

June 2025

**ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT FOR THE
PROPOSED EXPANSION OF CODE 3C ARUA AERODROME TO CODE
4E IN AYIVU DIVISION, ARUA CITY**

ESIA REPORT



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Declaration of independence:

We declare that we are independent consultants and have no business, financial, personal or other interest in the proposed Expansion of Arua Aerodrome Project in respect of which we were appointed to provide input into the field ESIA other than fair remuneration for work performed in connection with the activities. There are no circumstances that compromise the objectivity of our performing such work.

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ACRONYMS

AfDB	African Development Bank
AOI	Area of Influence
UCAA	Uganda Civil Aviation Authority
CAEP	Committee on Aviation Environmental Protection
CESMP	Construction Environmental and Social Management Plan
CHE	Catastrophic health expenditure
CLO	Community Liaison Officer
CMS	Conservation on Migratory Species of Wild Animals
CoP	Conference of Contracting Parties
DIT	Department for International Trade
DIZ	Direct Impact Zone
DWRM	Directorate of Water Resources Management
ECA	Export Credit Agency
EHS	Environmental, Health and Safety
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
ESHR	Environmental, social, and human rights
ESIA	Environment and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GDP	Gross Domestic Product
GHG	Greenhouse gas
GIIP	Good International Industry Practice
GKMA	Greater Arua City Metropolitan Area
GoU	Government of Uganda
HGV	Heavy goods vehicles
HIV/AIDS	Human-Immune Virus/Acquired Immuno-Deficiency Syndrome
IAP	Interested and Affected Persons
IBA	Important Bird Areas
IFC	international Finance Corporation
ILO	International Labour Organisation
LCs	Local Councils
MDA	Ministries, Agencies and Departments
MGLSD	Ministry of Gender, Labour and Social Development
MLHUD	Ministry of Lands, Housing and Urban Development
MOAS	Manuals of Aerodrome Standards
MoEMD	Ministry of Energy and Mineral Development
MoFPED	Ministry of Finance Planning and Economic Development
MoU	Memorandum of Understanding
MoWE	Ministry of Water and Environment
MoWT	Ministry of Works and Transport
MoWT	Ministry of Works & Transport
MTWA	Ministry of Tourism, Wildlife and Antiquities
NBS	National Biomass Study
NCD	Non Communicable Disease
NDP	Net Domestic Product
NDPIII	Third Uganda National Development Plan
NEA	National Environment Act

NEMA	National Environment Management Authority
NFA	National Forestry Authority
NWSC	National Water and Sewerage Corporation
O&M	Operation and Maintenance
OECD	Organisation for Economic Co-operation and Development
OHSP	Occupational Health and safety Policy
OSH	Occupational Safety and Health
PAPs	Project Affected Persons
PC	Project Coordinator
PCR	Physical Cultural Resources
PM	Particulate Matter
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSDD	Petroleum Supply Department and Distribution
PWD	people with disabilities
QBT	Qualicel Bus Terminal
RAP	Resettlement Action Plan
SARPS	Standard and Recommended Practices
SEP	Stakeholder Engagement Plan
SOP	Standards Operations Procedure
SPP	Species Protection Plan
STI	Sexually transmitted infection
TLB	Transport Licensing Board
UBOS	Uganda Bureau of Statistics
UCC	Uganda Communications Commission
UN	United Nations
UNBS	Uganda National Bureau of Standards
UNFCC	United Nations Framework Convention on Climate Change
UPF	Uganda Police Force
WHO	World Health Organization
WMP	Waste Management Plan

Executive Summary

Uganda is a landlocked country and therefore Air Transport is of strategic importance to the nation as it guarantees an alternative gateway to the rest of the world. It provides the most efficient and quickest transport means to and from Uganda. The development of a safe, efficient and reliable air transport industry is thus among Government's priority programmes.

There are approximately 57 aerodromes located evenly across Uganda (see attached list). Thirteen of these aerodromes—Arua, Gulu, Pakuba, Kasese, Kidepo, Kisoro, Mbarara, Moroto, Lira, Jinja, Masindi, Tororo, and Soroti—are owned and operated by the Uganda Civil Aviation Authority (UCAA). Entebbe International Airport, also managed by UCAA, serves as the main entry and exit point for Uganda's air traffic. Additionally, Kabaale (Hoima) Airport, currently under construction, will be designated as an entry and exit point for regional and international traffic too. The remaining domestic airports are either privately owned or managed by District Authorities and other agencies.

The Project in Perspective

Air transport, which is crucial for Uganda's trade and tourism, needs strengthening. Uganda's air transport sector has made notable strides, particularly with the ongoing expansion and rehabilitation of Entebbe International Airport (EIA), which has significantly increased commercial and domestic aircraft movements and boosted international passenger traffic. Additionally, the near completion (98%) of Kabalega International Airport in Hoima 153 is set to bolster the tourism, oil, and gas sectors

Internal connectivity via air transport is limited. Furthermore, the existing 13 publicly operated aerodromes are in dire condition. This is why the National Development Plan IV, 2025/26 – 2029/30 prioritizes development of Arua Airport. This is because the runway is short, the surface is gravel and/or grass, and cannot handle the growing passenger and air traffic. The Arua Aerodrome is Code 3C and the government intends it to be developed to code 4E to be able to operate as an International Airport.

Statistics show that Uganda's trade and tourism sectors will continue to grow strongly in the foreseeable future. The growth in the two sectors will have a bigger multiplier effect on Uganda's aviation industry. Transport infrastructure and services are essential in the attainment of global, regional, and national development aspirations. Agenda 2030 (SDG9), Africa Agenda 2063 (Goal 2.10), and the EAC Vision 2050 (infrastructure pillar) emphasise the need to develop modern, fast, and affordable infrastructure that is essential for the economic development and wellbeing of the population. This programme draws from the Uganda Vision 2040, which aspires to have a highly interconnected transport network and services that optimise the use of rail, road, water, and air transport modes.

Therefore, the program of upgrading and modernization of infrastructure at Arua Airport is in line with the broader objectives under Program 13 of NDP IV which aims to a) Increased volume of international air passenger traffic from 1,932,094 passengers in FY2023/34 to 3,011,942; b) Increased volume of domestic passenger traffic from 23,019 passengers in FY2023/34 to 45,361 passengers; c) Increased volume of international air cargo traffic (loaded) from 40,911 tons in FY2023/24 to 49,710 tons.

Specifically, expansion and rehabilitation of Arua Airport is required to meet the growing traffic at the Airport, provide better services to passengers, airlines and other users of the airport; support

the operations of bigger aircrafts; enhance the safety and security requirements.

Location of the Project Area

The proposed project is located seven cells of Kijoro, Amvua, Ombavu, Ekali, Mucera, Dadau, Nyaza A and Nyaza B Cell in Ayivu Division, Arua City. The proposed Aerodrome is 449km from Arua City through Kamapala-Gulu Highway, Karuma-Arua Highway, Kaya Highway (Arua-Maracha-Koboko Road), and about 3km from Arua City through Adjumani Road to Kaya Highway. Below are the GPS Coordinates for the proposed site;

Table 1: GPS Coordinates for the proposed site

S/N	Eastings	Northings	Zone	Elevation (M)
01	268086	336357	36N	1207
02	267838	336343	36N	1207
03	267842	336414	36N	1208
04	267805	336428	36N	1207
05	267816	336474	36N	1207
06	267756	336515	36N	1209
07	267869	337024	36N	1207
08	267744	337851	36N	1207
09	267735	337987	36N	1207
10	267611	338165	36N	1207
11	267271	340531	36N	1206
12	267526	340573	36N	1207
13	267662	340195	36N	1207
14	267973	338136	36N	1207
15	268236	337915	36N	1207
16	268331	337179	36N	1207
17	268081	336865	36N	1207
18	268055	336758	36N	1207

Description of the Project

The proposed development will majorly focus on expanding and upgrading of the existing Arua Aerodrome from Code 3C to Code 4E Airport capable of handling a Boeing 777-300ER. The scope of work will include the following areas;

- Airside facilities;
- Landside facilities;
- Utilities;
- Air Navigation Services (ANS) Infrastructure;
- Support facilities;
- Airport Security;
- Operational Readiness and Airport Transfer (ORAT); and
- Project Design, Management and Supervision.

Need for an Environmental and Social Impact Assessment (ESIA)

Schedule 5 of the National Environment Act Cap 181 of 2019 lists projects to be considered for Environmental and Social Impact Assessment. The project falls under Section (j) Air transport facilities including; (i) Construction, expansion or upgrade of aerodromes, airports or airfields, as a project that require mandatory ESIA to be conducted before project implementation.

Implementation of the Project is likely to generate a number of environmental and social impacts that require an ESIA study to identify negative impacts and propose their mitigation measures thereof in line with Uganda national laws and regulations, and international best practices.

In addition, the project may trigger key Environment and Social (E&S) risks such as noise and air pollution, health and safety risks associated with construction activities, labour related risks, disruption of traffic, risks associated to auxiliary facilities etc. Additionally, the presence of Refugee communities in the project area presents a social concern for the vulnerable groups that should be addressed by the project. Also, according to the AfDB Integrated Safeguard System, the project is also classified as Category 1 due to its high E&S risks in the project area and hence a full scale ESIA needed for the project.

Objective, Scope and methodology of the ESIA

The general objective of the ESIA is to identify and assess the potential environmental and social impacts of the Project with a view to eliminate/minimize the negative impacts.

The scope of the ESIA was guided by provisions in the first schedule of the ESIA regulations for Uganda and the approved Terms of Reference for the study, as well as international guidelines such as the African Development Bank's Environmental and Social Operational Safeguards.

A number of methods were applied during the ESIA. These included literature review, stakeholder consultations, field baseline surveys and impact analysis. Literature reviewed included project design reports, Arua City physical development Plans, and Civil Aviation Aerodrome Regulations, 2022 and other international guidelines on ESIA relating to construction of Airports.

Field baseline surveys covered the physical environment (hydrology, geology and soils, noise and air quality), the biological environment (fauna and flora), the social-economic environment and the cultural environment. The methods used for the field baseline surveys varied with discipline.

