ASIAN INFRASTRUCTURE INVESTMENT BANK

Sovereign-backed Financing

P000521 Cambodia: Cambodia Rapid Immunization Support Project (Approved under AIIB's COVID-19 Crisis Response Facility)

Project Change Document – Material Change

Abbreviations

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
COVID-19	Coronavirus disease
CPA	Complementary Package of Activities
DDCS	Detailed Design and Construction Supervision
EMP	Environment Management Plan
ES	Environmental and Social
ESP	Environmental and Social Policy
FM	Financial Management
FY	Financial Year
GAP	Gender Action Plan
GRM	Grievance Redress Mechanism
IHR	International Health Regulations
IPs	Indigenous Peoples
IR	Involuntary Resettlement
MEF	Ministry of Economy and Finance
MoH	Ministry of Health
NCHADS	National Clinic for HIV/AIDS Dermatology and STD
PMU	Project Management Unit
PPM	Project-Affected People's Mechanism
RMF	Results Monitoring Framework
SFW	Special Fund Window
SPS	Safeguard Policy Statement
USD	US Dollor
WHO	World Health Organization

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1. Background

1.1. **Project Approval**

1.1.1. On March 24, 2022, the Asian Infrastructure Investment Bank's (AIIB) Board of Directors, under AIIB's COVID-19 Crisis Recovery Facility, approved a loan to the Kingdom of Cambodia (Cambodia) in the amount of USD50 million (Loan) for the Cambodia Rapid Immunization Support Project (Project). The Loan includes a one percent interest rate buy-down under the Special Fund Window (SFW). The Project was envisaged to support the procurement of 14.5 million doses of vaccines against COVID-19. It aimed to contribute to Cambodia's goal of strengthening population immunity by providing vaccination to 10.12 million people, through either primary and booster vaccination for adults or primary vaccination to children below five years of age. The Project is co-financed with the Asian Development Bank (ADB) under the Asia Pacific Vaccine Access Facility.

1.1.2. The original Project cost and financing plan are presented in Table 1 below.

Table 1. Project Cost and Financing Plan

Item	**Project Cost (USD million)**	**Financing (USD million and %)**		
		AIIB	ADB	Cambodia
Component A - Expenditures in relation to the procurement and deployment of COVID-19 vaccines	151.75	50.00 (32.95%)	95.00 (62.60%)	6.75 (4.45%)
Component B - Financing charges during implementation	1.75	00.00 (00.00%)	00.00 (00.00%)	1.75 (100.00%)
Total	**153.50**	**50.00**	**95.00**	**8.50**

1.2. **Project Status**

1.2.1. The AIIB Loan Agreement was signed on April 22, 2022, with the Loan effectiveness declared on September 29, 2022. To date, AIIB and ADB have disbursed USD14,274,720 and USD27,125,280, respectively.

1.2.2. By December 31, 2022, 15.2 million Cambodians had been vaccinated with a primary dose of the COVID vaccine, and 14.6 million people had been vaccinated with a second dose, exceeding the Project's target of 10.12 million people. The Project contributed to this achievement through retroactive financing of six million doses of the COVID vaccine. In March 2023, the Ministry of Health (MoH) and the Ministry of Economy and Finance (MEF) informed AIIB and ADB that it had reached its vaccination coverage targets and, therefore, no longer required Loan financing to procure COVID-19 vaccines. A request to restructure the Project to incorporate a new investment component was received from MEF on November 13, 2023. The MEF subsequently requested an extension of the closing date for the AIIB and ADB loans to December 31, 2031, which was approved by both AIIB and ADB.

2. Proposed Changes

2.1. **Revised Objective.** The Project's original objective was "to increase access to eligible COVID-19 vaccines for target population groups in Cambodia." The Project objective is proposed to be revised as "To increase access to eligible COVID-19 vaccines for target population groups in Cambodia and strengthen resilience of health systems for future pandemics by upgrading priority facilities to MoH's service standards."

2.2. The change in objective will add a new Project component. The new component will upgrade infrastructure and services at seven referral hospitals and one national clinic[1], helping these eight facilities meet the MoH service standards[2]. The infrastructure upgrade will integrate energy-efficient and climate-resilient features, upgrade waste treatment facilities, and equip participating facilities with medical and nonmedical equipment in addition to project management support and capacity building. The revised Project cost and financing plan are presented in Table 2 below.

Table 2. Project Cost and Financing Plan

Item	**Project Cost (USD m)**	**Financing (USD m and %)**		
		AIIB	ADB	GoC
Component A - Expenditures in relation to the procurement and deployment of COVID-19 vaccines	41.40	14.27 (34.50%)	27.13 (65.50%)	0.00 (0.00%)
Component B - Health service provision strengthened	106.11	35.73 (33.67%)	67.88 (63.97%)	2.51 (2.36%)
Component C - Financing charges during implementation	5.99	00.00 (00.00%)	00.00 (00.00%)	5.99 (100.00%)
Total	**153.50**	**50.00**	**95.00**	**8.50**

2.3. With the remaining undisbursed Loan amount reallocated to finance eligible expenditures in relation to the new component, the results monitoring framework (RMF (revised RMF is in Annexure 1)), gender action plan (GAP), and implementation arrangements will be revised. The Project name is proposed to be changed to the Cambodia Rapid Immunization Support and Resilient Health Infrastructure Project.

2.4. Under applicable environmental and social (ES) policy, which is ADB's Safeguard Policy Statement (SPS), the Project has been recategorized from C to B for Environment (for the reason set out in para. 4.9), while it remains Category C for Involuntary Resettlement (IR) and Indigenous Peoples (IPs), which are equivalent to Category B if AIIB's Environmental and Social Policy (ESP) were applicable. Accordingly, AIIB equivalent Category C is proposed to be changed to Category B.

[1] Kep Provincial Hospital (Kep), Kampong Thom Provincial Hospital (Kampong Thom), Kampong Speu Provincial (Kampong Speu) Hospital, Ratanak Mondol Referral Hospital (Ratanak Mondol), Sambour Referral Hospital (Sambour), Srey Santhor Referral Hospital (Srey), Stoung Referral Hospital (Stoung) and National Clinic for HIV/AIDS Dermatology and STD, Phnom Penh (NCHADS). Kep Provincial Hospital will be constructed on a new site and all other facilities will involve new construction and refurbishment with land already available at existing sites.

[2] Government of Cambodia, Ministry of Health. 2014. National guidelines on complementary package of activities for referral hospital development 2014.

2.5. The changes are deemed material because they modify the approved Project objective and scope. ADB has considered a similar project change on October 6, 2025 and approved it.

2.6. The Project is proposed to continue providing a one percent interest rate buy-down under the SFW as approved earlier. On July 3, 2025, the Special Funds Committee provided its reconfirmation of the continued availability of the SFW interest rate buy-down facility.

2.7. In addition to the above changes, Cambodia intends to request a conversion of the undisbursed Loan balance into Chinese Renminbi and is currently discussing this with AIIB. This request is based on AIIB's Conversion Guidelines on Sovereign-Backed Loans, which were approved on November 25, 2024.

3. Rationale for the Changes

3.1. **Gaps in health service provision.** Cambodia's health system faced overwhelming pressure during the COVID-19 pandemic. Cambodia responded by reallocating health system resources to pandemic response, while effective in mitigating the impacts, this led to prolonged negative impacts on health service delivery and standards, particularly at subnational referral hospitals. Healthcare service delivery in Cambodia's referral hospitals is benchmarked against a level of a complementary package of activities (CPA). The CPA level defines the clinical services to be provided at the facility, as well as bed numbers, staffing levels, medical equipment, and other service standards. A 2022 nationwide assessment of gaps in referral hospitals meeting the CPA standards identified deficiencies in service and resource availability at hospitals across all three CPA levels[3].

3.2. **Health service resilience to future pandemics**. Addressing deficiencies in health service provision is critical to strengthen preparedness for future pandemics. In line with the International Health Regulations (2005) (IHR)[4], World Health Organization (WHO) considers health service provision as one of 15 core capacities for national health systems to effectively respond to public health events of concern. During public health emergencies, health systems must be capable of providing emergency management of cases linked to the public health event while maintaining the delivery of routine health services, thus indicating resilience of the health services. Annual IHR assessments show Cambodia continues to underperform on measures of health service provision[5].

3.3. **Strategic Fit for AIIB.** With its revised scope, the Project will align with AIIB's thematic priority of Green Infrastructure. The Project will also align with AIIB's Health Strategy.

3.3.1. **Green Infrastructure.** The construction of new buildings and retrofitting of existing buildings integrates energy efficiency measures, including smart lighting; enhancements to heating, ventilation, and air conditioning; and the application of renewable energy infrastructure, thereby reducing greenhouse gas emissions and ensuring compatibility with Cambodia's low-carbon development pathway. Additionally, the Project will enhance climate resilience by addressing climate risks, such as extreme weather and rising temperatures, through the incorporation of flood-resistant infrastructure, passive cooling, and cross-ventilation designs, thereby maintaining continuous healthcare services.

3.3.2. **Paris Agreement alignment and climate finance.** With the revised Project scope, the Project will align with the Paris Agreement mitigation and adaptation goals. The Project is considered aligned under mitigation goals as it targets upgrades to the hospitals with measures that include significant energy savings as well as greenhouse gas emission reductions through technological improvements such as enhanced insulation, advanced green roofing systems, smart lighting, heating, ventilation, and air conditioning enhancements, and installation of renewable energy sources. Such measures will be incorporated into health facility design and construction and will reduce

[3] CPA 1: a referral hospital which has no grand surgery (without general anesthesia) but at a minimum, should have obstetric services; CPA 2: a referral hospital which has emergency care services and grand surgery with general anesthesia. Medical and co-medical services are more than CPA1 but less than CPA3. CPA 3: a referral hospital which has emergency care services and grand surgery with general anesthesia more than CPA2 (both number of patients and activities) and other specialized services.
[4] WHO. 2005. International Health Regulations (2005) – Third edition. The IHR constitute an international agreement among WHO member states, in efforts to prevent and respond to public health threats that could spread across borders.
[5] WHO. IHR States Parties Self-Assessment Annual Report (SPAR). (accessed 14 April 2025).

energy use and enhance resource efficiency. The Project will also address physical climate risks posed by the hospitals, incorporating a number of climate adaptation measures tailored to the vulnerabilities of each hospital site. These include elevating buildings in flood-prone areas, enhancing drainage systems, and constructing climate-resilient wastewater treatment facilities to address contamination risks during heavy rainfall. The Project is aligned with Cambodia's Long-Term Strategy for Carbon Neutrality as well as national adaptation policies and strategies. The Project also contributes to AIIB's climate finance target. Details on the Project's Paris Agreement alignment and climate finance are provided in Annexure 5.

