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Report No: PAD3579

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 11 MILLION
(US\$15 MILLION EQUIVALENT)

TO THE

KINGDOM OF CAMBODIA

FOR A

STRENGTHENING PRE-SERVICE EDUCATION SYSTEM FOR HEALTH PROFESSIONALS
PROJECT

May 7, 2020

Health, Nutrition, and Population Global Practice
East Asia and Pacific Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective March 31, 2020)

Currency Unit = Cambodian Riels (KHR)

US\$1 = KHR 4,062.07

US\$1 = SDR 0.7327

SDR 1= US\$1.3648

FISCAL YEAR

January 1 – December 31

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ABBREVIATIONS AND ACRONYMS

ACC	Accreditation Committee of Cambodia
ASEAN	Association of Southeast Asian Nations
CBR	Cost-Benefit Ratio
CPF	Country Partnership Framework
CBE	Competency-based Education
CNP	Cambodia Nutrition Project
CBA	Cost-Benefit Analysis
DBF	Department of Budget and Finance
DA	Designated Account
EQHA	Enhancing Quality of Health Care Activity
ESF	Environmental and Social Framework
FM	Financial Management
FMM	Financial Management Manual
GBV	Gender-based Violence
GDP	Gross Domestic Product
GIZ	German Agency for International Cooperation (<i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i>)
GRS	Grievance Redress Service
H-EQIP	Health Equity and Quality Improvement Project
HEQCIP	Higher Education Quality and Capacity Improvement Project
HEIP	Higher Education Improvement Project
HPEU	Health Profession Education Unit
HRDD	Human Resources Development Department
HRDRAP	Human Resource Development Readiness Assessment and Plan for Inclusive Delivery
HTI	Health Training Institution
HWDP	Health Workforce Development Plan
IAD	Internal Audit Department
ICT	Information and Communication Technology
IRR	Internal Rate of Return
IPF	Investment Project Financing
IMF	International Monetary Fund
IT	Information Technology
IUFR	Interim Unaudited Financial Report
IVA	Independent Verification Agency
KfW	<i>Kreditanstalt für Wiederaufbau</i>
LGBT	Lesbian, Gay, Bisexual, and Transgender
M&E	Monitoring and Evaluation
MOH	Ministry of Health
MCQ	Multiple-Choice Question
Mini-CEX	Mini-Clinical Evaluation Exercise
MEF	Ministry of Economy and Finance
MUC	Marginal Utility of Consumption
NBC	National Bank of Cambodia
NPV	Net Present Value

NCD	Noncommunicable Disease
NCEE	National Competency-based Exit Examination
NEE	National Exit Examination
OSCE	Objective Structured Clinical Examination
PHD	Provincial Health Department
PDO	Project Development Objective
PIU	Project Implementation Unit
POM	Project Operations Manual
PMD	Preventive Medicine Department
PPSD	Project Procurement Strategy for Development
PWD	Person with Disability
RTC	Regional Training Center
RGC	Royal Government of Cambodia
SOGI	Sexual Orientation and Gender Identity
SOP	Standardized Operating Procedure (for externally financed projects issued by Sub-Decree No. 181 ANK/BK dated 2 December 2, 2019)
SDG	Service Delivery Grant
STEP	Systematic Tracking of Exchanges in Procurement
UNFPA	United Nations Population Fund
UHS	University of Health Sciences
USAID	U.S. Agency for International Development
WFME	World Federation for Medical Education
WHO	World Health Organization
WDI	World Development Indicators

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Cambodia	Strengthening Pre-Service Education System for Health Professionals Project	
Project ID	Financing Instrument	Environmental and Social Risk Classification
P169629	Investment Project Financing	Low

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Disbursement-linked Indicators (DLIs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	

Expected Approval Date	Expected Closing Date
29-May-2020	30-Jun-2026
Bank/IFC Collaboration	
No	

Proposed Development Objective(s)

To strengthen Cambodia's pre-service education system for health professionals.

Components

Component Name	Cost (US\$, millions)
COMPONENT 1: STRENGTHENING HEALTH PROFESSIONALS' EDUCATION GOVERNANCE	4.50



COMPONENT 2: IMPROVING COMPETENCY-BASED TEACHING AND LEARNING CAPACITY	10.00
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COMPONENT 3: PROJECT MANAGEMENT, MONITORING AND EVALUATION	2.00
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Organizations

Borrower:	Kingdom of Cambodia
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Implementing Agency:	Ministry of Health
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PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	36.50
Total Financing	16.50
of which IBRD/IDA	15.00
Financing Gap	20.00

DETAILS**World Bank Group Financing**

International Development Association (IDA)	15.00
IDA Credit	15.00

Non-World Bank Group Financing

Counterpart Funding	1.50
Borrower/Recipient	1.50

IDA Resources (in US\$, Millions)

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount
Cambodia	15.00	0.00	0.00	15.00
National PBA	15.00	0.00	0.00	15.00
Total	15.00	0.00	0.00	15.00

**Expected Disbursements (in US\$, Millions)**

WB Fiscal Year	2020	2021	2022	2023	2024	2025	2026	2027
Annual	0.00	0.65	1.08	1.56	2.40	3.33	4.44	1.54
Cumulative	0.00	0.65	1.73	3.29	5.69	9.02	13.46	15.00

INSTITUTIONAL DATA**Practice Area (Lead)**

Health, Nutrition & Population

Contributing Practice Areas

Education

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

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	● Low
8. Stakeholders	● Moderate
9. Other	● Moderate
10. Overall	● Substantial

**COMPLIANCE****Policy**

Does the project depart from the CPF in content or in other significant respects?

☐ Yes ☒ No

Does the project require any waivers of Bank policies?

☐ Yes ☒ No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Not Currently Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Not Currently Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
Cultural Heritage	Not Currently Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants**Sections and Description**

Covenant - FA – Schedule 2, Section I.A - The Project shall be carried out in accordance with the arrangements and



procedures set out in the Project Operations Manual.

Sections and Description

Covenant - FA - Schedule 2, Section I.B - Preparation and compliance with Annual Budget and Working Plans throughout project implementation.

Sections and Description

Covenant - FA - Schedule 2, Section I.C.2 - Provision of Service Delivery Grants under terms and criteria acceptable to the Association, as further defined in the POM.

Sections and Description

Covenant - FA - Schedule 2, Section I.D.1 – The Project shall be carried out in accordance with the ESS and the ESCP.

Conditions



I. STRATEGIC CONTEXT

A. Country Context

1. Over the past two decades, economic growth in Cambodia has been impressive and remained robust. Economic growth in Cambodia has been impressive and remained robust. The economy experienced an annual average growth rate of 7.9 percent over 1997-2017, ranking among the top seven fastest growing economies in the world. Growth was largely driven by exports of goods and services, which grew 14.6 percent a year over the same period. Cambodia's per capita Gross National Income (GNI) increased almost fourfold, from US\$320 in 1997 to US\$1,390 in 2018.¹ Strong economic growth has also led to a dramatic decline in poverty from 47.8 percent in 2007 to 13.5 percent in 2014.

2. **However, Cambodia's economic growth is subject to emerging risks.** The recent Coronavirus Disease 2019 (COVID-19) global outbreak is expected to cause significant impact on Cambodia and its main trade partners in 2020, through weakened export growth, reduced tourism flows, and slowed construction activities. Moreover, trade and investment are likely to be affected due to the suspension of trade privileges with the European Union and the ongoing slowdown in the Chinese economy. A prolonged construction and property boom which has contributed to rising indebtedness presents a downside risk for Cambodia. In the longer term, emerging challenges include the erosion of external competitiveness within the context of rapidly rising wage rates.

3. **The country suffers from acute constraints in human capital.** Persistent gaps in human and physical capital constrain Cambodia's ability to make a shift toward more diversified and higher value-added economic activities. At present, 12 percent of firms already report inadequately skilled workers as a constraint to doing business.² Cambodia's score on a recently developed Human Capital Index is 0.49, lower than the regional average of 0.65 in 2017. This means that children born in Cambodia today will be 49 percent as productive when they grow up as they could be, if they had enjoyed complete education, good health, and a well-nourished childhood. Making further progress on health outcomes, early childhood nutrition, and educational quality will facilitate improving the productivity of Cambodia's future labor force.

B. Sectoral and Institutional Context

Health Sector Overview

4. **Despite remarkable improvements in health outcomes in the past 20 years in Cambodia, persistent and growing disparities exist.** Maternal mortality remains high, and neonatal mortality has not declined proportionately to total child mortality. The country's rural, remote, indigenous, and socioeconomically challenged women and children remain disproportionately affected by poor health and nutritional status. The wealth gap in child mortality has remained unchanged since 2005, at roughly three

¹ World Bank. World Development Indicators.

² Only two other factors ranked higher than poorly educated workers as a constraint to firms: the informal sector (28 percent) and political instability (16 percent).



times higher for poor and rural children compared to wealthy and urban children.³ Stunting prevalence in the poorest wealth quintile (42 percent) is more than double than that in the richest (18 percent). Full immunization of children is at 61 percent in the poorest quintile compared to 90 percent in the wealthiest.⁴

5. **While health service utilization has increased over the years, access to and quality of health services continue to be a challenge.** Among patients who seek care at public facilities, feedback on how services could improve includes improving skills and attitudes of staff and improving diagnostic and treatment options, including the availability of equipment and medicine. Evidence-based standards are often not used in care practices,⁵ and incomplete care is common.⁶ Access to and quality of care for noncommunicable diseases (NCDs) is particularly limited at the primary care level. In 2016, 43 percent of Cambodians ages 18–69 never had their blood pressure checked, while 72 percent of respondents previously diagnosed with raised blood pressure were not on medication.⁷ Continuity of care for chronic conditions requiring ongoing management barely exists throughout the country. Prevailing structural barriers and social norms also limit access to health services for women and girls. Distance and travel time to health facilities increase the difficulty for women to seek care, while rigid gender norms contribute to widespread tolerance and acceptability of gender-based violence (GBV) in Cambodia and reduce women's willingness to seek help. One-fifth of women in Cambodia reported experiencing physical and/or sexual violence by an intimate partner, but only two out of five have sought assistance to stop the violence they have experienced.⁸ Few public facilities provide services for GBV victims, with poor training and skills among health professionals on how to respond to GBV as one of the reasons therein.

6. **Overall, gaps in the availability and quality of health services in Cambodia are the result of multiple and interacting factors,** including variable and inequitable availability, accessibility, and quality of essential services, particularly for chronic conditions; low community awareness, poor health literacy, and inadequate demand for health services; inadequate infrastructure and insufficient equipment, commodities, and supplies; understaffing; and poor education and training, as well as limitations in the competencies and skill mix of the health workforce. Inadequacies in the health workforce are by no means the only factor behind the gaps in service availability and quality. However, this is a key underlying and contributing reason for poor service quality. It is well-recognized that better training before entering health workforce will be critical to improving quality of care. Indeed, the Lancet Global Commission on

³ Hong, R, P. Y. Ahn, F. Wieringa, T. Rathavy, L. Gauthier, R. Hong, et al. 2017. "The Unfinished Health Agenda: Neonatal Mortality in Cambodia." *PLoS One* 12 (3).

⁴ Cambodia Demographic and Health Survey 2014.

⁵ Bazzano, A. N., R. A. Oberhelman, K. Storck Potts, A. Gordon, and C. Var. 2015. "Environmental Factors and WASH Practices in the Perinatal Period in Cambodia: Implications for Newborn Health." *Int J Environ Res Public Health*. 12:12.

www.mdpi.com/journal/ijerphArticle; Ith, P., A. Dawson, H. Ma, C. S. E. Homer, and A. K. Whelan. 2013. "Practices of Skilled Birth Attendants during Labour, Birth and the Immediate Postpartum period in Cambodia." *Midwifery* 29: 300–7.

www.elsevier.com/midw; Smith, J. M., S. Gupta, E. Williams, K. Brickson, K. L. Sotha, N. Tep, et al. 2016. "Providing antenatal corticosteroids for preterm birth: A quality improvement initiative in Cambodia and the Philippines." *Int J Qual Heal Care*. 28 (6): 682–8; Ith, P., A. Dawson, and C. Homer. 2012. "Quality of Maternity Care Practices of Skilled Birth Attendants in Cambodia." *Int J Evid Based Healthc* 10 (1): 60–7.

⁶ National Institute of Statistics, Directorate General for Health, and ICF International. 2015. *Cambodia Demographic and Health Survey 2014*. 2015. www.nis.gov.kh. For example, in 2014, although 82 percent of women attending antenatal care reported being informed of pregnancy-related complications, only 49 percent had urine samples taken.

⁷ UHS (University of Health Sciences). *Prevalence of Non-communicable Disease Risk Factors in Cambodia*. STEPS Survey 2016.

⁸ Hyun, Mia. 2019. *Cambodia Gender-Based Violence Institutional Mapping Report*.



High Quality Health Systems identified the transformation of the health workforce, and in particular, strengthening pre-service education and supporting work environments as one of the four ‘universal actions’ to increase quality across health systems.

Cambodia’s Health Workforce

7. **Since 1990, Cambodia has been rebuilding the country’s health workforce.** Lingering human resource capacity gaps are in part attributable to the decimation of the educated population under the Khmer Rouge. In 1980, there were roughly 50 physicians in the country. With a steady increase in training and employment, today, the Ministry of Health (MOH) employs 24,270 health personnel.⁹ Unfortunately, data on the size and composition of the health workforce outside the public sector are not available. The number of private health facilities in Cambodia has been used to estimate the number of health personnel in the private and non-governmental organization sectors, though many may be double-counted due to dual practice.

8. **Despite the increase in the health workforce, Cambodia continues to face a shortage of health professionals, especially in the public sector.** Cambodia still only has 1.4 doctors and 9.5 nurses and midwives per 10,000 people.¹⁰ This is significantly below the average among low- and lower-middle income countries in the East Asia and Pacific region of 9 doctors and 19 nurses per 10,000 people.¹¹ Anecdotally, only 30 percent of graduates from health training institutions (HTIs) enter the public sector each year. The objective of the Royal Government of Cambodia (RGC) has been to decrease or hold steady the number employed in the public sector in order to increase salaries without substantially increasing costs. Some health professionals work in the public sector on a contract basis, while the remaining graduates are employed by other ministries that have health departments, work in private practice or with non-governmental organizations, or do not work at all in the health sector.

9. **There are also challenges in appropriate distribution of the health workforce.** Doctors typically work at secondary- and tertiary-level facilities, while primary care facilities are almost entirely staffed by nurses and midwives. While a majority of general practitioners work at the provincial level (63 percent), most specialists are deployed to hospitals at the central level (79 percent). Most medical assistants (76 percent), dental assistants (82 percent), primary nurses (98 percent), and midwives (100 percent) work at the provincial and district levels. Retention in the public sector is not a concern; the staff turnover rate in the public sector is negligible (approximately 0.006 percent) and the attrition rate is about 0.5 percent.

10. **The overall gender balance in the health workforce is roughly equal but with significant inequities across different cadres.** In the public sector, 51 percent of the health professionals are female,

⁹ Based on data from MOH Cambodia’s Department of Planning and Health Information, as of 2018 there were 689 specialists, 2,743 general doctors, 613 medical assistants, 11 pharmacist doctors, 627 pharmacists, 82 pharmacist assistants, 25 pharmacy technicians, 304 dentists, 44 dental assistants, 149 dental nurses, 215 Bachelor of Nursing, 7,912 secondary nurses, 2,864 primary nurses, 272 Bachelor of Midwife, 4,279 secondary midwives, 2,256 primary midwives, 797 secondary lab technicians, 65 primary lab technicians, 216 kynetherapists, and 107 x-ray technicians. Non-health professionals include 134 information technology (IT) personnel, 305 accountants, and 729 other nonmedical personnel.

¹⁰ WHO (World Health Organization). 2008. “Establishing and Monitoring Benchmarks for Human Resources for Health: The Workforce Density Approach.” Accessed May 25, 2019. www.who.int/hrh/statistics; World Bank Open Data. Nurses and Midwives (per 1,000 people). Accessed May 25, 2019. <https://data.worldbank.org/indicator/sh.med.numw.p3>.

¹¹ OECD (Organisation for Economic Co-operation for Development). 2018. *Health at a Glance: Asia Pacific*.



but women are significantly underrepresented in nursing (33 percent) and among specialists, general doctors, dentists,¹² and leaders at MOH.¹³ Meanwhile, 100 percent of midwives are women. There are currently no policies or measures to promote enrollment of students from indigenous and ethnic groups and those from poor or remote areas in health professionals' education programs.¹⁴

11. **Gaps in the quality of health professionals remain a critical challenge.** A nationwide assessment of competence of doctors, nurses, midwives, laboratory technicians, and leaders at health centers and hospitals in 2015 demonstrated large variations in quality across different types of services. For example, there was poor performance on triage and vital signs assessment (doctors) and postnatal care (nurses and midwives). Results from clinical vignettes had an average of less than 50 percent of correct responses.¹⁵ Private sector providers have similarly low competencies; only 54 percent have formal training in health care, and competency tests did not reveal a significant difference in providers' knowledge between public and private sectors. Currently, the RGC is working on addressing these challenges in its Health Workforce Development Plan (HWDP) (2016–2020).

Cambodia's Pre-service Education System for Health Professionals

12. **Pre-service education for health professionals is delivered at 18 HTIs:** 7 public and 11 private institutions. The University of Health Sciences (UHS) is the country's major public health sciences training university and accounts for more than half of all health professionals' production volume. The UHS has faculties of medicine, dentistry, and pharmacy at Campus 1 and the Technical School for Medical Care at Campus 2, which offers courses in nursing, midwifery, laboratory science, physiotherapy, and radiography. There are four public Regional Training Centers (RTCs) offering training in associate degrees in nursing and midwifery, as well as bridging courses for primary nurses and midwives to become associate nurses and midwives. Two RTCs also offer an associate degree in dental nursing.

13. **Enrollment and graduation numbers have increased significantly over the past 10 years but have plateaued in some programs in the past 2 to 3 years.** In 2010, for example, there were just 79 medical graduates, 51 pharmacy graduates, 484 graduates from the nursing program, and 154 graduates from the midwifery program.¹⁶ For the majority of training programs, graduation numbers increased significantly between 2010 and 2016.¹⁷ However, there has been a decrease in enrollment and graduation numbers in several programs in 2018 and 2019.

14. **The quality of pre-service education affects health professionals' performance.** Health professional' performance is determined by a combination of factors including competence, capacity and

¹² OECD (Organisation for Economic Co-operation for Development). 2018. *Health at a Glance: Asia Pacific*.

¹³ Vong, S., Bandeth R., R. Morgan, and S. Theobald. 2019. "Why Are Fewer Women Rising to the Top? A Life History Gender Analysis of Cambodia's Health Workforce." *BMC Health Services Research* 19:1.

¹⁴ Interview with the female Vice Dean of the University of Health Sciences (UHS) on gender aspects of the health workforce.