Stakeholder consultations were undertaken at community, division/sub-county, district and national level through meetings, questionnaire-guided interviews, and Focus Group discussion with selected stakeholders. The methods used to identify relevant stakeholders included: purposive selection, brainstorming, snow-ball method and use of previous projects conducted in the same area.

The potential positive and negative environmental and social impacts of the Project were identified, evaluated and their significance determined. Assessment of the impact significance was based on a combination of the value of the affected environmental component and the magnitude of the potential impact.

Policy, Legal and Institutional Framework

A review of policies, laws and institutional framework was carried out. The national policy, legal, regulatory and institutional framework pertinent to the Project and to which the developer should comply, as well as international policies, guidelines and standards are discussed. Relevant international agreements and conventions to which Uganda is a signatory are documented.

Stakeholder Consultation

In compliance with national and international guidelines on requirements for local stakeholder engagement, during ESIA process the following were undertaken:

Formal consultation was largely employed for stakeholders or participants and institutions that have some form of rights, interest and roles to play/protect within the Project. Formal meetings were held with the Airline staff, Arua UUCAA Staffs, Security (AVIPOL, UPDF), Aviation Fuel Supplier, Technical and Political Officers of Arua City, LC 1 leadership of the seven (7) villages, among others.

Informal consultation was largely employed for stakeholders or participants and institutions that are directly affected either by the positive or negative impact of the Project. This was categorised informal consultation based on the approach or nature of the consultation which was restricted to a few individuals in certain organisations to manage expectations among the wider group of people they represent. The stakeholders or participants identified and contacted included:

- i. Boda-boda (Motorcycle) representatives; and
- ii. Youth Organizations.

In addition to the above, ongoing discussion sessions and meetings were undertaken between the ESIA consultant and UUCAA and its associated companies relating to project planning and design of the project subcomponents, including formal workshops to discuss project options and informal discussion sessions.

Grievance Redress Mechanism

A Project Grievance Redress Mechanism (GRM) has been developed as described in the Grievance Management Plan to facilitate resolution of affected persons' concerns and complaints, about the Project's environmental and social performance. The GRM includes procedures for receiving grievances, recording/documenting key information, evaluating and responding to complainants in a timely, open and effective manner.

The Mechanism consists of the stages Receipt, Address / Investigation, Resolution, Communication and Follow-up. It will be managed by internal resources in UCAA.

Potential Environmental and Social Impacts

Table 2: Summary of Environmental and Social Impacts anticipated

Impacts to the Biophysical Environment	Impacts to the Socio-Economic Environment
During pre-construction and construction	
❖ Noise generation (sources and levels) and vibration from construction vehicles and equipment ❖ Air quality and climate impacts (emission sources and constituents) from construction vehicles and equipment ❖ Erosion, degradation and contamination of soil resources ❖ Impacts on water quality especially underground water due to excavations and logging of contaminated storm water	❖ Economic opportunities from demand for goods and services and improvement in income distribution ❖ Direct and indirect employment opportunities ❖ Impacts on community health/wellbeing, safety and security, including construction traffic/works, social misdemeanours, nuisance impacts (dust, noise), etc. ❖ Economic displacement (temporary and permanent) and impacts on existing land uses (e.g., access) ❖ Impacts on infrastructure including water, sewer, electricity, telephone, etc.

❖ Impacts on drainage and flood risk ❖ Loss of vegetation (trees and shrubs) along existing Airports, disturbance to and potential mortality of wildlife (e.g., birds) ❖ Use of materials such as borrow pits and quarries ❖ Waste generation and disposal including toxic/hazardous materials	❖ Indirect impacts on cultural heritage resources ❖ Risks associated with labour management (including gender impacts) and Occupational health and safety (OHS)
On completion of Project	
❖ Operational noise pollution and vibration ❖ Reduction in dust emissions ❖ Operational gaseous emissions (possible reduction locally due to improved traffic circulation as well as increases due to potential traffic increases) ❖ Waste management ❖ Impacts on water quality from drainage ❖ Impacts flood risk	❖ Improved traffic circulation and Airport access ❖ Positive impacts on GDP due to improved circulation ❖ Indirect economic impacts such as increases in land prices ❖ Reduced vehicle wear and tear and reduced maintenance costs ❖ Improvements to community health, safety and security (including general wellbeing) through reduced transport times as a result of improved traffic flow and provision of pedestrian pathways ❖ Improved Airports could attract speeding motorists, which could increase Airport accidents and compromise safety to pedestrians (especially children and the elderly).

Environmental and Social Management Plan

The Environmental and Social Management Plan (ESMP) included in this ESIA includes the proposed mitigation measures, environmental and social monitoring and reporting, ESMP updating, roles and responsibilities, and capacity building. The budget estimate for implementing the ESMP shall be provided for in the Bill of Quantities proposed for the project.

Mitigation Measures

The project scope covers only the existing Arua Aerodrome land of 78.5 acres, plus the additional secured 73.6Ha of land. Since the Aerodrome already exists and it is just an expansion especially within the secured land, there will not be much interference with the ecosystem; extensive use of in-situ recycling and otherwise haulage of any new materials only from existing and approved borrow pits and will avoid interference with any ecosystem. Local sub-contractors to be engaged on the project are already well established with offices, workshops, yards, camps and storage areas which reduces or avoids environmental and social impacts of establishment for the project. Also, ESMPs will be developed for this project to guide the mitigation measures for any issues that might arise during the project phases of planning, construction and operation.

Environmental and Social Monitoring Plan

The Environmental and Social Monitoring Plan includes compliance monitoring targets to reduce the predicted impacts. The Project Team, NEMA and the financier(s) (AfDB), shall undertake compliance monitoring as appropriate.

Conclusion

The Project will result in significant positive socio-economic benefits for the Transport sector and specifically the Aviation sector, Arua City and the country at large. Though there are potential negative environmental and social impacts, they can be minimized or eliminated through good designs and the appropriate application of the proposed mitigation measures (Section 8 of this ESIA Report).

Therefore, implementation of the Project will result into local level development that translates into the macro level achievements, thus attaining targets described in the Fourth National Development Plan (NDP 1V).

CHAPTER ONE:

1.0 OVERVIEW

The National Development Plan IV, 2025/26 – 2029/30 prioritizes development of Arua Airport. This is because the runway is short, the surface is gravel and/or grass, and cannot handle the growing passenger and air traffic.

Statistics show that Uganda's trade and tourism sectors will continue to grow strongly in the foreseeable future. The growth in the two sectors will have a bigger multiplier effect on Uganda's aviation industry.

Therefore, a program of upgrading and modernization of infrastructure at Arua Airport is required to meet the growing traffic and provide better services to passengers, airlines and other users of the airports; support the operations of bigger aircrafts; enhance the safety and security requirements.

The feasibility study was conducted to enable to establish high level project cost estimates and most feasible options of upgrading the Airport. The feasibility study is also a requirement by the Development Committee (DC) Guidelines for approval and review of Public Investment Plan (PIP).

The government has been in discussion with AfDB team, who expressed readiness and willingness to finance the project. However, the African Development Bank's Environmental and Social Operational Safeguards and the National Environment Management Act Cap 181 of 2019 (NEA) requires that projects of such magnitude to be subjected to Environment and Social Impact Assessment (ESIA).

1.1 Project Drivers

Arua airport is strategically located in the tri-state border of Uganda, DRC and Sudan, and is one of the busiest airports in the country. The airport serves as a hub for passengers from Southern Sudan and DRC connecting through Entebbe International Airport. It is gazetted as an International Entry/Exit point by UCAA.

Currently, the runway is of length 1800m by 30m width, taxiways & apron are of murram surface. A new terminal building with a capacity of 200Pax was constructed, and a total of 73.6Ha of land were recently acquired for future development.

1.2 Strategic Project Fit

Focus Area: Competitiveness

Interventions: To develop a seamless, safe, inclusive and sustainable multi-modal transport system

Details: The National Development Plan IV, 2025/26 – 2029/30 prioritizes development of Arua Airport. This is because the runway is short, the surface is gravel and/or grass, and cannot handle the growing passenger and air traffic

Therefore, the program of upgrading and modernization of infrastructure at Arua Airport is in line

with the broader objectives under Program 13 of NDP IV which aims to a) Increased volume of international air passenger traffic from 1,932,094 passengers in FY2023/34 to 3,011,942; b) Increased volume of domestic passenger traffic from 23,019 passengers in FY2023/34 to 45,361 passengers; c) Increased volume of international air cargo traffic (loaded) from 40,911 tons in FY2023/24 to 49,710 tons.

Specifically, expansion and rehabilitation of Arua Airport is required to meet the growing traffic at the Airport, provide better services to passengers, airlines and other users of the airport; support the operations of bigger aircrafts; enhance the safety and security requirements.

1.3 Project Background

The National Development Plan IV, 2025/26 – 2029/30 prioritizes development of Arua Airport. This is because the runway is short, the surface is gravel and/or grass, and cannot handle the growing passenger and air traffic. Arua airport is strategically located in the tri-state border of Uganda, DRC and Sudan, and is one of the busiest airports in the country. The airport serves as a hub for passengers from Southern Sudan and DRC connecting through Entebbe International Airport. It is gazetted as an International Entry/Exit point by UCAA.

Currently, the runway is of length 1800m by 30m width, taxiways & apron are of murram surface. A new terminal building with a capacity of 200Pax was constructed, and a total of 73.6Ha of land were recently acquired for future development. The program of upgrading and modernization of infrastructure at Arua airport is required to meet the growing traffic and provide better services to passengers, airlines and other users of the airports; support the operations of bigger aircrafts; enhance the safety and security requirements.

The proposed development will majorly focus on expanding and upgrading of the existing Arua Aerodrome from Code 3C to Code 4E Airport capable of handling a Boeing 777-300ER. The scope of work will include the following areas;

- a) Airside facilities;
- b) Landside facilities;
- c) Utilities;
- d) Air Navigation Services (ANS) Infrastructure;
- e) Support facilities;
- f) Airport Security;
- g) Operational Readiness and Airport Transfer (ORAT);
- h) Project Design, Management and Supervision.