3.4. **Alignment with AIIB's Health Strategy.** The Project is consistent with AIIB's Health Strategy, as it directly addresses Strategic Priority Two: Enhancing Infrastructure for the Health Services Value Chain and Strategic Priority Four: Green and Climate-Resilient Health Systems. By constructing a new facility and upgrading outdated facilities and service capacity, the Project will improve service and resource availability at hospitals[6]. The infrastructure upgrade and adoption of advanced medical equipment and high-tech devices will enhance diagnostic and treatment capabilities, leading to improved clinical outcomes while elevating both operational efficiency and patient experience.

3.5. **Alignment with member priorities.** Addressing deficiencies in health service delivery at referral hospitals is a post-pandemic priority for Cambodia, as articulated in national and sector strategies[7]. Accelerating IHR core capacities remains a government priority, given the ongoing threat to health security from emerging and re-emerging infectious diseases, climate change, and disasters[8]. Based on these priorities, the MEF and MoH requested AIIB and ADB to reallocate the undisbursed Loan funds to finance a new Project component[9].

[6] Sambo Referral Hospital (CPA-1); Rotanak Mondol Referral Hospital (a new CPA-1 hospital); Kep Provincial Hospital (CPA-2); Srey Santhor Referral Hospital (CPA-2); Stong Referral Hospital (CPA-2); Kampong Speu Provincial Hospital (CPA-3); Kampong Thom Provincial Hospital (CPA-3), and the National Clinic for AIDS Dermatology and STD. The National Clinic for AIDS Dermatology and STD and Sdao Health Center, which is being upgraded to the new Rotanak Mondol Referral Hospital, do not fall under the CPA Standards.

[7] Government of Cambodia. 2023. Pentagonal Strategy - Phase I for Growth, Employment, Equity, Efficiency, and Sustainability: Building the Foundation to Realizing the Cambodia Vision 2050. Phnom Penh; Royal Government of Cambodia. 2024. Roadmap Towards Universal Health Coverage in Cambodia 2024-2035.

[8] Government of Cambodia, Ministry of Health. 2025 (draft). Health Strategic Plan 2025-2034.

[9] Ministry of Economy and Finance letter to AIIB dated Nov. 13, 2023.

4. Assessment of the Proposed Changes

4.1. **Technical.** The Project has evolved and expanded from solely increasing access to eligible COVID-19 vaccines for target population groups in Cambodia to additionally strengthening the resilience of health systems for future pandemics by upgrading priority facilities to the MoH's service standards in the country. At large, it shifts the short-term pandemic response to a comprehensive health system strengthening initiative, while, specifically, it improves population health outcomes through climate-smart health infrastructure, better health service quality, and greater health system resilience. The Project is aligned with the Paris Agreement under both mitigation and adaptation goals[10]. Facility designs integrate energy efficiency measures and renewable energy infrastructure, and avoid reliance on carbon-intensive technologies, ensuring compatibility with Cambodia's low-carbon development pathway. Additionally, the Project enhances climate resilience by addressing climate risks such as extreme weather and rising temperatures through flood-resistant infrastructure, passive cooling, and cross-ventilation designs.

4.2. **Implementation Arrangements and Implementation Schedule**. The MoH will continue as the Project executing agency. With the completion of the component related to the COVID-19 vaccine, a single new implementing agency, the General Directorate for Health at MoH, will be assigned to the Project. Technical staff from MoH departments, provincial health departments, and hospitals under the Project will support Project implementation. The executing agency will establish a new Project Management Unit (PMU). The PMU will comprise the assigned government technical staff and be supported by individual consultants and firms. The Project will require about 68 months to implement, and the Loan closing date remains December 31, 2031. The updated implementation arrangements and implementation schedule are detailed in the ADB's updated Project Administration Manual.

4.3. **Procurement Arrangements.** For the new Project component, the procurement of goods, works, consulting services, and non-consulting services will follow the ADB Procurement Policy (2017, as amended from time to time) and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time). The procurement risk is rated as substantial due to MoH's limited (i) experience in using new evaluation methods for procuring two high-value civil works contracts and medical equipment; and (ii) capacity in managing procurement of multiple contracts in geographically dispersed areas. To strengthen the MoH's capacity in overseeing the procurement of goods, works, consulting, and non-consulting services, a procurement consultant and two detailed design and construction supervision (DDCS) firms will be engaged. ADB, as the lead co-financier, will also undertake prior review of high-risk/high-value contracts.

4.4. **Financial Management (FM).** The residual FM risk is Medium, and several mitigation measures have been proposed in the FM Action Plan of the revised Project Administration Manual. In summary, the MoH must assign and recruit finance staff, develop an acceptable supplementary finance manual, introduce accounting software for project accounting and reporting, and conduct internal audits to maintain satisfactory Project FM arrangements. Two audits for the Financial Year (FY) 2022 and FY2023, respectively, were received and accepted by the Bank. The external audit report for FY2024 was due on June 30, 2025, but was deferred since there were no disbursements in 2024. The revised audit submission deadline was agreed with ADB, and Cambodia was informed accordingly. The revised audit period will cover FY2024 and FY2025 and will be due June 30, 2026.

[10] World Bank. Joint MDB Methodological Principles for Assessment of Paris Agreement Alignment https://www.worldbank.org/en/publication/paris-alignment/joint-mdb-paris-alignment-approach

4.5. **Governance and Anticorruption.** As applicable earlier, AIIB may exercise its remedies under the Loan Agreement if the Project involves any Prohibited Practices, as defined under the Bank's Policy on Prohibited Practices (PPP). To the extent that the Prohibited Practices covered under ADB's Anti-Corruption Guidelines are similar to those under AIIB's PPP, ADB's Anti-Corruption Guidelines will apply to the Project activities financed under the Loan. AIIB reserves the right to investigate, directly or indirectly, any alleged Prohibited Practices relating to the Project and to require the borrower to take necessary measures to address issues in a timely manner, and as appropriate.

4.6. **Financial Sustainability and Economic Viability.** The financial sustainability risk for the Project is rated moderate. The fund requirement to cover each facility's existing operation and maintenance costs, and the additional costs generated by the Project, is within the MoH's total forecast budget, and Cambodia has sufficient fiscal resources to continue financing the MoH budget (more details in Annexure 3 Financial Analysis). The Loan Agreement will include an assurance that the government will allocate the required budget for salaries and operations and maintenance costs over the entire economic life of the Project assets. Economic analysis (Annexure 4) conducted for the Project shows that the Project is highly cost-effective.[11]

4.7. **Environmental and Social Policy and Categorization.** The Project is co-financed with ADB as lead co-financier, and the Project's ES risks and impacts have been assessed in accordance with the ADB's SPS (2009). To provide a harmonized approach to addressing the Project's ES risks and impacts, and as permitted under ESP, ADB's SPS (2009) continues to apply to the Project in lieu of AIIB's ESP. ADB had categorized the ES risks of the original Project as Category C for Environment, IR, and IPs (which are equivalent to Category C if AIIB's ESP were applicable). Following the proposed changes, under ADB's SPS, the Project has been recategorized from C to B for environment (for the reason set out in para. 4.9), while it remains Category C for IR and IPs, which are equivalent to Category B if AIIB's ESP were applicable.

4.8. **Environment and Social Instruments.** The proposed Project is to support upgrading the selected facilities to meet the MoH service delivery standards in line with each facility's designated CPA level. [12] An initial environment examination and environment management plan (EMP) were prepared for the new Project component and were disclosed in May 2025 on ADB's website,[13] and AIIB's website will include links to the documentation on ADB's website. The initial environment examination and EMP will be updated upon detailed design, as needed, and include appropriate actions and measures to ensure compliance with ADB's SPS. An initial environmental impact assessment will also be prepared for each hospital. All initial environmental impact assessments, Ministry of Environment approvals, and other permits as relevant will be secured prior to commencement of works. The Project is category C for both IP and IR safeguards. No IP plan or IR plan is required.

4.9. **Environment Aspects.** Under the ADB's SPS, the Project has been re-categorized from C to B for the environment due to the proposed changes. The new Project component involves civil works for the construction and/or upgrade of the selected facilities. Such works could cause temporary and localized adverse

[11] WHO Commission on Macroeconomics and Health. 2001. Macroeconomics and health: investing in health for economic development. Report of the Commission on Macroeconomics and Health. Cost per disability-adjusted life year averted attributable to the investments, at a six percent discount rate, is less than the gross domestic product per capita

[12] Ministry of Health. Comprehensive Assessment to Define Gaps for Meeting Complementary Package of Activities level 1-3 Standards in Cambodia. 2021

[13] Cambodia Rapid Immunization Support Project under the Asia Pacific Vaccine Access Facility: Initial Environmental Examination | Asian Development Bank.

environmental impacts and pose risks to occupational health and safety. All these impacts are anticipated to be limited to the construction period, site-specific, and can be readily mitigated with good construction, environmental, and safety management practices. Unexploded ordnance clearances by the Cambodian Mine Action Centre, as well as asbestos risk assessments will be required at some of the hospitals. Demolition of existing buildings including demolition waste management will require careful planning and execution. No significant impacts and/or risks beyond those typical for healthcare facilities are anticipated during operation of the hospitals. During operation, key potential environmental risks include exposure and spread of infectious diseases induced by handling of materials and waste contaminated with blood-borne pathogens; exposure to hazardous materials and waste including toxic chemicals and gases used in sterilization of medical equipment, formaldehyde, mercury, solvents, etc.; inadequate solid and liquid waste management; and risks associated to inadequate discharge of contaminated wastewater. All hospitals will be required to develop a healthcare waste management plan that establishes the rational waste management practices, operational resources for waste management, delineation of responsibilities, capacity building, and monitoring plan and adhere to international good practice to infection prevention and control. The Project will enhance waste management facilities and practices, including the provision of hazardous waste storage and treatment equipment, and wastewater collection and onsite treatment.

4.10. The Project is aligned with Cambodia's climate commitments. Facility designs integrate energy efficiency measures and renewable energy infrastructure, and avoid reliance on carbon-intensive technologies, ensuring compatibility with Cambodia's low-carbon development pathway. The Project will address climate risks such as extreme weather and rising temperatures through designs that incorporate flood-resistant infrastructure, passive cooling, and cross-ventilation.

4.11. **Social Aspects**. The stakeholder consultations and due diligence confirmed the Project would remain Category C for IR and IPs as all construction will be either (i) contained within the boundaries of the existing hospital, or (ii) undertaken on land owned by Cambodia and assigned for the purposes of hospital construction. No religious, culturally important or heritage sites are being disturbed and there are no Project induced threats against IP livelihoods, traditions, cultures and values, land use or access to land. The Project will positively impact physical access to healthcare, and generate short-term jobs during construction and long-term healthcare roles post-renovation. Access to healthcare for women, children, people with disabilities, and marginalized communities will improve through upgraded hospital services, expanded maternal and child health and pediatric care, universal access principles, and culturally sensitive spaces. Healthcare staff will be trained to support Gender Based Violence survivors and strengthen knowledge on ethical conduct, ensuring inclusive and non-discriminatory services. The Project is expected to improve health outcomes, lower out-of-pocket expenses, and support healthcare staff well-being. Marginalized groups will be engaged in design consultations to ensure facilities are accessible to all.

