REPORT

New International Airport of Cabinda (NAIC Project) - Angola

Environmental and Social Impact Assessment - Chapter 3 - Alternative Analysis

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22538653-R-002_Rev.1

January 2024

Distribution List

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Table of Contents

TABLES

FIGURES

3.0 ALTERNATIVE ANALYSIS

3.1 Introduction

This chapter presents the analysis of alternatives conducted to ensure that environmental, social and biological considerations are integrated into and aligned with the Project and its eventual updates.

This analysis of alternatives systematically compares the "Zero Alternative" to the Project's effective implementation by assessing their pros and cons, the suitability, the potential environmental, social and biological impacts and the feasibility of mitigating these impacts, and their conformity to existing policies, plans, laws and regulations.

The analysis considers site options that have been considered before defining the selected area as well as technology options.

As described in the Project Description (Chapter 2), the Project consists in the development of the New Airport of Cabinda City in a new undeveloped area, which will supersede the existing airport located in the middle of the Cabinda city.

3.2 The Alternatives

3.2.1 Zero Alternative or No Project Alternative

A zero alternative, or "do not scenario", has been considered as a possible alternative to the Project. This option would imply that no construction activities will occur in any of the considered locations. The following considerations apply to this option:

- short-term adverse impacts related to construction (e.g., noise and dust emission) would be absent;
- there would be no soil occupation and no loss of natural habitat;
- there would be no effect (both positive and negative) on the national or local economy;
- the Zero Alternative would cause no positive effects on the community's job's prospects (i.e., increasing the employment rates);
- the traffic circulation would remain the same, however, the existing roadways would continue to work with the same capacity and conditions and would not be renewed;
- the community of Cabinda will remain exposed to some risks due to the existence of residential, authorized and not authorized, houses around the existing airport;
- there would be no increase of human capital, the local youths would not have the possibility to gain a professional qualification and be adequately trained to exercise a specific profession;
- there would be disconnection in the economic system under growth in the area for the development of the Port Caio, the Cabinda Refinery and the increase of the capacity of Futila Industrial Development Complex; and
- there would be no improvement on the local and national training systems.

Additionally, the Zero Alternative implies not proceeding with the airport development project and leaving it in its current state, somewhat degrade.. This option would likely lead to adverse environmental and socio-economic impacts including, but not necessarily limited to (i) continued operation of the airport in sub-optimal conditions for safety and environmental standards and passenger comfort; and (ii) inability to cater for forecast future air traffic and passenger growth leading to:

- failure to realize potential increased income for the Cabinda province from economy growth, tourism and general industry by providing the facilities required to facilitate growth in these sectors;
- no improvement in the management of environmental matters;
- failure to realize positive socio-economic benefits in the provision of jobs and the generation of revenues for the local communities;
- failure to improve safety of staff and passengers where flights and passenger levels continue to be increased without improving and/or expanding the existing facilities; and
- failure to improve safety for the communities living around the airport which have been significantly expanded in the last few years.

In the long term, the failure to undertake the Project development would affect Government of Cabinda development efforts both in terms of capacity expansion but also in terms of infrastructure optimization and environmental and social sustainability.

Considering that the growth of the local and national economy is a priority for the local authorities and that, overall, the expected positive impacts outweigh the negative impacts on the environmental, socio-economic, health and biological components, the Zero Alternative is therefore not considered suitable and will not be further assessed.

3.2.2 Project Site Alternatives

The Ministry of Transportation conducted a comparative analysis among different locations before selecting the final area as it is shown in Figure 1 below. Option 3, located 36 km north of the existing Cabinda Airport, satisfied all the criteria used in the evaluation process (see Table 1) and was therefore selected as the most suitable location for the placement of the new airport.

Figure 1: New International Airport of Cabinda - Project Location Options.

The choice of location was based on the evaluation of 13 key criteria, as defined in Table 1:

Table 1: Key criteria evaluated for the choice of location for the construction of the NAIC.

Criteria		Brief Description
1	Proximity to the city of Cabinda	The airport must present satisfactory conditions, for all potential users, in terms of time, convenience and travel experience.
2	Physical Constraints of the Site	The airport must comply with the physical requirements of the ICAO for landing field, infrastructure, installations and Obstacle Limitation Surfaces (OLS). The physical requirements are found in Annex 14 to the Convention on International Civil Aviation (Volume 1, 9^{th} edition, July 2022), in Chapter 3 (Physical characteristics) and Chapter 4 (Obstacle restriction and removal).
3	Compatibility with the Cabinda Master Plan	The new airport site will not conflict with other developments proposed as part of the Cabinda Master Plan.
4	Site Topography	It is recommended that the proposed site will be located on relatively flat terrain in order to reduce excessive earth movements and associated environmental impacts.
5	Geological Conditions	Favorable soils will be selected, with good resistance to loads, in order to minimize the need for soil treatment.
6	Groundwater Conditions	The proposed site selection will avoid shallow groundwater which requires special treatment during construction.
7	Hydrological Conditions	Flood Protection: The airport site should be selected to avoid water runoff to minimize the need for sizable diversion structures. Wetlands: Self-draining soil is needed to prevent the need to build water retention structures, which FAA Circular 150/5200-33C essentially condemns for its dangerous implications for wildlife.
8	Seismic Zone	The project area includes some minor faults. However, according to the seismic zone classification, they can be considered as of no consequence. In addition, the major fault in West Africa that runs through the different rocky units is considered to be seismically inactive.
9	Airspace Constraints	The airport will be located away from other airports to minimize airspace conflicts. In addition, it must be ensured that airport structures do not penetrate the OLSs in the airspace of the runway. The location will also ensure that the airport's airspace is within Angolan territory and does not interfere with the airspace of neighboring countries.
10	Connectivity	The airport site must be accessible via existing or planned paved road corridors, preferably adjacent to existing paved main roads.
11	Runway Orientation	The location will allow the runway to be oriented in the prevailing wind direction.
12	Availability of construction material	The location of the airport should ideally be close to quarries for easy earth moving.
13	Compatibility with the Municipal Master Plan	The site must allow for seamless integration into the Cabinda Master Plan.