The Project Description is based on the Master Plan documentation developed by Airport Design Management: Airport Consulting Vienna (ACV) (Version V6-00) dated May 2017. More specific project information on the various elements and Associated Facilities is included below.

- i. Passenger Terminal
- ii. General Aviation Terminal
- iii. Air Navigation Services (ANS) Infrastructure
- iv. Runway
- v. Airport Support Facility Requirements
- vi. Maintenance Repair and Overhaul
- vii. Rescue and Firefighting Services
- viii. Cargo

- ix. Flight Catering
- x. Fuel Farm
- xi. Ground Service Equipment
- xii. Taxiways
- xiii. Aprons
- xiv. Wastewater and Waste Management
- xv. Permanent Electricity and Water Supply

1.4 Objectives of the ESIA

1.4.1 General Objective

The general objective of the ESIA was to identify and assess the potential environmental and social impacts of the proposed project with a view of eliminating/minimising the negative impacts and proposing measures to enhance the likely positive impacts.

1.4.2 Specific Objectives

The specific objectives of the ESIA are as stated below:

- i. To examine the existing environmental and social baseline conditions of the proposed project area;
- ii. To obtain stakeholders views on the proposed project;
- iii. To identify the potential significant environmental and social impacts of the proposed project;
- iv. To determine and analyse the level of significance of the potential significant environmental and social impacts of the proposed project;
- v. To recommend measures that can be taken to avoid, offset or reduce the potential adverse environmental and social impacts of the proposed project;
- vi. To recommend measures that can be undertaken to enhance the positive potential environmental and social impacts of the proposed project;
- vii. To describe and analyse any project alternatives that have been considered; and
- viii. To determine if the proposed project conforms to existing policies, plans, laws and regulations.

1.4.3. Justification

Schedule 5 of the National Environment Act Cap 181 of 2019 lists projects to be considered for Environmental and Social Impact Assessment. This project falls under Section (j) Air transport facilities including; (i) Construction, expansion or upgrade of aerodromes, airports or airfields, as a project that require mandatory ESIA to be conducted before project implementation. Implementation of the Project is likely to generate a number of environmental and social impacts that require an ESIA study to identify negative impacts and propose their mitigation measures thereof in line with Uganda national laws and regulations, the AfDB Integrated Safeguard System and other international best practices.

1.5 Approaches to ESIA Preparation

This report has been prepared based on;

- i. Identification and review of the applicable literature such as the national and international environmental and social regulatory and institutional framework, national statistics reports, among others;
- ii. Undertaking physical, biological and social economic field studies; and

iii. Consultations with the identified stakeholders to obtain their input into the ESIA study.

1.6 ESIA Process

The ESIA followed the ESIA process as presented in the Guidelines for Environmental Impact Assessment in Uganda. Reference was also made to the ESIA process for projects in Uganda presented in Figure 1.1 below.

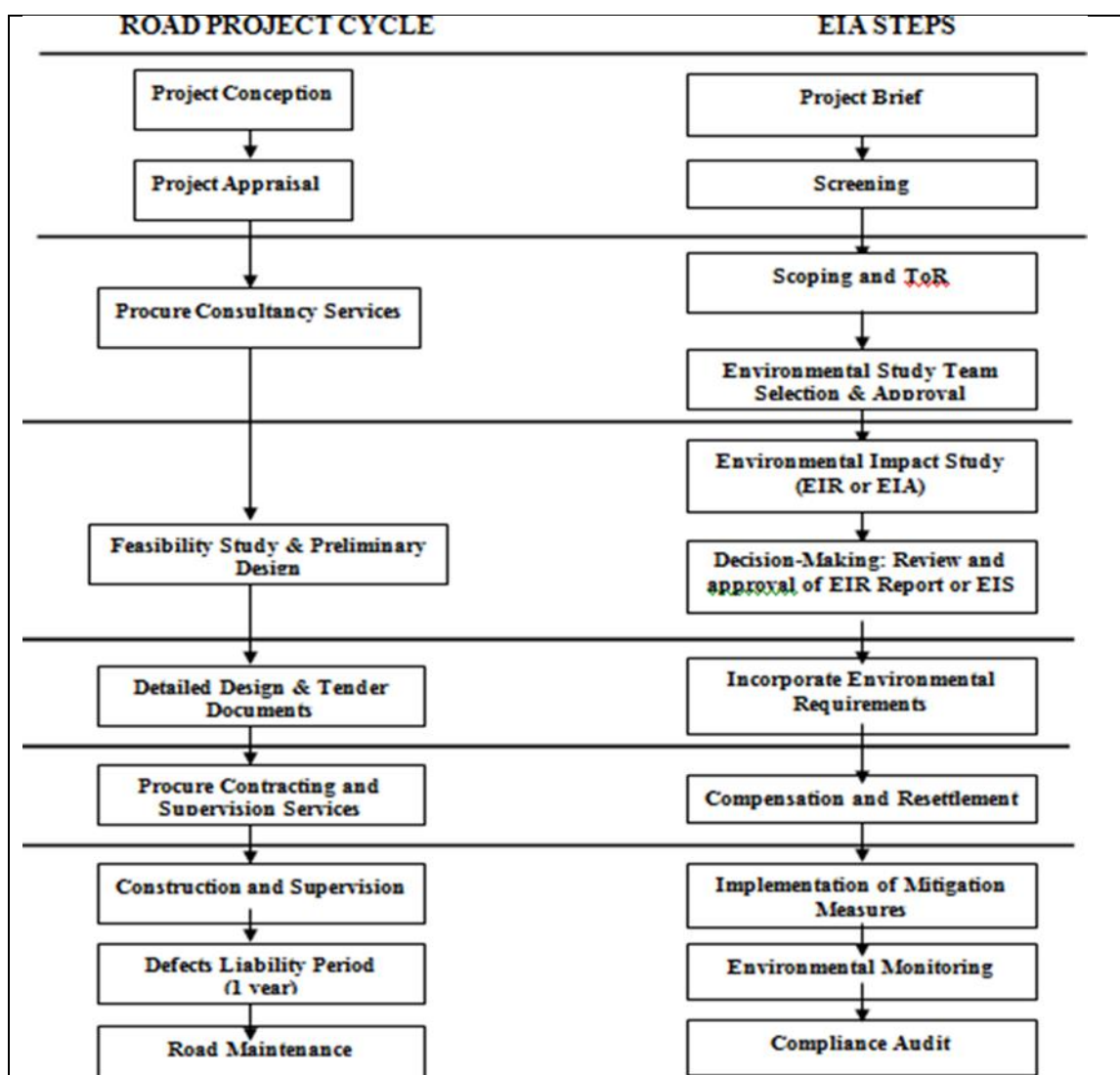


Figure 1: The ESIA process for the projects in Uganda. Source: EIA Guidelines for road projects in Uganda (MoWT, 2008)

As such the ESIA study commenced with a scoping exercise involving document review, field visits and stakeholder consultations to determine the scope of work. The scoping exercise informed the formulation of the Terms of Reference for the ESIA of the proposed project that were submitted to National Environment Management Authority (NEMA) for review and were approved by the

same authority. The approval letter for the Scoping and Terms of Reference report from NEMA that have directed the ESIA are appended to this report under Appendix A .

1.7 Project Proponents

The Project proponents are described in the Table 3 below.

Table 3: Project Proponents

Project Proponents	Roles
Uganda Civil Aviation Authority (UCAA), Kampala	Project Owner
Ministry of Works and Transport (MoWT)	Overseer of the Project Owner
African Development Bank (AfDB)	Lender

Area of Influence: This is defined as the area that will be affected by the project development. The zones in this area have been defined based on the intensity of the impacts; hence, Direct Impact Area (DIA) and Indirect Impact Area (INDIA). The DIA is an area that will have a direct impact from the project activities. The key DIA areas include: airport site, the camp site (temporary- not identified), the access roads, soil disposal sites (not yet identified), wetland land areas /valleys that are likely to receive storm water from worksites/ airport site during operation, etc.

The INDIA refers to areas that are surrounding the project area that may not be directly affected by the project but may be influenced by human activities anticipated after the project has commenced. These areas include: the local communities surrounding the airport site, local communities along the access road on either side, people who may use roads in the project area and other resources.

CHAPTER TWO

2.0 GENERAL DESCRIPTION OF THE PROPOSED DEVELOPMENT

Arua Airport is currently having a runway of length - 1800m by 30m width, apron of murram surface with two tarmacked taxiways with only one that is operational. A new terminal building with a capacity of 200Pax was constructed, and a total of 73.6Ha of land were recently acquired for future development. The program of upgrading and modernization of Arua Airport is required to meet the growing traffic and provide better services to passengers, airlines and other users of the airports; support the operations of bigger aircrafts; enhance the safety and security requirements

The feasibility study was conducted to enable establish high level project cost estimates and most feasible options of upgrading the Airport. The feasibility study is also a requirement by the Development Committee (DC) Guidelines for approval and review of Public Investment Plan (PIP).

The government has discussed with AfDB team, who expressed readiness and willingness to finance the project. However, the African Development Bank's Environmental and Social Operational Safeguards and the National Environment Management Act Cap 181 of 2019 (NEA) requires that projects of such magnitude to be subjected to Environment and Social Impact Assessment (ESIA). Also, according to the AfDB Integrated Safeguard System, the project is also classified as Category 1 due to its high E&S risks in the project area.

2.1 Project Justification/Need for this project

Arua airport is strategically located in the tri-state border of Uganda, DRC and Sudan, and is one of the busiest airports in the country. The airport serves as a hub for passengers from Southern Sudan and DRC connecting through Entebbe International Airport. It is gazetted as an International Entry/Exit point by UCAA.

However, the Aerodrome is currently operating at Code 3C with a length 1800m by 30m width, apron is of murram surface and the two taxiways which were recently tarmacked but with only one operating by the time of assessment. A new terminal building with a capacity of 200Pax was constructed which is still insufficient to handle the current operations hence a total of 73.6Ha of land were recently acquired for future development specifically to Code 4E Airport.



