a quadratic in the PISA index of economic, social, and cultural status (ESCS),[17] preschool attendance, the PISA quality of school educational resources index,[18] student-teacher ratio, school enrolment size, and the proportion of teachers with ISCED 5A qualification (or bachelor's degree) in the school. The estimation results for the educational production function are presented in Table 22.

Table 22. Estimated Educational Production Function – PISA 2012 (Non-OECD Sample)

Variable	
Age in years	-16.080**
	(5.880)
Grade level	29.918***
	(5.699)
Male	6.912**
	(3.147)
ESCS	27.001***
	(5.410)
ESCS squared	5.711***
	(0.534)
Preschool attendance: Did not attend	
Yes, for one year or less	14.179**
	(6.562)
Yes, for more than one year	41.870***
	(10.383)
Quality of educational resources index	10.205***
	(2.128)
Student-teacher ratio	-0.991***
	(0.257)

[17] The PISA index of economic, social and cultural status (ESCS) was derived from the following three indices: highest occupational status of parents, highest education level of parents, and home possessions. The index of home possessions comprises all items on the indices of family wealth, cultural possessions, home educational resources, as well as books in the home.

[18] The index on the school's educational resources (SCMATEDU) was computed on the basis of six items measuring the school principals' perceptions of potential factors hindering instruction at school: Shortage or inadequacy of science laboratory equipment, Shortage or inadequacy of instructional materials (e.g. textbooks), Shortage or inadequacy of computers for instruction, Lack or inadequacy of Internet connectivity, Shortage or inadequacy of computer software for instruction, and Shortage or inadequacy of library materials.

School size	0.017**
	(0.006)
Proportion of teachers with ISCED 5A qualification	24.604*
	(13.702)
Intercept	667.368***
	(89.866)
Observations	146,317
R-squared	0.351

Robust standard errors in parentheses (clustered at the country level)
**** p<0.01, ** p<0.05, * p<0.1*

243. For the purpose of the CBA in this section, we are primarily interested in the coefficient estimates of the "Proportion of teachers with ISCED 5A qualification" and the "Grade level" variables. Each year advancement in grade level is associated with an average increase in the PISA test score of 29.9 points, while having a teacher with ISCED 5A qualification (relative to having a teacher with lower qualification) is associated with an increase in the test score of around 24.6 points, ceteris paribus. In other words, having a teacher with an ISCED 5A qualification is expected to lead to an average gain in learning outcome equivalent to $24.6 \div 29.9 = 0.82$ year of secondary schooling. Once again, we take a conservative approach and assume for our baseline CBA that the improvement in student learning will be only half the estimated magnitude, or around 0.41 year of secondary schooling. For each student beneficiary, we employ the estimates of private rate of return to a year of secondary education of 3.86 percent and the strength of externalities estimate of 8.89 percent, which were used previously in the CBA on Improving School Facilities subcomponent. Using these parameters for our base case yields a social benefit estimate of 5.1 percent[19] due to the expected increase in net earnings (plus spillovers) of the beneficiary student over his/her 45-year working life.

244. The total number of beneficiary students in the lower secondary school system each year is determined using the total number of upgraded teachers (who have already completed their 2-year in-service training program) in the teaching force and the assumed student-teacher ratio parameter of 22.5.[20] The estimated stock and flow of beneficiary students through the lower secondary school system are presented in Table 23 for the first 10 cohorts of student beneficiaries. Notice also from Table 23 our conservative assumption that the beneficiary students will enter the labor market right after they have completed lower secondary education rather than pursue further education.

[19] Using the estimated private return to a year of secondary schooling of 3.86 percent and externalities of 8.89 percent yield an estimated social benefits of 12.84 percent for each year of secondary education. The social benefit of 5.1 percent for 0.41 year of secondary schooling is calculated as follows: $1.1284^{0.41}$-1=0.051.

[20] The total number of student beneficiaries in the lower secondary school (LSS) system cannot exceed $2{,}200\ trained\ teachers \times 22.5\ student\ teacher\ ratio = 49{,}500$. Furthermore, the permissible number of inflow of beneficiary students in each annual cohort into the LSS system cannot exceed $49{,}500 \div 3\ year\ cycle = 16{,}500$.

Table 23. Stock and Flow of Beneficiary Students

Year	# ISCED 5A teachers in teaching force	# Student beneficiaries in LSS system	Student cohort	# New beneficiary student entry in LSS system	# Beneficiary students enter labor mkt
0	-				
1	-				
2	-				
3	120	2,700	1	2,700	
4	450	10,125	2	7,425	
5	1,350	26,625	3	16,500	
6	2,200	40,425	4	16,500	2,700
7	2,200	49,500	5	16,500	7,425
8	2,200	49,500	6	16,500	16,500
9	2,200	49,500	7	16,500	16,500
10	2,200	49,500	8	16,500	16,500
11	2,200	49,500	9	16,500	16,500
12	2,200	49,500	10	16,500	16,500

245. As in the preceding CBA on Improving School Facilities, we compute the streams of private benefits from the expected increase in lifetime earnings of beneficiary students in 20 successive cohorts, plus the estimated externalities. Again, a real discount rate of 10 percent is applied to the estimated social benefit stream for each cohort of student beneficiaries before summing the resulting present values of the streams across the first 20 cohorts. For our baseline case, the present value of the aggregate social benefit turns out to be US$74.36 million.