Table 2 below shows the result comparing the five location options for the NAIC, considering the 13 criteria described above. The red, orange and green colors of the cells in the table represent, respectively, unfavorable, relatively favorable and favorable conditions for the project construction.

After the analysis, option 3 was the one with the highest number of favorable conditions (green color), and it was chosen for the following reasons:

- although the location is far 36 km from Cabinda, the proposed site will be integrated into an existing well-developed road network that connects the Futila Industrial Development Complex to the city;
- option 3 is close to the coastal road and adjacent to the proposed connecting road corridors in Cabinda Province;
- the proposed location is the closest to the Port of Caio, the Multipurpose Stadium of Cabinda, the University of Cabinda, and the main tourist attractions of Malembo and Malongo;
- ease of construction in terms of earth movements, considering that the site is located on flat land, with slopes of 0% to 1%;
- ease of diverting water channels in the proposed location due to the acceptable amount of runoff from rainwater;
- airspace is clear at the proposed project location and there are no terrain obstructions impacting the approach and take-off surfaces;
- the boundary surfaces of obstacles are entirely within the Territory of Angola.

Although the initial assessment carried out by the Government did not consider any biological aspects, based on the information collected through the baseline study of this ESIA, option 3 is considered the most favorable also in this sense. Developing the Project at north (option 4 and 5) would likely impact on the border of Maiombo forest, recognized at international level as a native forest and an area of ecologic interest, which could be critical for the existence of species of ecological importance.

Option 1 and 2 at the southern part of the Province of Cabinda would fall in undeveloped area bordering with Congo and would be potentially far from the Futila Industrial Development Complex area. This would require constructing additional infrastructure to connect Cabinda city to the airport and consequently impacting more on the environment: the traffic generated by the Refinery and the Port of Caio activities would affect the city center because of the connection with the new airport. Additionally the upgrade or the development of new roads infrastructure might require land acquisition, however this is part of the Cabinda Master Plan in accordance with the Government plan.

Table 2: Alternative Site Options Analysis

CRITERIA		OPTION 1	OPTION 2	OPTION 3 (SELECTED OPTION)	OPTION 4	OPTION 5
1	**Proximity to the city of Cabinda**	Approximately 13 km.	Approximately 23 km.	Approximately 36 km.	Approximately 85 km.	Approximately 85 km.
2	**Physical Constraints of the Site**	Suitable area for the last phase of the airport.	Suitable area for the last phase of the airport.	Suitable area for the last phase of the airport.	Situated very close to the city of Dinge. Relatively close to large swaths of jungle.	Very close to the city of Dinge. The city will lie beneath the final approach to the runway, thus creating a physical barrier to expansion and safety hazards. The runway will be very close to an existing road originating from the EN110 highway.
3	**Compatibility with the Cabinda Master Plan**	The location does not conflict with the Cabinda Master Plan. Close to the limits of the Cabinda Master Plan.	The location does not conflict with the Cabinda Master Plan. Approximately 15 km from the limits of the Cabinda Master Plan.	The location does not conflict with the Cabinda Master Plan. Approximately 8 km from the limits of the Cabinda Master Plan.	The location does not conflict with the Cabinda Master Plan.	The location does not conflict with the Cabinda Master Plan.
4	**Site Topography**	Located on flat terrain with slopes from 0% to 1%.	Located on flat terrain with slopes from 0% to 1%.	Located on flat terrain with slopes from 0% to 1%.	Very undulating topography. The need for large amounts of cutting and filling and treatment measures of the site is expected. Terrain lower to depths of 35-41m, especially at watercourse locations.	Very undulating topography and the need for large amounts of cutting and filling is expected. Terrain lower to depths of up to 46 m, especially at watercourse locations.

CRITERIA		OPTION 1	OPTION 2	OPTION 3 (SELECTED OPTION)	OPTION 4	OPTION 5
5	**Geological Conditions**	Pleistocene marine terrace with deposits of gravels, sands and clays.	Pliocene-Quaternary sands, sandstones, clays, conglomerates and laterites.	Pliocene-Quaternary sands, sandstones, clays, conglomerates and laterites.	Prevailing presence of clayey soil (laterite), which is very demanding in terms of construction and earth movements.	Prevailing presence of clayey soil (laterite), which is very demanding in terms of construction and earth movements.
6	**Groundwater Conditions**	Shallow water levels are expected due to proximity to the shoreline.	Water is expected at greater depths due to the higher elevation of the site.	Water is expected at greater depths due to the higher elevation of the site.	Presence of water at surface levels is expected.	Presence of water at surface levels is expected.
7	**Hydrological Conditions**	Location in a swampy area close to the coastline, which requires special soil treatment.	Two waterways cross the runway, with a significant amount of stormwater runoff (significant diversion channels are required).	Two waterways cross the runway, with a significant amount of stormwater runoff (significant diversion channels are required).	Multiple watercourses along the site. They are expected to pass under the structural pavement of the runway and the extended runway layout. Need for major earthworks and diversion works.	Multiple watercourses along the site. They are expected to pass under the middle of the runway and the extended runway layout. Need for major earthworks and diversion works.
8	**Seismic Zone**	Area is prone to low intensity earthquakes.	Area is prone to low intensity earthquakes.	Area is prone to low intensity earthquakes.	The site is approximately 2 km from a fault. However, the area experiences very little seismic activity.	The site is approximately 4.5 km from a fault. However, the area experiences very little seismic activity.
9	**Airspace Constraints**	No obstructions to the approach and take-off OLSs. The final approach to the runway flies over the airspace of the Democratic Republic of the Congo.	No obstructions to the approach and take-off OLSs. The final approach to the runway flies over the airspace of the Democratic Republic of the Congo.	No obstructions to the approach and take-off OLSs. The OLSs are completely within the Territory of Angola.	No obstructions to the approach and take-off OLSs. The OLSs are completely within the Territory of Angola.	No obstructions to the approach and take-off OLSs. The OLSs are completely within the Territory of Angola.