4.12. **Labour and Working Conditions, and Occupational Health and Safety.** During construction, major anticipated impacts from Project activities also include risks to the community and workers' health and safety. The contractors are required to develop and implement a site-specific Environment, Health, and Safety Plan and designate an Environment, Health, and Safety Officer. Overall, construction-related impacts are localized and can be effectively mitigated through the application of good construction practices in close coordination among the contractor, hospital, local authorities, and surrounding communities. At the operation stage, major impacts will be the occupational health and safety hazards for the healthcare providers, cleaning and maintenance personnel, and personnel involved in handling, treatment, and disposal of healthcare waste, which are associated with exposure to infections and diseases and hazardous materials. These hazards can be mitigated through the implementation of the

Guidelines on Infection Prevention and Control of the MoH. Construction site safety, community, and workers' health and safety shall strictly adhere to national safety requirements as well as international good industry practice, such as defined in the International Labour Organization or the World Bank Environmental, Health, and Safety Guidelines.

4.13. **Stakeholder Engagement, Consultation and Information Disclosure**. Critical stakeholders for the Project include (i) people affected by COVID-19, (ii) people eligible for COVID-19 vaccination, with a focus on women and hard-to-reach groups, and (iii) people residing in the catchment areas of the seven hospitals and one national clinic being upgraded under new Project component. Other key stakeholders include, but are not limited to, the MoH as executing agency and the implementing agency, government officials at national and sub-national levels, interested community-based and civil society organizations, relevant private sector entities, and development partners. The Project will at a minimum prepare a fact sheet or information booklet containing objectives, components, activities, timelines, relevant contact information, and grievance redress mechanisms (GRM). This document will be prepared in English and Khmer languages and will be made available to the public in print at the MoH, distributed during stakeholder consultations and outreach activities as appropriate, and posted on the ADB website. AIIB's website will also include a link of this document. MoH will disclose on its website all pertinent information relevant to the Project, including the scope, cost, financial and institutional arrangements, the consolidated annual progress reports, the semi-annual environment monitoring reports etc. Consultations at eight selected facilities have been conducted and will be carried on to stakeholders once the designs are ready. The PMU will be responsible for implementation and monitoring of information dissemination and disclosure. The PMU will also designate a focal person for information dissemination and disclosure, who will also serve as the custodian of all project-relevant information and the focal point for the GRM.

4.14. **Grievance Redress Mechanism.** The PMU will set up and maintain a GRM for the Project, with GRM sub-systems to be established in each hospital. The Project GRM will use the complaint entry system of the MoH, i.e. through formal letter, webpage, or Facebook page. The GRM will cover all ES safeguards-related complaints and concerns linked to the Project. Participating hospitals and National Clinic for HIV/AIDS Dermatology and STD (NCHADS) will designate focal points to support supervision of EMP implementation on site and act as local entry points for the GRM. Any complaint involving a particular hospital will be referred to the GRM sub-system of the hospital for action.

4.15. **ES Implementation and Monitoring arrangements.** Environmental monitoring and reporting requirements are defined in the EMP. The PMU will be responsible for overseeing EMP implementation of the Project. Semi-annual environmental monitoring reports will be prepared by the DDCS firms for review by the PMU. MoH will assign one technical staff member from its Department of Preventive Medicine to act as the environment safeguards focal point for the Project, who will be supported by a national environment consultant. The DDCS firms will include international and national environment consultants who will ensure compliance with environment safeguards requirements of the Project and conduct capacity building for the MoH and hospitals on EMP implementation and monitoring. The DDCS firms will include site supervisors/engineers to supervise construction works, including the implementation of a Construction Environmental and Social Management Plan by contractors and ensuring their compliance with health and safety requirements, labor and working conditions, etc. Each works contractor will assign qualified staff to coordinate environmental, health, and safety aspects of construction works in accordance with requirements and procedures defined in the EMP. As part of the implementation support, the Project team will coordinate with ADB and the borrower to explore opportunities for strengthening the

borrower's ESMS and institutional capacity, including training for relevant personnel, within the available Project resources.

4.16. **Gender.** The Project retains its original categorization as effective gender mainstreaming. With the completion of all activities for the component related to COVID-19 vaccines, the Project's gender assessment and action plan have been updated with reference to the new Project component. The updated GAP (i) incorporates new targets and actions for the new Project component, and (ii) removes targets and actions related to the component related to COVID-19 vaccines that were not completed due to the Project being placed on hold from July 2023. The budget for GAP implementation has been integrated into the civil works and capacity development packages. The Project will upgrade hospital infrastructure using universal design principles, expanding mother and child and pediatric care to improve quality, accessibility, and privacy. The Project will improve staff well-being with separate duty rooms and a zero-tolerance of sexual harassment policy, while enhancing planning with better analysis and use of disaggregated data. Gender-Based Violence services and ethical conduct regarding "Clients' Rights and Providers' Rights" will be strengthened to promote inclusive healthcare for marginalized groups facing intersecting discrimination. A gender focal person will be assigned by the MoH to the PMU. Gender and disability focal points will be appointed at the PMU and at each facility, alongside an intermittent national social development and gender consultant recruited to support the implementation and monitoring of the GAP. The PMU will monitor and report on the progress and achievements of the GAP by submitting the GAP implementation monitoring matrix as an annex to the overall quarterly and annual project progress reports.

4.17. **Independent Accountability Mechanism.** As noted above, ADB's SPS will continue to apply to this Project instead of AIIB's ESP. Pursuant to AIIB's agreement with ADB, AIIB will rely on ADB's Independent Accountability Mechanism to handle complaints to AIIB relating to ES issues that may arise under the Project. Consequently, in accordance with AIIB's Policy on the Project-Affected People's Mechanism (PPM), submissions to the PPM under this Project will not be eligible for consideration by the PPM. Information on ADB's Accountability Mechanism is available at: Accountability Mechanism | Asian Development Bank.

5. Next Steps

5.1. **Amendment to the Loan Agreement.** The Loan Agreement will be amended to reflect the new Project component and related changes.

5.2. **Updating the Project Co-Lenders' Agreement.** The Project Co-Lenders' Agreement made between ADB and AIIB on March 17, 2022, to be updated to reflect the restructuring of the Project.

ANNEXURE 1 - RESULTS MONITORING FRAMEWORK

Project Objective (PO):	To increase access to eligible COVID-19 vaccines for target population groups in Cambodia and strengthen resilience of health systems for future pandemics by upgrading priority facilities to MoH's service standards

Indicator Name	**Unit of measure**	**Base-line Data**	**Cumulative Target Values**								**2032**	**Data source / Methodology**	**Responsibility**
			2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**			
		Project Objective Indicators:												
	Revised original indicator													
People in target populations additionally vaccinated or boosted against COVID-19, disaggregated by gender	Numbers (million); Percentage	0.00 million (2021)	-	3.00	-	-	-	-	-	-	-	-	MoH administrative data from weekly vaccination campaign reports	MoH
	Proposed New indicators													
Improvement in combined average score on resource and service availability, as assessed against the benchmarks in the CPA guidelines, for two CPA-1 and three CPA-2 hospitals	Percentage	Resources availability = 34.3%, service availability = 40.0%) (2022)	-	-	-	-	-	-	-	-	-	Resources availability = 50.0%, service availability = 50.0%)	Endline assessment of resource availability and service availability following World Bank methodology	MoH

Project Objective (PO):	To increase access to eligible COVID-19 vaccines for target population groups in Cambodia and strengthen resilience of health systems for future pandemics by upgrading priority facilities to MoH's service standards

Indicator Name	**Unit of measure**	**Base-line Data**	**Cumulative Target Values**								**2032**	**Data source / Methodology**	**Responsibility**
			2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**			
Improvement in combined average score on resource and service availability, as assessed against the benchmarks in the CPA guidelines, for two CPA-3 hospitals	Percentage	Resources availability = 49.0%, service availability = 81.0%) (2022)	-	-	-	-	-	-	-	-	-	Resources availability = 60.0%, service availability = 85.0%)	Endline assessment of resource availability and service availability following World Bank methodology	MoH
Improvement in Cambodia's average score on the IHR State Parties Self-Assessment Annual Reporting tool for *Capacity Area 8: Health Services Provision*	Percentage	60% (2024)	-	-	-	-	-	-	-	-	-	69%	Cambodia's IHR States Parties Self-Assessment Annual Report	MoH

Intermediate Results Indicators:													
Revised original indicators													
Additional COVID-19 vaccines delivered to Central Medical Store	Number	0.00 (2021)	-	6.00	-	-	-	-	-	-	-	MoH administrative data, Central Medical Store's Vaccine Logistics Management	MoH

												Information System data	
Gender- and socially inclusive guidelines on the deployment and administration of COVID-19 booster vaccines in the context of routine immunization approved, budgeted, and implemented	Yes/No	No (2021)	-	Yes	-	-	-	-	-	-	-	MoH project reporting	MoH
Proposed New indicators													
Referral hospitals/ national clinic have newly constructed buildings and infrastructure, incorporating climate-resilient features and universal access principles	Number	0 (2025)	-	-	-	-	-	-	-	8	-	Hospital infrastructure evaluation tool developed by PMU and DHS and implemented by the endline evaluation firm at project completion	MoH
Referral hospitals upgraded and equipped with dedicated mother and child and pediatric care facilities, appropriately zoned to ensure privacy and access	Number	0 (2025)	-	-	-	-	-	-	-	7	-	Hospital infrastructure evaluation tool developed by PMU and DHS and implemented by the endline evaluation firm at project completion	MoH

Doctors, midwives and nurses at the Project hospitals newly certified in EmONC[14]	Number	0 (2025)	-	-	-	-	-	-	-	30	-	Training monitoring tool, developed by PMU and DHS, with data reported by hospital directors and PMU annually from 2026 annual project progress report	MoH
A policy on zero tolerance of sexual harassment implemented in all targeted hospitals	Yes/No	No (2025)	-	-	-	-	-	-	-	Yes	-	GAP monitoring tool, developed by PMU and implemented by the PMU gender specialist and hospital gender focal points with results reported annually from 2026 in the annual project progress report.	MoH
Detailed engineering designs incorporating climate-resilient features and universal access principles completed	Yes/No	No (2025)	-	-	-	-	Yes	-	-	-	-	MoH project reporting	MoH
Delivery and installation of equipment in all facilities	Yes/No	No (2025)	-	-	-	-	-	-	Yes	-	-	MoH project reporting	MoH

[14] Emergency Obstetric and Newborn Care

ANNEXURE 2 - REALLOCATION ACROSS HEALTHCARE FACILITIES

Activity description	PMU	NCHA DS	Kep	Kampong Thom	Kampong Speu	Ratanak Mondol	Sambour	Srey Santhor	Stoung	Total
	USD million	USD million	USD million	USD million	USD million	USD million	USD million	USD million	USD million	USD million
Detailed engineering design	9.72	-	-	-	-	-	-	-	-	9.72
Civil works	-	2.65	4.53	19.08	20.00	5.75	4.62	4.95	4.09	65.67
Medical equipment	-	1.13	1.31	2.56	2.52	1.22	1.31	1.31	1.51	12.88
Human resource development	0.22	-	-	-	-	-	-	-	-	0.22
PMU operating costs	4.72	-	-	-	-	-	-	-	-	4.72
Contingencies	3.32	0.5	0.93	2.43	2.52	0.87	0.74	0.78	0.82	12.91
Total	**17.98**	**4.28**	**6.77**	**24.07**	**25.04**	**7.83**	**6.67**	**7.05**	**6.42**	**106.11**[15]

[15] In addition, USD41.40 million was utilized for vaccine procurement, and USD5.99 million represents interest during construction to be funded by Cambodia.