¹⁵ Ministry of Health, Royal Government of Cambodia. *Level 2 Quality of Care Assessment in 2015 among Public Health Facilities in 15 Provinces and Phnom Penh Municipality*. The Technical Working Group for Level 2 Quality of Care Assessment, April 2016.

¹⁶ World Health Organization. 2015. "The Kingdom of Cambodia Health System Review." *Health Systems in Transition* 5 (2) (table 4.9, page 97).

¹⁷ Due to a paucity of data for earlier years and difficulties in matching data, trend analysis begins only from 2015/16. There are also poor records of enrollment numbers for 2009/10. Only graduation (and not enrollment) numbers are compared between 2009/10 and 2015/16.



effort, quality of training, and so on. Key challenges in Cambodia's pre-service education include weak governance and regulation, a mismatch between the competency of graduates and the population's health needs, outdated curricula, poor quality of instruction, ineffective use of practice sites, inadequate facilities and equipment, and poor assessment of students and programs. The following paragraphs outline each of these issues.

Governance and Regulation

15. **There is significant room to improve the regulatory functions for health professionals' education.** The Human Resources Development Department (HRDD) of MOH is responsible for regulation of health-related pre-service education, including the development and enforcement of national curricula and assessments, which is governed by Sub-decree 21, established in 2007 and amended in 2017.¹⁸ Responsibilities include determining minimum requirements and standards as well as monitoring and reporting on the quality of programs. The HRDD has oversight of all RTCs and public health facilities which are used as practice sites. Currently, regulatory function is weak, with few outdated standards and poor enforcement. There are no guidelines for teaching hospitals and health centers that train students and no policies regarding career pathways for faculty. There is a shortage of nursing, midwifery, and laboratory faculty who have bachelor's or higher degrees. Finally, preceptors have no official academic appointments and are often unaware of the curriculum.

16. **Internationally and across the Association of Southeast Asian Nations (ASEAN) region, accreditation of HTIs is the primary mechanism for quality assurance in health professional education.** In Cambodia, the Accreditation Committee of Cambodia (ACC) is responsible for accrediting all higher education institutes, including HTIs. However, the ACC does not accredit the content and quality of health professionals' education programs nor does it assess students' clinical competence. There are currently no standards for health professionals in Cambodia that are aligned with regional standards, and all HTIs remain unaccredited. Until a formal program to accredited HTIs is in place in Cambodia, new competency-based curriculum will require external review for quality assurance. A mechanism for this review will need to be established.

17. **For individual practitioners, the National Exit Examination (NEE) serves as the primary vehicle through which qualifications are tested before entering the health workforce in Cambodia.** The NEE is a mandatory requirement for graduation from HTIs that offer associate, bachelor's, and medical doctor degrees.¹⁹ It was introduced in 2013, partly in response to an increase in the number of private HTIs of variable quality. This multiple-choice question (MCQ) test consists of questions selected from a bank of 800–2,500 questions, many of which have been donated by other countries. The questions are rarely updated and are often not relevant to Cambodia, and both questions and answers are provided to students in advance. Students spend valuable time learning the answers. As a result, pass rates for each profession are high.²⁰ Objective Structured Clinical Examinations (OSCEs) were included as a method to test competency, but in 2017, OSCEs were discontinued due to lack of trained assessors. The NEE in its

¹⁸ The Council of Ministers has the ultimate authority to regulate these institutions and set similar standards for both public and private university graduates.

¹⁹ The National Competency-based Exit Examination (NCEE) is a requirement for graduation but not for licensing; therefore, the regulation does not apply to health professional graduates trained outside of Cambodia who wish to practice in Cambodia.

²⁰ In 2019, pass rates were above 95 percent for medical, dental, and pharmacy students; 86 percent for associate degree nursing; 96 percent for bridging course (ADN to bachelor); and 81 percent for associate degree midwives.



current form is an inadequate mechanism to certify the competency of health professionals and the high pass rate masks the reality that many graduates still do not have the requisite competencies to provide good quality health services. Thus, it will be critical to develop and enforce adequate education standards and health workforce planning.

Competency-based Education: Competency Frameworks and Curriculum at Its Core

18. **Competency-based education (CBE) for health professionals is an international best practice and focuses on the desired performance of health care professionals.** Competency refers to knowledge, skills, attitudes, and behaviors required to work as an effective health care professional. CBE makes this explicit by establishing observable and measurable performance metrics that students must attain to be deemed competent. An outcomes-based approach is used in the design, implementation, assessment, and evaluation of health professionals' education programs, employing an organizing framework of competencies (see Box 1).

Box 1: Competency-based education for health professionals

Fundamental Principles	Core Competencies	Building Blocks
Education based on health needs of population served	1. Medical knowledge 2. Patient care	Clearly defined learner outcomes
Focus on desired outcomes described as competencies; not process, time, or structure	3. Communication skills 4. Professionalism 5. Advocacy 6. Leadership	Learners take an active role Learners are assessed in authentic clinical settings
Vertical integration: basic sciences applied to competencies, use of evidence-based medicine	7. Practice and system improvement	Formative and focused feedback from multiple assessors using multiple methods

Source: Adapted from Carraccio, Carol, et al. 2016. "Advancing Competency-based Medical Education: A Charter for Clinician-Educators." *Academic Medicine* 91 (5).

19. **Cambodian training systems and standards for health professionals' education are not yet fully aligned with CBE for health professionals.** Between 2011 and 2013, Cambodia developed core competency frameworks for general medical doctors, nurses, midwives, dentists, pharmacists, and lab technicians, but they have not been updated periodically as intended when they were originally developed.²¹ The frameworks are also not aligned with either educational curricula or guidelines on the types of services to be delivered at public sector health facilities. Curricula remain over-prescriptive, are focused on lectures, and are not adaptable to new educational priorities. This approach is outdated: most HTIs have integrated clinical skills with basic sciences beginning in the early years of study.²² Course content includes compulsory subjects that may not be relevant to certain programs, while many critical skills and modules are either introduced too late or are not part of training programs at all, and educational requirements are not well aligned with the health needs of the population (for example, curricula are lacking in a focus on primary care and NCD management and identification and treatment of

²¹ Each framework has the following clause: "The document should be considered as a living-document and therefore expected to evolve over time. Accordingly, it should be reviewed and updated periodically, with annual review in the early years to enable addressing unforeseen issues quickly and efficiency and thereafter every three years, to capture and maintain the reality in the development of [medical / nursing / dental / etc.] practice and professional standards in the country."

²² Brauer, D. G., and K. J. Ferguson. 2015. "The Integrated Curriculum in Medical Education: AMEE Guide No. 96." *Medical Teacher* 37 (4). <https://doi.org/10.3109/0142159X.2014.970998>.



GBV victims). The language of instruction may be French, English, or Khmer as the lecturer prefers—another obstacle to many students.

20. **In recent years, although Cambodia has made some efforts to move toward CBE, more work needs to be done.** Currently, through the Health Equity and Quality Improvement Project (H-EQIP; P157291), the UHS is reviewing, revising, and introducing comprehensive pre-service education program in foundational courses for medical and nursing professions. The Enhancing Quality of Health Care Activity (EQHA) project in partnership with the HRDD has begun to update the nursing core competency framework and curriculum, and the United Nations Population Fund (UNFPA), with support from the EQHA project, plans to update the midwife curricula beginning in 2020. In addition, school-level curriculum needs to be developed by the HTIs. Delegated authority for HTIs to add new content consistent with evolving knowledge will remove a major barrier to upgrading content and methods that now exist. This structural barrier could be addressed by creating a program-level monitoring and evaluation (M&E) system, leading to ongoing and regular improvements in the curriculum.

Quality of Instruction

21. **Despite efforts to improve the quality of instructions at HTIs in Cambodia, quality of instruction remains one of the weakest components of pre-service education for health professional.** Beyond curriculum, teaching CBE requires a cadre of trainers with new skills, including clinical site preceptors. Most trainers in Cambodia have little understanding of CBE concepts. In a recent study of UHS students, only 27 percent were satisfied with the quality of their training. A large percentage of students reported that the curriculum did not allocate enough time for certain topics (67 percent), lacked practical training (57 percent), and lacked feedback on academic performance (49 percent).²³ In an evaluation of hospital preceptors conducted in 2017 by the UHS, preceptors reported that they were ill-equipped to teach competencies such as patient communication and diagnostic reasoning due to lack of training. These results highlight the need for not only new efforts in faculty development and preceptor training but also changes in accreditation and credentialing.

22. **Another reason for poor quality of instruction is that trainers are poorly compensated.** By law (Sub-decree 38), nurse and midwife trainers are paid KHR 2,000 (equivalent to US\$0.50) per lesson taught, a payment rate that has not been adjusted since 1996. Hospital staff who lecture at HTIs are paid low rates per hour of lecture, and preceptors in hospital training sites are paid even less than those providing training at HTIs. Dual appointments to both HTIs and hospitals are not permitted. Therefore, beyond lecturing, highly qualified professionals are not available to HTIs for work as course directors or to participate in other quality improvement efforts. Consequently, it will be important to consider new incentive structures and rewards for trainers who adopt CBE. International experience shows that effective incentive mechanisms can include both monetary and non-monetary rewards. Good examples of the latter include recognition of educational innovation through conferring professorships or other awards, access to library resources, free continuing medical education, and protected time for teaching away from clinical responsibilities. Trainers with access to student feedback on their teaching may also experience increased satisfaction and improvements in teaching.²⁴

²³ University of Health Sciences and World Bank. 2016. *UHS Study Preliminary Results*.

²⁴ Dath, Deepak, and William Iobst. 2010. "The Importance of Faculty Development in the Transition to Competency-based Medical Education." *Medical Teacher* 32:683–686



Learning Environment in HTIs and Practice Sites

23. **Many HTIs have clinical skills labs, but they are poorly equipped and their use is limited.** Clinical skills labs give students the opportunity to practice patient care in a low-risk setting and are essential to health professionals' education throughout the world. Investment in medical and nursing skill laboratories is minimal, with negative impacts on the quality of training. Where equipment does exist, it often has not been incorporated into training curriculum and is unused. When used, there are insufficient number of models and trainers, and demonstration by trainers rather than practice by students is common. EQHA has recently purchased equipment, including mannequins for Battambang and Kampong Cham RTCs, for use as curriculum for nurses. Additional items for medicine, nursing, and midwifery programs are needed.

24. **A shortage of practice sites and ineffective instruction at the available sites are critical challenges.** Practice sites are limited to national hospitals, some provincial hospitals in urban areas, and fewer district hospitals and health centers. There are currently no standard guidelines for practice sites to ensure basic quality of teaching. Coordination between HTIs and practice sites is often poor, with too many students placed in facilities at the same time, leaving students without appropriate supervision and coaching. Other challenges include large gaps in clinical experiences, lack of clinical teams that optimally provide mentoring and teaching, inadequate student assessment, and lack of trained preceptors and learning resources. In addition, most training occurs in hospitals, with limited opportunity for ambulatory care training, NCD management, and key principles of primary care such as continuity of care, patient centeredness, and care coordination. There are currently no outpatient teaching sites in Cambodia.

Student and Program Assessment

25. **Current student assessment methods in Cambodia are inadequate to properly measure competency.** Direct observation of medical trainees caring for real patients by clinical supervisors is critical for teaching and for assessing clinical skills. Current assessment methods consist of MCQ tests, OSCEs, and logbooks. Logbooks are checklists with little relationship to performance and actual student performance at the clinical sites is not assessed. Logbooks have no bearing on grades or promotion. At the UHS, OSCEs are not employed in the pre-service curriculum. Although RTCs have recently introduced OSCEs, implementation is at a nascent stage. Validated tools, such as the Mini-Clinical Evaluation Exercise (mini-CEX),²⁵ are used in many international settings to assess workplace performance of students. In the United States, the Accreditation Council for Graduate Medical Education has developed milestones for use as clinical assessment tools for medical students, which are subject to ongoing continuous evaluation and modification.²⁶

26. **Furthermore, no mechanism exists for ongoing program evaluation and improvement.** Curricula require constant updating, and mechanisms are necessary for regular evaluation and review. Student feedback can include assessment of the effectiveness of techniques and trainers and should be paired with support to trainers for improvement. Student feedback in Cambodia is inconsistent and rarely leads to change. On the program level, no mechanism exists for regular course review and improvements. Active course coordinators and advisory committees are necessary for each course. Appointed committees

²⁵ JAMA. 2009. 302 (12): 1316–1326. doi:10.1001/jama.2009.1365. Jennifer R. Kogan, MD; Eric S. Holmboe, MD; Karen E. Hauer, MD. "Tools for Direct Observation and Assessment Clinical Skills of Medical Trainees: A Systematic Review".

²⁶ Med Teach. 2017. 39 (5): 494–504. doi: 10.1080/0142159X.2017.1299924. Epub 2017 March 10.



should annually review course content and student evaluations. Thus, new methods for assessing program quality will need to be developed in line with the international standards.

Use of Technology

27. **Technology has not been optimally utilized in educational and training settings in Cambodia.** Technology can be used to provide an educational environment that engages the student, is harmonious with adult learning styles, and facilitates learning. Yet very little technology has been incorporated into medical education. Students continue to be passive learners as lectures are the dominant teaching method. Digital access to evidence-based educational resources, research, e-learning activities, and computerized simulation models is limited. Faculty and students rely on old textbooks and non-peer-reviewed information available online. Faculty often lack basic computer skills, and access to computers is limited. Distance learning facilities are not yet available for students. During clinical practicums, students must return to their institutions for additional lectures, often daily, reducing time spent in practice sites. A range of technology options, including e-learning, video streaming of lectures, and telemedicine, could be considered to improve pre-service education for health professionals.

C. Relevance to Higher Level Objectives

28. **The proposed project is closely aligned to the development priorities and health sector strategic goals of the RGC.** The Rectangular Strategy 4 for Growth, Employment, Equity, and Efficiency: Building the Foundation Toward Realizing the Cambodia Vision 2050 (Phase IV) outlines 'Human Resource Development' as a key strategy. Specifically, it sets out to (a) uplift the quality, safety, and effectiveness of health services, including through improving the strengthening of health professional ethics, and (b) improve the competency and skills of health providers through basic training before starting their careers and preparing and strengthening health professionals' education quality accreditation mechanism. The project will also contribute to the objectives laid out in the RGC's Third Health Strategic Plan 2016–2020. The strategic plan aims to effectively manage and lead the entire health sector to ensure that quality health services are geographically and financially accessible and socio-culturally acceptable to all people in Cambodia through public and private sector service provisions. The project is fully aligned with the RGC's HWDP for 2016–2020, which envisions that "the health system will have adequate number of competent, well-motivated, equitably distributed, regulated health workforce with an appropriate skill mix." In addition, the project is aligned with new gender mainstreaming policy and strategy in health sector (2020–2024), which will be implemented by various MOH departments, UHS, and RTCs.

29. **This project is well aligned with the Cambodia Gender Action Plan 2019–2020 (CGAP) to support gender equality by addressing priority gender gaps and capacity building by promoting health professionals' education and training, including in remote and rural areas and among indigenous and ethnic minorities;** thereby, creating greater economic opportunities and empowerment, particularly in key areas of the health sector. Improved quality health care will also contribute to maternal and reproductive health services for women. The project will address the gap in healthcare workers trained in GBV response and the lack of provision of quality GBV services through the introduction of training requirements on GBV into curricula for health professionals. Health care workers who participate in training programs in GBV demonstrate increased knowledge and confidence in responding to GBV, and are more likely to prescribe emergency contraception, HIV prophylaxis and STD prophylaxis and



treatment. ^[1] Direct beneficiaries of this project include graduates of HTIs that train grass roots providers of health care to women, including nurses, midwives, and doctors who are ultimately employed by health centers, referral hospitals and provincial hospitals throughout Cambodia. The provision of GBV training to these students will help to ultimately improve the availability and responsiveness of services to victims of GBV. The project will measure the closing of this gap through the following indicator: “Students with the knowledge to recognize, medically manage, and refer GBV survivors to appropriate community-based services.

30. **The project is consistent with the World Bank Group’s Country Partnership Framework 2019-2023 (CPF)**²⁷. Objective 4 of Focus Area 2 is to “Enhance quality and alignment of education with labor demands,” including through higher education in health. Moreover, achievement of the objectives for early childhood services and access to quality health services under Focus Area 2 (“Fostering human development”) will be achieved through improvements in the quality of health professionals. The proposed Project will also complement the recently approved COVID-19 Emergency Response Project, by helping to invest in human capacity building. The project has been highlighted as a main contribution to Cambodia’s human resource in health development agenda and contributing to the World Bank Group’s twin goals of eliminating extreme poverty and boosting shared prosperity.

31. **In addition, the project is in line with the objectives of the ongoing H-EQIP and Cambodia Nutrition Project (CNP; P162675)**, which affirms the country’s mission for effectively managing and leading the entire health sector to ensure that quality health and nutrition services are geographically and financially accessible and socio-culturally acceptable to all people. The H-EQIP and CNP have been addressing the quality of health and nutrition services in Cambodia which is suboptimal. In addition to gaps in infrastructure and supply of equipment, medicine, and other commodities, Cambodia faces a major challenge with the skills and competencies of its health professionals entering the workforce.

32. **Finally, the project activities are closely aligned with the recently formulated country’s National Strategic Plan for Pre-Service Education in the Health Sector.** This plan was developed by MOH during the preparation stage of this project, with World Bank support. The plan aims to shift Cambodia’s health professionals’ education system from knowledge based to competency based, which will comply with ASEAN and international standards. Additional priority strategic areas include ensuring quality of pre-service education programs, improving capacity of institutions, ensuring improved student assessment, and ensuring that licensing systems for health professionals are robust. Major systemic and institutional barriers identified as outdated regulations for health professionals’ education, lack of standards for training programs, and ineffective coordination between HTIs, hospitals, and health centers will be addressed.

^[1] Smith et al. Conflict and Health 2013, 7:14 <http://www.conflictandhealth.com/content/7/1/14>
RESEARCH

²⁷ World Bank Group. 2019. Country Partnership Framework for Kingdom of Cambodia for the Period of FY2019-2023. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/31789> License: CC BY 3.0 IGO



II. PROJECT DESCRIPTION

A. Project Development Objective (PDO)

33. **The PDO is to strengthen Cambodia's pre-service education system for health professionals.**

34. **The project will contribute in creating a future generation of health professions who can perform complex reasoning, deal with uncertainty, anticipate and plan impending changes, and undertake many other functions that are essential to improve quality of care on health outcomes.** To realize this transformation, this project will invest in human capacity building. Capacity building will be done with faculty development courses, intensive coaching from experts, enhanced infrastructure, technology, and other resources to support new ways of teaching. The resulting new competency-based curriculum and effective teaching cohort promise to produce a competent health care workforce that will change the landscape of health care and be felt for many years after this project is over. Indeed, the lasting benefits will have a positive impact not only on the careers of trainers and students directly involved but also on the many students enrolled in programs in the future. Other self-sustaining aspects of the project include strengthening the regulatory framework that will shape the health professional education system and creating a semiautonomous public NEE center supported by students' fees. At the training institution level, transformation will be reinforced by institutional reforms such as granted autonomy status, an expanded network of certified clinical training sites, and strengthened management information systems.