CRITERIA		OPTION 1	OPTION 2	OPTION 3 (SELECTED OPTION)	OPTION 4	OPTION 5
						The entire city of the Dinge lies beneath the final approach to the runway.
10	**Connectivity**	Location connected to the main road network (EN 100 road).	The existing road passes exactly in the middle of the proposed site (need to divert a significant section of the road). 15 km away from the Main Highway.	Closest to Cabinda's main strategic road, which connects all four municipalities and the main cities of Cabinda Province. 5 km away from the Main Highway.	The location is relatively close to the EN110 Highway.	The location is relatively close to the EN110 Highway.
11	**Runway Orientation**	Similar to the existing runway at Cabinda Airport (N-S direction) and believed to be in the prevailing wind direction.	Similar to the existing runway at Cabinda Airport (N-S direction) and believed to be in the prevailing wind direction.	Similar to the existing runway at Cabinda Airport (N-S direction) and believed to be in the prevailing wind direction.	Almost perpendicular to the orientation of the existing runway at Cabinda Airport (E-W direction) and it is believed that there is exposure to crosswinds (to be confirmed through wind direction analysis).	Similar to the existing runway at Cabinda Airport (N-S direction) and believed to be in the prevailing wind direction.
12	**Availability of construction material**	Very far from the quarries located in the northeast of the province.	Very far from the quarries located in the northeast of the province.	Far from the quarries located in the northeast of the province.	Relatively close to the quarries located in the northeast of the province.	Relatively close to the quarries located in the northeast of the province.
13	**Compatibility with the Cabinda Master Plan**	No impact.	No impact.	No impact.	To be determined.	To be determined.

3.2.3 Project technology selection

3.2.3.1 Runway option

The designer proposed, initially, an orientation of the runway different from the current selection. The original position implied to occupy a larger piece of land currently used from the existing Sassa Zau Road and other economic activities. In such case, the road should have been modified to make sure that the airport area was maintained free and that safe spaces were guaranteed. By developing such option, some of the economic activities along the road should have been relocated elsewhere (see Figure 2).