ANNEXURE 3 - FINANCIAL ANALYSIS

A. Introduction and Scope

1. The financial analysis conducted for the restructured Cambodia Rapid Immunization Support Project and Improving Access to Resilient Health Infrastructure Project evaluates: (i) the institutional framework of the Cambodian health system; (ii) the financing of health in Cambodia including hospital financing; and (iv) financial sustainability, which considers the ability of the government and hospitals to sustain financial support to the Project.

2. This financial analysis was prepared according to the Asian Development Bank's (ADB) guidelines on financial analysis.[16] The Project is not designed to recover all costs without external support; therefore, cost-benefit evaluations such as financial internal rate of return (FIRR) and financial net present value (FNPV) have not been calculated.

B. Institutional Framework

3. The MoH leads and manages the public health sector in Cambodia and defines health policy and develops policies and strategies and supervises the national hospitals. Provincial health departments (PHDs) are responsible for planning, budgeting, and delivering health care at the provincial level. This responsibility was decentralized from the central MoH in 2021. There are 25 PHDs that are responsible for supervising provincial referral hospitals and operational districts. Operational district offices are responsible for implementing health policies plans in their areas, and supervising district referral hospitals and health centers/health posts.

4. Public health providers in Cambodia can be defined according to the type of hospital and the level of health care they provide. The levels of health care consist of Minimum Packages of Activities (MPA) which preventive and basic curative services, Complimentary Package of Activities (CPA)-1 which provides basic health care services without major surgery or blood bank, CPA-2 which provides emergency care services and major surgery in addition to basic health care services, and CPA-3, which provides specialized health services and a blood bank.

5. The public health providers consist of national hospitals that provide general hospital and specialized services, national centers which are under the direct control of the MoH, provincial hospitals, one in each province, of which 24 hospitals are CPA-3 level and one is CPA-2 level, district-based referral hospitals that provide CPA-1 or CPA-2 level services, health centers, which provide MPA services, and additional Health Posts that are located in remote areas.

C. Health Financing Strategy and Financing of Health in Cambodia

1. Cambodian Health Expenditure

6. Cambodia is currently a lower middle-income country. Under the government's pentagonal strategy,[17] it aims to become an upper middle-income country by 2030 and a high-income country by 2050.

7. Current health expenditure as a percent of gross domestic product (GDP) has increased by 23 percent, and current health expenditure per capita has increased by 53 percent from 2016 to 2021. Current health expenditure per capita was 36 percent above the average for lower middle-income countries in 2021 but was 78 percent below the average for upper middle-income countries.[18]

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[16] ADB. 2019. Financial Analysis and Evaluation: Technical Guidance Note.
[17] Royal Government of Cambodia, 2023. Pentagonal Strategy – Phase 1. Growth, Employment, Equity, Efficiency and Sustainability: Building the Foundation Towards Realising the Cambodia Vision 2050.
[18] World Bank. World Development Indicators. https://data.worldbank.org/indicator.

8. Domestic general government health expenditure (two percent of GDP in 2021) increased by 0.67 percentage points from 2016 to 2021 and was 0.64 percentage points above the average level for lower middle-income countries in 2021 but was 1.20 percentage points below the average for upper middle-income countries.[19]

9. Cambodia has been an outlier in the composition of the current health expenditure, with out-of-pocket expenditure (OOPE) representing a larger share than the average for lower middle-income countries and domestic government health expenditure representing a lower share.

10. OOPE comprised 62.05 percent of current health expenditure in 2020, which was the 15th highest in the world.[20] The percentage decreased to 54.94 percent of current health expenditure in 2021; however, this was 5.51 percentage points above the average for lower middle-income countries, and 23.57 percentage points above the average for upper-middle income countries. The government has set a target to reduce out of pocket expenses to 35 percent of the total health expenditure by 2035.[21]

11. Domestic general government health expenditure was 26.58 percent of the current health expenditure in 2021 (Table 3). This was 8.25 percentage points below the average for average for lower middle-income countries and 28.39 percentage points below the average for average for upper middle-income countries.

Table 3: Cambodia Health Expenditure

	2016	2017	2018	2019	2020	2021
Current health expenditure (% of GDP)						
Cambodia	6.12	5.65	6.07	6.85	7.11	7.53
Lower middle-income countries	3.88	3.59	3.48	3.54	3.81	3.93
Upper middle-income countries	5.62	5.70	5.65	5.72	6.00	5.82
Current health expenditure per capita, (current USD)						
Cambodia	78.36	79.17	93.02	114.49	112.21	122.42
Lower middle-income countries	73.23	71.23	72.88	76.61	78.75	90.11
Upper middle-income countries	408.23	450.14	477.08	489.99	498.45	566.83
Domestic general government health expenditure (% of GDP)						
Cambodia	1.33	1.50	1.63	1.67	1.91	2.00
Lower middle-income countries	1.19	1.22	1.20	1.25	1.39	1.36
Upper middle-income countries	3.16	3.14	3.10	3.12	3.33	3.20
Domestic general government health expenditure (% of current health expenditure)						
Cambodia	21.81	26.52	26.89	24.31	27.69	26.58
Lower middle-income countries	30.89	34.08	34.73	35.17	36.61	34.83
Upper middle-income countries	56.30	55.06	54.68	54.53	55.45	54.97
External health expenditure (% of current health expenditure)						
Cambodia	18.95	9.19	6.50	6.50	6.46	14.39
Lower middle-income countries	4.36	4.13	4.07	4.39	4.04	5.88
Upper middle-income countries	0.16	0.15	0.13	0.13	0.11	0.22
Out-of-pocket expenditure (% of current health expenditure)						
Cambodia	58.56	58.24	60.97	64.39	62.05	54.94
Lower middle-income countries	56.20	52.33	51.71	50.98	49.57	49.43
Upper middle-income countries	32.10	31.85	32.23	32.14	31.49	31.17

Source: World Bank. World Development Indicators. https://data.worldbank.org/indicator. (accessed 18 December 2024).

2. Social Health Protection Schemes

[19] World Bank. World Development Indicators. https://data.worldbank.org/indicator.
[20] World Bank. 2023. Cambodia - Public Finance Review: From Spending More to Spending Better.
[21] Government of Cambodia. 2024. Roadmap Towards Universal Health Coverage in Cambodia, 2024–2035.

12. Social Health Protection schemes were introduced in Cambodia with the establishment of the Health Equity Fund (HEF) in 2012 and the establishment of the National Social Security Fund (NSSF) health insurance in 2017.

13. The HEF covers health care costs for the poorest quintile of the country, with a coverage of approximately three million people who are identified as poor. The government is extending HEF to at-risk households and near poor families. Hospitals receive fees for treating HEF patients, based on set payment rates for different services. The fees are paid from the MoH to hospital bank accounts.

14. The NSSF is an agency under the Ministry of Labor and Vocational Training. The NSSF health insurance scheme expanded in 2023 to allow self-employed workers to enroll in the scheme. The government is planning to extend the scheme to other uncovered population groups, such as farmers, university students, vocational education trainees and migrants. Hospitals receive fees for treating HEF patients, based on set payment rates for different services, which differ from the HEF rates. The fees are paid from the NSSF to hospital bank accounts.

15. The coverage of these schemes has continually expanded since their introduction, reaching approximately seven million people, 41 percent of the population, at the end of 2023. The share of government expenditure on the social health protection system accounts for around three percent of the total health expenditure; this figure is considered low compared to other countries in the region. The government has set a target to increase the coverage to at least 80 percent of the population by 2035.[22]

3. Hospital Financing

16. Hospitals receive funds from the following sources: (i) Service Delivery Grants (SDGs), which include a fixed lump sum grant and a performance-based grant, provided through the MoH budget; (ii) National Social Security Fund (NSSF) payments, (iii) Health Equity Fund (HEF) payments, (iv) user fees, received from patients whose treatment is not covered by the HEF or NSSF schemes, and (v) some minor non-health service income from car parking and space rental. The NSSF, HEF and user fees are variable, based on the numbers of patients and treatments provided. A proportion of the income that hospitals receive is paid to staff as additional incentive payments to supplement their salary. These staff incentives are calculated as 80 percent of the performance-based grant, and 60 percent of the NSSF, HEF and user fees.

17. PHDs are funded from the government budget under the MoH budget allocation. The government budgets received by PHDs include funds that PHDs manage to pay for hospital costs, covering expenses including staff salaries, maternity and midwife allowances, utilities, uniforms, and some consumables for district referral hospitals.

18. The hospitals funded by this Project reach a financial break-even point or exhibit minor surpluses or deficits due to timing differences, as detailed in Table 4. Notably, one of the hospitals, Ratanak Mondol Referral Hospital, is a new establishment and thus lacks historical financial data.

[22] Government of Cambodia, 2024. Roadmap Towards Universal Health Coverage in Cambodia, 2024–2035.