35. **The proposed PDO-level indicators are as follows:**

- Number of national CBE curricula independently reviewed and approved
- Percentage of students who passed national competency-based exit examinations
- Percentage of faculty members and preceptors certified as competency-based trainers
- Number of health facilities certified as practice sites

B. Project Components

36. **The project aims to improve the quality of education for health professionals entering the workforce in response to health system needs.** It targets two priority areas, which accordingly form the first two project components. The first component aims to improve the governance of health professionals' education in Cambodia by establishing education regulations and standards as well as measuring educational outcomes. The second component aims to strengthen competency-based teaching and learning capacity in selected HTIs. The third component will support the project management, monitoring, and evaluation.

Component 1: Strengthening health professionals' education governance (US\$4.5 million)

37. **This component will support the HRDD to strengthen the governance of health professional education in Cambodia** including (a) regulations and standardization for health professionals' education, (b) NCEEs, and (c) technical assistance and knowledge exchanges on health professional education.



38. **Regulations and standardization for health professional education.** The project will support the development and strengthening of regulations, standards, and guidelines for the governance of health professional education. Priority areas of support include:

- (a) Strengthening the HTIs' autonomy through a Prakas to enable them to improve the quality of training by paying reasonable incentives to faculty members and preceptors;
- (b) Developing/updating the national qualification and core competency frameworks for six health professional programs, namely, general medicine, pharmacy, dentistry, nursing, midwifery, and laboratory;
- (c) Developing and standardizing national curricula frameworks for health professionals' education. The project will also support international and national technical assistance to the HRDD and HTIs for the development of curriculum. Independent working groups of health professional education experts will be established to review national curricula frameworks before approval;
- (d) Developing education standards and guidelines for health professionals' education
- (e) Developing standards for clinical practice sites with regard to improving teaching and training capacity, establishing a certification system for practice sites, and strengthening partnerships between HTIs and practice sites;
- (f) Establishing a training and certification system for preceptors, building preceptors' career pathways, and improving remuneration for preceptors;
- (g) Developing policies to enhancing education of indigenous, poor, remote, or female population in health professional education, including criteria for admission, student support, ethnic minority-sensitive instructions, and so on; and
- (h) Strengthening existing internal gender equity policy of the UHS and extending to RTCs.

39. **National Competency-based Exit Examination.** The project will support the establishment and operationalization of the NCEE center, including: (a) regulatory and institutional frameworks for the establishment of the NCEE center; (b) establishment of an organizational structure, including a gender-sensitive and inclusive staffing for the NCEE center; (c) development of standardized operating procedures (SOPs) to undertake competency-based exit examination for health graduates and professionals, including methodology and process and application of computer-based testing and OSCEs; (d) creation of item question bank (a repository of test items); (e) improvement of physical facilities for the NCEE center, including office space, examination equipment and instruments, information and communication technology (ICT) and audiovisual systems, furniture, auxiliary facilities, and so on; and (f) provision of management and operational support for the NCEE center for up to three years after its establishment.

40. **Technical assistance and knowledge exchanges.** Given the high complexity of the operation, international technical assistance and knowledge exchanges are required for MOH education experts. Expert group(s) comprising international and national experts in health professionals' education will be formulated to assist MOH committee in health profession regulation and quality assurance. The project



will facilitate international cooperation and knowledge exchange activities, including study visits, conferences, workshops, and training courses on health professionals' education. The project will also support the development and delivery of short-term training courses for health professional educators on different aspects of CBE such as instructional design, curriculum development and/or integration, course syllabus development, lesson plans preparation, use of simulation in health profession education, online and blended teaching-learning, clinical teaching methods, formative and summative assessment of students, clinical skills evaluation, and so on. In addition, the project will support MOH along with the professional councils and the ACC to build reviewers'/assessors' capacity to carry out external program reviews and institutional accreditations through conducting basic training courses. These training courses will be organized quarterly by MOH in association with the Health Profession Education Unit (HPEU) at the UHS.

Table 1. Proposed Timeline for Implementing Activities at MOH Level

Key Milestones at MOH Level	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Regulations and standards						
Core competency frameworks updated	X					
Practice site standards developed	X					
Prakas on preceptor remuneration updated		X				
Regulation on partnership between HTIs and practice sites developed		X				
Financial autonomy for RTCs granted		X				
Other standards and regulations developed			X	X	X	X
NCEE						
Regulatory structure for NCEE developed	X					
NCEE center staffed and equipped		X	X	X		
SOPs developed	X	X	X	X		
Examination questions improved/developed	X	X	X	X	X	X
OSCE facilities equipped			X	X	X	
Competency-based exit examinations organized				X	X	X
Technical assistance and knowledge exchanges	X	X	X	X	X	X

Component 2: Improving competency-based teaching and learning capacity (US\$10.0 million)

41. **This component aims to strengthen the competency-based teaching and learning capacity in the UHS and the four RTCs**, namely, the RTC in Kampong Cham Province, the RTC in Kampot Province, the RTC in Battambang Province, and the RTC in Stung Treng Province. Investments under this component will (a) improve teaching competency of faculty members and preceptors; (b) develop and implement CBE courses; (c) improve student assessment processes; (d) modernize physical facilities; (e) strengthen practice sites; (f) establish an electronic feedback system for the ongoing reforms; and (g) strengthen M&E



and management capacity of HTIs to improve training quality and produce more competent graduates who can pass the NCEE before entering the health workforce.

42. **The project will support the development and delivery of competency-based training programs in six health professional programs: general medicine, dentistry, pharmacy, nursing, midwifery, and laboratory.** These programs were prioritized by the recently developed National Strategic Plan for Pre-service Education in Health Sector in Cambodia 2020–2025. Gender aspects and social inclusiveness will be mainstreamed in the development and delivery of these competency-based training programs. Table 2 lists the training programs and HTIs targeted by the project.²⁸

Table 2. List of Training Programs and HTIs Targeted by the Project

Health Professionals' Training Programs	HTIs				
	UHS	Kampong Cham RTC	Kampot RTC	Battambang RTC	Stung Treng RTC
General medicine	General medicine program (bachelor's degree)				
Pharmacy	Pharmacy program (bachelor's degree)				
Dentistry	Dental program (bachelor's degree)	Dental nurse program (associate degree)	Dental nurse program (associate degree)		
Nursing	Pre-service program (bachelor's degree)	Pre-service program (associate degree)	Pre-service program (associate degree)	Pre-service program (associate degree)	Pre-service program (associate degree)
	Bridging program (bachelor's degree)	Bridging program (associate degree)	Bridging program (associate degree)	Bridging program (associate degree)	Bridging program (associate degree)
Midwifery	Pre-service program (bachelor's degree)	Pre-service program (associate degree)	Pre-service program (associate degree)	Pre-service program (associate degree)	Pre-service program (associate degree)
	Bridging program (bachelor's degree)	Bridging program (associate degree)	Bridging program (associate degree)	Bridging program (associate degree)	Bridging program (associate degree)
Laboratory	Pre-service program				

²⁸ The Government of the Federal Republic of Germany through *Kreditanstalt für Wiederaufbau* (KfW) is considering to provide a grant to co-finance the development of selected new professionalisms, such as biomedical engineering, health informatics, genetics, and so on.



Health Professionals' Training Programs	HTIs				
	UHS	Kampong Cham RTC	Kampot RTC	Battambang RTC	Stung Treng RTC
	(associate degree)				
	Bridging program (associate degree)				

43. **Intended educational outcomes will be defined and gaps in existing curriculum frameworks and current health professionals' training programs will be analyzed.** HTIs will be supported to define educational outcomes and overall curriculum frameworks and conduct gap analyses in the delivery of current programs. The educational outcomes refer to knowledge, skills, attitudes, and behaviors that students should exhibit upon graduation in relation to the core competency frameworks and the needs of the health care delivery system. The overall curriculum framework includes a statement of intended educational outcomes, content and/or syllabus, learning experiences and processes, and planned instructional and assessment methods. It describes the content, extent, and sequencing of courses and other curricular elements and ensures appropriate integration between basic biomedical, behavioral, social, and clinical subjects. The curriculum framework will incorporate the contributions of clinical sciences to ensure that students have early patient contact and acquire sufficient clinical skills; reallocate the amount of time spent in training in major clinical disciplines and adding courses in areas where there are gaps (for example, primary care, NCDs, GBV); reorganize clinical skills training with appropriate attention to patient safety and primary care; and standardize languages used in HTIs and practice sites. The gap analysis includes review of current educational programs against national regulations, standards, and internationally recognized guidelines.²⁹ In addition, it analyzes gaps in the curriculum, faculty, teaching facilities, practice sites, and M&E system. Based on findings from the gap analysis, the HTIs will identify a set of interventions as outlined below to strengthen competency-based teaching and learning capacity as well as measurement of education quality in accordance with a Project Operations Manual (POM).

44. **Identified interventions to be carried out by each HTI should include the following areas, among others:**

- (a) **Developing faculty members and preceptors** through recruitment and selection policy, advanced degree training, training of faculty members in CBE, training of preceptors, recognition and remuneration of clinical training activities, and conducting of scientific research in the discipline of medical education.
- (b) **Developing and implementing CBE courses.** Developing course syllabi and lesson plans; introducing recognized approaches to teaching and learning based on advances in Adult Learning Theory and evidence of effectiveness (see Box 2³⁰); promoting the development of clinical reasoning; problem solving and critical thinking; developing courses to address

²⁹ WFME: Global Standards for Quality Improvement of Basics Medical Education (the 2015 revision); WHO. 2009. *Global Standards for the Initial Education of Professional Nurses and Midwives*; AUN-QA (ASEAN University Network Quality Assurance): Guide to AUN-QA Assessment at Programme Level Version 3.0.

³⁰ Irby, David M., and L. Wilkerson. 2003. "Educational Innovations in Academic Medicine and Environmental Trends." *J Gen Intern Med.* 18 (5): 370–376.



existing and/or emerging gaps in care (for example, primary care and NCDs); developing courses to address gender gaps, in particular to identify and treat victims of GBV; integrating social inclusion (indigenous people, disability, ethnic groups, and so on); and including environmental sustainability in the training modules.

Box 2: Approaches to teaching and learning based on Adult Learning Theory

Adult Learning Theory	Teaching Methods for Adult Learners
Autonomous and self-directed	Small-group and team-based activities
Interpret knowledge based on past life experiences and personal needs	Problem-based learning: successive unfolding of a case, with self-directed learning and repeated group discussions
Relevant and goal oriented	Case-based learning: single discussion of complex case or problem sets
Active, constructive process	Learning communities of faculty and students
Self-reflective	Simulation technology, computer-based instruction, frequent assessments
Social: learning occurs during discussions when knowledge is challenged	Flipped classrooms: lecture and reading at home coupled with team-based learning

- (c) **Improving student assessment.** Using reliable evaluation methods that are clearly compatible with intended training outcomes and instructional methods; developing MCQ tests; and incorporating special types of examinations to assess competence, for example, OSCE, mini-CEX, and milestones.
- (d) **Upgrading physical facilities, including** clinical skill laboratories, libraries, and computer lab; supporting basic online database; developing clinical training resources, including standard patients and practice sites; and applying information and communication technologies, including e-libraries, smart-classes, e-learning/distance learning platforms, computer-based testing, and so on.
- (e) **Developing a functional network of practice sites** at various levels of care including hospitals with sufficient patient wards, preceptors, diagnostic capability, and laboratories; ambulatory services (including primary care) in outpatient department clinics, health care centres, and other community health care settings; enhancing collaboration with practice sites; improving supervision of clinical instruction and practice; ensuring necessary resources that offer students with adequate clinical experience; and understanding gender and social inclusion aspects.
- (f) **Establishing electronic feedback system for the ongoing reforms.** Setting up a mechanism to systematically seek, analyze, and respond to student, teacher, and administrator feedback for the ongoing reform, using feedback results for program development and applying ICT in collecting and responding to student, teacher, and administrator feedback. The feedback mechanism will also cover the aspect of gender and social inclusion to ensure comfortable participation of female trainers and students.
- (g) **Performing continuous M&E.** Creating an enduring mechanism for periodic evaluation of programs including comprehensively addressing the context of the educational process, the specific components of the curriculum, the long-term acquired outcomes, and its social accountability, involving external reviewers from other institutions and experts in medical



education to further broaden the base of experience for quality improvement of medical education, and analyzing performance of cohorts of students and graduates in relation to intended educational outcomes, curriculum, and provision of resources.

- (h) **Strengthening management capacity.** Developing an internal quality assurance system to guide training on institution policy and support the implementation of teaching and learning practices, participating in the national higher education accreditation, installing higher education management information system, and extending collaboration with partners in the health sector.

45. **The project will support the revitalization of the HPEU within the UHS.** The vision for the HPEU is to serve as the national education development resource center for the advancement of health professionals' education for all public and private institutions in the country. The HPEU will support all aspects of health professionals' educational development, including, but not limited to, (a) providing training and support for health professional educators; (b) facilitating curriculum development for all health profession disciplines; (c) contributing to the development of educational technology and appropriate IT arrangements for online education; (d) supporting the development and use of simulation techniques, skills labs, and other learning resources in all teaching venues, including hospital settings; (e) supporting the development of teaching units in clinical settings and the training of preceptors; and (f) developing guidelines and protocols for clinical teaching and assessment. In addition to the HPEU in the UHS, the project will also promote the Stung Treng RTC as a focal center in the country for health professionals' education for ethnic minorities.

Table 3. Proposed Timelines for Implementing Activities at the UHS and RTCs

Key Milestones at the UHS and RTCs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Training of faculty members on CBE conducted	X	X	X	X	X	X
Training of preceptors conducted		X	X	X	X	X
CBE courses and student assessment tools developed		X	X	X	X	X
E-learning courses developed		X	X	X	X	X
Skill and simulation laboratories and e-libraries equipped		X	X	X	X	X
Training facilities renovated		X	X	X		
Practice sites strengthened		X	X	X	X	X
Electronic feedback mechanism established			X	X	X	X
Regulation on partnership between HTIs and practical sites developed	X	X	X	X	X	X
Continuous M&E of curriculum developed			X	X	X	X

46. **The project will provide Service Delivery Grants (SDGs) to relevant MOH departments and HTIs to carry out planned activities under Components 1 and 2** in accordance with the POM. SDG is an innovative funding mechanism consisting of block grants that provide public service delivery organizations with a degree of autonomy in making optimal use of their human and financial resources to deliver services. With support from the H-EQIP, MOH has established a functional SDG system with detailed manuals and institutional arrangements, with a strong ownership and accountability, and it is an acceptable and appreciated model of channeling funds to implementing entities at national and subnational levels. Under the project, the payment of SDGs will be closely linked to performance of the



HTIs and relevant health departments. Upon approval of annual operational plan and budget from each of the HTIs and relevant MOH departments, an initial advance payment will be made. Subsequent payments will be made based on a set of agreed performance targets (details on advances and subsequent performance target achievement-based payments will be agreed and described in the POM).

Component 3: Project management, monitoring, and evaluation (US\$2.0 million)

47. **This component will support day-to-day management, monitoring, and evaluation of project activities**, including planning and execution, financial management (FM), procurement, supervision and reporting, and audits, environmental and social safeguards management, and independent verification, and M&E. These activities will ensure efficient project management and early identification of corrective measures to solve implementation problems. In addition, this component will finance mass communication campaigns to inform population at large on the project-supported reforms and associated benefits including implications on achieving quality of care and provide necessary vehicles, training, workshops, logistics and operational costs, and data collection survey. The Gender Management Action Group of MOH, a gender focal person of the UHS, a focal person of the NCEE, ACC, and RTCs will be engaged for the project implementation and M&E.

Co-financing

48. **The Government of the Federal Republic of Germany, through KfW, will co-finance the project from calendar year 2022 in the amount of EUR 10 million (US\$10.90 million Equivalent) to address the current financing gap of US\$20 million.** The World Bank team will continue to explore opportunities with other development partners to fill in the remaining financing gap. A final decision regarding the KfW co-financing is expected in the second half of 2020. Relevant documents to firm up this co-financing will then be prepared in late 2020 or early 2021. The project will be restructured to reflect this KfW grant in late 2021. Priorities under this forthcoming support will be given to the development of selected new professional disciplines, such as biomedical engineering, health informatics, and genetics. Potential areas to be financed by KfW include development of curriculum, training of faculty, construction of facilities, and provision of associated equipment.

C. Project Beneficiaries

49. **The direct project beneficiaries are the UHS, the four RTCs, practice sites, and relevant departments in MOH, along with professional councils.** Faculty members at the HTIs, preceptors at selected practice sites, and in the medium to long term, incoming health students will benefit from the project interventions. In addition, the staff members from selected MOH departments and professional councils will benefit from the governance activities supported by the project.

50. **Although the direct beneficiaries of this project are the HTIs in the public sector, significant benefit also extends to the private health care sector.** These include new national standards for curriculum that will be applied to the private HTIs, new standards for practice sites currently used by private HTIs, upgrades to the NCEE that all graduates are required to take, national forums on education that private HTIs will be invited to attend, and new human resource database that will be utilized by practitioners in the private sector. In addition, the majority of graduates from the public institutions work in the private sector after graduation.