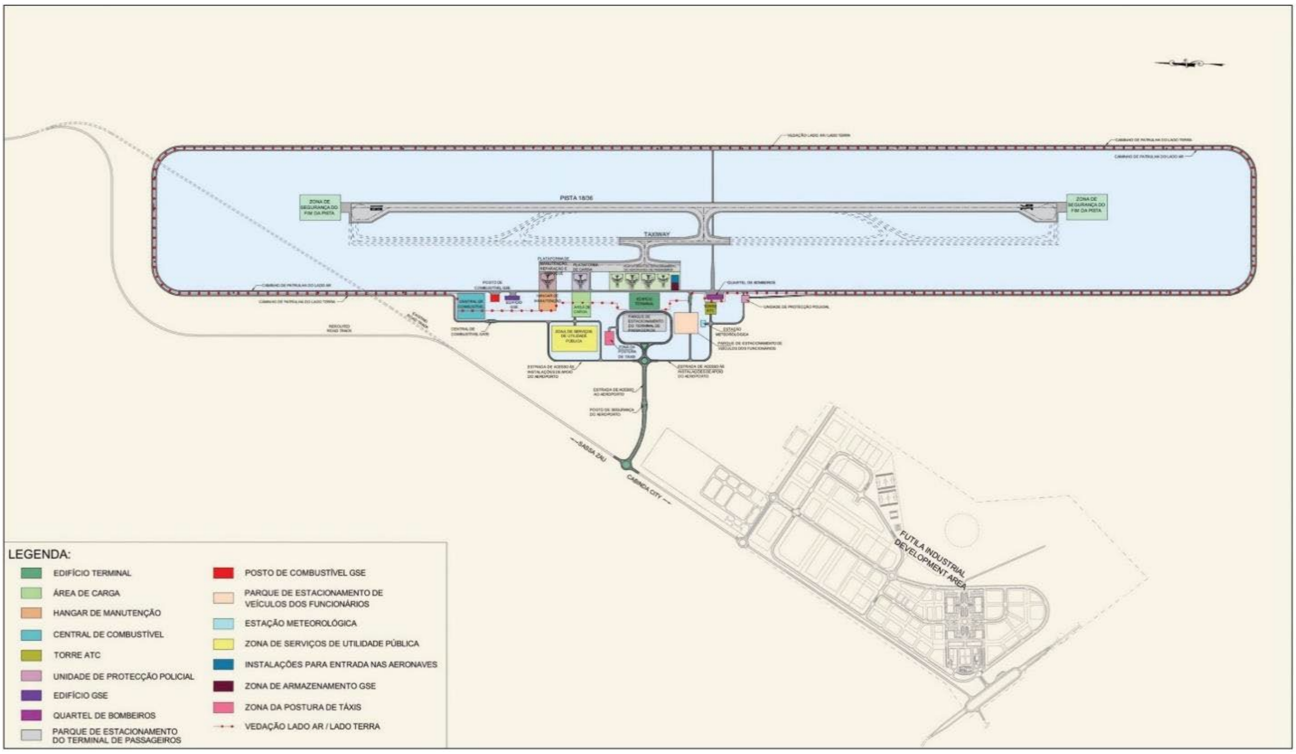

Figure 2: NAIC original layout

The final selection (see Figure 3) has a runway oriented at 7.5° coming from the North. The runway orientation is determined based on a wind study that used historical wind data (i.e., wind speed and direction) from the last five years, obtained by the weather station at Cabinda Airport.

The area occupied by the new airport does not interfere either with the Sassa Zau Road nor with the economic activities on the north. Distance from sensitive receptor in this case is higher and provide more comfort to the operation activities.

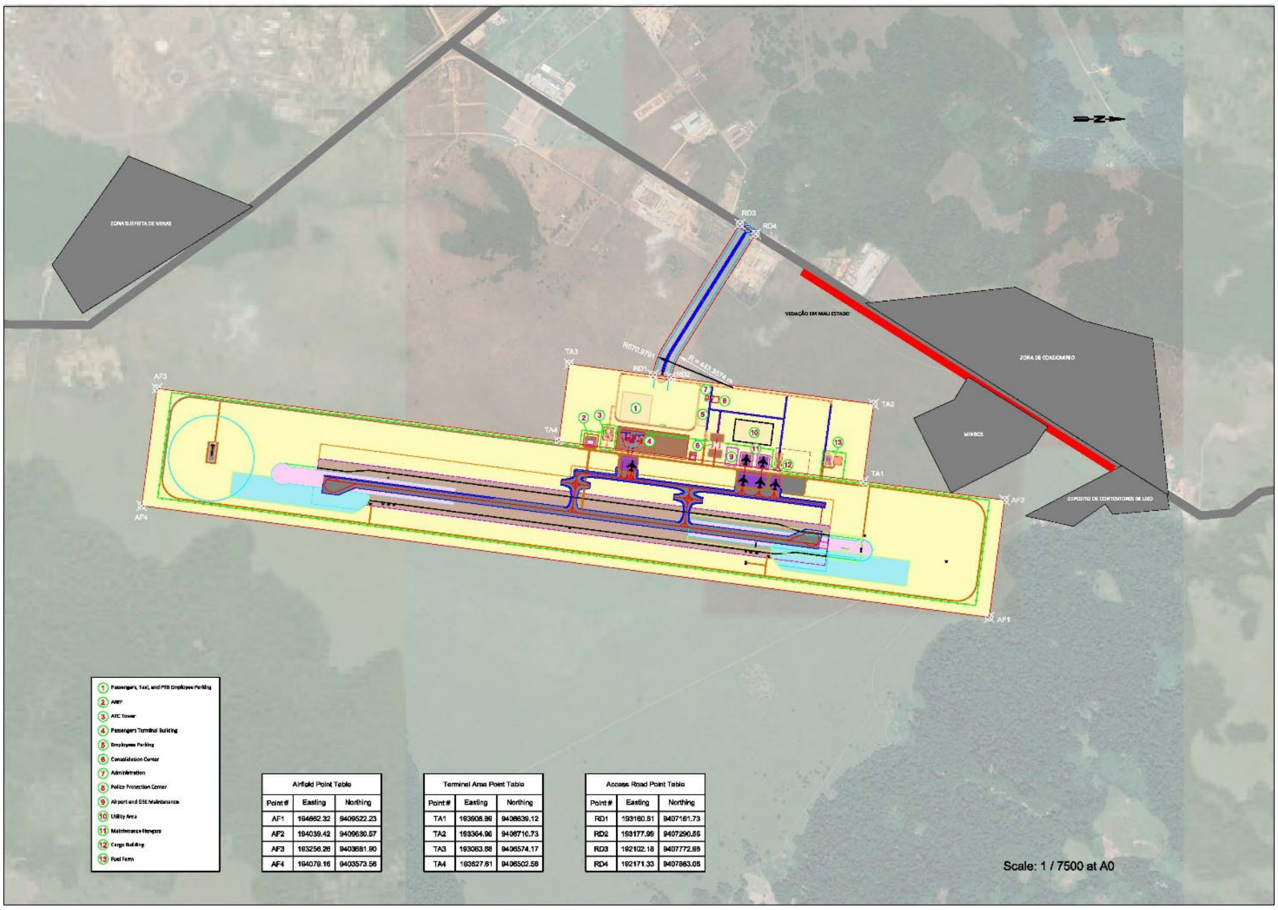

Figure 3: NAIC final selected layout

The runway orientation study took into account existing and proposed developments adjacent to the new site. The runway length is estimated at 3,500 m for the airport of category 4E following ICAO standards.

Figure 4 shows the results of the assessing criteria for the runway and the identified obstacles limits.