Table 4: Hospital Receipts and Payments 2021–2023 (KR millions)

	NCHADS	Kep PH	Kampong Thom PH	Kampong Speu PH	Sam-bour RH	Srey Santhor RH	Stoung RH	Total
2021								
Receipts:								
SDG	57.7	520.7	750.0	734.0	350.0	595.4	563.5	3,571.3
HEF receipts		59.2	730.6	950.1	137.2	49.0	175.1	2,101.2
NSSF receipts		9.1	190.5	657.9	2.7	34.1	16.3	910.6
User fees	172.5	97.9	950.5	1,958.3	57.1	91.7	186.3	3,514.2
Total receipts	**230.2**	**686.9**	**2,621.5**	**4,300.3**	**547.0**	**770.2**	**941.1**	**10,097.3**
Payments								
Staff incentives	103.5	196.3	1,362.9	2,367.0	107.9	192.1	357.4	4,687.0
Non-staff costs	124.9	490.6	1,258.6	1,933.3	306.0	578.1	583.8	5,275.3
Total payments	**228.4**	**686.9**	**2.621.5**	**4,300.3**	**413.9**	**770.2**	**941.1**	**9,962.4**
Surplus/(deficit)	**1.8**	**0.0**	**0.0**	**0.0**	**133.1**	**0.0**	**0.0**	**134.9**
2022								
Receipts:								
SDG receipts	75.7	463.1	750.0	593.0	350.0	529.8	479.6	3,241.2
HEF receipts	167.3	26.3	590.6	627.1	56.0	102.2	205.6	1,775.1
NSSF receipts		26.3	227.0	486.2	5.7	44.4	14.7	804.3
User fees	292.6	136.4	1,420.2	2,819.6	79.6	111.2	224.3	5,083.9
Total receipts	**535.6**	**652.2**	**2,987.7**	**4,528.8**	**491.4**	**787.6**	**924.2**	**10,904.5**
Payments								
Staff incentives	276.0	163.9	1,582.6	2,474.1	121.4	202.4	330.4	5,150.9
Non-staff costs	260.0	488.2	1,405.1	2,051.7	421.1	585.0	593.7	5,804.8
Total payments	**536.0**	**652.2**	**2,987.7**	**4,528.8**	**542.5**	**787.4**	**924.2**	**10,995.8**
Surplus/(deficit)	**(0.4)**	**0.0**	**0.0**	**0.0**	**(51.1)**	**0.2**	**0.0**	**(51.3)**
2023								
Receipts:								
SDG receipts	39.3	400.0	800.0	585.3	400.0	450.0	493.8	3,168.4
HEF receipts	359.5	61.4	922.0	947.3	97.4	126.2	272.0	2,785.8
NSSF receipts		58.5	222.7	1,245.1	10.6	52.9	22.3	1,612.1
User fees	183.0	163.9	1,864.4	3,085.6	110.5	186.7	231.1	5,825.0
Total receipts	**581.8**	**683.8**	**3,809.0**	**5,863,2**	**618.5**	**815.7**	**1,019.2**	**13,391.2**
Payments								
Staff incentives	325.5	170.3	2,045.4	2,325.0	178.6	219.4	350.3	6,254.5
Non-staff costs	248.5	513.5	1,763.6	2,628.2	544.0	596.3	668.9	6,963.1
Total payments	**574.0**	**683.8**	**3,809.0**	**5,863.2**	**722.6**	**815.7**	**1,019.2**	**13,487.6**
Surplus/(deficit)	**7.8**	**0.0**	**0.0**	**0.0**	**(104.1)**	**0.0**	**0.0**	**(96.3)**

( ) = negative, HEF = Health Equity Fund; KR = riel; NCHADS = National Clinic for AIDS Dermatology and STD; NSSF = National Social Security Fund; PH = provincial hospital; RH = referral hospital; SDG = service delivery grant. Source: Hospitals.

D. Financial Sustainability

19. This section considers the ability of the hospitals and the government to fund the ongoing costs to operate and maintain the project investments over the Project's economic life.

20. Hospitals will require additional staff when the new facilities begin operating in 2031, to align with CPA requirements and to manage increased workload. Additional staff will be required annually until 2040 due to the projected increase in workload. The recommended additional staffing numbers and the incremental salary costs of these additional staff are shown in Table 5. The future staffing requirement for NCHADS was not identified in the analysis, which is therefore excluded from the table. As salary payments to hospital staff are made by PHDs, the government budgets provided to the PHDs would need to be increased.

21. Based on a review of the current staffing of the hospitals and a projection of the future staffing requirements, an additional 211 staff are recommended to be recruited for 2031. The annual salary cost for these staff is estimated at approximately KR4.5 billion. A further 437 staff are recommended to be recruited between 2032 and 2040, to meet the steady projected increase in hospital workload. This would increase the salary cost by approximately KR1.0 billion each year. The total increase in the annual salary costs is projected to be KR13.6 billion above the 2024 level by 2040.

Table 5: Projected Incremental Hospital Salary Costs

	Number of hospital staff			**Incremental annual staff costs (increase on 2024) KR millions**		
Hospital	Actual 2024	Proposed 2031	Proposed 2040	Increase in 2031	Annual increase 2032-2040	Increase to 2040
Kep Provincial Hospital	66	70	117	142	111	1,146
Kampong Thom Provincial Hospital	207	223	327	398	238	2,540
Kampong Speu Provincial Hospital	172	250	367	1,606	262	3,964
Sambour Referral Hospital	26	70	113	872	102	1,788
Srey Santhor Referral Hospital	76	70	112	(57)	101	848
Stoung Referral Hospital	113	109	174	(60)	152	1,308
Ratanak Mondol Referral Hospital	18	97	117	1,591	51	2,050
Total	**678**	**889**	**1,326**	**4,492**	**1,017**	**13,643**

KR = riel.
Source: Asian Development Bank estimates.

22. Table 6 below provides a projection of the receipts and payments of the hospitals, assuming that additional staff are recruited. The projections assume that the NSSF, HEF and user fee receipts will increase in line with projected increases in activity. Payment assumptions are that 60 percent of the increased receipts will be paid to staff as additional incentives, consumable costs increase in line with activity, equipment maintenance costs will be needed after the end of an initial two-year warranty period, and that annual building maintenance costs will increase annually for four years until they reach two percent of the construction cost. The payment projection excludes the salary costs paid by the provincial health departments in Table 5. The hospital projections show a small total surplus in 2031 and deficits thereafter. The total projected deficit reaches KR3.8 billion in 2034 and then reduces to KR3.3 billion in 2036.

Table 6: Projected Hospital Receipts and Payments (KR millions)

	H1	H2	H3	H4	H5	H6	H7	H8	Total
2031:									
Receipts	630	756	4,806	7,826	675	974	1,241	667	17,575
Payments	641	829	4,811	7,463	860	1,021	1,247	525	17,395
Surplus/(deficit)	**(11)**	**(72)**	**(5)**	**363**	**(185)**	**(47)**	**(5)**	**141**	**180**
2032:									
Receipts	636	764	4,916	8,044	681	992	1,266	741	18,041
Payments	678	927	5,265	8,000	959	1,134	1,347	687	18,997
Surplus/(deficit)	**(41)**	**(163)**	**(349)**	**44**	**(278)**	**(142)**	**(81)**	**53**	**(956)**
2033:									
Receipts	643	772	5,027	8,262	688	1,010	1,291	815	18,507
Payments	756	1,088	5,843	8,658	1,121	1,309	1,519	908	21,201
Surplus/(deficit)	**(113)**	**(316)**	**(816)**	**(396)**	**(433)**	**(299)**	**(228)**	**(93)**	**(2,694)**
2034:									
Receipts	649	780	5,138	8,480	694	1,027	1,315	889	18,973
Payments	804	1,205	6,277	9,110	1,240	1,434	1,631	1,048	22,749
Surplus/(deficit)	**(155)**	**(425)**	**(1,139)**	**(630)**	**(546)**	**(407)**	**(315)**	**(159)**	**(3,776)**
2035:									
Receipts	656	788	5,249	8,698	700	1,045	1,340	963	19,439
Payments	821	1,231	6,328	9,160	1,266	1,461	1,661	1,072	23,000
Surplus/(deficit)	**(166)**	**(443)**	**(1,080)**	**(462)**	**(566)**	**(416)**	**(321)**	**(109)**	**(3,561)**
2036:									
Receipts	662	796	5,359	8,916	706	1,062	1,365	1,037	19,905
Payments	831	1,257	6,379	9,210	1,292	1,487	1,691	1,096	23,251
Surplus/(deficit)	**(176)**	**(461)**	**(1,020)**	**(294)**	**(586)**	**(586)**	**(326)**	**(59)**	**(3,347)**

( ) = negative, H1 = National Clinic for AIDS Dermatology and STD; H2 = Kep Provincial Hospital; H3 = Kampong Thom Provincial Hospital; H4 = Kampong Speu Provincial Hospital, H5 = Sambour Referral Hospital, H6 = Srey Santhor Referral Hospital; H7 = Stoung Referral Hospital; H8 = Ratanak Mondol Referral Hospital; KR = riel.
Note: Numbers may not total exactly due to rounding. Source: Asian Development Bank estimates.

23. Table 7 shows a projection for 2036 if hospitals do not recruit the additional recommended staff. The projection assumes that receipts would be lower than the previous projection because there would be insufficient staff capacity to treat the numbers of patients included in the previous forecast. Costs would also be lower because less would be spent on staff incentives and consumables, but the same level of maintenance costs for buildings and equipment would still be required. The projection for 2036 is a total deficit of KR5.3 billion, which is KR2 billion (58 percent) higher than the projected forecast if the recommended staff are recruited.

Table 7: Projected Hospital Receipts and Payments Assuming No New Staff (KR millions)

	H1	H2	H3	H4	H5	H6	H7	H8	Total
2036:									
Receipts	662	778	4,335	6,673	704	928	1,160	0	15,240
Payments	804	1,195	5,785	8,039	1,237	1,369	1,532	559	20,520
Surplus/(deficit)	**(142)**	**(417)**	**(1,450)**	**(1,366)**	**(533)**	**(441)**	**(372)**	**(559)**	**(5,280)**

( ) = negative, H1 = National Clinic for AIDS Dermatology and STD; H2 = Kep Provincial Hospital; H3 = Kampong Thom Provincial Hospital; H4 = Kampong Speu Provincial Hospital, H5 = Sambour Referral Hospital, H6 = Srey Santhor Referral Hospital; H7 = Stoung Referral Hospital; H8 = Ratanak Mondol Referral Hospital; KR = riel.
Note: Numbers may not total exactly due to rounding.
Source: Asian Development Bank estimates.

24. Table 8 presents data on the MoH government budget and expenditure for 2022-2024. The total MoH budget increased by 0.43 percent in 2023 and decreased by 7.22 percent in 2024. The MoH current expenditure budget (with capital investments excluded) increased by 7.79 percent in 2023 and by 0.24 percent in 2024. The MoH spent less than its annual budget each year, but with budget utilization rates increasing each year, from 60.2 percent in 2022 to 76.4 percent in 2024 for total expenditure, and from 82.9 percent in 2022 to 90.7 percent in 2024 for current expenditure. The MoH

current expenditure budget as a percentage of the total government current expenditure budget declined from 11.13 percent in 2022 to 9.65 percent in 2024.