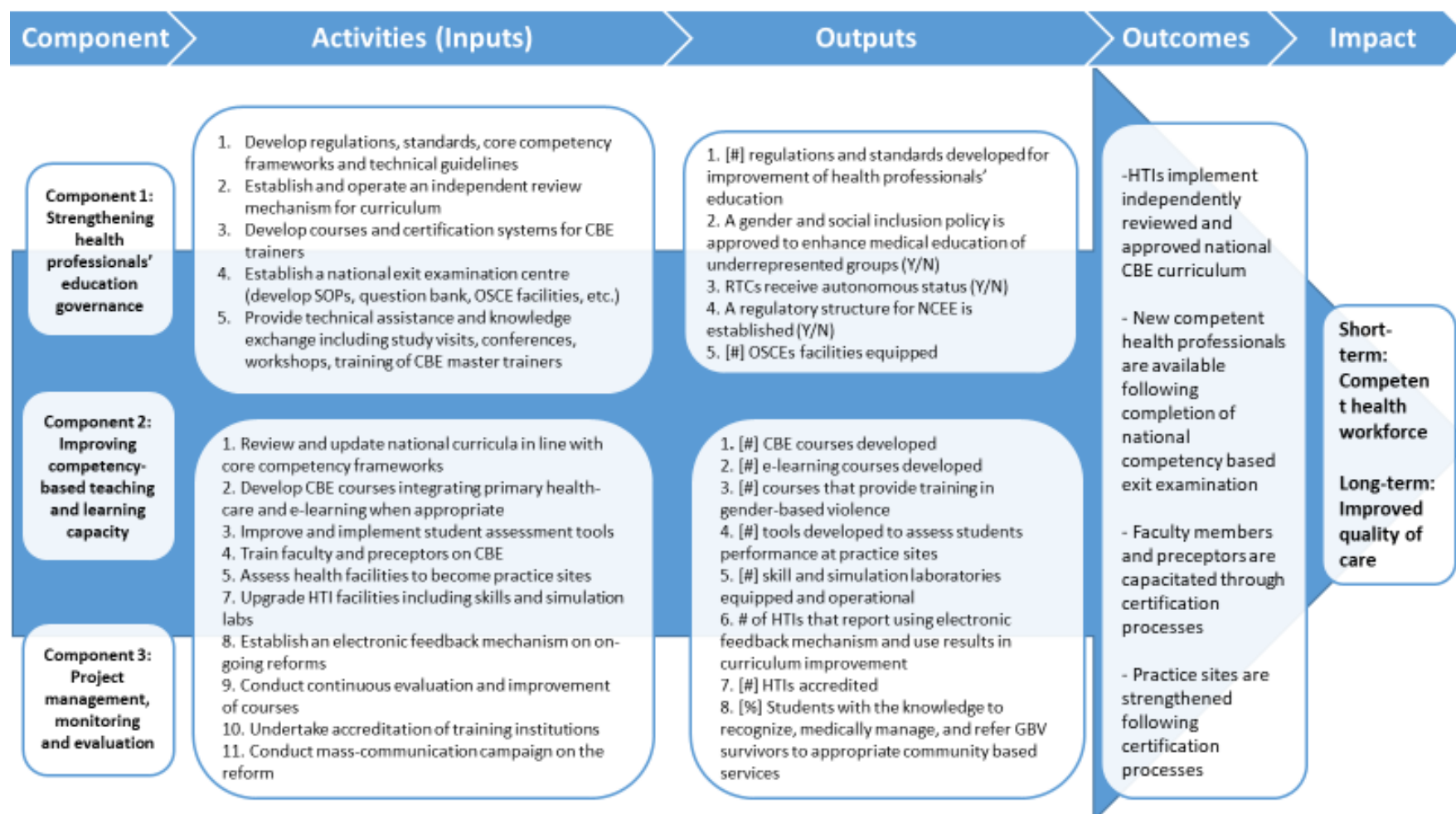


51. **The project is expected to have a positive impact on increasing the number of health professionals attaining graduate-level competencies as they enter the health workforce.** The indirect beneficiaries of the project include the entire population of Cambodia, who will be seeking services from health professionals graduating from the enhanced competency-based HTIs in the country.



D. Results Chain

Figure 1. Project Result Chain





52. **The project, as shown in the result chain (Figure 1), focuses on improving the quality of education for health professionals entering the workforce in Cambodia.** This choice of focus recognizes the long-time horizon and substantial effort required to reform health professionals' education on all fronts: institutional and governance reform, training culture, and behavioral change among all stakeholders. The project does not include interventions that aim to increase the production of health professionals nor those who are already in the workforce. The project is thus intentionally limited to the 'upstream' pre-service education elements of health workforce development, while acknowledging that other critical aspects of human resource for health policy—such as production, deployment, and retention—are beyond the scope of the project. Synergies with other domains of health workforce development in the Government's HWDP would help strengthen the links between improvements in quality of education (in this project) with improvements in quality of care. Some of the ongoing initiatives that address these issues are described in the next section.

E. Rationale for Bank Involvement and Role of Partners

53. **This project addresses an important strategic priority area of the RGC and the World Bank with regard to improving the quality of education and health care services in Cambodia.** The project aligns with the CPF, which aims to enhance quality and alignment of education with labor demands, including through higher education in health, and to foster human development through improvements in the quality of health care providers, as well as pre-service education for health professionals.

54. **The RGC and World Bank have shared experience in improving quality of higher education** through the previous operation, Higher Education Quality and Capacity Improvement Project (HEQIP, 2010–2017), and the ongoing Higher Education Improvement Project (HEIP, 2018–2024). The RGC has already taken initial steps to address the quality of pre-service and in-service training for doctors, midwives, and nurses under the H-EQIP (2016–2021). One of the support areas of the H-EQIP, although limited in scope, is a pre-service foundational course for medical and nursing professionals implemented by the UHS. In addition, the H-EQIP supports the development of improved competencies and skills of existing health service providers at the subnational level. The proposed project will complement the ongoing efforts of the H-EQIP by enhancing the capacity of HTIs in producing competent health workforce, which will reduce costs associated with carrying out in-service training to enhance competencies of the existing health workforce. Furthermore, the project will complement investments in the education sections in improving the quality of the higher education programs. Building on this rationale, the proposed project will further enhance and strengthen the pre-service education for health providers in Cambodia.

55. **The World Bank is rightly positioned to bring its global and regional experience to support the RGC in improving the quality of health professionals' education.** The World Bank financed the Indonesia Health Professionals' Education Quality Project (2009–2015), which supported medical training institutions in meeting education standards and establishing the independent national agency for competency examination of health professionals. The most recent investment in this area by the World Bank is the Vietnam Health Professionals' Education and Training for Health System Reforms Project (2014–2020), which introduces CBE in HTIs. Also, the World Bank has been providing analytical and advisory support to develop the pre-service education strategy in Cambodia and to improve the performance of the UHS and higher education institutions through the Cambodia Health Sector Programmatic ASA (P160714). The World Bank is in a unique position to provide the breadth of this



support through a combination of investment financing and advisory and analytical services, as well as a synergy between pre-service education, in-service training, and health care service delivery.

56. **The project takes advantage of the World Bank's ability and efforts in convening and building partnerships and a long-standing experience of working together with development partners in Cambodia.** The World Bank is coordinating closely with other development partners to ensure complementarity of efforts and to avoid duplication in this important area. The EQHA (2018–2023) financed by the U.S. Agency for International Development (USAID), which is being implemented by FHI 360 and its consortium partners, has a component to strengthen regulatory and pre-service education systems with a focus initially on nursing education. UNFPA has long supported the National Maternal and Child Health Center for structured courses on emergency obstetric care for midwives. KfW, which is co-financing the H-EQIP, expressed its commitment in co-financing this project. The German Agency for International Cooperation (*Deutsche Gesellschaft für Internationale Zusammenarbeit*, GIZ) has been providing support on practical training and continuous professional development for health professionals. The WHO has been supporting the HRDD on initiatives such as the human resource information system and development of core competency frameworks. The proposed project will work closely in coordination with KfW, GIZ, USAID, UNFPA, WHO, and other development partners active in health professionals' education.

F. Lessons Learned and Reflected in the Project Design

57. **The project is informed by various operational and analytical works on the critical need to improve the quality of education for health professionals.** The project builds on the Lancet Global Health Commission on High-quality Health Systems in the Sustainable Development Goals Era—time for a revolution, which encourages countries to transform the health workforce by adopting CBE, introduce training in ethics and respectful care, and better support and respect all workers to deliver the best care possible.³¹ Also, the project incorporates recommendations from the Lancet Independent Commission on Education of Health Professionals for the 21st Century,³² global standards for quality improvement of basics medical education from the World Federation for Medical Education (WFME),³³ global standards for the initial education of professional nurses and midwives from the World Health Organization (WHO),³⁴ as well as the World Bank's global experience in health professionals' education operations in middle-income countries, for example, Indonesia³⁵ and Vietnam.³⁶ The project also refers to lessons learned from other World Bank-financed projects in the health and education sectors in Cambodia, including the H-

³¹ Margaret E Kruk, Anna D Gage, Catherine Arsenault, Keely Jordan, Hannah H Leslie, Sanam Roder-DeWan, Olusoji Adeyi, Pierre Barker, Bernadette Daelmans, Svetlana V Doubova, Mike English, Ezequiel García Elorrio, Frederico Guanais, Oye Gureje, Lisa R Hirschhorn, Lixin Jiang, Edward Kelley, Ephrem Tekle Lemango, Jerker Liljestrand, Address Malata, Tanya Marchant, Malebona Precious Matsoso, John G Meara, Manoj Mohanan, Youssoupha Ndiaye, Ole F Norheim, K Srinath Reddy, Alexander K Rowe, Joshua A Salomon, Gagan Thapa, Nana A Y Twum-Danso, Muhammad Pate. "High-quality health systems in the Sustainable Development Goals era: time for a revolution". *Lancet Glob Health* 2018; 6: e1196–252. Published Online September 5, 2018. [http://dx.doi.org/10.1016/S2214-109X\(18\)30386-3](http://dx.doi.org/10.1016/S2214-109X(18)30386-3).

³² Frenk, J., L. Chen, Z. A. Bhutta, J. Cohen, N. Crisp, T. Evans, H. Fineberg, et al. 2010. "Health Professionals for a New Century: Transforming Education to Strengthen Health Systems in an Interdependent World." *The Lancet* 376 (9756): 1923–1958.

³³ WFME: Global Standards for Quality Improvement of Basics Medical Education (the 2015 revision).

³⁴ WHO. 2009. *Global Standards for the Initial Education of Professional Nurses and Midwives*.

³⁵ Indonesia Health Professionals' Education Quality Project (2009–2015).

³⁶ Vietnam Health Professionals' Education and Training for Health System Reforms Project (2014–2020).



EQIP (2016–2021), the Education Sector Support Project (2005–2010), the HEQCIP (2010–2017), and the HEIP (2018–2024).

58. Key lessons for health professionals' education reform that have been incorporated into the project design include the following:

(a) Health professionals' education programs should:

- Adopt competency-driven approaches to instructional design while continuing problem-based instructional innovations; ensure horizontal integration of associated sciences, disciplines, and subjects; and ensure vertical integration of the clinical sciences with the basic biomedical and the behavioral and social sciences in the curriculum;
- Assess achievements and shortfalls in achieving competencies with a wide variety of methods;
- Exploit the power of information technology for learning through development of evidence, capacity for data collection and analysis, simulation and testing, distance learning, collaborative connectivity, and management of the increase in knowledge;
- Strengthen educational resources, since faculty, syllabi, didactic materials, and infrastructure are necessary instruments to achieve competencies. Faculty development needs special attention through increased investments in education of educators and preceptors and stable and rewarding career paths;
- Expand academic centers to academic systems encompassing networks of hospitals and primary care settings and communities;
- Link together through global networks, alliances, and consortia; partnerships with international institutions and educators are effective ways to improve the quality of professional performance; and
- Form a long-term relationship with health profession education overseas which can reduce training and capacity development cost as well as offer sustainable ways of providing consistent capacity development.

(b) Health professionals' education governance should:

- Give priority to quality and equity objectives in the health professionals' education policies;
- Adapt core professional competencies to local population health needs and national health system priorities while drawing on global knowledge;
- Establish joint education and health planning, admission, and recruitment mechanisms that obtain balanced rural, ethnic, and sociocultural composition of the health



workforce. With respect to geographical distribution, emphasis should be placed on recruitment of students from marginalized areas, offering financial and career incentives to providers serving these areas;

- Organize national forums for professional education to bring together educational leaders from academia, professional associations, and governments to share perspectives on instructional and institutional reform; and
- Provide higher education institutions with academic and financial autonomy status while strengthening systems for quality monitoring and assurance.

59. Key lessons for project operation and management that have been incorporated into the project design include the following:

- Introduce performance-based financing modality to incentivize training institutions and staff to improve the quality of education.
- Ensure that there is sufficient allocation of the financial resources to support behavior change in improving teaching-learning quality and related outcomes.
- Set measures to prevent delays in procurement of civil works and goods. These measures include (a) agreeing on detailed milestones to monitor the implementation of contracts; (b) making amendments to the contract if the expected final completion dates are modified; (c) enforcing penalties for failure to achieve milestones; and (d) setting and monitoring cash flow requirements.
- Adequate design for fund flow to the implementation agencies to avoid any delay in the implementation of activities to achieve performance targets.
- Provide the project management agencies with sufficient resources, especially manpower, to coordinate the project implementation and monitor the project targets.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

60. The project will be implemented by MOH over six years. The Minister of Health will appoint a Secretary of State as the Project Director and a high-level government official with expertise in professional medical education as the Project Manager. Three senior MOH officials will be appointed as Team Leaders: first one from the HRDD to oversee technical aspects of the project implementation, second one from the Director General of Administration and Finance to oversee FM and procurement, and third one from the Preventive Medicine Department (PMD) to oversee the implementation of safeguards arrangements. The Gender Mainstreaming Working Group and gender focal persons at the UHS and RTCs will ensure that the activities related to gender mainstreaming are fully articulated during the project implementation.



61. **Led by a Technical Team Leader at the HRDD, SDGs will be provided to carry out the project activities under Component 1 with support from six focal points** (each responsible for general medicine, pharmacy, dentistry, nursing, midwifery, and laboratory) assigned by the Minister of Health. The Team Leader and the assigned focal points will be assisted by working groups which will be established comprising national and international experts to support the development and/or updating of all CBE framework documents and decrees/sub-decrees, regulations, Prakas, and standards. Specific working groups and their terms of references will be articulated in the POM.
62. **SDGs will be provided to relevant MOH departments, the UHS, and RTCs** in Kampong Cham Province, Kampot Province, Battambang Province, and Stung Treng Province (henceforth termed as Project Implementation Units [PIUs]) to carry out activities under Component 2. These HTIs will implement CBE in accordance with the approved frameworks, laws, and regulations set by the HRDD.
63. **Before the implementation of SDGs, all recipient entities, including relevant MOH departments and HTIs, will receive intensive training on CBE and grant administration requirements, including FM, procurement, and reporting.** Furthermore, health professional education experts mobilized by MOH will provide help-desk services to individual HTIs implementing the CBE grant throughout the implementation period.
64. **Advance will be provided in corresponding to the agreed percentage for advance set in the POM.** The HTIs and relevant MOH departments will submit their achievement reports to the Project Director on a semiannual basis. These reports will be independently verified by an independent verification agency (IVA) appointed by the Minister of Health. Subsequent payments will be made upon receiving confirmation from the verification agency and approval by the Project Director.
65. **The guiding documents for the project implementation will be the POM** detailing chapter by chapter the implementation arrangements and processes and comprising a detailed list of activities and eligible expenses under SDGs; the verification protocols and other standard project fiduciary, safeguards, and M&E requirements; as well as relevant laws, regulations, decrees/sub-decree, Prakas, and standards to be developed or updated. The project will have a provision to support the project management and strengthen the PIUs' capacity and skills through additional consultants and advisors.
66. **The Department of Budget and Finance (DBF), UHS, and all four RTCs will adopt the institutional structure of their respective entities to carry out the project's FM and disbursement functions.** The DBF will manage the project's funds and disbursements, while the UHS, RTCs and relevant MOH departments will manage SDGs provided to them by MOH. Capacity of the DBF to manage the World Bank-financed projects has been quite strong. The UHS has some experience in managing small grants from the already-closed World Bank-funded project and other grants from other development partners. RTCs have experience in keeping simple cash books in managing their government budget and little to no experience in implementing externally funded projects. The arrangement for MOH is the same as the ongoing World Bank-financed H-EQIP and CNP, while the UHS and RTCs are required to appoint accountants as reviewers of all financial transactions before submitting to the management for approval and two support staff from the Accounting Unit.
67. **Funds flow and accountabilities for financial reporting.** One pooled Designated Account (DA) in U.S. dollars at the National Bank of Cambodia (NBC) is maintained by MOH to receive funds from the



World Bank. The UHS and RTCs will each maintain a Project Bank Account at the Acleda Bank to receive SDGs from MOH to implement eligible activities. MOH is responsible for consolidating financial reports on its operations, the UHS, and all four RTCs. MOH is required to submit a six-month Interim Unaudited Financial Report (IUFR), starting from the first semester following the project's first disbursement, to the World Bank no later than 45 days after the semester end. The annual audited financial statements covering all sources of funds and operations for the whole project will be audited by the independent auditing firm. MOH will submit the annual audited financial statements and management letter for each fiscal year to the World Bank no later than six months after fiscal year-end.

B. Results Monitoring and Evaluation Arrangements

68. **Progress toward the achievement of the PDO will be monitored by reporting on the PDO-level and the intermediate-level results indicators outlined in the project's Results Framework.** MOH will be responsible for collecting data and reporting on the PDO and intermediate-level results indicators in close collaboration with HTIs. This includes reporting on project performance according to agreed targets for the semiannual progress reports, which will inform World Bank implementation support missions, project annual progress reports, and inputs to midterm and end-of-project evaluations. MOH-HRDD monitoring systems will be strengthened and streamlined during the project implementation with support from a range of national and international academic partners, building on the existing in-country experiences using electronic data collection. In addition, an electronic system will be established that will provide continuous feedback from students, teachers, and administrative staff on ongoing reform process to make necessary course corrections on time.

69. **Indicators will be drawn from data sources including improved routine data collection from the UHS, RTCs, SDGs performance achievement reports; annual health congress reports; and project administrative data.** Support will be provided for improved data collection, reporting, and analysis. Additional types of data collection and monitoring will supplement the use of routine data: (a) process evaluation at the end of years one, three, and five. The aim of process evaluation will be to document implementation progress and challenges, provide recommendations to improve implementation, and inform decisions to ensure the sustainability and further development of the project components; (b) an impact evaluation managed by the World Bank at the end of years three and five, which will track improvements toward the achievement of the PDO, including the implementation of national CBE curricula and in the CBE-linked knowledge across academic staff, clinical preceptors, and students; and (c) rigorous monitoring and verification of the project's performance-based financing elements for independent verification of performance targets achieved and disbursement formulas.

70. **The World Bank will monitor implementation progress during semiannual implementation support missions and regular field visits.** A midterm review of project performance will be carried out by MOH and the World Bank no later than 36 months after project effectiveness.

71. **An operational research agenda will be developed to support the learning agenda under the project.** The learning agenda will focus primarily on process-related issues, including (a) e-learning courses on CBE trainers' capacity development, (b) student feedback on the gradual introduction of CBE, (c) success factors to increase effectiveness of practice sites, and (d) financial autonomy and its role on additional resource mobilization by HTIs. Additional ideas for operational research will be developed during the project implementation and will be submitted to the project director for approval. The lessons



learned from this operational research will be shared with relevant stakeholders and will inform the ongoing improvements in the design of the project.

C. Sustainability

72. **CBE can transform the health professions by creating workers who can perform complex reasoning, deal with uncertainty, anticipate and plan impending changes, and undertake many other functions that are essential for health system performance and sustainability.** To realize this transformation, this project will invest in human capacity building through faculty development courses, intensive coaching from experts, enhanced infrastructure, technology, and other resources to support new ways of teaching. The resulting new competency-based curriculum and effective teaching cohort are factors for producing a competent health care workforce that will change the landscape of health care and be felt for many years after this project is over. Indeed, the lasting benefits will have a positive impact not only on the careers of trainers and students directly involved but also on the many students enrolled in programs in the future. Other self-sustaining aspects of the project include strengthening the regulatory framework that will shape the health professional education system and creating a semiautonomous public NCEE center supported by students' fees. At the training institution level, transformation will be reinforced by institutional reforms such as granted autonomy status, expanded network of certified teaching clinical sites, and strengthened management information systems.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic, and Financial Analysis

73. **The economic analysis for the proposed project shows a strong economic rationale for the project.** The project is expected to improve the quality of education for health professionals entering the workforce, and the expected benefits justify the costs. The net economic benefits generated by the project's inputs and outputs result in a positive net present value (NPV) of US\$11–67 million, an internal rate of return (IRR) of 15 percent, and a cost-benefit ratio (CBR) of 2.1–6.5, under the base case scenarios (5 and 10 percent discount rates).