A preliminary obstacles assessment has been conducted by DAR in 2022. In addition to the wind characteristics, three land use compatibility criteria have been applied to determine the exact location of the runway:

- **Airspace protection from aviation risks**: obstacles such as natural elements or artificial structures inside and outside the airport border compromise the safety of air navigation and would limit the future expansion of the airport. These may also limit the distances available for take-off and landing. As a result, certain areas of the airspace must be considered an integral part of the airport environment to allow intended aircraft operations at the airport to be carried out safely and to prevent the airport from being constrained by the growth of obstacles around it.
- **Safety for people on the ground**: safety issues have been considered for those who live and work near an airport, as well as for those who use the airport. Typically, accidents occur along the perimeter of the central runway. Minimizing the number of people in and out of airport facilities will reduce exposure to the risk associated with potential air accidents.
- **Noise exposure attributable to aircraft operation:** noise is considered a significant concern generated by aircraft operations, with an impact on an extensive and audible area at great distances from an airport. One of the main objectives of airport compatibility planning is to reduce nuisance and minimize the number

of people exposed to excessive levels of aircraft noise. The basic strategy for achieving noise compatibility in the vicinity of an airport is to avoid or limit land uses that are especially sensitive to noise.

To protect airspace from hazards to air navigation, Obstacle Limiting Surfaces have been developed based on ICAO Annex 14, Volume 1, 9th edition. These surfaces define the limits to which aircrafts may travel in the airspace to avoid adverse effects on the safety and regularity of aircraft operations at the Airport.

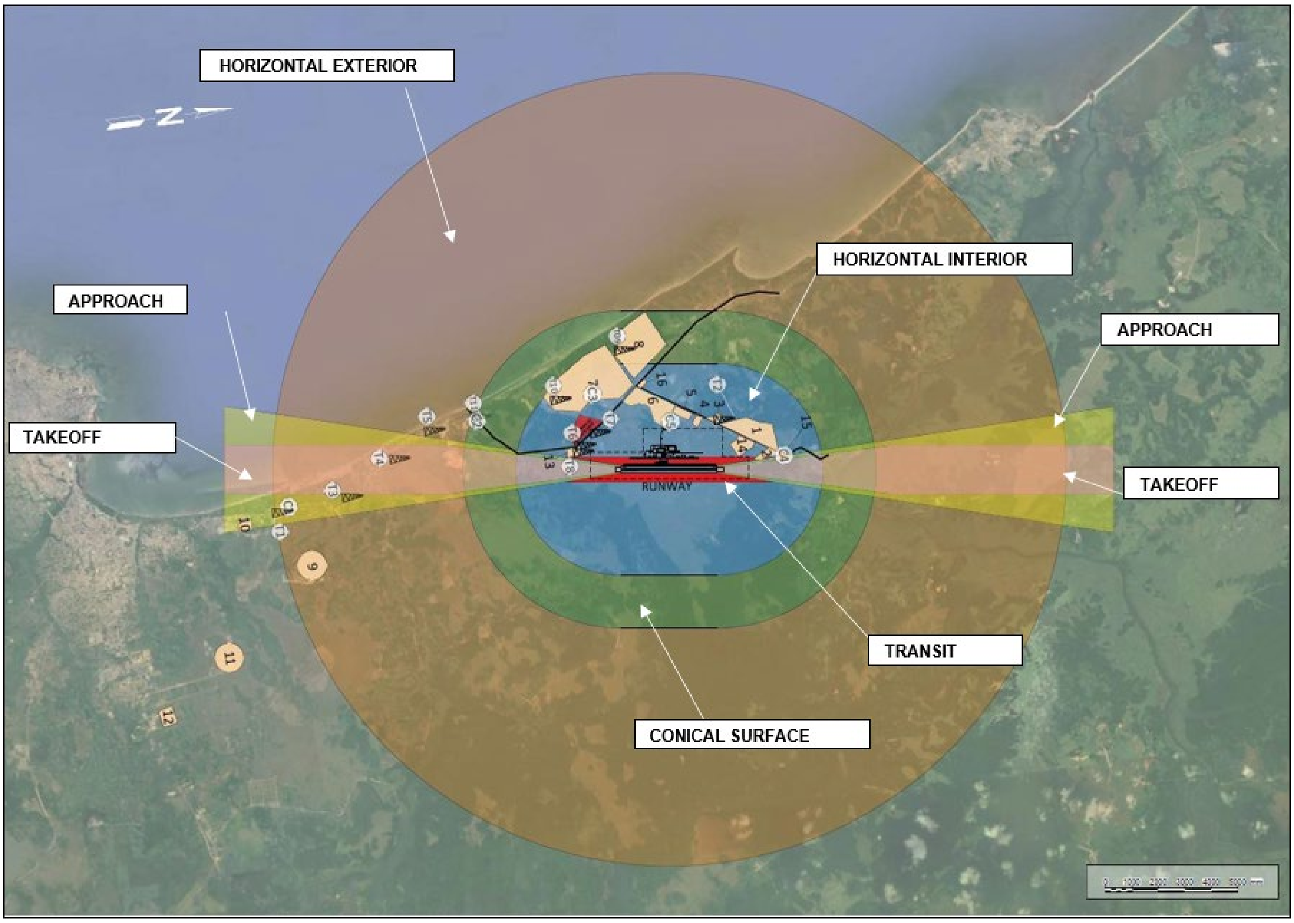

Figure 4: NAIC obstacles limit surface

Five (5) zones have been identified, these are presented in different colours in Figure 5 and are based on the land characteristics, on the current use of soil and on the statistics of frequency of historical aviation incidents.

Such zone classification, resulted from ICAO standard mentioned above, should be used by the Government for future land planning measures to limit the activities and presence of residential buildings in the area.

It is therefore considered that the selected option will not affect any economic activities because of the undeveloped selected area, so this makes such option as the most effective and safety and that with less impacts on the neighbouring communities.