Table 8: Analysis of MoH Budget (KR billions)

Item	2022	2023	2024
Government budget			
Total government budget	32,577	36,604	34,497
Annual increase in total government budget (%)	…	12.36	(5.75)
Government current expenditure budget	19,112	20,839	23,806
Annual increase in government current expenditure budget (%)	…	9.04	14.23

Item	2022	2023	2024
MoH total budget and expenditure			
Total MoH budget	2,928	2,941	2,728
Annual increase in total MoH budget (%)	…	0.43	(7.22)
Total MoH budget as % of total government budget	8.99	8.03	7.91
Total MoH annual expenditure	1,764	1,951	2,085
Total MoH budget excess/(deficit)	1,164	990	643
Total MoH budget utilization rate (%)	60.2	66.3	76.4
MoH current expenditure budget			
MoH current expenditure budget	2,127	2,293	2,298
Annual increase in MoH current expenditure budget (%)	…	7.79	0.24
MoH current expenditure budget as % of government current expenditure budget	11.13	11.00	9.65
MoH annual current expenditure	1,764	1,951	2,085
MoH current expenditure budget excess/(deficit)	363	342	213
MoH current expenditure budget utilization rate (%)	82.9	85.1	90.7
Annual inflation (%)	**5.30**	**2.10**	**0.50**

() = negative
Source: Cambodian Annual Budget Laws; Asian Development Bank.

25. Projections for the government and MoH budget for 2025-2034 are shown in Table 9. The projections for 2025-2027 come from the government's Medium Term Fiscal Framework 2025-27,[23] which assumes that the social sector budget will increase by 11.1 percent annually over this period, above the rate of increase in the total government budget, with five percent increases in government budgets assumed for the following years. Based on these projections, the MoH budget will increase to 9.13 percent of the total government budget by 2027 and remain at this rate until 2034, and the MoH current expenditure budget will increase to 11.50 percent of the total government current expenditure budget by 2027 and remain at this rate until 2034. This is consistent with the plan to increase budget allocation for the health stated in the government's Universal Health Coverage Roadmap.[24]

26. The projected increase in the MoH total budget from 2025 to 2034 is KR2,238 billion, and the projected increase in the MoH current expenditure budget is KR1,882 billion. The MoH projected expenditure assumes that the MoH budget utilization rate will increase to 95 percent and then adds the further projected costs for hospital salary costs (from Table 5) and hospital deficits (from Table 6). With these additional operations and maintenance costs included, the MoH is projected to maintain a budget surplus each year. The surplus for the total MoH budget is projected to be KR252 billion in 2024, and the surplus for the MoH current expenditure budget is projected to be KR210 billion in 2024.

Table 9: MoH Financial Projections (KR billions)

Item	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Government budget										

[23] Government of Cambodia, 2024. The Medium-Term Fiscal Framework 2025-27 - Ensuring Fiscal Sustainability to Strengthen Resilience and Promote Economic Growth Towards Vision 2050.
[24] Royal Government of Cambodia, 2024. Roadmap Towards Universal Health Coverage in Cambodia, 2024–2035.

Total government budget	34,827	37,334	40,961	43,009	45,160	47,417	49,788	52,278	54,892	57,636
Annual increase in total government budget (%)	0.96	7.20	9.72	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Government current expenditure budget	23,982	25,410	27,418	28,789	30,228	31,740	33,327	34,993	36,743	38,580

Item	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Annual increase in government current expenditure budget (%)	0.74	5.95	7.90	5.00	5.00	5.00	5.00	5.00	5.00	5.00
MoH total budget										
Total MoH budget	3,031	3,367	3,741	3,928	4,125	4,331	4,547	4,775	5,014	5,264
Annual increase in total MoH budget (%)	11.10	11.10	11.10	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Total MoH budget as % of total government budget	8.70	9.02	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13
Total MoH utilization (actual expenditure)	2,879	3,199	3,554	3,732	3,918	4,114	4,324	4,543	4,772	5,012
Total MoH budget excess/(deficit)	**152**	**168**	**187**	**196**	**206**	**217**	**223**	**232**	**241**	**252**
MoH current expenditure budget										
MoH current expenditure budget	2,553	2,837	3,152	3,309	3,475	3,649	3,831	4,023	4,224	4,435
Annual increase in MoH current expenditure budget (%)	11.10	11.10	11.10	5.00	5.00	5.00	5.00	5.00	5.00	5.00
MoH current expenditure budget as % of government current expenditure budget	10.65	11.16	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50
MoH current expenditure utilization	2,426	2,695	2,994	3,144	3,301	3,466	3,644	3,828	4,022	4,224
MoH current budget excess/(deficit)	**128**	**142**	**158**	**165**	**174**	**182**	**187**	**195**	**202**	**210**
Annual inflation (%)	**2.50**	**2.59**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**	**2.50**

Source: Royal Government of Cambodia Medium Term Fiscal Framework; Asian Development Bank estimates.

27. The International Monetary Fund's (IMF) most recent Article IV report on Cambodia[25] indicated that the Cambodian economy has continued to recover following the global shocks from 2020–2023 and that GDP is predicted to grow by 5.75 percent in 2025, 6.2 percent in 2026 and six percent annually from 2027–2029. Fiscal and monetary policies were deemed appropriate. The fiscal deficit reduced to three percent of GDP in 2024 and is forecast to reduce to two percent of GDP in the medium term as revenues are raised. This would provide the government with fiscal space to increase its expenditure but does depend on continued GDP growth. The IMF report noted that the GDP growth is mainly driven by external demand and highlighted downside risks to the economy from intensification of regional conflicts, commodity price volatility, and deepening geo-economic fragmentation. In its *Asian Development Outlook*, the ADB forecasts that Cambodia's GDP will grow by six percent in 2025 and notes downside risks to the economy. The World Bank similarly forecasts

[25] IMF. 2025. IMF Country Report No. 25/22, Cambodia, Staff Report for the 2024 Article IV Consultation.

GDP growth of 5.5 percent in 2025 and 2026 driven by exports and foreign direct investment but also notes constraints to the economy from subdued domestic demand due to high household debt and falling house prices.

E. Conclusion

28. The financial sustainability risk is moderate and based on the incremental recurrent cost analysis, MoH is likely to receive adequate resources to meet the unconstrained network operation and maintenance requirements including the incremental requirements arising from the Project. The financial analysis concludes that the Project is sustainable, provided that the government commits to providing additional funding to support the projected hospital salaries, operations and maintenance costs over the entire economic life of the investment. The amount of additional funding is affordable within the forecast total MoH budget and the government has sufficient fiscal space to continue increasing the MoH budget. A recent independent validation report on ADB Cambodia country partnership strategy[26] reported that ADB's support to the health sector has been effective and is rated likely sustainable.

F. Assurances and Covenants

29. The Loan Agreement will include assurance that the government will provide the required budgetary allocation for the operations and maintenance costs to MoH for network of assets including those generated through the Project. The MoH shall ensure that sufficient recurrent funds are made available through the government's planning and budgeting process to sustain the Project investment, including Increasing the salary budget to PHDs to fund the additional hospital salary costs and increasing the government funding to the supported hospitals to enable them to fully fund their additional operating costs.

[26] ADB. 2023. Cambodia: Validation of the Country Partnership Strategy Final Review, 2019–2023.

ANNEXURE 4 - ECONOMIC ANALYSIS

A. Economic Rationale

1. In Cambodia, communicable, maternal, perinatal, and nutritional conditions continue to be associated with high levels of morbidity and mortality, accounting for 25 percent of all deaths in 2021 (footnote 3). Cambodia also faces a growing burden from noncommunicable diseases, which accounted for 63.6 percent of all deaths in 2021. Of the remaining deaths, 7.7 percent were attributable to injuries and 3.6 percent were attributable to other pandemic related outcomes. In 2022, the neonatal mortality rate was 12.2 deaths per 1000 live births, compared to five deaths per 1000 live births in neighboring Thailand.[27] Maternal mortality was estimated as 218 deaths per 100,000 live births (in 2020), compared to 29 deaths per 100,000 live births in Thailand.

2. Limited access to quality health care services is a driver of disease burden.[28] Cambodia's health system has faced overwhelming pressure during the COVID-19 pandemic. The reallocation of health system resources to the response, while effective in mitigating the impacts of the pandemic, led to prolonged impacts on health service delivery and standards, particularly at sub- national level referral hospitals. A nationwide assessment of gaps in referral hospitals meeting the complementary package of activities (CPA) standards, conducted in 2022, identified deficiencies in service availability and resource availability at facilities across all three CPA levels.[29] Health system development, especially developing new health facilities and enhancement of existing health facilities in low- and middle-income countries contributes to improved health outcomes for the population and positive externalities including increased human capital, higher productivity, increased earnings, and economic growth.[30] Addressing deficiencies in health service provision is also central to efforts to strengthen preparedness for future pandemics. The World Health Organization recognizes health service provision as one of 15 core capacities for national health systems to effectively respond to public health events of concern. Annual IHR assessments show Cambodia continues to underperform on measures of health service provision.[31]

3. Investments under the new Project component will upgrade seven hospitals to meet the service delivery levels and standards (Table 10). The Project will also upgrade the National Centre for HIV/AIDS Dermatology and STD (NCHADS).[32] The Project's investments will enhance the populations access to integrated management of illness, contributing to reductions in mortality, including deaths attributable to lower respiratory infections measles, malaria, and diarrhea, and a reduction in infant and maternal mortality.[33]

Table 10: Target Facilities

City/Province	Hospital Name	Hospital Type	Catchment
Kep	Kep Provincial Hospital	Provincial	44,292
Kampong Thom	Kampong Thom Provincial Hospital	Provincial	796,211
Kampong Speu	Kampong Speu Provincial Hospital	Provincial	950,524
Kratie	Sambo Referral Hospital	District	202,218
Kampong Cham	Srey Santhor Referral Hospital	District	124,025
Kampong Thom	Stong Referral Hospital	District	155,869
Battambang	Ratanak Mondol Referral Hospital	District	366,390
Phnom Penh	National Clinic for AIDS Dermatology and STD[a]	National Centre	60,000 [b]

[27] World Bank. World Development Indicators (accessed 06 May 2025).
[28] Sorn V. Universal health coverage in Cambodia: current status and future prospects. J Glob Health. 2025;15:03016
[29] World Bank. (unpublished). Comprehensive Assessment to Define Gaps for Meeting Complementary Package of Activities Level 1-3 Standards in Cambodia. May 2022.
[30] Sorn V. Universal health coverage in Cambodia: current status and future prospects. J Glob Health. 2025;15:03016
[31] WHO. IHR States Parties Self-Assessment Annual Report (SPAR). (Accessed 14 April 2025).
[32] The National Center for HIV/AIDS Dermatology and STD is an outpatient clinic in Phnom Penh and does not fall under the CPA classification.
[33] L. Hirschhorn et al. 2020. Exemplars in Under-5 Mortality: Cambodia Case Study. University of Global Health Equity; and McKinsey Health Institute. Scale what works: The benefits of proven health interventions.