74. **There are three key steps to undertake when conducting an economic analysis.** First, the economic analysis needs to be linked directly to the PDOs, to the extent possible, as the PDOs define the key objectives of the project. Second, it requires assessing what portion of the interventions can and cannot be quantified through the CBA due to the availability of evidence and literature. In addition, the PDO indicators tracked do not always imply attribution to the improved quality and outcomes; therefore, the necessary steps were taken to adjust for this difference.. Lastly, these benefits need to be translated into monetary value.

75. **The economic analysis was built directly on the PDO while recognizing the greater complexity of the underlying causal chain of the interventions for the outcomes and economic benefits.** The high-level outcome, to improve the quality of education for health professionals entering the workforce in Cambodia, included two components: (a) strengthening of competency-based teaching and learning and (b) health professionals' education governance and project management. Project benefits are conservatively calculated by estimating the potential gross domestic product (GDP) gains during the



period from improved quality of education for health professionals in Cambodia. The economic analysis assumes that the project interventions will lead to greater knowledge gains among entering cohorts of practitioners. This in turn will lead to elevated provider competency and hence better quality health care and improved health outcomes.

76. The analysis estimates the potential GDP gains by linking improved training and education for health professionals and health outcomes. The impact of the project can be modeled as a series of interventions that affect the following five health indicators applicable to the patient population treated by the affected cohorts of professionals: (a) the infant mortality rate; (b) the proportion of stunted children under five; (c) the maternal mortality rate; (d) the number of prime-age adult workdays lost to illness; and (e) the prime-age adult mortality rate. These five health outcome indicators were selected because they are good indicators to track quality. The analysis then monetizes the gains in a select variety of health dimensions and compares them to project costs.

77. Limited evidence exists drawing a direct link between essential elements of quality pre-service education and desired health outcomes. It is difficult to understand exactly how practitioner-related quality of care affects ultimate population health given the numerous non-competency-related constraints, such as low staffing or inadequate infrastructure in the health system. Credible estimates from the developing world of the impacts of improved quality of care on health outcomes are limited. One example is from Bjorkman and Svensson (2006)³⁷ who found that a Ugandan community monitoring program increased health sector quality of care. One year into the program, the investigators estimated a significant difference in the weight of infants (a 0.17 z-score increase) and a markedly lower number of deaths among children under five (a 33 percent reduction in child deaths), although sole attribution of health gains to improvements in health care quality is not possible, as utilization of treatment also increased.

78. The economic analysis results are thus highly conservative in at least three dimensions: (a) the analysis posits especially modest gains in the quality of care provided by health practitioners trained by the CBE program; (b) the analysis only considers dimensions of health gains that are relatively easily translated into monetary terms based on evidence, and no attempt is made to assess gains from other health outcomes that are not listed; and (c) any externalities from improved training and education, such as retention of health practitioners, are not monetized and therefore unaddressed in this conceptual framework. In this regard, the analysis establishes a lower bound on all possible monetized benefits resulting from an improvement in practitioner competency and quality of care.

79. Sensitivity analyses showed that the results of the CBA were sensitive to changes in key modelling assumptions, but the main conclusions remain unchanged—that is, the investment was justified on economic grounds. Even under more conservative assumptions of variations of (a) economic growth and (b) discounting factors, the benefits still outweighed the costs. A higher discount rate of 13 percent reduced the CBR (1.3) and NPV (US\$3 million). To reflect uncertainty in economic growth, especially in a country with considerable political instability, the analysis was conducted assuming long-term economic growth of 3 percent. Even under this unlikely scenario, the CBA showed that the investment yielded positive economic returns: a CBR of 1.4 per dollar spent and an NPV of US\$4 million.

³⁷ Björkman, Martina; Svensson, Jakob. 2007. Power to the People : Evidence from a Randomized Field Experiment of a Community-Based Monitoring Project in Uganda. Policy Research Working Paper; No. 4268. World Bank, Washington, DC



The base case scenario was a conservative approach in terms of the discount rate and economic growth. With a nonconservative approach, the returns will be much higher (Table 2.4 in annex 2).

B. Fiduciary

(i) Financial Management

80. **Planning and budgeting.** The project will follow the Government's budgeting principles as outlined in the SOP and/or Financial Management Manual (FMM) for externally financed projects issued by Sub-decree No. 181 ANK/BK dated December 2, 2019. MOH will prepare annual operational plans and budget for implementing activities to achieve the project's objectives.

81. **FM staffing.** Currently, FM staff of MOH can manage the project's funds and disbursements. However, the UHS and RTCs need more support and capacity building in FM. The project shall ensure enough government FM staff for a fully functioning FM team to carry out the day-to-day FM and disbursement tasks and to ensure that controls and procedures in the FM are adhered to. To support the DBF in delivering FM trainings for the UHS and RTCs and their busy time managing many projects, a full-time FM consultant and a full-time FM assistant (consultant position) will be engaged. The FM consultant is required to prepare a work schedule for regular and timely hands-on support to the UHS and RTCs to ensure the sound functioning of controls and grant management. A provision for additional FM consultancy support will be assessed during the project implementation as and when necessary.

82. **Accounting policies and procedures and internal control.** The project will adopt a modified cash accounting basis and the RGC's chart of accounts. The project will adopt the SOP/FMM and subsequent amendments; any amendments may be subject to the World Bank's review before adoption. For MOH, the existing QuickBooks accounting software will be used as the FM tool to manage financial transactions and produce timely and reliable financial reports. The existing supplementary FMM of the H-EQIP is applicable for this project. There is a need to customize a new chart of accounts and other functions in QuickBooks to meet the specific reporting requirement of the project. QuickBooks is also used by the UHS and RTCs to manage their performance-based grant and for timely financial reports. The UHS can use its existing QuickBooks for the project. QuickBooks software needs to be purchased for all RTCs. Controls, policies, and guidelines of performance-based grants, evaluation criteria, and eligible expenditures will be reflected in the Project Operations Manual.

83. **External auditing.** An independent external auditing firm would be engaged by the Ministry of Economy and Finance (MEF) under the external audit bundling to audit the project's annual financial statements in accordance with terms of references acceptable to the World Bank. The audit will include a review of expenditures paid to the UHS and RTCs. The audit fee will be paid by MOH. The audited financial statements are required to be disclosed in MOH's website after getting an acknowledgement letter from the World Bank. IDA will also make these available on its external website.

84. **FM risks.** The key risks are associated with: (a) insufficient capacity of the current DBF's staff to handle more project-related FM; (b) limited experience of the UHS in implementing externally funded projects and weak FM capacity of RTCs to manage grants; and (c) likely misappropriation of expenses due to collusion. Risk-mitigating measures include: (a) further enhancing capacity of the DBF's staff, especially the UHS's and RTC's staff in project FM; (b) engaging one FM consultant and an FM assistant to support



the DBF; and (c) building capacity of MOH internal audit and involving the internal auditors in carrying out the project's operations.

85. **Oversight and monitoring arrangements.** The performance of FM is monitored by reviews of quarterly unaudited IUFs, discussions with FM teams, and biannual FM missions to reassess FM risks and performance. Time-bound action plans will be prepared for implementation to mitigate any identified control weaknesses and risks.

86. **Disbursement arrangements.** The DA ceiling of MOH is variable and equal to two-quarter cash projection approved by the Bank. The disbursement methods will be reimbursement, advances, special commitment, and direct payments. Supporting documentation required for eligible expenditures paid from the DA is IUF, and the frequency of reporting of expenditure paid by DA is quarterly. The minimum application size for reimbursements, special commitment, and direct payments would be equivalent to US\$200,000. The details are provided in the Disbursement and Financial Information Letter. The project will have a disbursement deadline date of four months after the closing date of the project. The IDA Credit proceeds will be disbursed against eligible expenditures as shown in table 4.

Table 4: Category of eligible expenditure by credit proceeds and percentage

Category	Amount of the IDA Financing Allocated (US\$, millions)	Percentage of Expenditures to Be Financed (inclusive of taxes)
(1) Goods, works, non-consulting services, consulting services, Operating Costs and Training	8	Up to 100% of the financing's agreed share of the cost specified in the Disbursement and Financial Information Letter
(2) Service Delivery Grants	7	Up to 100% of the financing's agreed share of the cost specified in the Disbursement and Financial Information Letter
TOTAL AMOUNT	15	

(ii) Procurement

87. **Procurement under the project will be carried out in accordance with World Bank Procurement Regulations for Borrowers under Investment Project Financing (IPF), dated July 1, 2016, and revised November 2017 and August 2018.** The approaches to national markets (National Procurement and Request for Quotations) will be carried out in accordance with the Kingdom of Cambodia's Updated Standard Operating Procedures and Procurement Manual for All Externally Financed Projects/Programs ('Procurement Manual'), promulgated through the Sub-decree 181, dated December 2, 2019, which was issued pursuant to Article 3 of the Kingdom of Cambodia's Law on Public Procurement, dated January 14, 2012, subject to the additional provisions included in the National Competitive Bidding annex in the Procurement Plan and the provisions stipulated in the Financing Agreement. MOH will be the implementing agency for the project and will be responsible for all procurement activities for the project.

88. **All procurement activities under the project will be undertaken by the Procurement Unit of MOH.** The World Bank has carried out capacity assessment and procurement risk assessment of MOH.



Based on the assessment, the overall procurement risk is rated Substantial. Details of the identified risks and corresponding mitigation measures are provided in annex 1 of this Project Appraisal Document.

89. **The project will use the Systematic Tracking of Exchanges in Procurement (STEP)**, a planning and tracking system, which would provide data on procurement activities, establish benchmarks, monitor delays, and measure procurement performance. MOH shall be oriented and trained by the World Bank team on how to use STEP.

90. **The borrower, with the support of the World Bank, has prepared a Project Procurement Strategy for Development (PPSD) to inform fit-for-purpose procurement arrangements in the Procurement Plan.** This strategy has been reviewed by the World Bank and finalized by MOH. International competitive market approach will be used for major procurements and selection of consultants and will be carried out in accordance with the Procurement Regulations. National market approaches will be followed in accordance with the national regulations of the RGC's Updated Standard Operating Procedures (Sub-decree 181 dated December 2, 2019) and Procurement Manual for All Externally Financed Projects/Programs ("Procurement Manual").

91. **Based on the findings and recommendations of the PPCS, the initial 18 months' Procurement Plan has been prepared and agreed with the World Bank.** The Procurement Plan will be entered in STEP and updated annually (or as needed) by MOH to: (a) reflect project implementation; (b) accommodate changes that should be made; and (c) add new packages as needed for the project. Any update or modification to the Procurement Plan shall be subjected to the World Bank's prior review and 'no objection'. The World Bank will carry out procurement post reviews on an annual basis with an initial sampling rate of 15 percent, which will be adjusted periodically during project implementation based on the performance of the project. The detailed Procurement Plan is available as a separate document.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

92. **The overall environmental and social risk classification is Low.** The analysis of the project's expected risks and impacts is based on discussion with the Bank, consultations, focus groups, and observations undertaken during project preparation; analysis of secondary data; and specialist experience with projects of this nature. The project gender tag is based on consultation with MOH and HTIs, secondary data, and key informant interview with the UHS and Ministry of Women's Affairs on gender and social inclusion aspect. The proposed project activities aim at improving the quality of health professionals' skills and competencies, particularly in the area of pre-service education, focusing on curricular reforms, building capacity for competency and skills training, improving testing and evaluation, and strengthening quality assurance mechanisms and accreditation systems for health professionals' education. This project does not plan major construction works. Six out of ten standards of the



Environmental and Social Framework (ESF) mentioned in table 5 have been screened as relevant in terms of integrating good practices into project design.

Table 5: ESF's standards by rationale of relevance

Relevant Standards	Rationale of Relevance
ESS1. Assessment and Management of Environmental and Social Risks and Impacts	Sharing development benefits with disadvantaged and vulnerable groups, for example, women, children, the elderly, ethnic minorities, sexual orientation and gender identity (SOGI), disabled people, and so on
ESS2. Labor and Working Conditions	Promote safety and health at work; equal opportunity in the workplace
ESS3. Resource Efficiency and Pollution Prevention and Management	Avoid or minimize the generation of hazardous waste
ESS7. Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Equitable access to project benefits; benefits delivered in a culturally appropriate manner
ESS10. Stakeholder Engagement and Information Disclosure	Enhance stakeholder participation, for example, faculty staff, students, and patients; information disclosure; grievance management; accountability

93. Despite the low risk of the environmental and social aspects, the project mainstreams the ESF with the following objectives:

- (a) Inclusion of women and disadvantaged groups, for example, indigenous population, vulnerable women and children, persons with disability (PWDs), and sexual orientation and gender identity
- (b) Inclusion of environmental aspects such as clinical waste disposal management, mitigation of health hazards to medical practitioners, and so on
- (c) Provision of environmental and social information for project preparation
- (d) Embedding of environmental and social risk management in project design

94. The implementing ministry has good competency in implementing projects in accordance with national requirements as well as experience in delivering projects in line with World Bank requirements. Before project appraisal, the project's Human Resource Development for Inclusive Service Delivery Assessment and Plan has considered, in an integrated way, all relevant expected environmental and social risks and impacts of the project. This assessment has been carried out to seek ways to promote the enrollment and inclusion of disadvantaged groups, for example, women and remote, poor, indigenous people, ethnic minority groups, as students in HTIs, for example, doctors, nurses, or midwives; promote their entering workforce spaces; and embed social inclusion and environmental sustainability aspects in the project activities during the implementation phase. GBV prevention, improvement on the health and safety conditions of the health professionals, and hazardous and clinical waste management assessment and plan are also considered in this plan.



95. **The project has included specific provisions for labor management procedures (under ESS2) and a stakeholder engagement plan (SEP) and project grievance mechanism (under ESS10).** Both documents have included a Human Resource Development Readiness Assessment and Plan for Inclusive Delivery (HRDRAP). The SEP was disclosed on the Bank's website on February 15, 2020. An additional stand-alone document entitled Environmental and Social Commitment Plan (ESCP) was developed and disclosed by the MOH on February 27, 2020. The ESCP was disclosed on World Bank website on March 3, 2020. A summary of HRDRAP is provided in annex 5.

96. **The Department of Preventive Medicine (PMD) through its ESF focal point will be responsible for oversight of the implementation of the citizen engagement plan.** To ensure that the plan is effectively implemented, the MoH will hire, train, and deploy qualified personnel with good communication skills to undertake the citizen engagement activities, where needed, in addition to the PMD personnel. Hiring suitable staff is included in the ESCP as one of the commitments. The citizen engagement process which will promote the development of strong, constructive and responsive relationships among the key stakeholders will promote the development of strong, constructive and responsive relationships among the key identified Project stakeholders for successful management of the project's implementation. Effective engagement between the Government and project stakeholders will improve the environment and social sustainability of the project, and will enhance project acceptance making a significant contribution to successful project design and implementation. The Project will collect systematic feedback from teachers and students, use feedback results to develop reports with recommendations to improve curricula, teaching and learning environment. This feedback process will be monitored closely with a results indicator in the Results Framework.

E. Climate Change and Disaster Screening

97. **The component 2 of the proposed project intends to enhance the health sector's climate preparedness by incorporating climate change-related knowledge and preparedness, including energy efficient design of buildings, use of climate-resilient construction materials and designs, building siting that considers flood-risk, inclusion of renewable energy such as rooftop solar.** Response to natural disaster, climate-sensitive vector-borne/waterborne diseases such as malaria and dengue, and climate-related health risks will be articulated into the competency-based pre-service education curriculum for health professionals. Cambodia is extremely vulnerable to the climate change impacts such as severe flooding, drought, and windstorms. These impacts negatively affect socioeconomic development and human health. The country has suffered frequent flooding, including a flash flood in 2013 which affected more than half a million people and caused economic losses of about US\$360 million. Climate change also causes the disruption of health service delivery to communities and has negative health implications as it can exacerbate the outbreak of infectious and vector-borne diseases (especially malaria and dengue fever). Under both high- and low-emission scenarios, Cambodia's population at risk of malaria is expected to grow from about 15 million today to 22 million in 2070. Increasing mean annual temperatures and frequency of heat waves also increases health risks of vulnerable groups such as the elderly and children. Heat-related mortality in people 65 years or over is expected to increase from less than 10 deaths per 100,000 to 56 deaths per 100,000 by 2080 under a high-emissions scenario.

V. GRIEVANCE REDRESS SERVICES



98. **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 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/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VI. KEY RISKS

99. **The overall risk rating for the operation is Substantial, primarily due to the substantial risk ratings related to political and governance, technical design, institutional capacity for implementation and sustainability, and fiduciary.**

100. **Political and governance risks are Substantial.** Governance of pre-service education in the health subsector is constrained by: (a) limited ability to manage and coordinate with private HTIs and (b) ineffective application of regulations of private HTIs. This project intends to strengthen sectoral governance through the improvement of quality assurance mechanisms, improving pre-service education information system, and establishing networks and coordination between public and private HTIs. The RTCs are facing challenges for providing quality teaching due to very low pay to faculty members and preceptors. This risk will be mitigated by establishing semiautonomous status and tuition fees to support RTCs for improving quality of training at both RTCs and practice sites.

101. **Risks related to technical design of the project are Substantial.** The limitation of experience of HTIs with World Bank guidelines and procedures and the innovative nature and interventions of the project will be mitigated by HTIs' growing familiarity with and building in considerable implementation support both within the project design and from the World Bank.

102. **Risks related to institutional capacity for implementation and sustainability are Substantial.** As the nature of the project will require extensive development and updating of policies, guidelines, and training materials and capacity building of faculty members and preceptors on the reformed teaching methods, technical working groups will be established to support the project's Technical Team Leader for implementing these activities. In addition, there will be national and international experts involved in the development and updating process to ensure that those training materials reach ASEAN and/or international standards. Moreover, guidelines will be developed for the practice sites to guide students for optimizing quality of practice.

103. **Fiduciary risk is Substantial.** The fiduciary function of the proposed project will be performed by the DBF and the Procurement Unit of MOH. While MOH's DBF and Procurement Unit have developed the fiduciary capacity under the current World Bank-financed projects, they have been overloaded. There will be additional staff (either government staff or consultants) with the right skills to support the DBF by the



FM and procurement consultants. The World Bank will also provide capacity building to further improve the fiduciary capacity of the DBF.



VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Cambodia

Strengthening Pre-Service Education System for Health Professionals Project

Project Development Objectives(s)

To strengthen Cambodia's pre-service education system for health professionals.