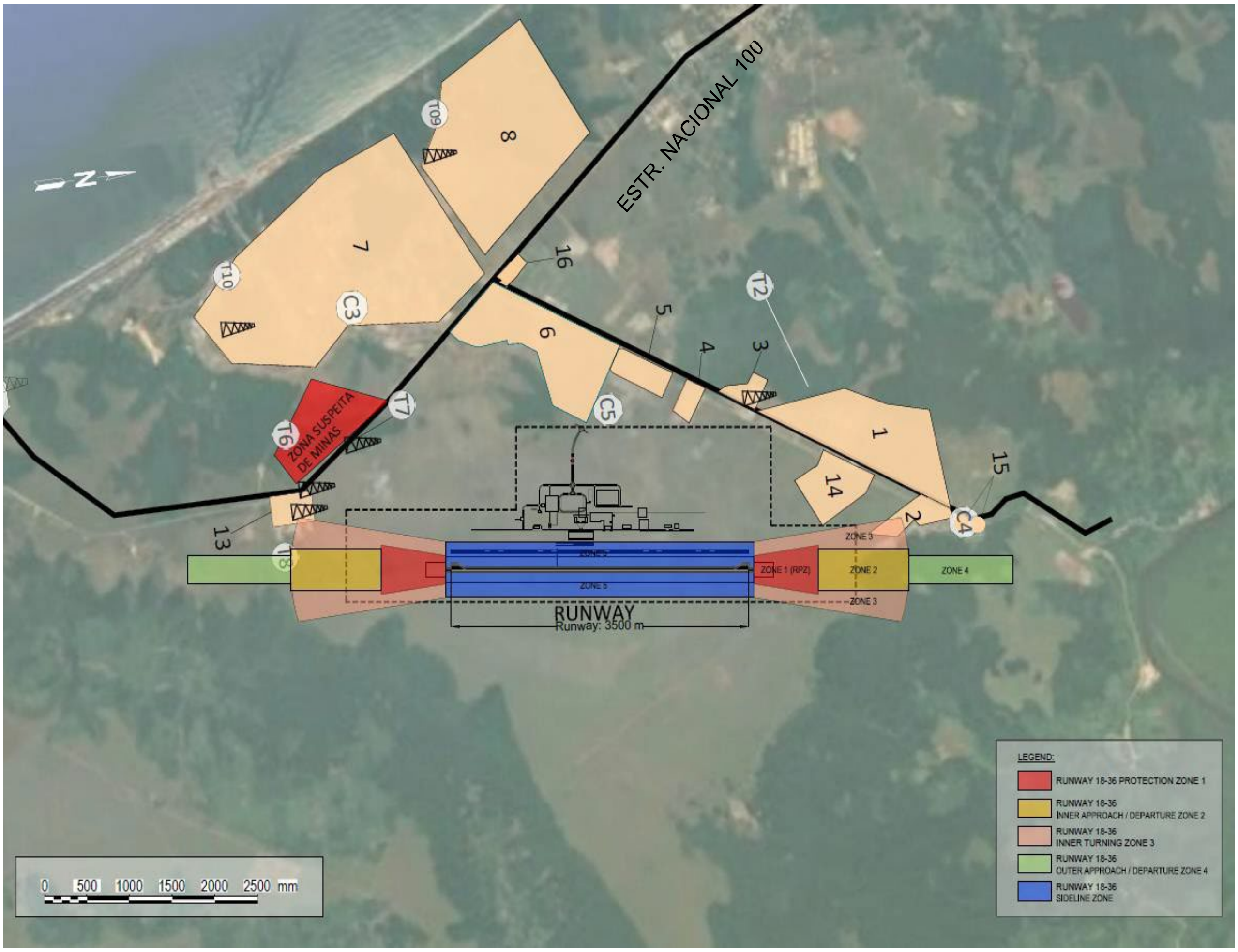

Figure 5: Lane Safety Zone

3.2.3.2 Aprons

Several aprons are planned for NAIC including passenger apron, cargo apron, maintenance apron and helicopter apron. The passenger apron at NAIC will be sized to accommodate the required number of aircraft parking positions pertinent to passenger aircraft.

The design has considered the largest commercial aircraft (Code E B777-300ER), however it was considered that large aircraft such as the B777 or A330 or other equivalent may reach Cabinda less frequently. The selected option was to avoid big areas not being used on daily basis and design aprons not oversized nor undersized taking into consideration the logical approach to minimize the impact of the large aircraft on the size of facilities.

An adequate open space within the site footprint has been reserved for future development should this be needed.

3.2.3.3 Terminal Design alternatives

The Terminal is located in close proximity of the Sassa Zau existing road and has been designed considering the required distance from the runway, in accordance with the ICAO standards.

Based on the information available, it is noted that DAR has considered the following to make sure that the Terminal will be designed at the highest level. Consideration include:

- aircraft capabilities and sizes;
- forecasting airport traffic;
- existing Angolan laws and regulation;
- ICAO and IATA standards.

NAIC will be considered an origin and destination airport where passengers will start and end their trip. The Terminal building will need to accommodate domestic and international flights for Phase 1. It is assumed that for Phase 2, the Passenger Terminal building will need to be constructed in a separate building to cater for the ultimate phase capacity.