Figure 2: The recently constructed 200Pax terminal building



Figure 3: The currently existing 1800 x 30m murrum runway



Figure 4: The only existing fire shade moreover outside the Aerodrome



Figure 5: Some of the most unfenced neighbourhoods of the Aerodrome



Figure 6: Some of the most evident scoring of the runway due to rampant erosion due to drainage challenges at the Aerodrome



Figure 7: The only operating tarmacked taxiway



Figure 8: The temporary aviation fuel station



Figure 9: Part of the newly acquired land to support the proposed expansion

2.2 Airport operation and facilities

Arua airport is operated by Uganda Civil Aviation Authority (UCAA), which is an Authority under the Ministry of Works and Transport (MoWT).

2.2.1 Current structures and facilities at Arua airport

There is a building housing immigration office for the Airport, a canteen meant for staff and other visitors, garage for the fire truck, fire house, staff quarters latrine facilities and containers working as rooms for fuel storage.

By the time of the field visit, there was a newly constructed terminal building. There was also an apron under construction which is big enough to accommodate fifteen Caravan 208 jet or three Boeings. Construction was being undertaken by a private company called EFRA Construction Company. The current runway stretched to a length of about 2 km though not paved.





Figure 10: Airfield operation and facilities

2.2.2 Fire department

The airport has a firefighting facility/department under category 5 and currently has six fire personnel. There is a fire truck (Plate 6) kept under a designated garage, which is on standby in case of any fire risk. The truck is serviced every after three months and never leaves the airfield.

There are also other firefighting equipment like fire extinguishers (Plate 6), which are also regularly serviced and the dates when it was serviced and dates when the service expire are indicated. The fire department is also fully stocked with first aid equipment and medicine ready for use in case of an accident.



Figure 11: Firefighting truck on standby as the plane lands (top right to bottom left) and one of the fire extinguishers at the immigration office (bottom right)

2.2.3 Security

The airport security is has 3 different security teams including the Uganda People's Defence Forces (UPDF), Uganda Police Force and the Aviation Police. However, the airport is manned by the aviation

Police (AVPOL). There are thirteen Aviation Police officers with accommodation at the airfield. They check every person who enters the facility plus guarding the planes while in the apron. The aviation police currently have one personnel who checks passengers as they come for checking in before boarding planes and also ensures that whoever accesses the facility for any activity apart from boarding the plane is availed with an access permit valid for one day.

The airfield currently does not have a fence on its largest area. The fence was vandalized by people who were protesting the expansion of the airfield in fear of their land being taken. With no fence, animals like cows can be seen grazing within close proximity to the runway at the airfield which puts the lives of plane users at risk. However, the airfield personnel have been sensitizing cattle owners and also chase the cows out of the airfield.

2.2.4 Flights in and out of Arua airport

There are scheduled and non-scheduled flights that fly in and out of Arua airfield. Scheduled flights are currently operated by Eagle Air which operates the route from Entebbe to Arua four times a week, i.e. Monday, Tuesday, Wednesday and Saturday. Non-scheduled flights are done by mostly military and missionary planes which can land at any one time after contacting the airfield officials of their intended landing. Among the operators there is: Mission Aviation Fellowship (MAF), Uganda People's Defence Forces (UPDF) and United Nations (UN), these majorly being cargo planes; American International Mission (AIM)-which operates in Sudan and Central African Republic with a head office based in Kenya.

2.2.5 Water supply

The airfield is connected to the National Water and Sewerage Corporation (NWSC) mains supply pipeline; although the water supply is unreliable as it is usually on and off most of the times. However, there is a water tank installed which keeps water that can be used for airfield operations for about two weeks.

2.2.6 Waste management

Waste management practices in place at the facility are use of dust bins which are used to collect solid waste generated by passengers, workers at the airfield and other visitors. The collected waste is burnt at a nearby place outside the airfield. The practice of burning waste pollutes the environment and should be stopped. Arua Municipal Council (AMC) has a modern waste composting site, constructed as part of the World Bank funded Clean Development Mechanism (CDM) project. Therefore, the solid waste from the airfield should be transported to this facility and treated with other wastes from Arua town.

Wastewater from the toilets is collected in a septic tank, this is emptied by a pit emptier truck upon filling. The wastewater is then taken to a designated area for disposal. Currently, there is no centralised wastewater treatment facility in Arua Town. As a result contents from the septic tank are disposed on private land after an agreement has been reached by the truck owner and land owner. However, a wastewater treatment facility is being constructed in AMC using funding from the World Bank. Upon completion of the construction of this facility, the wastewater exhausted by emptying trucks can be delivered and treated in the AMC wastewater treatment facility. Furthermore, depending on the feasibility, the airfield sanitation system can be connected to the main sewer line discharging into the AMC wastewater treatment plant; or a dedicated wastewater facility constructed for the airfield.

2.2.7 Electricity supply

The airfield has electricity connection from the national grid from Nyagak mini-hydropower dam although the power is unreliable. They do not have a backup generator. However, there is a solar

system (solar panels and invertors) that is used specifically to power the radio control at the airfield. The longer term electrification of West Nile and other parts of Northern Uganda is to connect them to the main grid, which will be extended in the area upon completion of the construction of the Karuma Hydropower project. Therefore, the problem of electricity load shedding will soon be solved.

2.2.8 Transport

The major mode of transport is by road within the district and the areas close to the airfield. The road from Arua town to the airfield (Arua-Yumbe Road) has been repaired and is in good condition. There is also air transport from Arua airfield to other parts of Uganda and neighbouring countries, such as South Sudan, Central African Republic (CAR) and Democratic Republic of the Congo.

2.2.9 Telecommunications

There is accessibility to different telecommunications service providers such as Mobile Telephone Network (MTN), Uganda Telecom Network, Airtel, Africell and radio broadcasts (national and local).

8.2.10 Health facilities

Workers at the airfield can access health services from any medical facility in and outside Arua Municipal Council. After treatment, a worker gets an invoice that he/she can use to claim a refund from Civil Aviation Authority.

2.3 Proposed Project Upgrading Technical Description

The proposed development will majorly focus on expanding and upgrading of the existing Arua Aerodrome from Code 3C to Code 4E Airport capable of handling a Boeing 777-300ER. The scope of work will include the following areas;

- a) Airside facilities;
- b) Landside facilities;
- c) Utilities;
- d) Air Navigation Services (ANS) Infrastructure;
- e) Support facilities;
- f) Airport Security;
- g) Operational Readiness and Airport Transfer (ORAT); and
- h) Project Design, Management and Supervision.

The Project Description is based on Code 4E Airport capable of handling a Boeing 777-300ER. More specific project information on the various elements and Associated Facilities is included below.

- i. Passenger Terminal
- ii. General Aviation Terminal
- iii. Air Navigation Services (ANS) Infrastructure
- iv. Runway
- v. Airport Support Facility Requirements
- vi. Maintenance Repair and Overhaul
- vii. Rescue and Firefighting Services
- viii. Cargo
- ix. Flight Catering
- x. Fuel Farm
- xi. Ground Service Equipment
- xii. Taxiways
- xiii. Aprons
- xiv. Wastewater and Waste Management
- xv. Permanent Electricity and Water Supply

2.3.1 Passenger Terminal

The Passenger Terminal will be the main terminal for the airport and will comprise check-in counters, security check points, gates, passenger boarding bridges, immigration counters for arrival and emigration counters for departure. Some area of the terminal will be reserved for retail and commercial activities (shops, lounges, offices, etc.).

2.3.1 General Aviation Terminal

The General Aviation (GA) Terminal will be a one level building with elevated sections for administrative offices and technical rooms in the centre.

2.3.3 Air Navigation Services (ANS) Infrastructure

For aircraft with an ICAO code of 4E, the required air navigation systems generally include those that support operations in high-complexity airspace and with larger aircraft. This will typically involve systems that enable precision approaches, like Instrument Landing Systems (ILS) and Performance-Based Navigation (PBN) with Required Navigation Performance (RNP) capabilities.

Key Navigation Systems and Concepts:

(a) ILS (Instrument Landing System):

This system will provide guidance for both lateral and vertical alignment during approach and landing. It includes components like the localizer, glide slope, and marker beacons.

(b) PBN (Performance-Based Navigation):

PBN will allow for more efficient and flexible flight paths using on-board navigation systems. It relies on precise navigation capabilities, often incorporating GNSS (Global Navigation Satellite System) and other sensor inputs.

(c) RNP (Required Navigation Performance):

A component of PBN, RNP will specify the accuracy and integrity of navigation required for a particular operation. For example, RNP 4 requires two independent long-range navigation systems and GNSS.

(d) GNSS (Global Navigation Satellite System):

This is a general term for satellite-based navigation systems like GPS, GLONASS, and Galileo. GNSS will be a key component of PBN and RNP systems.

(e) ASBU (Aviation System Block Upgrades):

ICAO's ASBU framework provides a structured approach to implementing new technologies and procedures, including those related to navigation.

Operational Considerations for the proposed Expansion of Arua Aerodrome (Code 4E Aircraft)

- Runway Length and Width:

The proposed Code 4E Arua Aerodrome will be in position to accommodate aircrafts with a reference field length of 1800m and above and a wingspan up to 65m.

- Approach Procedures:

ILS or other precision approach procedures are essential for safe and efficient operations.

- Navigation Accuracy:

High accuracy navigation, especially during approaches and departures, is crucial. This will be achieved through PBN and RNP specifications.

In essence, the proposed Code 4E Arua Aerodrome operations will rely on a combination of robust ground-based navigation aids (like ILS) and sophisticated onboard systems (PBN, RNP, GNSS) to ensure safe and efficient navigation in complex airspace.

