CLIMATE CHANGE ASSESSMENT

I. Basic Project Information

Project Title: SRI (50275-002): Science and Technology Human Resource Development Project
Project Cost (in $ million): $165 million
Location: Universities of Kelaniya (in Kelaniya), Rajarata (in Anuradhapura), Sabaragamuwa (in Belihuloya), and Sri Jayewardenepura (in Nugegoda)
Sector: Education / Tertiary
Theme:
Brief Description: The proposed project will support the government to expand the university enrollment, especially in applied science and technology areas, to increase the availability of future ready workforce. Under Output 1, the project will help the universities build new technology and engineering faculty buildings, equipped with lecture halls, laboratories, workshops, maker space or innovation space, and other auxiliary facilities to foster collaboration among students, across different disciplines, and with the industry. The buildings will conform to green building standards, with energy- and water-saving features. The facility design will reflect the latest pedagogic approaches in higher education, such as project-based learning, peer learning, and student-centered learning; and feature flexibly adjustable spaces for different types of research and built-in collaboration tools. Outputs 2, 3, and 4 will ensure the quality and relevance of the program through strengthened academic program design by incorporating industry inputs as well as seeking international accreditation. Efforts will be made to ensure the programs have adequate number of well-qualified faculties. The project will provide performance-based grant, based on the merits of the proposal and implementation progress for university-industry research collaborations. Output 5 will support new higher education project development, covering feasibility studies and advance actions for project readiness, especially in procurement.

II. Summary of Climate Change Finance

Project Financing		Climate Finance (in $ million)	
Source	**Amount (in $ million)**	**Adaptation**	**Mitigation**
ADB Resources	145.00		
OCR	83.00	0.26	4.35
COL	62.00		
ADF Grant			
Cofinancing			
Global Environment Facility			

III. Summary of Climate Risk Screening and Assessment

A. Sensitivity of Project Component(s) to Climate/Weather Conditions and Sea Level

Construction of **faculty buildings,** equipped with lecture halls, laboratories, workshops, maker space or innovation space, and other auxiliary facilities (medium)	Climate change impacts through increased rainfall and flooding may include partial or full damage to building infrastructure, particularly in the Colombo and Ratnapura areas. For the North Central Province areas (Anuradhapura), sensitivity to intense weather disturbances including cyclones and coastal storms may cause damage to structures and disruption of activities.

B. Climate Risk Screening

	Climate Risk by Location (University)			
	Anuradhapura (Rajarata)	Belihuloya (Sabara-gamuwa)	Kelaniya (Kelaniya)	Nugegoda (Sri Jaye-wardenepura)
1. Temperature increase up to 1.12°C by 2030 and up to 1.64°C by 2050 (RCP8.5). (High confidence)	Low	Low	Low	Low
2. Precipitation change (medium probability)	Medium	Medium	Medium	Medium

3. Extreme events (heavy rainfall, wind, and storms/cyclones) (medium probability)	Medium	Medium	Medium	Medium
4. Sea level rise and storm surge (medium probability)	Medium	Medium	High	Medium

Climate Risk Classification: ***Medium***

C. Climate Risk and Adaptation Assessment

Primary climate change hazards that can impact subprojects in the short to medium term are floods during the monsoon seasons both mortality and GDP; and droughts during the inter-monsoon period. Long-term climate change risks that could impact subprojects are flooding from extreme rainfall events and storm surge, coupled with sea level rise.

While Sri Lanka is prone to multiple natural hazards that pose varying risks to the population, properties, and livelihoods, the scope of the project that may be subject to the impacts of climate change is not extremely sensitive, except for the Kelaniya University, which could be affected by floods from overtopping of Kelani river.

A detailed assessment of flood risk has been carried out considering catchment characteristics, project location, topography, proposed master plan, existing drainage network, degree of flood, and historic observed data. The modeling study showed that the existing ground level of the project site is not protected for 25-year return period. Proposed solutions include the installation of pumping station and rehabilitation of drainage system, which will result to expected flood levels as follows:

- Expected 25-year flood level after drainage improvement: 1.50 m MSL
- Expected 50-year flood level after drainage improvement: 1.60 m MSL
- Expected 100-year flood level after drainage improvement: 1.70 m MSL

This shows that even after implementation of proposed drainage improvements, it is not possible to expect safety of the project at 1.50 m MSL without raising the existing ground at this location. There is no risk of flooding during extreme (25-year and 50-year floods) on the project site, which are above 2.50 m MSL. Therefore, the assessment recommends to fill the project site at least up to 2.75 m MSL by keeping minimum freeboard; keep DPC level of the proposed buildings at 0.50 m above the recommended fill level and DPC level of the proposed building should be 3.25 m MSL.

The design review consultants, the Sri Lanka Land Reclamation and Development Cooperation, State Engineering Corporation recommended that filling the project site by another 1.25 m would be too costly and not effectively addressing flood risks and working as remedial measures, and they proposed to construct the buildings on pillars and facilitate the drainage on the site by filling another 0.3 - 0.5 m to create necessary slopes and constructing storm water drains strategically to drain the excess water to the adjoining canals.

D. Climate Risk Screening Tool/Procedure Used (specify)**:**

SARD's climate risk screening framework and tool.

IV. Climate Adaptation Plans within the Project

Adaptation Activity	Target Climate Risk	Estimated Adaptation Finance	Adaptation Finance Justification
(Type 2 activity) Construct the buildings on pillars and facilitate the drainage on the site by filling another 0.3–0.5 m to create necessary slopes and constructing storm water drains strategically to drain the excess water to the adjoining canals.	Increasing precipitation intensity, especially when coinciding with high tide and storm surge, results to floods	$262,500	Kelaniya University is located within Colombo area where securing a sizable land for new faculty construction near the main campus is extremely difficult. The site is already reclaimed by the Sri Lanka Land Reclamation and Development Corporation for urban development purpose before land acquisition, but needs extra measures to rule out flood risks from damaging the newly constructed buildings and disrupting education activities.

V. Climate Mitigation Plans within the Project

Mitigation Activity	Estimated Greenhouse Gas (GHG) Emissions Reduction (tCO2e)/year	Estimated Mitigation Finance	Mitigation Finance Justification
Solar power generation	576 (to be updated)	$4,350,000	Solar roof top will be installed on the new faculty buildings and on some of the existing university campus facilities to generate solar energy for faculty consumption and possible energy sale to the main grid.