Project Development Objective Indicators

Indicator Name	DLI	Baseline	Intermediate Targets						End Target
			1	2	3	4	5	6	
Component 1: Strengthening health professionals’ education governance									
1. National CBE curricula independently reviewed and approved (Number)		0.00	0.00	5.00	9.00	10.00	10.00	10.00	10.00
2. Students who passed the national competency-based exit examinations (Percentage)		0.00	0.00	0.00	0.00	0.00	60.00	65.00	65.00
Component 2: Improving competency-based teaching and learning capacity									
1. Faculty members and preceptors certified as competency-based trainers (Percentage)		0.00	0.00	20.00	40.00	60.00	80.00	85.00	85.00
2. Health facilities		0.00	0.00	0.00	4.00	8.00	10.00	12.00	12.00



Indicator Name	DLI	Baseline	Intermediate Targets						End Target
			1	2	3	4	5	6	
certified as practice sites (Number)									

Intermediate Results Indicators by Components

Indicator Name	DLI	Baseline	Intermediate Targets						End Target
			1	2	3	4	5	6	
Component 1: Strengthening health professionals’ education governance									
1. Regulations and standards developed for improvement of health professionals’ education (Number)		0.00	1.00	2.00	5.00	7.00	9.00	11.00	11.00
2. A gender and social inclusion policy is approved to enhance medical education of underrepresented groups (Yes/No)		No	No	Yes	Yes	Yes	Yes	Yes	Yes
3. RTCs receive autonomous status (Yes/No)		No	No	Yes	Yes	Yes	Yes	Yes	Yes
4. A regulatory structure for NCEE Center established (Yes/No)		No	No	No	Yes	Yes	Yes	Yes	Yes
5. OSCE facilities equipped (Number)		0.00	0.00	0.00	0.00	2.00	6.00	6.00	6.00
Component 2: Improving competency-based teaching and learning capacity									
1. CBE courses developed		0.00	0.00	8.00	28.00	64.00	104.00	124.00	124.00



Indicator Name	DLI	Baseline	Intermediate Targets						End Target
			1	2	3	4	5	6	
(Number)									
2. E-learning courses developed (Number)		0.00	0.00	2.00	4.00	6.00	8.00	10.00	10.00
3. Courses that provide training in gender-based violence (Number)		0.00	0.00	0.00	2.00	4.00	6.00	6.00	6.00
4. Tools developed to assess students' performance at practice sites (Number)		0.00	0.00	2.00	4.00	6.00	8.00	10.00	10.00
5. Skill and simulation laboratories equipped and operational at HTIs (Number)		0.00	0.00	2.00	5.00	5.00	5.00	5.00	5.00
6. HTIs that report using electronic feedback mechanism and use results in curriculum improvement (Number)		0.00	0.00	1.00	3.00	5.00	5.00	5.00	5.00
7. HTIs accredited (Number)		0.00	0.00	0.00	0.00	1.00	2.00	3.00	3.00
8. Students with the knowledge to recognize, medically manage, and refer GBV survivors to appropriate community based services (Percentage)		0.00							80.00



Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
1. National CBE curricula independently reviewed and approved	<p>Cumulative number of curricula updated to be consistent with the core competency framework, reviewed by independent expert panels, and approved to be used.</p> <p>Note: national curriculum means overall curriculum or educational program framework, which includes a statement of the intended educational outcomes, the content/syllabus, learning experiences and processes of the program. The curriculum should set out what knowledge, skills, and attitudes the student will achieve.</p>	Annual	HRDD and independent expert panels	Semi-annual performance progress reports; expert review	Project management unit at MOH (M&E officer) and HRDD
2. Students who passed the national competency-based exit examinations	Numerator: Number of general medicine, dentistry, pharmacy, nursing, midwifery and laboratory technical students pass exit	Annual	NEEC	Semi-annual performance progress reports; site visits to NEEC	Project management unit at MOH (M&E officer) and NEEC



	<p>examinations that use reliable methods, i.e. MCQ, OSCE) to evaluate competencies organized by the national exit examination center.</p> <p>Denominator: total number of general medicine, dentistry, pharmacy, nursing, midwifery and laboratory technical students from HTIs took the exit examinations. Year 5: two disciplines Year 6: plus four new disciplines</p>				
1. Faculty members and preceptors certified as competency-based trainers	<p>Enumerator: number of faculty members and preceptors certified as CB trainers after successfully completing all necessary courses and demonstrating they are equipped with the skills and knowledge required to teach and evaluate CB.</p> <p>Denominator: total number of identified faculty members and preceptors</p>	Annual	HTIs and HPEU	Semi-annual performance progress reports; site visits to HTIs and HPEU	Project management units at MOH and HTIs (M&E officers)



2. Health facilities certified as practice sites	Cumulative number of health facilities that comply with the requirements for a practice site as per guideline set out under component 1, and have undergone and passed an assessment process to be certified as practice site.	Annual	HTIs and practice sites	Semi-annual performance progress reports; site visits to health facilities	Project management units at MOH and HTIs (M&E officers)
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Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
1. Regulations and standards developed for improvement of health professionals' education	Cumulative number of regulations and standards for the governance of health professional education developed and revised.	Semi-annual	HRDD	Semi-annual performance progress reports	Project management unit at MOH (M&E officer) and HRDD
2. A gender and social inclusion policy is approved to enhance medical education of underrepresented groups	Binary indicator with "Yes/No" option. The indicator will be marked as "Yes" when the gender and social inclusion policy is finalized and made official. The policy must include plans and provisions to improve the representation of key groups (i.e. poor, women, remote locations, ethnic group, etc.) in	annual	PMD	Semi-annual performance progress reports; discussions with Gender Mainstreaming Working Group	Project management unit at MOH (M&E officer) and HRDD



	medical education.				
3. RTCs receive autonomous status	Binary indicator with “Yes/No” option. The indicator will be marked as “Yes” when the RTCs receive autonomous status and start operating as such after all relevant regulation is put in place.	Annual	HRDD	Semi-annual performance progress reports; site visits to RTCs	Project management unit at MOH (M&E officer) and HRDD
4. A regulatory structure for NCEE Center established	Binary indicator with “Yes/No” option. The indicator will be marked as “Yes” when the regulatory and institutional frameworks required to establish and operate a National Exit Examination Center are developed and put in practice. The regulatory and institutional frameworks should be sufficient to allow the National Exit Examination Center certify health graduates’ competencies under the current exit examinations and certify health professionals’ competencies under the future licensing examinations.	Annual	HRDD	Semi-annual performance progress reports	Project management unit at MOH (M&E officer) and HRDD



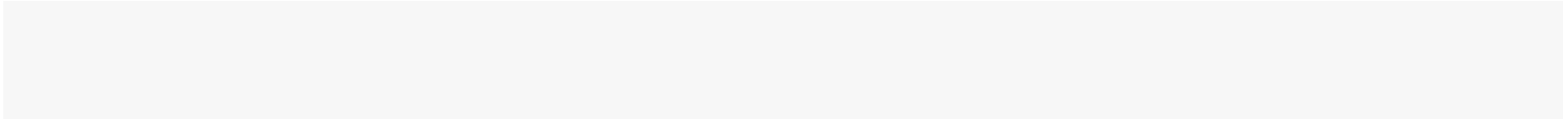
5. OSCE facilities equipped	Cumulative number of Objective Structured Clinical Evaluations station at NEEC equipped according to international standards and adapted to be relevant to the local context.	Semi-annual	NEEC	Semi-annual performance progress reports; site visits to NEEC	Project management unit at MOH (M&E officer) and NEEC
1. CBE courses developed	Cumulative number of courses that are produced through the competency-based approach. Note: CBE courses must include a course syllabus and lesson plans; introduce recognized approaches to teaching and learning based on advances in Adult Learning Theory and evidence of effectiveness	Semi-annual	HTIs	Semi-annual performance progress reports; expert review; site visits to HTIs	Project management units at MOH and HTIs (M&E officers)
2. E-learning courses developed	Cumulative number of e-learning courses that are produced to support CBE Note: Definition of e-learning from the World Bank institute: E-learning refers to the use of electronic technologies to deliver, facilitate and enhance both formal and	Semi-annual	HTIs	Semi-annual performance progress reports; expert review; site visits to HTIs	Project management units at MOH and HTIs (M&E officers)



	informal learning and knowledge sharing at any time, any place and at any pace.				
3. Courses that provide training in gender-based violence	Cumulative number of courses that have been reviewed and updated to make the health workforce gender sensitive and capable of providing responsive health services to victims of gender-based violence.	Annual	HRDD, PMD and independent expert panels	Semi-annual performance progress reports; expert review	Project management unit at MOH (M&E officer) and HRDD
4. Tools developed to assess students' performance at practice sites	Cumulative number of resources produced to evaluate students' knowledge and performance. Tools must cover both knowledge and clinical skills.	Semi-annual	HTIs and practical sites	Semi-annual performance progress reports; expert review; site visits to HTIs and practical sites	Project management units at MOH and HTIs (M&E officers)
5. Skill and simulation laboratories equipped and operational at HTIs	Cumulative number of skill and simulation laboratories equipped at HTIs to provide CBE according to national and international standards and are conducting their activities.	Semi-annual	HTIs	Semi-annual performance progress reports; site visits to HTIs	Project management units at MOH and HTIs (M&E officers)
6. HTIs that report using electronic feedback mechanism and use results in curriculum improvement	Cumulative number of HTIs that use an ICT to systematically seek, analyse and respond to teacher and	Annual	HTIs	Semi-annual performance progress reports; site visits to HTIs; teachers and	Project management units at MOH and HTIs (M&E officers)



	student feedback, and use feedback results to develop reports with recommendations to improve curricula, teaching and learning environment. It is a Citizen Engagement indicator reflecting how the project is responding to the feedback, i.e. closing the feedback loop.			students interview	
7. HTIs accredited	Cumulative number of HTIs (both public and private HTIs) that are accredited by ACC or relevant international accreditation bodies.	Annual	HTIs and Accreditation bodies	Semi-annual performance progress reports; External quality assessment reports; site visits to HTIs	Project management units at MOH and HTIs (M&E officers)
8. Students with the knowledge to recognize, medically manage, and refer GBV survivors to appropriate community based services	Numerator: cumulative students pass a knowledge examination following participation in a training course on management of GBV. Denominator: cumulative total numbers of student completed the training course on management of GBV	Annual	HRDD	Semi-annual performance progress reports; expert review	Project management unit at MOH (M&E officer) and HRDD





ANNEX 1: Implementation Arrangements and Support Plan

COUNTRY: Cambodia

Strengthening Pre-Service Education System for Health Professionals Project

Procurement

1. **Institutional arrangements for procurement.** The Procurement Unit of MOH will be implementing the procurement activities for the project.
2. **The POM will elaborate the details of procurement arrangements, including responsibilities of IA, and the procurement risk mitigation action plan.** It refers to: (i) the World Bank Procurement Regulations for IPF Borrowers (July 2016, and revised in November 2017 and August 2018) applicable to this project; (ii) the PPSD and Procurement Plan; and (iii) Public Procurement Law (January 2012) and Standard Operating Procedures (SOP) including the Procurement Manual for all Externally Funded Projects/Programs in Cambodia (Sub-Decree No. 74 ANK. BK of May 2012) of the RGC with the additional provisions for use of national procedures under the Bank-financed projects in Cambodia.
3. **Procurement capacity and risk assessment.** MOH has a well-established procurement unit with clear responsibilities and separation of accountability in carrying out all procurement works and MOH has experience in handling several DP Funded Projects including the Bank-financed projects. However, the World Bank Procurement Regulations for IPF Borrowers is new to the assigned procurement staff of MOH.
4. **Procurement Risks and Mitigation Measures:** Overall procurement risk of this project is considered substantial. The identified risks and mitigation measures are as follows:

Risks: (1) Possible coordination challenge among MOH and its line technical departments and regional training centers may delay the procurement implementation. When project starts, the procurement unit has a challenge of communication with relevant stakeholders due to slow process of gathering information. (2) Procurement of goods and civil works will be procured with a large amount in contracts while the small amount will be undertaken in consulting services. Therefore, it will consume a lot of time and effort for MOH, which already faces capacity and understaffing constraints. Moreover, according to the past experiences included in the Joint Country Portfolio Review Report, the procurement consulting services took longer time than schedules given the complexities and time consuming for the government's internal evaluation and approval processes. Also, the procurement of civil works had some constraints with contract management system. (3) Possible delay in receiving technical inputs. This is a challenge for MOH to prepare the most appropriate technical specifications for the new technologies and TORs for consulting services. (4) Qualified consulting firms/NGOs and other key individual consultants would not be available when needed. (5) MOH has limited qualified procurement staff and is not familiar with the World Bank Procurement Regulations for IPF Borrowers and STEP. (6) Corrupt practice and abuse of fund use in procurement. (7) The projects are impacted in some ways by the COVID-19 outbreak including the difficulty of bidders from countries affected by COVID-19 to get and submit bidding documents, disruption in a supply chain and unavailability of viable and secured alternative options, government restriction of travel for foreign workers to the borrower



country, sickness of contractors/consultants with COVID-19 resulting in absence from works/quarantine.

Mitigation Measures: (1) MOH needs to ensure good coordination among its relevant stakeholders. (2) MOH will assign focal persons for coordination purpose within MOH and its line HTIs. The coordinating roles and responsibilities of these persons will be included in POM. (3) MOH needs administration and logistic consultants to help overcome this main obstacle and to avoid project delay or other inconveniences due to poor communication in the whole project. (4) All procurement implementation will strictly follow the agreed time frames in the procurement plan. (5) Detailed scope of works for each consulting service needs to be well defined before and during the project implementation, and some procurements of goods and consulting services can be combined to reduce work load for MOH. (6) MOH needs to agree on the service standards that will be included in POM. (7) Sufficient delegation of authority will be provided to the members of BEC/CEC/PRC. (8) Procurement tracking and monitoring form in the SOP/Procurement Manual will be used in addition to STEP. (9) TORs and specifications of key procurement packages shall be finalized before the project effectiveness. The Bank will provide support and samples of TORs and specifications to MOH to strengthen technical assignment. (10) Sufficient advertisement for EOIs and early commencement of the selection process ahead of the need of the consultants. (11) MOH will hire at least one national procurement consultant or procurement officer to assist it in executing procurement activities and providing supports on the contract management, and also strengthening its capability. (12) WB should provide more training on an as-needed basis. (13) MOH will assign one focal person for implementation of STEP and monitoring the procurement tracking form. (14) In addition to the disclosure provisions of SOP, the project will post on public media of procurement opportunities and contract award notices, and will receive possible complaints for this project. (15) The bidding documents should be uploaded in the project website so that interested bidders can download them to prepare bidding documents. (16) Authorized representative: affected contractors can instruct a third party in-country representative to print the bidding documents and deliver their copies to the purchasing agency. The representative could be a business partner, diplomatic mission or a printing store that can courier the bidding documents. The borrower may ask for a Bid Security Declaration in lieu of a guarantee, extend bid submission deadlines for procurements where potential bidders are affected by COVID-19, review the supply chain risks, and pre-emptively develop mitigation approaches, e.g. sourcing alternative materials and agreeing to vary the contract accordingly. It can also be helpful to consider increasing the levels of buffer inventory.

5. Procurement scope under the project and procurement approach as identified in the PPSD. Proposed procurement approaches for the project:

- a. Works:** Based on the above analysis, civil works that are medium and small with simple nature will be combined into contracts as much as possible. This will limit the number of packages and as a result will decrease the transaction costs as well as increase the interest of the potential contractors. The procurement approach for civil works are summarized in the table 1.1 below:


Table 1.1: Procurement approach for civil works

Attribute	Selected Arrangement	Summary Justification/Logic
Specifications	Conformance	The works are of some large and small value with simple nature.
Additional sustainability requirement	Yes	The civil works are mainly the constructions of one new university campus, three new buildings, new dormitories, and small construction/renovation works of laboratories, learning facilities, incubation centers, research buildings, offices, classroom infrastructure. The climate change mitigation and adaptation aspects, including energy efficient design of buildings, use of climate-resilient construction materials and designs, building siting that considers flood-risk, inclusion of renewable energy such as rooftop solar, will be considered in procurement process such as specifications and designs to ensure sustainability and mitigation of impacts.
Contract Type	Traditional	Traditional type of contract is appropriate for this type of works.
Pricing and Costing Mechanism	Lump Sum Schedule of Rates	Lump Sum or Schedule of Rates.
Supplier Relationship	Adversarial	The construction works under the project are expected to be executed not exceeding 18 months. It should be ensured that the contractors will execute the contracts properly meaning that the completion is timely, within the agreed cost, and in accordance with the required standards.
Price Adjustments	None, fixed price	This is appropriate because the works are simple, medium and small value and can be completed not exceeding 18 months.
Form of Contract (Terms and Conditions)	None specific	No special condition is needed.
Selection method	Request for Bids (RFB) Request for Quotations (RFQ)	Given the works with simple nature and of medium & small value, selection of RFB or RFQ method is appropriate.
Selection Arrangement	None	
Market Approach	Type of Competition Open/Limited National/International Single Envelope Single Stage	The market approach for civil works under the project is international and national. Given the medium and small size and simple nature of works, there will be interest from foreign bidders for large value. Therefore, it proposes to use RFB method for the contracts with cost equivalent to or above USD 3,000,000 with international



		market approach, the contracts with cost below USD 3,000,000 to USD 200,000 with national market approach and for small contracts with cost less than USD 200,000, RFQ method is appropriate to increase the efficiency of the process and in such case the market approach will be limited.
Pre/Post Qualification	Post	No package of large value and complex nature that would require pre-qualification.
Evaluation Selection Method	N/A	
Evaluation of Costs	Adjusted Bid Price	
Domestic Preference	No	
Evaluation method	Lowest Evaluated Cost	For this type of works Lowest Evaluated Cost is appropriate.

- b. **Goods:** Goods required under the project are of small value and mostly not complex in nature, except the lab equipment and materials, which are relatively more costly. The procurement approach for goods and equipment are summarized in the table 1.2 below:

Table 1.2: Procurement approach for goods

Attribute	Selected Arrangement	Summary Justification/Logic
Specifications	Conformance	The goods are mostly of medium and small value and not complex.
Additional sustainability requirement	No	
Contract Type	Traditional	Traditional type of contract is appropriate for this type of goods.
Pricing and Costing Mechanism	Lump Sum	Lump Sum
Supplier Relationship	Adversarial	It should be ensured that the goods will be delivered according to agreed schedule and in accordance with the required technical specifications with the contractual price.
Price Adjustments	None, fixed price	
Form of Contract (Terms and Conditions)	None specific	No special condition is needed.



