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東埔寨機場投資有限公司
Cambodia Airport Investment Co., Ltd

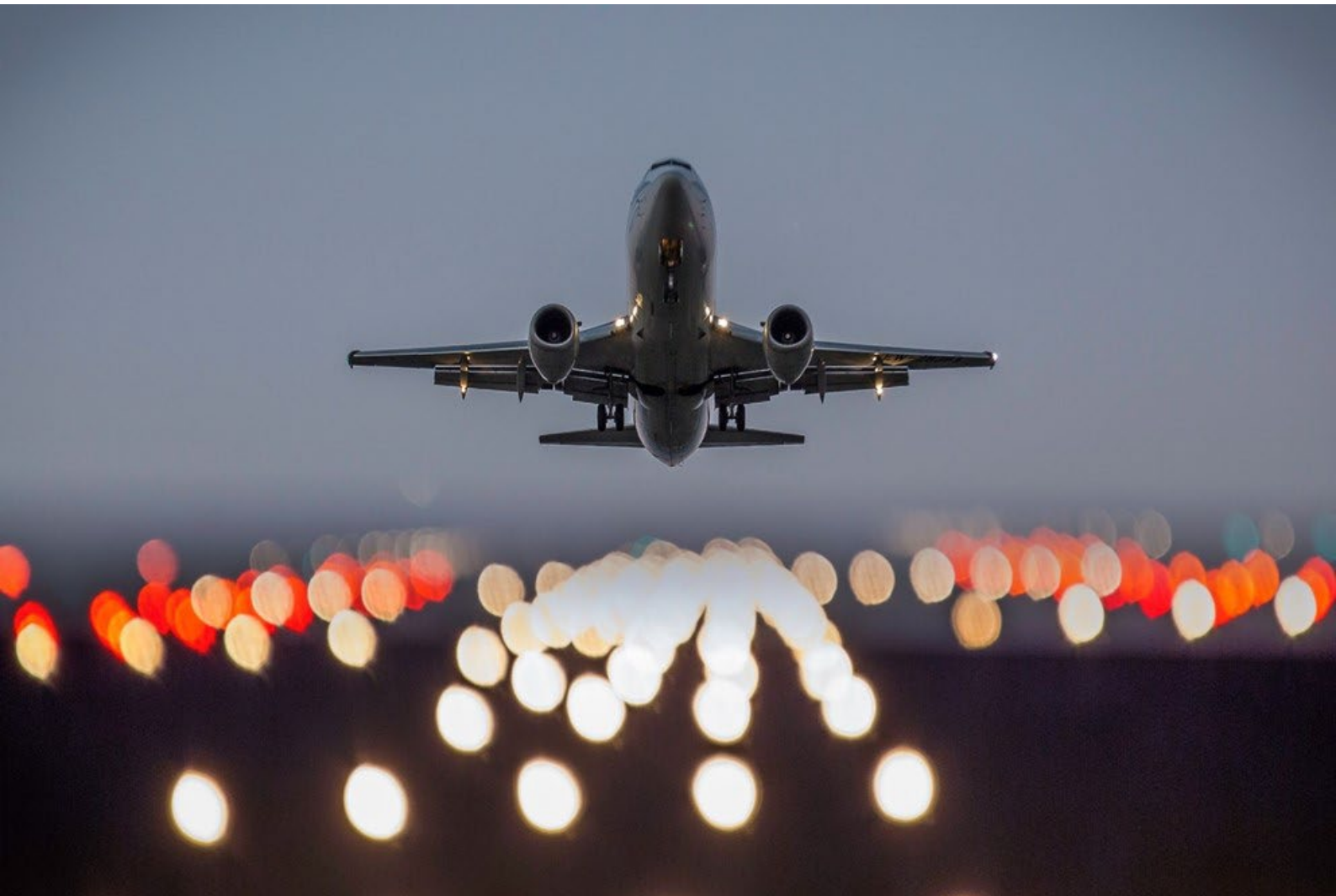
Cambodia Airport Investment Co., Ltd.

DATE
08 November 2024

REFERENCE
0730380

ESIA Addendum

Project Alternatives



DOCUMENT DETAILS

DOCUMENT TITLE	ESIA Addendum
DOCUMENT SUBTITLE	Project Alternatives
PROJECT NUMBER	0730380
Date	08 November 2024
Version	02
Author	Athina Wilson
Client name	Cambodia Airport Investment Co., Ltd.