246. On the other hand, the increase in the present value of the public cost arising from the training fees and stipends, the expected increase in the wage bill[21] of the "upgraded teachers," and the monitoring and other operational costs total US$15.03 million. The net present value (NPV) estimate of this subcomponent of the project is therefore US$59.33 million, with an IRR of 25.61 percent. The CBA results from this baseline scenario is summarized in the first column of Table 24. Given the conservative assumptions used for the baseline scenario and the positive present value of the net social benefit, this project subcomponent is therefore regarded as economically viable.

[21] It is assumed that the average teacher salaries will increase from US$ 170 to US$ 229 per month in real terms (in constant 2014 US$) as a result of attaining the ISCED 5A qualification.

Table 24. Cost-Benefit Analysis of the "Upgrading of Lower Secondary Teacher Qualification" Sub-component of the Secondary Education Improvement Project

	Base case US$ (thousand)	Case 1 US$ (thousand)	Case 2 US$ (thousand)	Case 3 US$ (thousand)
Social benefits from increase in lifetime earnings				
Student beneficiaries	74,361.58	83,533.59	152,509.66	171,845.36
Less:				
Public cost				
Teacher training cost and increase in teacher wage bill	13,940.89	13,940.89	13,940.89	13,940.89
Director training cost	698.72	698.72	698.72	698.72
Trainer training and monitoring costs	392.60	392.60	392.60	392.60
Net Present Value	**59,329.37**	**68,501.38**	**137,477.46**	**156,813.16**
Internal Rate of Return	**25.61%**	**27.09%**	**35.62%**	**37.49%**
Selected parameters:				
Private return to secondary schooling	3.86%	3.86%	3.86%	3.86%
Externalities	8.98%	10.63%	8.98%	10.63%
Improvement in learning outcome (years)	0.41	0.41	0.82	0.82

247. Three other scenarios are evaluated in our sensitivity analysis and the results are presented in the last three columns of Table 24. In Case 1 we maintain the assumption that the improvement in learning outcome will be equivalent to 0.41 year of secondary schooling, but we employ the strength of externalities value of 10.63 percent from our upper bound 2SLS estimate shown in Table 17. This increases the NPV to US$68.50 million, with an estimated IRR of 27.09 percent. Cases 2 and 3 utilize the assumption that the average improvement in learning outcome for the student beneficiaries will amount to 0.82 year of secondary schooling. The difference between Case 2 and Case 3 is that: Case 2 uses the strength of externalities estimate of 8.89 percent while Case 3 uses a value of 10.63 percent. Applying a real discount rate of 10 percent, Case 2 yields an NPV of US$137.48 million (IRR of 35.62 percent), while Case 3 yields an NPV of US$156.81 million (IRR of 37.49 percent).

Financial Analysis for "Upgrading of Lower Secondary Teacher Qualification"

248. The cost-benefit analysis given in previous section indicates that the "Upgrading of Lower Secondary Teacher Qualification" subcomponent of the SEIP project is deemed economically viable from a social perspective. Once again, the financial analysis conducted here considers the project from the point of view of the government as the entity responsible for financing the training programs and the resulting increase in teacher wage bill going forward.

249. Suppose that the project commences in year $t = 1$, column (1) of Table 25 shows the number of teachers enrolling into the qualification upgrading program each year. Assuming that the upgrading program takes 2 years to complete, column (2) hence shows the timing of the entry of the newly upgraded teachers into the teaching force. The schedule of cash outflows arising

from the teacher training cost (training fees plus stipends) is depicted in column (3), while column (4) displays the total number of the upgraded teachers in the teaching force. The increase in the annual teacher wage bill as a result of the teacher qualification upgrading is depicted in column (5). Columns (6)-(8) display the schedule of public cash outflow arising from the LUP for school directors, the training program for teacher trainers, and annual monitoring and other operational cost of the project subcomponent.

Table 25. Estimated Public Expenditure – constant 2014 US$

Year	Teachers enroll in training (1)	ISCED 5A teachers enter teaching force (2)	Teacher training cost (US$) (3)	ISCED 5A teachers in teaching force (4)	Increase in teacher wage bill (US$) (5)	School director training cost (US$) (6)	Training of trainers cost (US$) (7)	Monitoring & other operational cost (US$) (8)	Total increase in public expenditure (9)
t=0	0	0	0	0	0	0	0	0	0
1	120	0	360,000	0	0	0	200,000	12,000	572,000
2	330	0	990,000	0	0	300,000	200,000	12,000	1,502,000
3	900	120	2,700,000	120	85,530	300,000	0	12,000	3,097,530
4	850	330	2,550,000	450	320,738	330,000	0	12,000	3,212,738
5	0	900	0	1,350	962,215	0	0	12,000	974,215
6	0	850	0	2,200	1,568,055	0	0	0	1,568,055
7	0	0	0	2,200	1,568,055	0	0	0	1,568,055
8	0	0	0	2,200	1,568,055	0	0	0	1,568,055
9	0	0	0	2,200	1,568,055	0	0	0	1,568,055
10	0	0	0	2,200	1,568,055	0	0	0	1,568,055

250. It can be seen from column (9) of Table 25 that the maximum public expenditure of US$3.21 million will occur in year $t = 4$. However, in the long run (from year $t = 6$ onwards) the total increase in government real education spending will be stabilized at US$1,568,055 per annum.

251. Nevertheless, since the training programs will be financed by IDA credit, the more important column in Table 25 from the point of view of the government is perhaps column (5) which presents estimates of the annual increase in government recurrent expenditure as a result of implementing this project subcomponent.

252. Recall that the total education budget for 2014 is US$345.75 million or around 2.04 percent of GDP of that year. Therefore, the long-run increase in public recurrent spending of US$1.57 million resulting from the larger wage bill is equivalent to just 0.45 percent of the 2014 government education budget.