Selection method	Request for Bids (RFB) Request for Quotations (RFQ)	Given the goods are with simple nature and of medium and small value, selection of RFB or RFQ method is appropriate.
Selection Arrangement	None	
Market Approach	Type of Competition Open/Limited National/International Single Envelope Single Stage	The market approach for goods, except procurement of lab equipment and materials, under the project is national. Because of the relatively small value and simple nature of goods, there will not be interest from foreign suppliers. The contracts with cost below USD 600,000 to USD 100,000 will use national market approach. For small contract (cost less than USD 100,000), RFQ method is appropriate in order to increase the efficiency of the process and in such case the market approach will be limited. Regarding the procurement of lab equipment and materials, which are relatively large amount and competition level of the market is high, there will be interest from foreign suppliers and the limited number of local suppliers in the country. Therefore, RFB with international market approach is appropriate and will be used.
Pre/Post Qualification	Post	No package of large value and complex nature that would require pre-qualification.
Evaluation Selection Method	N/A	
Evaluation of Costs	Adjusted Bid Price	
Domestic Preference	No	
Evaluation method	Lowest Evaluated Cost	For this type of goods Lowest Evaluated Cost is appropriate.

- c. **Consulting Services:** The consulting assignments under the project include both firm and individual consultant assignments. Table 1.3 hereunder describes the procurement arrangements:

Table 1.3: Procurement approach for consulting services

Attribute	Selected Arrangement	Summary Justification/Logic
Specifications	Performance	It is appropriate for consulting services
Contract Type	Traditional	



Pricing and Costing Mechanism	Lump Sum or Time based	Lump Sum or Time-based will be determined as appropriate based on the nature of each consulting assignment.
Supplier Relationship	Collaborative	Most of the consulting assignment are not short term; MoH and consultants share interests and objectives; win-win approach is possible and necessary. MoH and consultants should therefore be in collaborative relationship to ensure the success of the implementation.
Price Adjustments	Fixed or adjusted price	Price adjustment should be applicable for long term contracts (such as more than 18 months).
Form of Contract (Terms and Conditions)	None specific	
Selection method	Request for Proposals (RFP) Direct Selection	RFP will be used for all firm consultant assignments. The individual consultants will be selected competitively.
Selection Arrangement	None	
Market Approach	Open/Limited National/International Direct Selection Single Envelope/Two envelopes Single Stage	National market approach will be used for most of the consulting assignments. International market approach will be used for relatively large and critical assignments for which international experience is important and beneficial to the project implementation. Limited approach is applicable for small firm assignments to ensure the efficiency of the implementation.
Pre/Post Qualification	Shortlist	
Evaluation Selection Method	Quality Cost Based Selection (QCBS) Consultant's Qualifications Based Selection (CQS) Direct Selection	QCBS will be used for relatively large firm consultant assignments (over USD 300,000) while CQS will be used for smaller assignment.
Evaluation of Costs	Adjusted Bid Price	
Domestic Preference	No	
Related Criteria	Most advantageous Proposal	



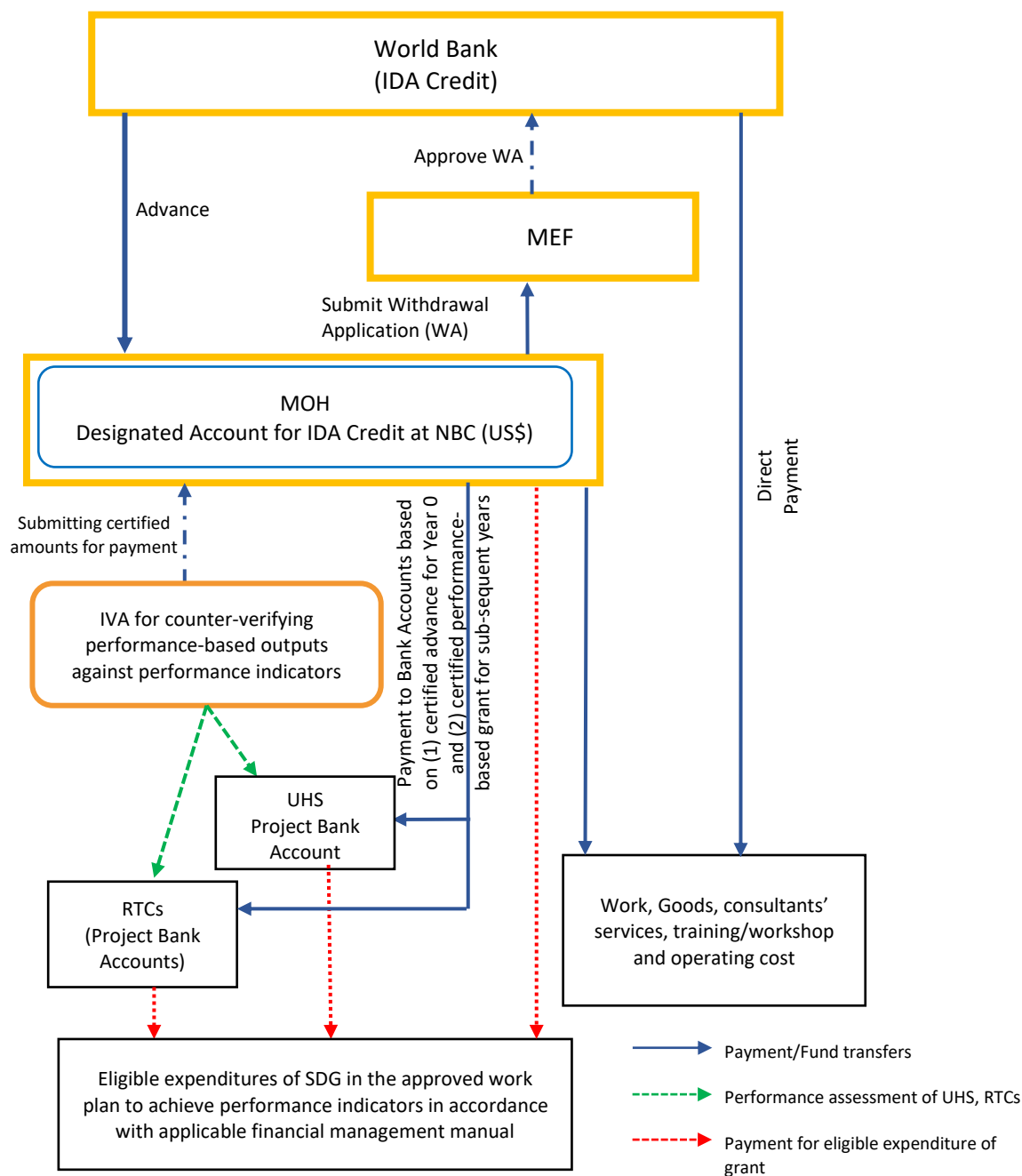
6. **Procurement Plan.** A first 18 months procurement plan for the project had been jointly prepared by MOH, and agreed with the Bank after a PSD was prepared.
7. **Use of STEP.** STEP, which is a web-based tool for procurement planning and tracking, streamlining and automation, and monitoring and reporting, is applicable to this project.
8. **The World Bank's review and implementation support.** The procurement supervision will be part of the semi-annual project implementation support mission. In addition to the prior review by the World Bank based on the prior thresholds, which are subject to change according to the results of the risk assessment carried out during the project implementation, the World Bank will carry out the annual procurement ex-post review on a sample of at least 10 percent of all post review contracts financed by the project. STEP will help the World Bank to monitor the procurement progress and take appropriate supportive actions in due course. The Excel government procurement tracking form will be used by MOH, in addition to STEP, for the government's internal procurement monitoring.

Financial Management

1. **FM assessment.** An FM assessment was carried out in accordance with World Bank Directives and Policy: IPF for MOH, UHS, and two selected RTCs in Battambang and Stung Treng Provinces. MOH has an acceptable FM system and manual established under the H-EQIP and CNP; staff in the DBF, who are involved in the H-EQIP's FM, have been trained. The UHS has some experience in managing small grants provided by previous World Bank-financed projects. The RTCs have experience in maintaining a simple cashbook for their government funds and little to no experience in implementing externally financed projects. Subject to satisfactory implementation of FM system enhancement actions, the project is considered to have an acceptable FM arrangement, and the FM risk is considered as Substantial after mitigating measures.
2. **Internal audit.** MOH's Internal Audit Department (IAD) is encouraged to carry out internal audits of the project, especially to review the implementation of the grants provided to the UHS and RTCs, and to increase capacity building in the project's operations. As part of the normal internal audit work program, the IAD will include the project activities in their selected samples and report on them in their normal internal audit report for the period. The IAD will report the results of the internal audit work on the project to the management of the ministry. Project management will include the internal audit findings in the project progress report to be submitted to the World Bank.
3. **Flow of funds.** MOH will be responsible for certifying and approving expenditures incurred during project implementation and will administer the DA's operations. The funds for performance-based grants to the UHS and RTCs will be transferred from the DA to their respective project bank account based on the certified performance against established performance indicators approved by the Project Director. Original supporting documents are maintained by their respective entities. The fund flow diagram is illustrated in figure 1.1.



Figure 1.1. Project Fund Flow Arrangements





ANNEX 2: Economic and Financial Analysis

COUNTRY: Cambodia

Strengthening Pre-Service Education System for Health Professionals Project

Executive Summary

1. The economic analysis for the proposed project shows a strong economic rationale for the project. The project is expected to improve the quality of education for health professionals entering the workforce, and the expected benefits justify the costs. The net economic benefits generated by the project's inputs and outputs result in a positive NPV of US\$11–67 million, an IRR of 15 percent, and a CBR of 2.1–6.5, under the base case scenarios of 5 and 10 percent discount rates. Sensitivity analyses showed that the results of the CBA were sensitive to changes in key modelling assumptions, but the main conclusions remain unchanged—that is, the investment was justified on economic grounds.

Introduction

2. The CBA follows the Reference Case Guidelines for Benefit-Cost Analysis in Global Health and Development.³⁸ A CBA assesses if a project is economically viable by comparing its full costs with its benefits, both of which are expressed in monetary terms and discounted to their present value. The key outputs of a CBA are the project's CBR and its NPV—a CBR larger than 1 and an NPV larger than 0 indicate that the project is cost beneficial.

3. An economic analysis aims to assess whether the dollar benefits of a program/intervention outweigh its dollar costs. By comparing the pros and cons of policies and programs, it helps policy makers identify the most valuable options to pursue. The main advantage of the CBA is that it monetizes all major benefits and all costs associated with a project so that alternative projects can be directly compared with each other. For this reason, CBA is often considered the gold standard method for evaluating programs.

4. A standard CBA provides three measures of the economic value of a project: the CBR, the IRR, and the NPV of the economic benefits resulting from the project. The CBR is defined as the ratio between the monetarized benefits and the costs, both expressed in discounted present values. A CBR greater than 1 indicates that the NPV of the project benefits outweighs the NPV of the costs and it assesses the economic return generated for each dollar spent. Another important output of the CBA is the IRR, that is, the discount rate at which the NPV of all project cash flows (benefits minus costs) is equal to 0. The IRR is compared to the costs of capital to assess the project's profitability. Finally, the NPV of the project is expected to be greater than 0 for a project to be economically attractive.

Methodology

5. There are three key steps to undertake when conducting an economic analysis. First, the economic analysis needs to be linked to the extent possible directly to the PDOs, as the PDOs define the

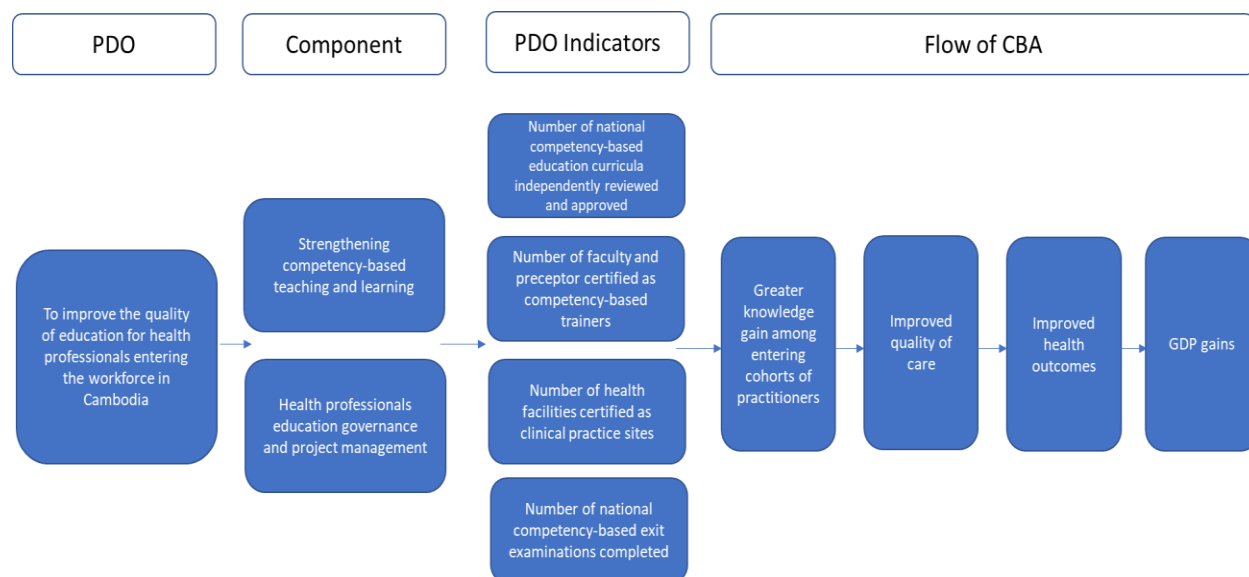
³⁸ Robinson, L. A., et al. 2019. *Reference Case Guidelines for Benefit-Cost Analysis in Global Health and Development*. May 2019; Robinson, L. A., J. K. Hammit, and L. O'Keefe. 2018. "Valuing Mortality Risk Reduction in Global Benefit-Costs Analysis." Guidelines for Benefit-Cost Analysis Project, Working Paper No. 7.



key objectives of the project. Second, it requires assessing what portion of the interventions can and cannot be quantified through the CBA due to the availability of evidence and literature. In addition, the PDO indicators tracked do not always imply attribution to the improved quality and outcomes; therefore, the necessary steps were taken to adjust for this difference and be estimated. Lastly, these benefits need to be translated into monetary value.

6. **The economic analysis was built directly on the PDO, while recognizing the greater complexity of the underlying causal chain of the interventions on the outcomes and economic benefits.** The high-level outcome, to improve the quality of education for health professionals entering the workforce in Cambodia, included two components: (a) strengthening competency-based teaching and learning and (b) health professionals' education governance and project management. Project benefits are conservatively calculated by estimating the potential GDP gains from improved quality of education for health professionals in Cambodia (figure 2.1). The economic analysis assumes that the project interventions lead to greater knowledge gains among the entering cohorts of practitioners. This in turn leads to increased provider competency and hence better quality health care and improved health outcomes. Some evidence exists, mostly from the developed world, to support this causal link, which is further detailed in the latter section of this annex.

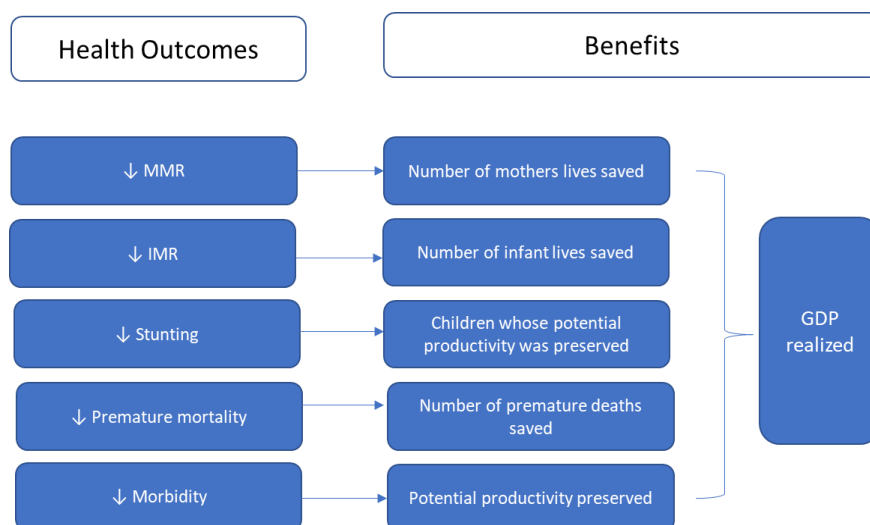
Figure 2.1. Flow for CBA



7. **Figure 2.2 provides a detailed overview of how the project's impact is modelled in the CBA and how the benefits are translated into monetary value.** The analysis estimates the potential GDP gain by linking improved training and education for health practitioners and health outcomes. The impact of the project can be modeled as a series of interventions that affect the following five health indicators applicable to the patient population treated by the affected cohorts of practitioners: (a) the infant mortality rate, (b) the proportion of stunted children under five, (c) the maternal mortality rate, (d) the number of prime-age adult workdays lost to illness, and (e) the prime-age adult mortality rate. These five health outcome indicators are selected because they are good indicators for tracking quality. The analysis then monetizes the gains in a select variety of health dimensions and compares them to project costs.



Figure 2.2. Translating Health Outcomes to Impact



Limitation

8. **Limited evidence exists drawing a direct link between essential elements of quality pre-service education and desired health outcomes.** It is difficult to understand exactly how practitioner-related quality of care affects ultimate population health given the numerous non-competency-related constraints, such as low staffing or inadequate infrastructure, in the health system. Credible estimates from the developing world of the impacts of improved quality of care on health outcomes are limited. One example is from Bjorkman and Svensson (2006) who found that a Ugandan community monitoring program increased health sector quality of care. One year into the program, the investigators estimated a significant difference in the weight of infants (a 0.17 z-score increase) and a markedly lower number of deaths among children under five—a 33 percent reduction in child deaths—although sole attribution of health gains to improvements in health care quality is not possible, as utilization of treatment also increased.

9. **The economic analysis results are thus highly conservative in at least three dimensions:** (a) the analysis posits especially modest gains in the quality of care provided by health practitioners trained by the CBE program; (b) the analysis only considers dimensions of health gains that are relatively easily translated into monetary terms based on evidence, and no attempt is made to assess gains from other health outcomes that are not listed; and (c) any externalities from improved training and education, such as retention of health practitioners, are not monetized and hence unaddressed in this conceptual framework. In this regard, the analysis establishes a lower bound on all possible monetized benefits resulting from an improvement in practitioner competency and quality of care.

Assessing Project Costs and Discount Rate

10. **Discounted project costs amount to US\$10–12.2 million.** Calculation of discounted project costs follows the project disbursement schedule shown in the second column of table 2.1.