Total Catchment Population	**2,699,529**

[a] The National Clinic for AIDS Dermatology and STD provide service on an outpatient basis
[b] Outpatient attendance
Source: Asian Development Bank

B. Economic Analysis

4. An economic analysis, using cost-effectiveness methodology, has been undertaken to determine the economic viability of the new Project component. This cost-effectiveness analysis uses quantitative data for economic costs and disability-adjusted life years (DALYs) averted to produce a cost-effectiveness ratio. The analysis uses Standard Conversion Factor (SCF) for estimating economic cost of investments and applied a six percent discount rate. Benefits derived from key investments under each Project component were estimated and quantified as DALYs. Benefits were estimated for a 20-year period following the Project's expected completion in 2031. To determine whether an intervention is cost-effective or not, the following criteria were applied: (i) if cost per DALY is greater than GDP per capita times three, the intervention is not cost-effective; (ii) if cost per DALY is less than GDP per capita times three, the intervention is cost-effective; and (iii) if cost per DALY is less than GDP per capita, the intervention is very cost-effective.[34]

C. Project Finance

5. The proposed new Project component is estimated to cost USD110.4 million, comprising an Asian Development Bank (ADB) loan of USD66.2 million, and Asian Infrastructure Investment Bank (AIIIB) Loan of USD35.7 million, and USD8.5 million in counterpart financing from the Government of Cambodia. The new Project component will be implemented over six years, from 2026 to 2031.

D. Health Impacts

6. Key health impacts stem from the scaling up of effective facility, maternal and neonatal disorders, nutritional deficiencies, and sexual and reproductive health conditions. The percentage of DALYs lost that can be averted through these interventions is detailed in Table 11.

Table 11: Percentage of Disability-Adjusted Life Years Lost that can be Averted by Scaling Up Effective Interventions (%)

Item	Environmental and Social Behavior	Therapeutic	Prevention and Promotion	Total % of DALYs Avertable
All causes	12.4	11.4	14.4	38.2
Selected diseases				
Maternal and neonatal disorders	11.3	1.7	49.8	62.8
Respiratory infections and TB	7.5	30.6	13.9	52.1
Other infectious diseases	0	22.7	24.5	47.2
HIV/AIDS and STI	9.7	57.7	7.5	74.8
Cancers	10.7	8.6	11.7	31.0

DALY = disability-adjusted life year, STI = sexually transmitted infection, TB = tuberculosis.
Sources: L. Hirschhorn et al. 2020. Exemplars in Under-5 Mortality: Cambodia Case Study. University of Global Health Equity; and McKinsey Health Institute. 2022. Scale what works: The benefits of proven health interventions Source: Asian Development Bank

7. Data on DALYs lost for Cambodia in 2019 was retrieved from the Institute for Health Metrics and Evaluation.[35] The rate of DALYs lost from all causes was 32,344 per 100,000 people

[34] WHO Commission on Macroeconomics and Health. 2001. Macroeconomics and health: investing in health for economic development. Report of the Commission on Macroeconomics and Health. Geneva.
[35] Institute for Health Metrics and Evaluation. Global burden of disease database (accessed 1 March 2025).

(Table 12). Based on the 2025 catchment population estimates of each facility (Table 10), this equates to 873,146 DALYs lost to all causes. The DALY analysis applied the rate for DALYs lost (0.3234) to projected catchment population data during 2031–2051 to estimate the total number of DALYs lost from all causes for this 20-year period. Scale-up of effective 'therapeutic' interventions for selected diseases (Table 11) would result in 48,882 DALYs averted for the catchment population concerned, equivalent to 5.59 percent of the 873,146 DALYS lost due to all causes. The DALY analysis applied this rate (0.05598) to the projected DALYs lost for 2031–2051 to estimate total DALYs averted from the Project's expansion of interventions for selected diseases. The total number of DALYs averted by the Project's interventions over 20 years is estimated to be 1,249,708 (Table 14). The utilization of public health facilities is estimated to be between 15–20 percent[36], so we assign 20 percent of the total DALYS averted the for economic analysis.

Table 12: Disability-Adjusted Life Years Lost and Averted by Disease and Population

Item	DALYs lost per 100,000 Population [a]	DALYs lost in catchment population [b]	% DALYs avertable[c, d]	Potential DALYs averted
All causes	32,344	873,146		
Selected diseases				
Maternal and neonatal disorders	2,783	75,129	1.7	1,277
Respiratory infections and TB	4,433	119,672	30.6	36,619
Other infectious diseases	531	14,335	22.7	3,254
HIV/AIDS and STI	475	12,823	57.7	7,398
Cancers	143	3,860	8.6	331
Total		225,818		48,882
DALYs averted through scale-up of proven therapeutic interventions for selected diseases in catchment population as a proportion of DALYs lost (all causes)				0.05598

DALY = disability-adjusted life year, STI = sexually transmitted infection, TB = tuberculosis.
[a] Institute for Health Metrics and Evaluation. Global burden of disease database (accessed 1 March 2025).
[b] Based on an estimated catchment population of 2,699,529 in 2025
[c] Based on scale up of therapeutic interventions in the catchment population
[d] L. Hirschhorn et al. 2020. Exemplars in Under-5 Mortality: Cambodia Case Study. University of Global Health Equity; and McKinsey Health Institute. 2022. Scale what works: The benefits of proven health interventions Source: Asian Development Bank

8. The DALY analysis is based on benefits accruing to the catchment population for Project hospitals. Accurate assessment of benefits to this population is challenging because of the limited demographic and health data. As such, the cost-estimate analysis offers a conservative estimate of the economic benefits of the Project.

E. Economic Costs

9. The economic investment cost is derived from the total financial investment cost of the new Project component using SCF of 0.89. The translation of financial costs to economic costs is based on the bulk costs of USD110.4 million covering (i) works; (ii equipment; (iii) consulting services; (iv) trainings; (v) project management; and (vi) maintenance. The maintenance costs are less than two percent of the total financial investment costs. The calculations and assumptions are shown in Table 13.

Table 13: Project Costs Calculation and Assumptions

Item	**USD million**
Project implementation 6 years (2026-2031)	

[36] Theepakorn Jithitikulchai, et al. 2021. Health equity funds as the pathway to universal coverage in Cambodia: care seeking and financial risk protection. Health Policy and Planning, Volume 36, Issue 1.

Financial cost of the Project	110.4
Economic Cost of the Project (SCF=0.89)[a]	98.25
Recurrent maintenance cost at 2%	1.96
Total economic cost over investment period (26 years)	139.55
GDP per capita (2023)	2,429
Population (2026)[b]	17,530,000
Total Catchment Population for Project hospitals (2024)[c]	2,699,529

GDP = gross domestic product, SCF = standard conversion factor.

F. Results of Economic Analysis

10. The cost-effectiveness analysis (Table 14) shows that the cost per DALY averted is USD411.81 at the six percent discount rate and USD380.85 at the eight percent discount rate. Both are less than the GDP per capita, which was USD2,429 in 2023, meaning the intervention is very cost effective.

Table 14: Results of Cost-Effectiveness Analysis

Year	Population in Catchment Area	Economic cost of Project	6% discount	Projected DALYS lost in Catchment	Projected DALYS averted (all interventions)	DALYS averted (at 20% hospital utilization)
2026	2,699,529	5,004,220	5,004,220			
2027	2,734,656	11,540,200	10,886,981			
2028	2,770,207	22,500,890	20,025,712			
202	2,806,220	37,469,825	31,460,388			
2030	2,842,700	21,759,664	17,235,692			
2031	2,879,655	1,965,496	1,468,733	931,396	52,140	10,428
2032	2,917,091	1,965,496	1,385,597	943,504	52,817	10,563
2033	2,955,013	1,965,496	1,307,167	955,769	53,504	10,701
2034	2,993,428	1,965,496	1,233,176	968,194	54,200	10,840
2035	3,032,343	1,965,496	1,163,374	980,781	54,904	10,981
2036	3,071,763	1,965,496	1,097,523	993,531	55,618	11,124
2037	3,111,696	1,965,496	1,035,399	1,006,447	56,341	11,268
2038	3,152,148	1,965,496	976,791	1,019,531	57,073	11,415
2039	3,193,126	1,965,496	921,501	1,032,785	57,815	11,563
2040	3,234,637	1,965,496	869,341	1,046,211	58,567	11,713
2041	3,276,687	1,965,496	820,133	1,059,812	59,328	11,866
2042	3,319,284	1,965,496	773,710	1,073,589	60,100	12,020
2043	3,362,435	1,965,496	729,915	1,087,546	60,881	12,176
2044	3,406,146	1,965,496	688,599	1,101,684	61,672	12,334
2045	3,450,426	1,965,496	649,622	1,116,006	62,474	12,495
2046	3,495,282	1,965,496	612,851	1,130,514	63,286	12,657
2047	3,540,721	1,965,496	578,161	1,145,211	64,109	12,822
2048	3,586,750	1,965,496	545,435	1,160,098	64,942	12,988
2049	3,633,378	1,965,496	514,561	1,175,180	65,787	13,157
2050	3,680,612	1,965,496	485,435	1,190,457	66,642	13,328
2051	3,728,460	1,965,496	457,958	1,205,933	67,508	13,502
		139,550,214	102,927,976		1,249.708	249,942
CER 0%		USD558.33				
CER at 3%		USD471.95				
CER at 6%		USD411.81				
CER at 8%		USD380.85				
CER at 10%		USD354.94				
GDP per capita (2023) = 2,429			GDP per capita x 3 = 7,287			

CER = cost-effectiveness ratio, DALY = disability adjusted life year, GDP = gross domestic product.,

G. Sensitivity Analysis

11. Sensitivity analysis was carried out assuming higher costs (increased by 10 percent) and lower health benefits (decreased by 10 percent). The results in Table 15 show that the cost per DALY averted in all scenarios is below the GDP per capita, indicating that each scenario is cost-effective.

Table 15: Results of Sensitivity Analysis

Scenario	Cost Effectiveness Ratio			
	3% discount rate	6% discount rate	8% discount rate	10% discount rate
Cost Increased 10%	USD519.15	USD452.99	USD416.94	USD390.44

Benefit decreased 10%	USD524.39	USD457.56	USD423.17	USD394.38
Cost Increased 10% + Benefit decreased 10%	USD576.83	USD503.32	USD465.48	USD433.82

ANNEXURE 5 - PARIS AGREEMENT ALIGNMENT AND CLIMATE FINANCE

A. Introduction:

1. This annex provides a summary of key climate-related assessments carried out at the Project level, in support of the Bank's climate-related commitments. It covers the assessment of the Project against the Paris Agreement mitigation (BB1) and adaptation (BB2) goals, in line with AIIB Methodology and joint MDB methodological frameworks;[1] estimated climate finance numbers and expected greenhouse gas (GHG) reductions.