Factors considered and rational for the alternative selection:

- the current design proposed for the Terminal building has been based on providing flexibility in operation allowing the processing of international and domestic flights as contact or remote Operation;
- the IATA Recommendations have been completely considered in the layout of the Terminal building. The level of service considerations used in the calculation of space required for the NAIC airport terminal have been developed keeping in mind the best functional and ergonomic standards;
- the airport plan considers some future expansion, however, as this would imply a more impacted building, the new Terminal selection has been postponed to a later stage;
- the NAIC terminal is designed to accommodate Aircraft Stands: 1 Code E (B777), 2 Code C (B737), 2 Super Puma which as of today in the existing airport is not possible;
- the Terminal Building is designed to accommodate a certain number of passengers in arrival and in departure (peak domestic: 268; peak international: 190 not to occur at the same time).

Additionally, the Level of Service guidelines has been considered in designing the NAIC terminal: the aim of the level of service considerations, is balancing the space and time requirements in order to reach optimum levels of design (see Figure 6). The optimum (level C) values were targeted in the design. This optimal level means that the design developed uses the minimum amount of space required in order to safely operate and provide an acceptable level of service to customers.

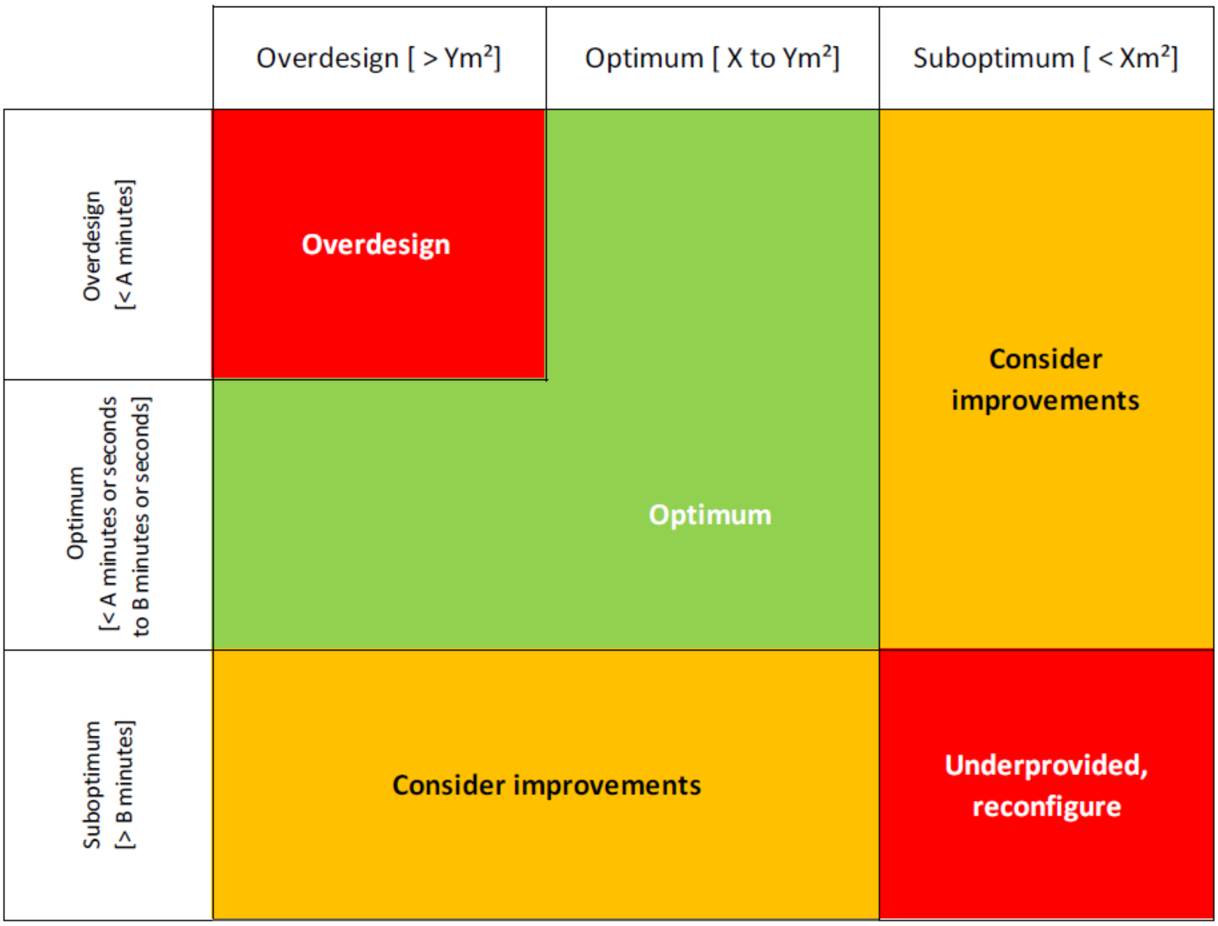

Figure 6: Level of Space-Time matrix (IATA, 2014)

The structural systems chosen for the project addressed four key elements namely:

- Safety of the building users and systems;
- Durability of the structural elements to reduce future maintenance;
- Aesthetical values with special attention to adopt structural concepts in harmony with the architectural requirements, and electromechanical needs;
- Rationalization of structural design leading to optimization of initial construction costs.

The Terminal building roof is composed of steel structure due to the large spans in these areas. Steel structure will be supported on reinforced concrete pedestals and footings.

The proposed structural system is selected to facilitate and accelerate the construction works as well as reaching optimized economical results. The structural design concept is based on functional, economical and efficient systems.

3.2.3.4 Stormwater Management System

The drainage system proposed by DAR is described in Chapter 2 (section 2.3.12.3). It is noted that during the ESIA study the design of the drainage system has been modified according to some discussion and concerns raised by the biodiversity experts. As anticipated by DAR part of the stormwater is planned to be discharged into natural flood attenuation ponds. The presence of such ponds for a long time poses some risks to the presence of avifauna as they can attract birds especially during migration period.