2.3.4 Runway

The runway alignment for the proposed Code 4E at Arua Airport has been determined based on the consideration of prevailing wind conditions, regional airspace, local obstacles and site geometry. Runway operational modes and assignments have been assessed based on airspace and runway capacity requirements and route mix. This informs the overall operational concept, passenger terminal location and airline assignment assumptions. Taxiway layouts have been developed to support proposed runway operational modes and optimise airfield efficiency, minimising taxi times and delays. The runway will be 3,750 m long and 45 m wide. At the end of the runway, a stop way of 60m will be installed. The runway shoulders will be 7.5 m wide and a Runway End Safety Area (RESA) of 180 m length and 160 m width will be provided at the end of the runway. The runway will also be protected by a strip of 140m from the centerline on either side. The design of these movement areas will be in compliance with the Civil Aviation (Aerodromes) Regulations 2022 and ICAO manuals such as the aerodrome Design Manual – DOC 9157, Airport Planning Manual – DOC 9184 and others.

2.3.5 Airport Support Facility Requirements

Support areas will be required to accommodate a wide range of facilities, many of which likely to be planned and delivered by third parties (such as aircraft maintenance, rescue and firefighting services, cargo, and catering facilities). The Master Plan for the support areas will provide a framework for the structured development of these areas, coordinated with the wider airport development plan. This will be refined over the concession period to suit the demands from third party operators.

2.3.6 Maintenance Repair and Overhaul

A Maintenance Repair and Overhaul facility will be constructed to service aircraft.

2.3.6 Rescue and Firefighting Services

The Rescue and Firefighting Services (RFFS) facilities will include:

- A Fire Station, including offices, garages and other complementary functional areas;
- A service bay for parking and maintenance of the minimum required three vehicles.
- A RFFS training area; and
- An additional water supply in case of emergency.
- The building allocated for the firefighting services will be located next to the main Terminal Building. The edifice will accommodate the firefighting offices and facilities, and the service
- Vehicles. A side service bay is also foreseen, for vehicle parking and maintenance.

2.3.7 Cargo

The cargo-facility will include the following main areas:

- Cargo Terminal, including customs, import and export, manipulation areas, storage for
- refrigerated goods, hazardous materials, animals, etc.; and
- Landside parking (trucks and employees).

2.3.8 Flight Catering

The catering facilities will consist of a facility where meals are prepared for inflight use. The building will be in the service area, within the general terminal building, and include the following areas:

- Kitchen;
- Refrigeration areas;
- Storage areas; and
- Wash areas.

The facility will be able to handle more than 200 meals a day. An employee canteen may be integrated within the building to serve the terminal and other airport staff.

2.3.9 Fuel Farm

The Fuel Farm will be located at the eastern part of the airport, preferably leased out to a private entity. The main area will include the following components;

- Landside access;
- Truck manoeuvring area;
- Storage tanks and surrounding security area;
- Technical facilities (e.g. pump stations, etc.);
- Airside manoeuvring area; and
- Airside fuelling station.

2.3.10 Ground Service Equipment

The Ground Service Equipment (GSE) facility will be located in the service area. On the western side of the terminal, a dedicated GSE Fuelling Station is foreseen. The GSE services will include the following related activities:

- Passenger services;
- Load control;
- Ramp handling; and
- Aircraft servicing.

The GSE facility will also include servicing and repair of all vehicles and equipment used for the servicing of aircraft which consist of a number of special vehicles that are not roadworthy, i.e. are not allowed to use public roads and can therefore not be serviced outside the confined airport area unless trucked to and from the garage.

The main components of vehicle and GSE maintenance are:

- Vehicle and GSE parking and staging areas, both open and covered (shelters);
- Vehicle and GSE maintenance workshops, complete with special bays for equipment cleaning and painting;
- Large storage facility for spare parts and consumables (mainly oil, hydraulic fluid and grease); and
- Vehicle fuel station.

Other Airport Maintenance Support Facilities

The facilities will include the following main areas:

- Open staging areas;
- Vehicle shelters and garages;
- Aircraft marshalling;
- Workshops;
- Stores; and
- Administration offices.

2.3.11 Taxiways

The taxiways for the proposed Code 4E Arua Aerodrome will be designed to accommodate aircraft with a wingspan up to 65 meters and a reference field length of more than 1800 meters. This will include considerations for taxiway width, separation distances from other taxiways or objects, and the design of runway turn pads as detailed below;

Wingspan and Code for the proposed Code 4E Arua Aerodrome:

- The proposed Code 4E Arua Aerodrome will be in position to handle aircraft with a wingspan up to 65 meters.
- This includes aircraft like the Boeing 777 series and the Airbus A330 family.

Taxiway Design Considerations for the Proposed Code 4E Arua Aerodrome:

- **Width:** Taxiway width will be critical factor for safe aircraft operation. For the Proposed Code 4E Arua Aerodrome, taxiways will need to accommodate the wingspan and provide adequate clearance.
- **Separation:** Taxiways will have sufficient separation distances from each other and other objects to prevent collisions or ground incidents for the Proposed Code 4E Arua Aerodrome.
- **Runway Turn Pads:** If a runway end will not be served by a taxiway or turnaround, a runway turn pad will be needed for 180-degree turns, especially for Code Letter D, E, or F aircraft.
- **Taxiway Markings:** Taxiways for the Proposed Code 4E Arua Aerodrome will be marked with conspicuous yellow lines, including centrelines, holding positions, and other markings to guide aircraft.

2.3.12 Aprons

The aprons for the Proposed Code 4E Arua Aerodrome will be designed to accommodate large aircraft, including those with wingspans up to 65 meters and reference field lengths of more than 1800m. This includes sufficient space for parking, loading/unloading, fuelling, and maintenance of these aircraft. Apron design will also consider safety margins and clearances, including the separation between aircraft and ground vehicles.

Key Considerations for the Proposed Code 4E Arua Aerodrome:

- **Aircraft Size:** The Proposed Code 4E Arua Aerodrome will be in position to handle aircraft with a wingspan up to 65 meters and a reference field length of more than 1800m.
- **Apron Layout:** Aprons will be designed with adequate space for various aircraft operations including parking, loading/unloading of passengers and cargo, fuelling, and maintenance.
- **Safety Distances:** Appropriate safety margins must be maintained between aircraft, taxiways, and ground vehicles to prevent collisions.
- **Markings and Signage:** Aprons should be clearly marked with appropriate markings and signage to guide aircraft and ground vehicles.
- **Apron Management:** An apron management service may be needed to regulate the movement of aircraft and vehicles on the apron.

Specific Design Elements for the Proposed Code 4E Arua Aerodrome

- **Taxiway Access:** Aprons will be connected to taxiways to allow for efficient movement of aircraft to and from the runway.
- **Stand Configuration:** The layout of individual aircraft stands (parking positions) will be carefully planned to accommodate different aircraft types and operational needs.
- **Ground Support Equipment (GSE):** Aprons will be designed to accommodate the necessary GSE for aircraft servicing.
- **Lighting:** Apron lighting will be essential for safe operations during hours of darkness or reduced visibility.

2.3.13 Wastewater and Waste Management

A permanent wastewater treatment plant will be constructed on site as part of the construction contract. These and other ancillary facilities will be subjected to independent ESIA study.

A central waste collection and management area will be used for gathering, handling, sorting and storing of all solid waste generated on the airport. The waste will range from mowed grass to hazardous waste (e.g. motor oil).

2.3.14 Permanent Electricity and Water Supply

To be provided from the grid and with standby power provided by generators.

2.4 Project Summary

Table 4: Project Summary

Project Name	The Proposed Expansion of Arua Aerodrome from Code 3C to Code 4E Airport
Location	Located in seven cells of Kijoro, Amvua, Ombavu, Ekali, Mucera, Dadau, Nyaza A and Nyaza B Cell in Ayivu Division, Arua City
Funder	African Development Bank (AfDB)
Implementer	Uganda Civil Aviation Authority (UCAA)

During project construction, the management of UCAA shall nominate a Project Coordinator for the day-to-day management of the project. The UCAA will coordinate with other key stakeholders including: Ministry of Finance Planning and Economic Development (MoFPED), National Environment Management Authority (NEMA), Uganda Power Distribution Company (UMEME), Civil Society representatives, Airlines and any other parties and agencies deemed appropriate, for the effective implementation of the project.

UCAA will supervise the construction phase, through its Division of Environment and Social Safeguards.

2.5 Project Monitoring

Direct project implementation responsibility including procurement, project superintendence, and monitoring falls under UCAA. However, UCAA through the nominated Project Coordinator (PC) shall oversee project implementation and regularly update the funding partner on progress status.

The PC together with other experts from the UCAA will attend monthly site progress meetings and conduct site visits to discuss and address issues relating to progress of works. Besides, a consultant shall be procured to undertake monitoring and evaluation of project developmental impacts and outcomes. UCAA will however, remain in charge of monitoring of the Result Based Logical Framework. The monitoring of environmental and social mitigation measures will lie with Environmental and Social Safeguards Division of the Ministry and NEMA. On the financial management and auditing aspects, the existing accounting and reporting systems of the UCAA will produce accurate and reliable information regarding project resources and expenditures.

2.6 Construction Environmental and Social Management Plan

A Construction Environmental and Social Management Plan (CESMP) will be prepared and implemented by the Contractor. This document will detail how the Contractor will manage the site in accordance with all commitments and mitigation detailed in the ESIA Report, statutory consents and authorizations, and industry best practice and guidance. The CESMP will also reference the Environmental and Social Management Plan (ESMP) and, as relevant, Species Protection Plans (SPPs). The implementation of the CESMP will be managed on-site by a suitably qualified and experienced

Environmentalist, Sociologist and Health and Safety on three levels of Contractor, Consultant and Client with support from other professionals as required.

2.7 Stages of the Project

The proposed project will include but not limited to the following activities as required:

2.7.1 Pre-Construction Activities

Pre-construction activities will include surveys and detailed assessment.

Topographic measurements with levelling and GIS instruments will be undertaken and the detailed design of each Airport confirmed. Detailed topographical and cadastral surveys will be conducted along the project area to assess assets that may be affected during the construction phase.

Material investigations will involve field visits and collection of construction materials for laboratory tests. This involves identification and collection of material from sites, and excavation and collection of materials from test pits around the project area, among other activities.