B. Assessment of the Alignment with Paris Agreement (PA)

i. Assessment of the Alignment with the Mitigation Goals of the Paris Agreement (BB1)

2. Based on the joint MDB methodology for direct lending operations, buildings, including education, healthcare, housing, offices, retail, etc. are considered universally aligned if they meet the green building certification criteria. While the Project will include specific energy efficiency and clean energy solutions measures, no certification is expected to be obtained, as currently, Cambodia does not have an effective certification system in place. However, there are a number of applicable policies and frameworks, such as National Energy Efficiency Policy (NEEP) 2022-2030, which is Cambodia's main umbrella policy for energy efficiency. Under this policy, Cambodia aims to reduce total energy consumption (electric + thermal) by at least 19% by 2030 relative to Business-As-Usual (BAU). Specifically for buildings, a target 25% reduction in energy consumption vs BAU by 2030 is required for public buildings37. Cambodia is also in the process of rolling out the Minimum Energy Performance Standards (MEPS) for appliances like air conditioners and refrigerators. Energy labeling / standards & labelling schemes are also being developed.

3. The Project includes constructing and upgrading healthcare buildings with energy-efficient features like smart lighting, improved HVAC systems, and renewable energy solutions. Specifically, the following mitigation measures are included in the current Project estimate: (i) enhanced envelope insulation, (ii) high-performance triple glazing, (iii) advanced green roofing systems, (iv) smart lighting, (v) HVAC enhancements, (vi) building automation, (vii) full roof PV prep, (viii) DC microgrid and smart grid interfaces. In line with Green Engineering and Green Hospitals principles, the hospital designs will prioritize passive energy-saving strategies such as cross-ventilation, natural air supply, and passive cooling, reducing reliance on air conditioning.

4. These measures align with Cambodia's NDC mitigation actions. Furthermore, the Project is also aligned with Cambodia's Long-Term Strategies (LTS) for Carbon Neutrality which aims to achieve carbon neutrality by 2050 through sectoral decarbonization, including in health sector. Emissions reductions until 2030 in the energy sector will come from energy efficiency and conservation measures under the National Energy Efficiency Policy, which targets buildings, industry, and public services. The Project does not rely on high-carbon technologies or fossil fuel-based infrastructure that would be vulnerable to policy shifts, market changes, or technological obsolescence.

C. Assessment of the Alignment with the Adaptation and Climate Resilience Goals of the Paris Agreement (BB2)

5. Affected by floods and droughts on a seasonal basis, Cambodia is one of the more disaster-prone countries in Southeast Asia. Cambodia's vulnerability to climate change is compounded by its status as a post-civil war and an underdeveloped country, which is predominantly agrarian; nearly 80 percent of the population lives in rural areas. The country's weak adaptive capacity, poor infrastructure, and limited institutions further exacerbate its vulnerability to climate variability and change.[38] Overall, the WB

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[37] National Energy Efficiency Policy 2022.pdf

[38] Climate and Health Vulnerability Assessment: Cambodia World Bank, 2024.

estimates that by midcentury, Cambodia is likely to experience more frequent extreme rainfall events. The future return period of a 100-year event associated with 5-day largest cumulative precipitation amounts is projected to occur every 63.55 years nationally by midcentury. These conditions pose risks for flood-related safety, health, and critical infrastructure.[39]

6. An initial climate risk exposure assessment was carried out for the Project sites, with all 8 hospitals having material exposure to a number of physical climate risks, including flooding, increased temperature and associated extreme heat, and others. The upgrade of infrastructure and services covered by the Project may be impacted by extreme weather conditions, particularly heavy rainfall and flooding, heat waves. Four of the hospitals (National Center for HIV/AIDS, Dermatology and STD in Phnom Penh, Kampong Thom Provincial Hospital, Stong Referral Hospital, and Srey Santhour Hospital) are situated in low-lying areas and/or near water bodies, making them prone to seasonal floods that can disrupt healthcare services, damage facilities, and compromise patient safety. Temperature increases are expected across all eight Project sites, with projected average increases of 1.57°C by 2050, an increase in mean precipitation during the wet season is projected in 7 of 8 Project sites (all except Kep), with a mean increase of 3.33%, and a maximum of 5.6%. Decreases in mean dry season precipitation are projected in 7 of 8 Project sites (all except NCHADS), with a mean decrease from baseline of 4.66% by 2050, and a maximum decrease of 12.8%[40], indicating risks of drought.

7. A set of adaptation measures are proposed to be implemented within this Project to address the climate risks discussed above (Table 16).

Table 16: Climate Risks, Impacts and Adaptation measures

Key climate risks	**Potential impacts**	**Proposed adaptation measures**
Flooding (pluvial, fluvial), including precipitation intensity and storm frequency	Contaminated water sources, leading to the spread of infectious diseases, while extreme heat and prolonged droughts can reduce water availability, affecting hospital hygiene, sanitation, and patient care	Plumbing and sanitary upgrades via provisions for the construction of medical-grade water systems, wastewater treatment, and specialized fixtures (Kampong Speu, and Kampong Thom hospitals); (ii) enhanced flood protection via automatic barriers and smart stormwater management (Kampong Speu, Kampong Thom, and NCHADS hospitals); Elevating building foundations to 2 m, improving drainage systems, and the use of water-resistant construction materials to minimize flood damage. Advanced storm protection via hurricane-rated windows and advanced roof anchoring
Excessive heat (heat wave) conditions	Heat stress may lead to heightened demand for hospital facilities,	Natural ventilation systems for comfort and efficiency; north-

[39] 16814-WB_Cambodia Country Profile-WEB.pdf

	potentially overcrowding inpatient areas and straining existing infrastructure. Increased reliance on cooling systems, ventilators, and refrigeration for vaccines and medicines, putting additional pressure on hospital power supplies and backup energy systems.	south building orientation to minimize solar gain; Minimum 3-metre ceiling heights for proper air circulation; landscaping and tree-planting on hospital grounds to provide a nature-based solution to shade provision and building cooling
Drought	Reduced water availability for sanitation, hygiene, and medical procedures; pollutants in wastewater systems can be concentrated during periods of drought, increasing loads on electricity systems.	Resilient electrical systems via power distribution upgrades, UPS systems, and medical equipment power improvements

8. This Project is not inconsistent with Cambodia's national adaptation policies and strategies; rather, CRISP activities are strongly aligned with the objectives outlined in the Cambodia Climate Change Strategic Plan 2024–2033, and the National Climate Change Action Plan for Public Health (2020–2024). These frameworks emphasize the need for climate-resilient health systems, particularly through infrastructure upgrades, enhanced water, sanitation and hygiene systems (WASH), and capacity-building for health workers to increase climate-resilient health service delivery. CRISP contributes to these goals by integrating flood protection, resilient and sustainable energy systems, and climate-resilient wastewater infrastructure. As such, the operation avoids inconsistency with national adaptation strategies and actively contributes to their implementation. Therefore, this Project contributes to reducing national vulnerability, thereby supporting climate-resilient development rather than exacerbating existing risks.

D. Estimate of Climate Finance

9. Among the Project components, only component B "Health service provision strengthened" is eligible for climate finance with main climate-related benefits linked to achieving pre-pandemic service standards in selected hospitals and clinics, which receives a total of 35.7 of AIIB financing. Of this amount, USD 3.6 million (10%) is attributed to mitigation finance and USD 3.6 million (10%) is attributed to adaptation finance. Overall, this results in approximately 14.3 % (USD 7.15 million) of the Project contributing to climate finance. The methodology for estimating mitigation finance is based on research indicating that comprehensive retrofits—covering HVAC replacement, improved control systems, upgraded lighting, limited building envelope enhancements, and small renewable installations—typically represent 10–25% of capital expenditure and can yield around 40% GHG emission reductions (see details in Section C below). Adaptation finance, particularly under Component 2, is justified as Type 1 (adapted) activities, with most of them addressing multiple climate hazards such as heat stress, extreme weather, and health system resilience.

Table 17: Summary of Climate Finance

Total AIIB Finance (USD million)	**50**		**Justification for climate finance**
Climate Finance	**Amount (USD million)**	7.15	
	Percentage of total AIIB finance (%)	14.3	
Mitigation	**Amount (USD million)**	3.6	Comprehensive retrofit estimated to account approx. 10% based on the activities listed in section A.1, and GHG emission reductions considered significant (approx. 40%)
	Percentage (%)	10% of component B	
Adaptation	**Amount (USD million)**	3.6	Type 1 (adapted activity), under component 2, with most of activities (listed in detail in Table 1 above, addressing more than 1 climate hazard
	Percentage (%)	10 % of component B	

E. GHG Emissions Assessment

10. For GHG emissions assessment, the following conservative assumptions were adopted:

10.1. Annual operational GHG emissions without Project (i.e., applying business-as-usual building design standards): 50 kgCO2e/m2;

10.2. Annual operational GHG emissions with Project (i.e., applying energy-efficient design standards): 30 kgCO2e/m2; and

10.3. Total floor area combined for proposed healthcare facilities is approximately 81,964.33m2.

11. Table below provides details calculation for the expected GHG emission reductions with business-as-usual scenario. The greenhouse gas (GHG) emissions assessment for the proposed healthcare facilities project estimates that, under business-as-usual (BAU) building design standards, operational emissions would amount to approximately 50 $kgCO_2e$ per square meter per year, resulting in a total of 4,098.22 tonnes of CO_2e annually for the combined floor area of 81,964.33 m². By contrast, incorporating energy-efficient design standards is projected to reduce operational emissions to 30 $kgCO_2e$ per square meter per year, equivalent to 2,458.93 tonnes of CO_2e annually. This represents an estimated reduction of about 1,639.29 tonnes of CO_2e per year, or roughly 40% lower emissions compared with the BAU scenario. The results demonstrate the significant GHG mitigation potential of energy-efficient building design as a result of the Project.

Table 18: Greenhouse Gas Emissions Reduction Benefits from Energy Efficiency Measures

	Floor Area (m^2)	**Emissions ($kgCO_2e/m^2$/year)**	**Project hospital emissions (tCO_2e/year)**	**Emissions saved by Project mitigations (tCO_2e/year)**
Business-as-usual scenario	81,964.33	50	4,098.22	-
With Project mitigation scenario	81,964.33	30	2,458.93	1,639.29
% reductions				40%

$kgCO_2e$ = kilogram of carbon dioxide equivalent, m^2 = square meters, tCO_2e = tonnes of carbon dioxide equivalent.
Source: Asian Development Bank