Originally no details were provided on ponds characteristics but along the ESIA study and after the discussion with DAR some improvement in the design have been considered as follows:

a) The ponds will be provided with physical barriers such as bird balls, wire grids, floating covers, vegetation barriers (i.e., bottom liners) or netting to prevent access to animals and birds;

b) Ponds will be located in natural land depression and will be provided of outlet pipes to drain the collected stormwater (i.e., aimed at emptying them) within maximum 48 hours after the storm.

3.2.3.5 Additional considerations

3.2.3.5.1 Use of renewable sources

Although the detailed design has not yet been completed, it is still unknown if there is a current evaluation for the use of alternative energy sources that might support, for example, in the functionary and routinary activities of the terminal. The use of solar energy might be a good improvement for lighting the internal of the buildings. Using LED lamps will maximize the efficiency and the energy saving, and internal electric transportation system (electric vehicles) might be useful to avoid using fossil fuels and emitting pollutants in the air.

The alternative of using renewable energy to cover part of the energy needs of the terminal (PV plants on the building roofs, energy battery to be used as accumulators of solar energy), as a substitute of conventional fossil fuels, could be an improvement to make the terminal more sustainable.

3.2.3.5.2 Use of electric utility vehicles

At the time of this study no information are available about the number and the characteristics of utility vehicles inside the airport. Responsibility of choosing the vehicles will be of the Project owner and the final Operator.

The use of electric utility vehicles for all the internal airport operations will provide some valuable improvement on different aspects:

- efficient transportation capable of swiftly and safely operating throughout the entire airport;
- the possibility for the same vehicles to travel both inside and outside the buildings and the hangars;
- electric vehicles can be used from within the terminal for passengers' transport or baggage delivery right up to the aircraft;
- electric vehicles will contribute to maintain uncontaminated air quality conditions and the noise reduction; and
- by adopting electric vehicles for delivery, transportation, and security operations, it is demonstrated a clear commitment to a more sustainable future and the low carbon strategy.

3.2.3.5.3 Air conditioning system

Another aspect sensitive in term of energy efficiency, is the air conditioning system. During the initial stage of the study the selection of the suitable technology was unclear. Factors taken into consideration when determining the level of air conditioning to provide, included:

- energy usage and associated emissions;
- passenger discomfort levels; and
- construction and operational costs.

A non-air-conditioned terminal building has the benefit of reduced air emissions associated with the energy generation required to power the air conditioning units, however, would lead to significant passenger discomfort in times of excessive heat. Temperatures in Cabinda are generally high, and part of the year is very humid, and exhibit wide seasonal variations.

Although the naturally ventilated option would result in lower energy usage and associated emissions and cost implications, given the high temperatures and humidity levels experienced in Cabinda and the associated passenger comfort levels, a fully air-conditioned airport design would be preferred. Also using the traditional air-conditioned system implies to make some selection on the refrigerants to be used.

In view of respecting the commitment undertaken from the Ministry of Environment of Angola to eliminate, by 2030, the use of refrigerant gases belonging to hydrochlorofluorocarbons (HCFCs), it is suggested the use of low Global Warming Potential refrigerants.

As a substitute of the R-32 refrigerant it is widely demonstrated that R-410A or R-410-C replicate the effectiveness of the former refrigerants. Below a short comparison analysis.

R-407C

Made by blending R-32, R-125, and R-134a, R-407C is a zeotropic blend, meaning its constituent substances boil at different temperatures. The substances that comprise R-407C are used to increase desirable characteristics, with R-32 contributing heat capacity, R-125 providing lower flammability, and R-134a reducing pressure.

One benefit of using R-407C at high-ambient conditions is that it operates at relatively low pressure. One drawback to note, though, is R-407C's glide of 10°F. Because R-407C is a zeotropic mixture, glide is the temperature difference between the three substances' boiling points. While ten degrees may not seem like much, it can have real impacts on other elements of a system.

This glide can negatively impact performance of a system in a high-ambient condition, due to the close approach temperature between the condensing point of the last condensing refrigerant and the airflow. Increasing the condensing temperature might not be an attractive option, due to the maximum discharge allowable for the compressor. To compensate for this, certain components like condenser coils or condenser fans need to be larger, which comes with a number of implications, most notably around cost.

R-410A

Like R407C, R-410A is a zeotropic mixture, and it's made by combining R-32 and R-125. In the case of R-410A, however, this difference between their two boiling points is fairly minimal, and the refrigerant is considered near-azeotropic. Azeotropes are mixtures with a constant boiling point, the proportions of which can't be changed by way of distillation.

R-410A is very popular for several HVAC applications, like condensers. However, at high ambient temperatures, R-410A's operating pressure is much higher than R-407C, leading some to consider other options for such applications.

R-410A is very popular for residential and commercial air conditioning in several markets, including the northern hemisphere. Middle East or tropical parts of the world seems to prefer the use of R-407C.

Table 3: Comparison Refrigerant Properties

Properties	R-407C	R-410A
Formula	R-32 (23%) – R-125 (25%) – R134a (52%)	R-32 (50%) - R-125 (50%)

Properties	R-407C	R-410A
Molecular Weight (Da)	86.2	72.6
Boiling Temperature	-43.8° C	-48.5° C
Critical Temperature	86.4° C	72.8° C
Critical Pressure, MPa	4.63	4.90
Gas Heat capacity (Kj/Kg*°C)	1.107	0.84
Liquid Heat Capacity @ 1 atm, 30°C, (Kj/Kg*°C)	1.533	1.8

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