Additional ecological surveys will be undertaken to identify impacts on biodiversity of the final detailed design.

2.7.2 Construction Phase

Construction is anticipated to start next FY 2025/26 and will take place over a considerable period of time which will be established at a later stage.

A) Construction works

The construction works will comprise the following, which are described in turn below:

- Site establishment and mobilisation;
- Preparatory works;
- Earthworks in batches;
- Erection of all the auxiliary facilities;
- Runway, aprons, and taxiway pavement works;
- Drainage;
- Signalling; and
- Auxiliary works.

Site establishment and mobilisation

Site installation will comprise the following:

- Supplementary topographic surveys;
- Development of lay down areas and work sites;
- Mobilisation of supplies and materials necessary for construction (vehicles, trucks, construction equipment); and
- Temporary signage and the setting up of deviations where necessary (Aviation Traffic Management).

At the start of the Construction Contract, all the above will be detailed and subject to validation with UCAA.

The main construction compound will include:

- Offices for supervisory staff, technical and related teams (laboratory, surveyors, health & safety, plant and equipment and project administration
- Storage for building materials and mechanical parts;
- Workshop and Parking spaces for construction equipment and trucks;
- Some material storage areas (laterite, sand, aggregates for concrete and coatings, Airport base asphalt);
- Storage areas for prefabricated concrete products; and
- Small mechanical workshops, for small repair operations on site.

Preparatory Work

The preparatory work comprises the following:

- General cleaning and clearing of the proposed area as necessary including removal of vegetation where required;
- Removal of abandoned infrastructure and stationary equipment like vehicles; and
- Demolition of some of the old and eliminated infrastructure (old pavement cutting, demolition of old drainage works, etc.) and their recycling and/or disposal to landfill.

A detailed survey of the Airport will be undertaken at the start of the Construction Contract, so that all the above preparatory requirements can be identified and managed.

All utilities will also be identified, in liaison with Utilities companies, local authorities, and through observations and surveys in the field.

Earthworks

Earthworks will be carried out following a detailed investigation (surveys, sampling and analysis of soils) post-contract signature. Earthworks will include the following activities:

- Cutting and/or embankments (if the centreline of an existing Airport is changed);
- Any additional dismantling required; and
- Reinforcement of the formation layer (sub-grade) - scarifying existing material, importing selected material and building of the formation to achieve the required strength whilst also achieving the required profile and levels. Works will include import of selected gravel, compaction, installation of geotextile and/or drainage layer.

Drainage

Drainage works will be carried out simultaneously with the earthworks, comprising:

- Cleaning of existing drainage channels (nozzles, scuppers, gutters, ditches);
- Provision of longitudinal drainage works (gutters, curbs, channels, etc);
- Supply and installation of hydraulic structures (nozzles, scuppers, etc);
- Access arrangement for residents and/or protection of structures (laying of grates on gutters);
- Rehabilitation or reconstruction of various small existing structures; and
- Laying of sheaths, in anticipation of passages of various networks.

Runway and Taxiway Pavement

In accordance with the determined design structure for each Airport, this activity may include the following:

- Provision of a capping layer;
- Provision of a foundation layer (sub-base);
- Provision of a base layer;
- Provision of a Coating; and
- Provision of paving (surface course).

For Airports that are already surfaced, the existing deteriorated bituminous surfacing will be repaired, including provision of a correction layer and repairing of potholes.

B) Raw Materials

The sources for raw materials are still unknown at this stage but proper due diligence will be done by the contractor in accordance with the NEA Cap 181, 2019.

Raw materials for the Project will include:

- Aggregate (crushed)
- Bitumen
- Cement
- Emulsion
- Laterite / Murram (gravel)
- Sand
- Water

C) Recruitment, training and health & safety

i) Personnel and labour

The number of jobs that could be created as part of this Project will be approximately:

- 50 Direct jobs; and
- 100 Indirect jobs (suppliers, sub-contractors, etc.).

Recruitment will prioritize employment of suitable local people through the local council leadership. Local labour recruitment shall follow the Employment Act, 2006 and international good practice. Advertisement for a vacancy will be done locally in the local media and in liaison with the local leadership of the host area. Where labour is not available, recruitment from the remainder of the country will take place.

ii) Training

The importance of training is to provide a fit for purpose workforce that allows a seamless, low risk process into completion and a continuous assessment and up skilling to maintain the integrity of this workforce throughout the Airport construction. To achieve this goal, the Contractor will: -

- Assess the gap between existing skill levels available locally and/or regionally against the skill levels required by the construction;
- Tailor recruitment towards the levels closest to that requirement;
- Develop the appropriate training regimes to fill those gaps where they exist; and
- Develop training to complete any formal training, identify leadership potential and feedback into previous stages.

A Training Plan for the construction phase will be developed.

iii) Occupational Health and Safety

All workers must undertake an induction before commencement of their activities. The Contractor will prepare and implement a Health and Safety Policy and Standard Operating Procedures that will be explained in this induction. All workers will need to affirm that these are understood and will be complied with. The Contractor will have qualified Health and Safety professionals at the work site to ensure compliance with health and safety.

iv) Child Labour

Child labour is prohibited by Ugandan law as well as all international conventional instruments such as International Labour Organization (ILO) and the United Nations (UN). UCAA and MoWT shall not engage any workers below the legal working age as per the respective laws and regulations and UCAA codes of compliance.

v) Gender Mainstreaming

Participation of women in Airport construction is a desired gender-related benefit. This may be constrained by the fact that Airport construction in Uganda is predominantly male dominated which disadvantages women involvement in provision of labour. UCAA will establish and implement recruitment policies and labour management practices which will include affirmative action towards achieving a labour force that is more representative of the societal demographics than would normally be seen on a construction project.

D) Construction Traffic

Construction traffic will comprise the following:

- Delivery of raw materials and equipment to storage compounds;
- Delivery of raw materials and equipment from storage compounds to/from site work fronts;
- Movement of excavated material from construction sites;
- Continuous operation of the existing Airstrip;
- Movement of construction personnel to/from and around sites.

The Contractor will determine where access is required, and for which sites, and prepare Traffic Management Plans in consultation with the local authorities. The Traffic Management Plans will describe all mitigation and signage measures that are proposed on the public Airport accesses based on access maps and subsequent site assessments.

E) Site re-instatement

On completion of the construction, all environmental and social components impacted upon by the project should be restored to its original state, where possible. Hence:

- All temporary structures erected during Airport construction will be removed;
- All sites used for storing Airport construction materials will be properly cleared and cleaned;
- Waste resulting from the project works will be collected and properly disposed;
- Unpaved areas cleared of vegetation such as temporary access Airports will be re-vegetated with grass and trees indigenous to the sites; and
- Boulders and stones exposed during Airport construction shall be covered.

2.7.3 Operational Phase

The operational phase involves mainly the Airport operation and maintenance activities carried out by the Contractor (in the defect liability period) and the client in this case UCAA (after the defect liability period) in order to ensure optimization of Airport operations. It includes both routine and periodic maintenance works. Routine maintenance works includes cleaning of drainage items, repairs of broken Airport items (including replacement of Airport signs) and with time, pothole patching, etc. The periodic maintenance items are carried out after a scheduled period of time. These include re-sealing, re-painting of Airport markings, among other activities. Other post-construction activities include enforcement of Airport rules and other control requirements.

2.8 Waste Management

2.8.1 Construction phase

Airport construction is accompanied by generation of several wastes that include both biodegradable and non-biodegradable wastes.

During the construction phase, quantities of excavated materials and other wastes will be generated which will require disposal in an appropriate and environmentally acceptable manner. The disposal strategy shall be based upon the waste management hierarchy which promotes reducing the amount of waste requiring final disposal through the development of outline plans for waste avoidance, reduction/minimisation, and material re-use, and recycling. Excavated materials and residual wastes may give rise to impacts during their handling, temporary stockpiling or storage on site, transportation and final disposal.

Construction waste streams include:

- Excavated wastes;
- General domestic waste including sanitary and food waste;
- Office waste;
- Organic material;
- Small volumes of wastes arising from mobile batching plants;
- Lubricating oil;
- Packing materials (e.g., crates);
- Storm water; and
- Construction debris, among others.

Before the commencement of the Project, the Contractor will develop and implement a Waste Management Plan (WMP) for the construction phase. The WMP should be consistent with the waste legislation and system of the respective districts and other national and international best practices. The WMP will be a conclusive approach to manage all waste components in accordance with the best health, environmental, economic and engineering practices (and responsive to public attitudes). The WMP will be developed on the basis of the Waste Management Hierarchy as illustrated in Figure 4 below:



Figure 12: Waste Management Hierarchy

All waste shall be managed following the Waste Management Hierarchy. The waste management hierarchy is an accepted guide to prioritise waste management options and aims to achieve optimal environmental results. The Contractor should aim at preventing the generation of waste as far as possible. If not possible, waste will be minimised or re-used as far as possible.

For adequate implementation, a dedicated member of the Contractor team should be tasked with the responsibility for waste management, to ensure it is managed in accordance with the WMP. The WMP should be reviewed and updated on a regular basis.

In summary, waste management procedures should be implemented to minimize potential impacts to the environment. This may be achieved by consideration and application of the following protocols:

- Avoiding and/or reducing waste generation where practical by improvements or changes in the project design or site procedures;
- Reusing/recycling/recovering materials where possible and thereby negating / minimizing disposal requirements (e.g., by waste segregation according to type, separation of recyclable materials such as metal, reuse of wood from site hoarding/concrete formwork, utilization of excavated material for filling or landscaping);
- Ensuring that all treatment and disposal options comply with best practice and all relevant guidelines and legislation; and
- Training site staff in waste minimization and management practices.

2.7.2 Operation phase

Wastes may be generated from specific maintenance operations (e.g., Airport re-surfacing, upkeep of landscaped areas) and may include; concrete, silts and organic wastes (vegetation). The total volumes and types of waste materials will be dependent upon the nature and frequency of the maintenance works undertaken and cannot be accurately estimated at this stage. An operation and maintenance WMP should be prepared for the operational phase.