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
Draft 01	00	As above	David Blaha	Kamonthip Ma-oon	21.06.2024	Issued to Client
Draft 02	01	As above	David Blaha	Kamonthip Ma-oon	08.11.2024	Issued to Lender

SIGNATURE PAGE

ESIA Addendum

Project Alternatives

0730380

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1. INTRODUCTION

This section provides an overview of the alternatives considered for the Project including alternative locations, expansion of the existing airport and alternative flood prevention methods.

1.1 NO PROJECT ALTERNATIVE

The 'no Project alternative' considers the consequences in case a decision not to proceed with the Project is made. In this scenario, the possible positive and negative impacts of the proposed activities on the receiving environment and social receptors would not occur.

Specific benefits of the no Project alternative are considered to be the following:

- The potential adverse impacts on the environment e.g. dust emission, contamination of soil and surface water, and to biodiversity, such as permanent and temporary loss of habitats, will be avoided;
- The possible social disruption and health impacts arising from the construction and operational activities; e.g. impacts on land, impacts to health and safety of the community, unplanned events and loss of livelihoods would be avoided; and
- The land at the proposed site would be unaltered and remain available for alternative use, e.g. agricultural land and wetlands.

In case that the Project is not developed (No Project Scenario) there will be no impacts to villages within the Project boundary e.g., loss of land, loss of livelihoods, potential health and safety impacts etc.

Conversely, the disadvantages of the no Project alternative are as follows:

- Development of local socio-economics and its positive benefits would not be realized e.g. increase in employment rate and increase in land prices surrounding the airport.
- Not developing this Project could result in a development with potentially more significant environmental and social impacts to be built instead.

1.2 EXPANSION OF THE EXISTING AIRPORT

According to CAIC, the annual passengers were in excess of 6 million in 2019. The airport has been operating for over 20 years, and the number of passengers is steadily increasing. The existing airport was designed to accommodate 5 million passengers. Therefore, a new airport is necessary to accommodate the growth of air transport and expand access to larger aircrafts. Expanding the existing airport by building a second runway and upgrading the terminal, to accommodate the number of flights projected for the new airport, would not be viable. The existing airport is completely surrounded by dense development and any expansion would have resulted in significant physical and economic displacement and worsen noise impacts within the city (see Figure 1.1 below). The size of the existing airport is 386.6 hectares while the new airport is 2,400 hectares, which would entail acquiring six times the amount of land in the surrounding area. As a result, there is insufficient space for expansion.