Table 2.1. Discounted Project Costs of Health Component (current US\$)

Years	Costs		
	Nominal	Present Value	
		5% Discount Rate	10% Discount Rate
2021	740,000	704,762	672,727
2022	1,150,000	1,043,084	950,413
2023	2,020,000	1,744,952	1,517,656
2024	3,400,000	2,797,188	2,322,246
2025	4,970,000	3,894,125	3,085,979
2026	2,720,000	2,029,706	1,535,369
Total	15,000,000	12,213,817	10,084,390

11. The discount rate is calibrated from 5 percent to 10 percent. Standard welfare analysis implies that the costs and benefits, if expressed in monetary terms, of a project at different points in time should be valued according to their marginal impact on welfare at the time they occur.³⁹ The basic underlying assumption is that the marginal value of a dollar reduces as individuals grow richer over time. Calibration of the discount rate hence requires an estimate of how much richer future beneficiaries of the project will be compared with current beneficiaries—a parameter approximated by Cambodia’s annualized real GDP per capita growth rate over 2008–2018, with the underlying data coming from the WDI database. Discounting also requires a view on how fast the marginal value of an additional dollar of benefits declines as recipients become richer. This parameter is the elasticity of marginal utility of consumption (MUC), which is typically assumed to lie between 1 and 2 for standard utility functions. The social discount rate is simply the product of the GDP growth rate and the MUC, amounting to 5 percent and 10 percent for MUCs of 1 and 2, respectively (table 2.2). Throughout the economic analysis, results will be presented for both rates.

Table 2.2. Social Discount Rate Calibration

Parameter	Percentage
Real GDP growth per capita*	5
Implied discount rate (lower bound, MUC = 1)	5
Implied discount rate (upper bound, MUC = 2)	10

Source: WDI.

Impact of Interventions on Health Outcomes

12. **Mortality and morbidity impacts are estimated based on the number of people receiving improved quality services, which have been enhanced through the project interventions.** The first step in estimating the number of lives saved and people whose potential productivity was preserved is to project rates of utilization of services over the project cycle—both with and without the project. As utilization numbers of services were not available, the analysis assumes, based on the number of people, and takes an average of the lower-bound utilization number for outpatient services in Cambodia, where

³⁹ Kray, A. 2016. “Discounting Costs and Benefits in Economic Analysis of WB Projects.” OPSPQ Guidance Note.



10 percent of the population visited health facilities.⁴⁰ This then accounts for increases in utilization due to annual population growth.

13. The project is estimated to save the lives of 120 pregnant women and 3,000 neonates and preserve potential productivity of 16,000 people over the life of the project. The impact of improved maternal health services on maternal and neonatal mortality is estimated through the Saving Mothers, Giving Life Approach studied in Northern Uganda⁴¹. The study estimates a reduction of maternal mortality ratio by 20 percent and neonatal deaths by 30 percent. For nutrition services, a recent study by Buisman et al⁴² is drawn upon that reviews the impact of improved nutrition interventions on stunting. The study estimates that improved nutrition can reduce stunting by 5.7 percent. For improved NCD services, including prevention, control, and treatment interventions, the analysis uses two papers: (a) Robles et al.⁴³ which estimates a 3 percent annual reduction of premature adult mortality through a package of NCD interventions in the primary care level and (b) a recent study by Han, Arcand, and Lauer⁴⁴ that examines 10 low- and low-middle income countries and the economic gains/productivity preserved (0.7 percent GPD per capita increase) by investing in improved NCD interventions. The impact is further calculated by retrieving the NCD mortality and morbidity rate in Cambodia, which estimates the lives saved and additional GDP gain through NCD interventions. In addition, the analysis uses a conservative approach and assumes that the intervention will be effective 10 percent in the first year, 20 percent in the second, 30 percent in the third, and 50 percent in the fourth, and 70 percent in the fifth year. These percentages of effectiveness are expected as the intervention focuses on improving education, which usually takes a longer time to be realized. Table 2.3 shows the estimates of the number of lives saved and the number of people whose potential productivity was preserved with this method.

Table 2.3. Estimated Lives and Saved over the Project Cycle

	2021	2022	2023	2024	2025	Total
Number of maternal deaths averted	6	13	20	33	47	119
Number of neonatal deaths averted	158	319	484	816	1,154	2,931
Number of children stunting averted (<5)	337	682	1,035	1,744	2,468	6,265
Number of premature deaths averted	300	608	927	1,569	2,231	5,635
Number of morbidity averted	528	1,073	1,634	2,767	3,934	9,936
Total number of deaths averted	464	940	1,430	2,418	3,432	8,684
Total number of potential productivity preserved	866	1,755	2,669	4,510	6,402	16,201

⁴⁰ See https://academic.oup.com/heapol/article/34/Supplement_1/i4/5603550.

⁴¹ Sensalire, S., Isabirye, P., Karamagi, E., Byabagambi, J., Rahimzai, M., & Calnan, J. (2019). Saving Mothers, Giving Life Approach for Strengthening Health Systems to Reduce Maternal and Newborn Deaths in 7 Scale-up Districts in Northern Uganda. *Global health, science and practice*, 7(Suppl 1), S168–S187. <https://doi.org/10.9745/GHSP-D-18-00263>.

⁴² Buisman, L. R., Van de Poel, E., O'Donnell, O., & van Doorslaer, E. (2019). What explains the fall in child stunting in Sub-Saharan Africa? *SSM - population health*, 8, 100384. <https://doi.org/10.1016/j.ssmph.2019.100384>.

⁴³ Sylvia Robles, Emily Adrion, Gerard F Anderson, Premature adult mortality from non-communicable diseases (NCD) in three middle-income countries: do NCD programmes matter?, *Health Policy and Planning*, Volume 27, Issue 6, September 2012, Pages 487–498, <https://doi.org/10.1093/heapol/czr073>.

⁴⁴ Han, Seoni and Arcand, Jean-Louis and Lauer, Jeremy Addison, Economic Impacts of Investing in Universal Health Coverage for Low- and Lower-Middle Income Countries (December 12, 2019). Available at SSRN: <https://ssrn.com/abstract=3343767> or <http://dx.doi.org/10.2139/ssrn.3343767>.



Conversion of the Project's Benefits in Monetary Terms

14. **The last step of the CBA consists of converting benefits**, that is, the estimated number of neonatal, maternal, and premature deaths averted and the preserved productivity into present monetary value (GDP gain). The assumptions for the main results (base case scenario) are summarized in paragraph 16.

15. **Each life year saved was valued one time the GDP per capita in Cambodia, and benefits were calculated over the productive life of neonatal, children, and mothers benefitting from the project.** In the case of maternal lives saved, per capita GDP was adjusted for the percentage of women currently employed (50 percent). The wage bill is 8.6 percent as a share of GDP (2017), which is accounted for in the calculation. This method reflects the average future earnings of an individual in Cambodia.

16. **Once benefits are translated into monetary value, three key assumptions need to be made to estimate the NPV**, that is, the value of the costs and benefits at the project start, given that benefits are yielded much further in the future. These assumptions defined the base case scenario:

- **Time horizon of the CBA.** Benefits were accrued over the productive life of the beneficiaries. While people working in the formal sector may have a predefined retirement age, the poorest beneficiaries of the programs are likely to continue working while alive. Given a life expectancy at birth in Cambodia of 69 years, it was assumed that children would start earning at the age of 18 and continue earning until the age of 65. The assumption for pregnant women was that they would continue working from the delivery age of 22, that is, the median age at first birth (20 years) plus half the fertility rate—four children based on the most recent data from the Demographic and Health Survey. Therefore, the benefits of the project for mothers reflected lost earning from age 22 to age 65.
- **Economic growth.** A conservative approach was used and a 5 percent economic growth was assumed. Using a parameter, Cambodia's annualized real GDP per capita growth rate over 2008–2018 is approximated, with the underlying data coming from the WDI database. This rate was used because of the extended time horizon of the analysis and the uncertainty related to the political and macroeconomic situation in the country.
- **Discount rate.** This is the rate at which benefits and costs are discounted over time. As mentioned earlier, the analysis uses a range of 5 to 10 percent discount rate, which is aligned to most of the economic evaluations conducted thus far, which assumed a 5 percent discount rate for costs and benefits from health interventions⁴⁵.

CBA Results

17. **The economic analysis for the proposed project shows a strong economic rationale for the project.** Under the base case scenarios (5 and 10 percent discount rates), the project yielded a CBR in a range of 2.1 to 6.5, suggesting that for every dollar invested, the project yielded an economic return of

⁴⁵ Attema, A. E., Brouwer, W., & Claxton, K. (2018). Discounting in Economic Evaluations. *PharmacoEconomics*, 36(7), 745–758. <https://doi.org/10.1007/s40273-018-0672-z>.



US\$2.1–6.5, that is, more than 2.1–6.5 times higher. The initial investment of about US\$20 million generated economic benefits with an NPV of US\$11–67 million. The IRR was 15 percent for both, which was significantly higher than the current costs of capital in Cambodia (5–10 percent).

Sensitivity Analysis

18. **Due to the uncertainty in the assumptions made in the base case scenario, principles of economic analysis indicate that sensitivity analyses need to be conducted to assess the sensitivity of the CBA results to changes in key parameters.** The key parameters are varied in sensitivity analyses and are summarized in table 2.4 where the CBR, the IRR, and the NPV of economic benefits are reported.

19. **The proposed investment was justified on economic grounds.** Even under more conservative assumptions of variations of (a) economic growth and (b) discounting factors, the benefits still outweighed the costs. A higher discount rate of 13 percent reduced the CBR (1.3) and NPV (US\$3 million). To reflect uncertainty in economic growth, especially in a country with considerable political instability, the analysis assumed a long-term economic growth of 3 percent. Even under this unlikely scenario, the CBA showed that the investment yielded positive economic returns: a CBR of 1.4 per dollar spent and an NPV of US\$4 million. The base case scenario is a conservative approach in terms of the discount rate and economic growth. With a nonconservative approach, the returns will be much higher, as shown in table 2.4.

Table 2.4. Results from CBA: Base Case Scenario and Sensitivity Analyses

Category	Scenarios	CBR	IRR (%)	NPV (US\$, millions)
Changes in discount rate	Base-case scenario (5% discount rate)	6.5	15	67
	Base-case scenario (10% discount rate)	2.1	15	11
Sensitivity analysis				
Changes in discount rate	7% discount rate	3.8	15	32
	13% discount rate	1.3	15	3
Changes in GDP per capita growth	International Monetary Fund (IMF) projection of 7%, 5% discount rate	14.9	19	170
	IMF projection of 7%, 10% discount rate	3.8	19	28
	Conservative economic growth projection of 3%, 5% discount rate	3.7	12	33
	Conservative economic growth projection of 3%, 10% discount rate	1.4	12	4



ANNEX 3: Summary of HRDRAP

1. **The Human Resource Development Readiness Assessment and Plan for Inclusive Delivery (HRDRAP) is one of the ESF tools prepared, consulted, and disclosed by MOH** of the Kingdom of Cambodia for the 'Pre-Service Education System for Health Professional Project' in Cambodia. This project is expected to be financed by the World Bank. The main objective of this HRDRAP is to assess and propose specific recommendations for (a) promoting the enrollment and inclusion of disadvantaged groups as medical students in Cambodia and (b) imbedding social inclusion and environmental sustainability aspects in the project activities, in line with the World Bank's ESF standards.
2. **The proposed project focuses on the primary health care students including medical doctors, nurses, and midwives.** The students' data are taken from the government HTIs which include the UHS, Battambang RTC, Kampot RTC, Kampong Cham RTC, and Stung Treng RTC. The data collected cover the training institution year 2018/19.
3. **The data for public health professionals used by this assessment were taken from the five major public hospitals at Phnom Penh,** as well as from the provincial hospitals, referral hospitals, and commune health centers from 24 provinces of Cambodia. Data collected cover 2019 and data collection was facilitated through the Provincial Health Departments (PHDs) and supplemented by the Personnel Department of MOH.
4. **The proposed actions for health curricula and ESF inclusion are derived from the focus group discussions** with health students, faculty teaching staff, and decision makers of the UHS and Stung Treng RTC; medical staff (doctors, nurses, and midwives); and management team of Khmer-Soviet Friendship Hospital, Phnom Penh Center for Independent Living (PWD sector), and Micro Rainbow International (lesbian, gay, bisexual, and transgender [LGBT] sector).
5. **A consultation meeting with the project stakeholders on the initial draft of the HRDRAP provided additional input and refinement of the proposed actions and recommendations.**

Assessment Results

(a) Inclusion of Disadvantaged Groups

Table 3.1. Primary Health Care Students in Cambodia, 2019

Medical Course	Number of Student	Women Students		Ethnic Minority Students		PWD Students	
		Number	Percentage	Number	Percentage	Number	Percentage
Doctor	2,812	1,056	38	0	0	—	—
Nursing	1,998	1,178	59	9	0.45	—	—
Midwifery	1,453	1,453	100	10	0.69	—	—
Total	6,263	3,687	59	19	0.30	—	—

Source: Own elaboration.

6. **Overall, the majority of the current health students in Cambodia are women; however, there is gender imbalance among doctors and the midwifery students.** Only a third of doctor students are women



while midwifery has all women students. Based on the collected data, there is a very low number of students from ethnic minority groups (indigenous peoples) and they are mostly concentrated at the Stung Treng RTC. The four other medical training institutions surveyed were not able to give the data on ethnicity.

7. **All the medical training institutions surveyed did not provide the data for students with disability;** however, it was observed during the orientation of ‘National Exit Exam Passers’ held at MOH in October 2019, that at least two nursing student passers were PWDs.

8. **On the other hand, the data for public health professionals were collected from five of the major public hospitals at Phnom Penh, provincial hospitals, referral hospitals, and commune health centers from 24 provinces of Cambodia.**

Table 3.2. Public Health Workforce in Cambodia, 2019

Medical Professionals	Number of Workforce	Women		Ethnic Minority/Cham		Age Bracket (%)			
		Number	Percentage	Number	Percentage	20–30	30–40	40–50	50–60
Doctor	2,141	415	19	1	0.05	14	40	30	16
Nursing	8,176	2,855	35	51	0.6	33	26	23	18
Midwifery	5,963	5,963	99	22	0.4	51	24	15	10
Total	16,280	3,687	59	74	0.5	37	27	21	15

Source: Own elaboration.

9. **Doctors are mainly working in the hospitals with high concentration among the major public hospitals at Phnom Penh (average of 144 doctors per hospital).** It is relevant to highlight that only a limited number of doctors work in the rural health centers (160 doctors among the 1,220 health centers).

10. **More than half of public primary health professionals of Cambodia are women,** while only less than a fifth are women doctors, a third are women nurses, and midwives are almost all women.

11. **Based on official data coming from Ministry of Planning (2019), there are about 24 different types of indigenous peoples in Cambodia, totaling approximately 200,216 people** or about 1.2 percent of Cambodia’s total population of 16.5 million. However, this assessment reports that public health professionals from ethnic minorities are minimal, comprising only 0.5 percent of the total workforce.

12. **More than a third of all public health professionals are young of ages 20–30; the number decreases as the age bracket goes up.** There is however only 14 percent of young doctors while more than half of the midwives are young (age bracket 20–30).

(b) Inclusion of Environment and Social Topics in Health Curricula

13. **Current pre-service education has some courses on infection control which are partially relevant to occupational health and safety and hazardous waste management in years one and two.** Those courses are in line with National Guidelines for Infection Prevention and Control for Healthcare Facilities (2017).



14. **The safeguard training for health professionals conducted by MOH through the PMD has limited content related to the environment and social risk management.** Practices and management procedures which are in line with the National Guidelines for Infection Prevention and Control for Healthcare Facilities (2017) are integrated as part of training courses and the guidelines of the laboratories. However, they are generally focused or have an emphasis on the hospital context. Application of appropriate personal protection equipment, segregation of wastes, and sterilizing of wastes and glassware including autoclaving methods are being practiced.

15. **The analysis of the existing curricula shows that Cambodia does not have cultural competence training for students at medical training institutions,** focusing on skills and knowledge that value diversity, understand, and respond in a culturally appropriate manner to social diversity: gender, ethnic minorities, disabled people, SOGIE, and so on. There is also a lack of content related to topics such as how to prevent GBV and work with survivors and how to work with very vulnerable social groups (street children, the impoverished elderly, and so on).

(c) Proposed Actions for Health Curricula and ESF Inclusion

16. **On health curricula:**

- Include in the behavioral science subject topics on 'social inclusion and environmental sustainability' and/or soft skills courses (behavioral science courses) for medical students for having the right attitude in dealing with and treating the vulnerable people group.
- Promote public awareness-raising activities among medical students for better understanding and responding (in a culturally appropriate manner) on ethnic minorities, PWD, and SOGIE-related elements so that future health professionals will not discriminate PWD and LGBT patients (details on the process and how to carry it out will be further discussed with the concerned group).
- Include in the medical outreach program visits to PWD homes/communities to interact and hear from PWDs and see their situation.
- Include in the curricula or imbed in the subject 'organizational structure and system of MOH, its departments and health institutions at national, provincial, district and commune levels to help new medical professionals understand the system and know how and where to refer patients.

17. **On ESF inclusion:**

- Promote actions to increase the number of women enrollees for the doctor course such as providing equal quotas for males and females passing the National Entrance Exam or at least increase the quota for women entering the doctor course at the UHS.
- Provide equal access to opportunity for female doctors in the government hospitals. MOH should give priority to female doctors for future hiring until the gender balance among the government doctors is reached, or increase the number of women doctors by at least 35 percent from the current 19 percent in government health facilities by the end of the project



period.

- Provide special support to actively promote the enrollment of disadvantaged groups (ethnic minorities, PWDs, and women). This is to ensure that the disadvantaged groups are provided the opportunity to enroll in medical course and are not left out. The component of the support provided to students from the disadvantage groups shall be 'tailored' to their need, that is, responding to their physical, psychological. and cultural circumstances.
- Promote Stung Treng RTC as a focal center in the country for health professionals' education with ethnic minorities through:
 - Information dissemination among high training institutions at the provinces with many ethnic minorities about Stung Treng RTC program and medical courses offered and to encourage the ethnic minorities' students to enroll; and
 - Development of specific training materials and training activities to reach better and work with ethnic minorities in Cambodia, similar to other centers in countries such as Vietnam. Promoting better understanding and responding in a culturally appropriate manner to the needs of the patients with an ethnic background.

18. On improving health and safety of health professionals:

- Health facilities should follow the health care waste management process including sorting, handling, storage, and final disposal of solid health care waste outlined in good international practices and relevant guidelines and regulations including the National Guideline on Health Care Waste Management, Infection Prevention and Control Guidelines for Health Care Facilities, and so on.
- Improve and strengthen the public participation and grievance redress mechanism among PIUs, making the mechanism accessible and responsive and making the workplace safe place for all, especially for vulnerable groups such as women and children.

19. On improving the documentation and record keeping of this and PIUs:

- HTIs (UHS and RTCs) should include, in their records, documentation of students, faculty, and staff coming from ethnic minorities, PWDs, and LGBTs.
- PIUs (MOH departments, PHDs, outpatient departments, hospitals, health centers, professional councils, and National Exam Committee) should include in their documentation students and personnel coming from the ethnic minorities, PWDs, and LGBTs.
- National Entrance Examination and NEE should include, in the documentation of applicants and passers, the number of women, ethnic minorities, and PWDs.
- For baseline data on the number of PWDs and ethnic minorities involved in the medical education and public health service, a follow-up survey should be conducted at the start of project implementation.

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