CHAPTER 3

3.0 METHODOLOGY

The scoping exercise was prepared in accordance with Section 12 (1) of the National Environment (Environmental and Social Assessment) Regulations, No.143 of 2020, which states that a developer of a project under section 113 of the Act and as set out in Schedule 5 of the Act shall undertake the environmental and social impact study in accordance with these Regulations. The ESIA study looked at a series of environmental and social topics to identify potential receptors that may be affected by the proposed development.

3.1 ESIA Process

This ESIA has been undertaken in accordance with the applicable requirements of:

- Ugandan ESIA policy and legislation;
- The African Development Bank's Environmental and Social Operational Safeguards;
- Other Good Industry Practice guidelines, in particular the WBG EHS Guidelines (2007).

The ESIA Statement was prepared in accordance with Section 12 (1) of the National Environment (Environmental and Social Assessment) Regulations, No.143 of 2020, which states that a developer of a project under Sections 49(1) of the Act and as set out in Schedule 5 of the National Environment Act, (1)(l) shall undertake an environmental and social impact study in accordance with these Regulations. The study looked at a series of environmental and social topics to identify potential receptors that may be affected by the proposed development.

The AfDB requirements are reported in Section 4.6 of this report. This ESIA Report has been prepared to meet the requirements of AfDB as well as NEMA.

Taking into account the Ugandan requirements and the AfDB requirements, the approach and key stages undertaken to prepare the ESIA for the Proposed Project are shown in Figure 3.1. The key stages of the Proposed Project's ESIA process have covered the following, and each stage is discussed in more detail in the subsequent sections:

- Literature review;
- Policy, legal and institutional review;
- Site reconnaissance;
- Scoping;
- Stakeholder consultations;
- Field monitoring and surveys and establishment of baseline conditions;
- Impact assessment and identification of mitigation measures;
- Cumulative impact assessment;
- ESMP development; and
- ESIA reporting and disclosure.

3.2 Literature Review

Existing literature related to the proposed project was reviewed, including available documentation on the project from the design engineers. This included development Plans, State of Environment Reports and Environmental Action Plans, among others. Additionally, for all aspects to be surveyed literature review was conducted to compile all available secondary data on all aspects surveyed. Land cover maps showing the proposed sites were also produced to guide the planning of field surveys.

3.3 Policy, Legal and Institutional Review

A review was undertaken of environmental and social legislation as well as AfDB requirements to determine the legal and regulatory framework of and approach to the ESIA. Understanding the legal and policy framework ensures that the Project will be assessed, as far as possible, against relevant environmental and social regulations and guidelines. Additionally, the study reviewed the relevant institutional framework to ascertain the institutional governance of the different aspects of the project.

3.4 Site Reconnaissance

A site reconnaissance was undertaken from 11th-13th June, 2025 by the ESIA team.

3.5 Scoping

Scoping was undertaken to identify the likely key environmental and social issues in order to develop the terms of reference for the ESIA. The Scoping Report and Terms of Reference were submitted to NEMA and approval Ref ESIATOR/16881/2025/7 and dated 03/06/2025 was secured as attached.

3.6 Stakeholder Consultations

Stakeholder mapping/consultations were carried out at the scoping stage and continued throughout the whole ESIA process as described later in this report. Consultation helps ensure that stakeholder concerns are taken into account in project planning and implementation. This is in line with the statutory consultation requirements under the first schedule of the ESIA Regulations for Uganda as well as being in accordance with AfDB requirements and other international best practices.

Consultations were done at National, City and Local levels. The team carried key informant consultations with various stakeholders including but not limited to the Officials (both technical and political) from the local government of Arua City (LC 1 leadership of the 7 Villagers of Kijoro, Amvua, Ombavu, Ekali, Mucera, Dadau, Nyaza A and Nyaza B Cell, Ayivu Division, Arua City) as follows;

- Town Clerk and his Deputy
- Environment Officer
- City Engineer
- City Physical Planner
- City Community Development Officer
- City Planner
- City Mayor
- RCC and his Deputy
- LC 1 Chairpersons for the seven Villages that host the proposed Code 4E Arua Aerodrome
- Operations Manager-UUCAA-Arua Aerodrome
- Aerodrome Security-AVIPOL
- Port Health-MoH
- Immigration
- Fire Fighting Department
- Airlines
- Aviation Fuel Supplier
- Meteorology Department
- Mayor-Ayivu Division
- Town Clerk - Ayivu Division

The main objectives of stakeholder consultation were;

- Capturing their specific issues of interest / concern related to the project;
- Obtaining preliminary baseline data (local knowledge);
- Gauging attitudes towards the project;
- Gathering recommendations and suggestions as per project impacts; and
- Engaging the stakeholders on the progress of the intended ESIA project works.

3.7 Establishment of Baseline Conditions / Field Surveys

In addition to the desk-based research and literature review, a number of site surveys were undertaken to inform the existing baseline conditions.

3.8 Social Economic Surveys

Socio-economic analysis was conducted based on both primary and secondary data. These include District Development Plans and UBOS data along within the proposed Code 4E Arua Aerodrome by the Feasibility Consultant as follows:

(a) Key Informant Interviews

Key informant interviews was conducted to gather information from leaders at National, Divisions, and community levels. The sample at the division level included both political and technical government leadership. The details of the key informant interviews is presented in the Feasibility Report.

(b) Focus Group Discussions

This technique involved a small group of respondents who were interviewed together in a common location. The interviewer will lead the discussion and will ensure that every person has an opportunity to respond. Focus groups will allow deeper examination of complex issues than other forms of survey methods. The details of the Focused Group Discussions be presented in the Feasibility Report.

(c) Socio-Economic Interviews

Primary data will be collected by interviewing sampled members of the study populations (Aerodrome staffs, Pax, Residential Households and Urban Businesses). The structured interview method will used to collect data with the aid of a structured questionnaire for each category. Refer to Feasibility Report.

3.9 Cultural Heritage

The study considered cultural heritage sites close or adjacent to the proposed Code 4E Arua Aerodrome with a high probability of being affected by the project activities. It also included consideration of areas with major cultural heritage sites and religious structures.

The physical cultural resource assessment involved gathering of the existing baseline data, interviews, group discussion and site visits.

- **Literature Review:** Literature review was undertaken to compile a comprehensive inventory of recorded sites of cultural heritage within the project area. Various reports from the National Environment Management Authority (NEMA). These include published documents such as papers and books and unpolished ones such as reports including maps and related historical documents.

- **Stakeholder Consultation:** This was done by consulting stakeholders on heritage resources around and within the proposed Code 4E Arua Aerodrome
- **Archaeological Aspects:** Information related to the archaeology within the project footprint was established through a desk top study of existing literature, engagement with relevant stakeholders.

3.10 Air Quality/Noise/Vibration Surveys

Three representative sampling points were selected around in the prioritized sampling patches of the proposed Code 4E Arua Aerodrome to undertake air quality, noise and vibration monitoring. Within each prioritized sampling patch, a triangular approach to evenly sample different priority sampling patches within the project area was employed to ensure spatial coverage and also minimize bias. Priority was given to sensitive receptors, based on various factors including:

- Sensitivity and vulnerability: Areas with sensitive populations, such as schools, hospitals, and medical centres, were prioritized. These locations house individuals who may be more susceptible to health impacts due to air pollution;
- Population Density: Densely populated areas were given priority. Higher population density often correlates with increased exposure to pollutants;
- Residential Zones; Residential areas were included as they represent where people live, work, and spend significant time; and
- Market places and trading centers were selected because they attract large crowds and commercial

3.11 Air Quality

Background

(a) Monitoring for VOCs (BTEX), Sulphur Dioxide (SO₂) and Oxides of Nitrogen (NO_x)

Sulphur dioxide (SO₂) and Oxides of Nitrogen (NO_x), Benzene, Toluene, Ethyl-benzene and Xylene (BTEX) are key environmentally hazardous air pollutants likely to be released by the project activities and as such were the parameters monitored at each of the selected sampling patches.

Measurements at the sampling points per sampling patch were made for benzene, toluene, ethyl-benzene and xylene (volatile organic compounds referred to as BTEX), NO_x, and SO₂ which are associated with petrochemical combustion, storage and disposal.

BTEX, NO_x, and SO₂ were monitored using diffusion tubes, also referred to as passive samplers. The diffusive tubes were mounted onto the poles around the sampling points at about 3 meters from the ground (Plate 3.1). The passive samplers were exposed for a two-week period (i.e, from 11th June 2025 to 25th June 2025) at the respective monitoring sites after which, they were submitted for analysis in the laboratory. Quality control and quality assurance was implemented through the co-deployment of field blanks and duplicate samplers.



Figure 13: Deployed Air Quality Passive Samplers at the neighbourhoods of the proposed Code 4E Arua Aerodrome

(b) Particulate Matter (PM_{10} , and $PM_{2.5}$)

Monitoring of particulate matter (PM_{10} and $PM_{2.5}$) was carried out continuously over a period of one hour (60 minutes) during the day using a Temtop Airing-1000 detector, with an average reading over the 60 minutes obtained to address any fluctuations in temperature and humidity over that period (Refer to Plate 3.2).



Figure 14: Deployed Noise, Vibrations, and Particulate Matter Monitoring Equipment at the neighbourhoods of the proposed Code 4E Arua Aerodrome

3.12 Noise and Vibration Assessments

a) Noise Measurements

The instantaneous spot measurements for noise were undertaken with a CEM DT-8852 Sound Level Meter with Data Logger, set at a 114 dB (A) range for sixty (60) minutes at each sampling point for both day time and night time measurements from 13th June 2025 to 20th June 2025 to cover all the selected sampling patches. The day time measurements were undertaken from 11:00 a.m. – 5:00 p.m. whereas the night time measurements were undertaken from 10:30 p.m. to 12:30 p.m. across all the selected sampling points.

b) Vibration Measurements

Vibration measurements were undertaken using the Extech Heavy Vibration meter (Model 407860). The probe was inserted into the ground at the three sampling points in each division and

the measurements were undertaken for one (1) hour and an average reading obtained. The monitoring was undertaken from 13th June 2025 to 20th June 2025 covering all the selected sampling points.