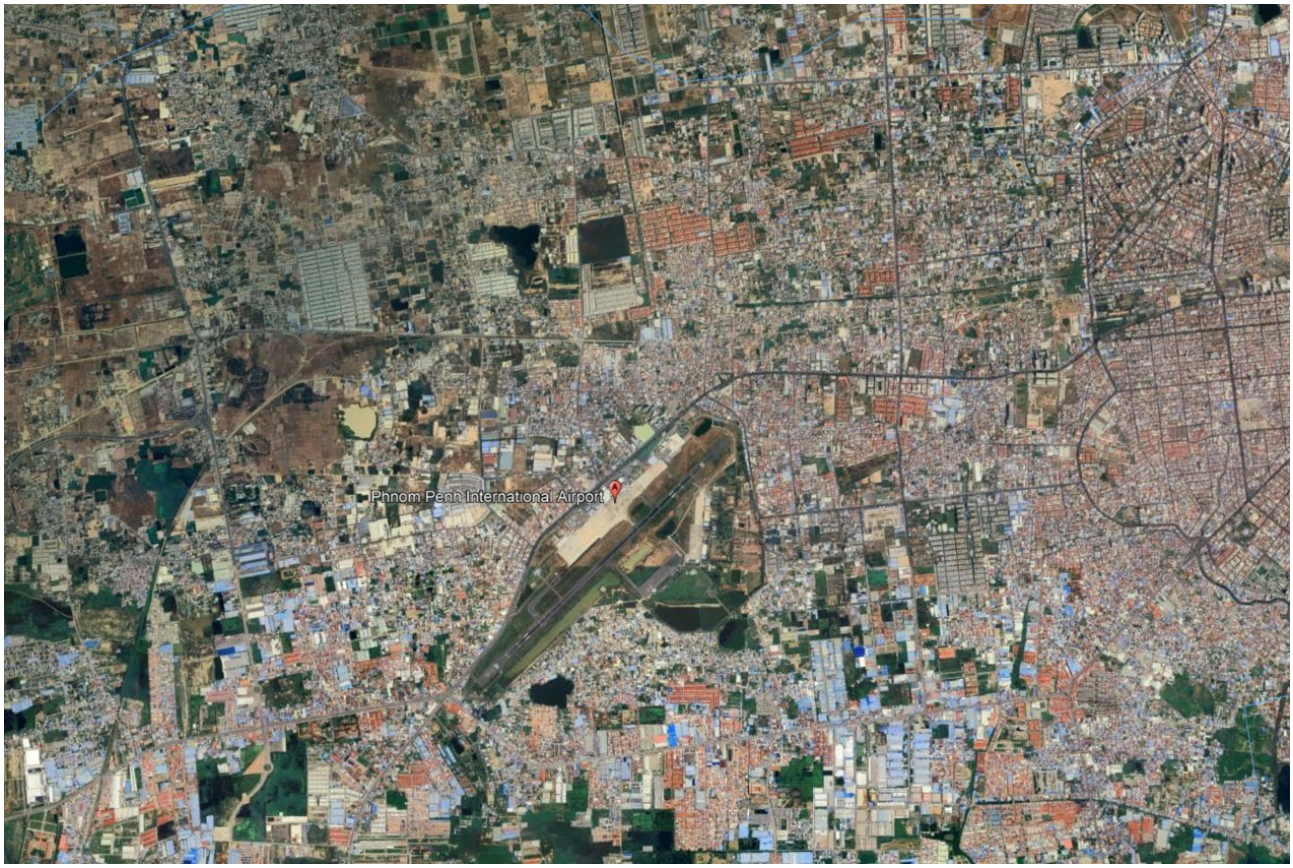

FIGURE 1.1 LOCATION OF THE EXISTING PHNOM PENH AIRPORT

1.3 ALTERNATIVE LOCATIONS

The proposed airport would be located approximately 20 km south of the center of Phnom Penh. The site for the Project was determined to be the best location by the Government of Cambodia primarily based on the flat topography, proximity to the capital, and suitable land area. Airports, by the very nature of their function, require a large area of very flat land to enable aircraft to take off and land safely. Alternative locations which would avoid infilling the wetlands or impacting biodiversity could potentially have significant social impacts such as requiring additional land to be acquired resulting in increased physical and economic displacement.

Alternative locations were generally eliminated for the following reasons:

- Alternatives to the east - would require a new bridge over the Mekong River and would likely conflict with the Boeung Veal Samnap Important Bird Area;
- Alternatives to the southwest – would be farther and with more difficult access to downtown Phnom Penh and conflict with the Phnom Tamao Zoological Park and the Tamao Protected Forest;
- Alternatives to the west – would likely require greater physical and economic displacement as two of the main national roads (Routes 3 and 4) enter Phnom Penh from the west and have attracted much higher residential and commercial densities;
- Alternatives to the north – would conflict with the Basset Marsh Important Bird Area or would be farther from the center of Phnom Penh with more difficult access.

As the airport is well under construction, this alternative location assessment is relatively high level, and although a more thorough alternatives analysis may have identified an alternative location with incrementally less social and/or environmental impacts, the proposed location does seem to be a reasonable location considering the distribution of land use and environmentally sensitive areas around Phnom Penh.

1.4 ALTERNATIVE FLOOD PREVENTION METHODS

The proposed location is located in area with the potential for flooding. Three potential concepts were identified for protecting the Project site from flooding. Details of each potential concept is outlined below:

Option 1: Raise the Entire Level of the Site

Raise the entire level of the site above the long-term Projected design flood levels (e.g. roughly 1,250 years); storm water is discharged from the site by gravity flow. Raising the elevation of the site higher than the surrounding areas would result in water flowing into the properties and fields of neighbouring communities which are at a lower elevation. Elevating all 2,400 hectares of the site would also require a substantial amount of sand, leading to environmental impacts from the mining of the sand and the truck transport of the sand to the site.

Option 2: Build a Dike around the Site

Build a dike around the site to a level above the medium-term projected design flood levels (roughly 10,000 years). The purpose of the dike is to prevent inflow of water and raise dike levels over time to account for increases in expected flood levels; storm water is temporarily stored on the site and discharged by pump during flood season.

Option 3: Hybrid

Raise the level of the site above the short-term projected design flood levels (roughly 1,250 years) and for the medium-term build a dike around the site to a level above the medium-term projected design flood levels (roughly 10,000 years). For the long-term, dike levels need to be raised to account for further increases in expected flood levels. Initially, storm water will be discharged from the site by gravity flow. Raising the elevation of the site higher than the surrounding areas would result in water flowing into the properties and fields of neighbouring communities which are at a lower elevation. Elevating all 2,400 hectares of the site would also require a substantial amount of sand, leading to environmental impacts from the mining of the sand.

Conclusion: Option 2 was chosen to be the optimal concept, as building a dike will incur significantly less environmental and social impacts than raising the elevation of the site.

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