Refer to plate 3.3 for the selected noise, PM, and vibrations measurements points around the proposed Code 4E Arua Aerodrome



Figure 15: Deployed Noise, Vibrations, and Particulate Matter Monitoring Equipment at the neighbourhoods of the proposed Code 4E Arua Aerodrome

3.13 Biodiversity Survey

The aim of the biological baseline assessment was to collect sufficient data to characterise the biological environment of the study area(s) and assess how the proposed Code 4E Arua Aerodrome activities could affect biodiversity.

The biological environment baseline is based on two types of data:

- Secondary data: comprising information from a desktop study of literature that is relevant to the project; and
- Primary data: comprising of information generated from field surveys that were undertaken as part of this project.

3.14 Desktop Study

A review of publicly available studies and literature regarding the ecological characteristics of the Study Area was conducted by the consultant in June 2025. This was aimed at identifying beforehand the priority species (*i.e. threatened, rare, unique and species of scientific and conservation interest*), natural, modified and sensitive habitats known to occur in and around the vicinity of the proposed project area (s), and also to define the most appropriate scope for the field surveys.

Previous vegetation classifications, where available, were reviewed to provide an overview of the likely vegetation and habitats present within the vicinity of the proposed Code 4E Arua Aerodrome in Arua City.

Important sources of information reviewed included but were not limited to:

- Arua District Physical Development Plan;
- Arua City Physical Development Plan (2020/2021- 2024/2025)
- National Biodiversity Strategy and Action Plan II (2015 – 2025);
- National Plan for Management of Wildlife outside Uganda Wildlife Authority (UWA) Protected Areas;

- National Red List for Uganda for the following Taxa: Mammals, Birds, Reptiles, Amphibians, Butterflies, Dragonflies and Vascular Plants (WCS, 2016);
- Previous flora and fauna studies conducted in the Study Area and region by universities, research centers, Non-Government Organisations and international organisations; and
- Uganda Wetland Atlas (Volumes 1 and 2).

Additionally, the Integrated Biodiversity Assessment Tool (IBAT) was utilized, in order to obtain support information on the ecologically sensitive areas, critical species and critical habitats within the study area and area of influence of the proposed Code 4E Arua Aerodrome. This tool is a web-based map and reporting tool which hosts and maintains key global biodiversity datasets such as:

- International Union for the Conservation of Nature (IUCN) Red List of Threatened Species and the World Database on Protected Areas;

3.15 Field Surveys

For all taxonomic groups, a team of biological environment specialists walked around the proposed site, stopping at selected sample points that represented unique habitats for flora and fauna. Each sample point was georeferenced and the various flora and fauna within 20 meters from the sampling patches.

A total of 8 points were surveyed and the biodiversity with respect to their floral and faunal diversity documented.

Habitats and Flora

The study entailed a desk review of existing data about the habitats and flora within Arua City and specifically in the project host areas. Key references included: National Biomass study (NBS) Technical Reports, Habitat and flora field surveys as undertaken in June 2025 for the study, entailed observation of broad patterns of species composition/vegetation communities and a detailed assessment and inventory of existing plants along the selected sample points. Vegetation communities were classified and named according to the dominant plant species therein, existing forms of disturbances/threats noted as well as the species threat levels and invasiveness.

For sample points that were less than 5 km, the survey involved trekking along 1 km transects along the sampling points and recording plant species seen within 20m from the center sampling area/patch. For sampling points that were more than 5km long, a similar method was employed but more than 1 transect was trekked at intervals of 3km. Plot less site observations were made at identified ecologically sensitive habitats such as in areas that were in close proximity to wetlands and streams. It should be noted that none of the project areas traverses a major river, stream or wetland.

A Hand-held Global Positioning System receiver was used to mark the survey points and all other points of interest. Plant communities, species of conservation concern and invasive species were recorded when encountered. The vegetation at each sampling site was described based on the floristic and landscape features observed in the habitat types, the variation in the habitat structure, and species composition. The conservation status of species was assessed as common or rare in accordance with the IUCN Red List of Threatened Species (IUCN, 2024) and National Red List for Uganda (WCS, January 2016). The survey aimed to characterize habitats and determine the ecological status of habitats and species of flora located in the Project host areas.

Mammals

Mammals were surveyed using both visual encounter surveys and through consultation of communities within the project host areas (local knowledge surveys). Visual encounter surveys entailed walking/driving along the edges and within the sampling points of the proposed Code 4E Arua Aerodrome with Arua City for a prescribed time systematically searching and counting surface active species especially medium and small sized mammals¹.

The visual encounter survey method involved looking out for indirect signs of mammalian presence such as scat, footprints and burrows. Upon detection (of an animal or its sign), the species was to be recorded as present on the site. Visual Encounter Surveys are commonly used to determine the species richness of an area, to compile a species list and to estimate the relative abundances of species within an assemblage. Additionally, Pooled Local Expert Opinion (PLEO) method on local informants was also used. This method is vital for assessing species presence, density and range estimations and is based on residents with good knowledge on mammals in the area (van der Hoeven et al. 2004) such as farmers, community leaders etc. The information provided by the informants helped in guiding the survey to specific study areas.

Avifauna

Birds were surveyed along and within the proposed Code 4E Arua Aerodrome within Arua City with the aim of recording all species that utilize the project host areas as habitat and then identifying those of conservation concern. Birds in the sites were surveyed using the sectioned transect method (Nature Uganda 2012). This method involves counting birds by moving along a transect of a predetermined length and width in the case of this study, 1km long and 1km wide, divided into ten equal sections. The standard transect is normally 2km to capture the different habitats in the survey area. However, given that the project areas occur in urbanised, more-less open areas with a homogenous nature of anthropogenically modified habitat, and the relatively short length of the sampling patches, 1km transects were used but the concept remains the same.

During the counts, all birds seen and heard within a distance of 500m within and outside the sampling areas were counted. This involved standing at one point and recording all birds seen or heard in a radius of 100m for a period of 10 minutes.

In the field, birds sighted were recorded using standard field sheets and were identified with the help of a pair of binoculars and a standard field guide reference book: “A Field guide to the Birds of East Africa” by Stevenson & Fanshawe (2002) and their locations were confirmed using: “The Uganda Bird Atlas” by Carswell et al. (2005).

Bird species abundance was assessed based on the number of individuals recorded per species. Additionally, birds recorded were classified into categories, where possible, basing on the standard habitat classification by Bennun and Njoroge (1996) and Carswell et al., (2005). This classification is widely used in evaluation of avifauna in Uganda. The Categories are: **Ae** – Aerial feeder, **F** – Forest generalist (typical birds of forest edges and gaps), **f** – Forest visitor, **FF** – Forest specialist, **G** – Grassland species, **w** – Water non-specialist (Wetland visitor), **W** – Water specialist (Wetland specialist)

Bird species with migratory tendency were also considered as derived from the Uganda Bird atlas (Carswell et al. 2005). There were two categories of migrant species considered; **A** or **AM**-Afro-

tropical migrants and the **P** or **PM**- Palearctic migrants. However, some species can be both Afro-tropical and Pale-arctic migrants.

Birds were further classified according to their conservation status i.e. whether they are species of conservation concern (**C**) as according to the IUCN red data list version 2015, Collar & Stuart 1985, Bennun & Njoroge 1996, described as species of Global (G-) or Regional (R-) importance in the categories of;

- CR Critical (Globally (G-CR) or Regionally (R-CR));
- EN Endangered;
- VU Vulnerable;
- NT Near-threatened; and
- RR Regional Responsibility

3.16 Impact Assessment and Identification of Mitigation Measures

The purpose of impact assessment was to identify and evaluate the likely significance of the potential impacts on identified receptors and resources according to defined assessment criteria, to develop and describe measures that will be taken to avoid, minimize, reduce or compensate for any potential adverse environmental effects, and to report the significance of the residual impacts that remain following mitigation.

The impact assessment process comprised the following main steps, though this has varied for some topics which have recognised approaches to assessment:

- Identification of sensitive receptors;
- Identification of the Proposed Project activities that may have an impact on the environmental and social resources/receptors and the severity of that impact on resources/receptors;
- Evaluation of the significance of the impact;
- Identification of mitigation measures;
- Where necessary, prediction of the significance of residual impacts once mitigation measures have been incorporated; and
- Consideration of cumulative impacts.

Determination of the potential impact significance was based on a consideration of the Severity of the impact and the sensitivity of the receiving environment. It is also worth noting that this approach applies only to negative impacts. For positive impacts, the impact assessment approach only covers identification of the impact and potential enhancement measures.

3.17 Identification of sensitive resources or receptors

Sensitive receptors were identified based on the baseline conditions in accordance with relevant guidelines, as appropriate. Sensitive resources/receptors included:

- Physical (i.e. non-living environmental components, including air quality, water bodies, soils, structures, cultural heritage, local economy etc);
- Ecology (i.e. habitats, flora and fauna); and
- Human (i.e. project affected persons, project workers, and the community and residents of local communities).

A numerical value was assigned to different levels of receptor sensitivity as illustrated in Table 5.

Table 5: Assessment of Receptor Sensitivity

Sensitivity of the receptor	Value	Description
High	4	An attribute with a high quality and rarity on a local scale with little or no potential for local substitution, or with a medium quality or rarity on a regional or national scale with limited potential for substitution. Sensitive area or receptor with little resilience to imposed stresses.
Medium	3	An attribute with a medium quality and rarity on a local scale with limited potential for substitution, or an attribute of low quality and rarity on a regional or national scale. The receiving environment or receptor has a moderate natural resilience to imposed stresses.
Low	2	An attribute of low quality and rarity on a local scale with potential for substitution locally. The receiving environment or receptor has a high natural resilience to imposed stresses.
Very low	1	An attribute of very low quality and rarity on a local scale with potential for substitution locally. The receiving environment or receptor has a high natural resilience to imposed stresses.

3.17.1 Identification of Impact Severity

The magnitude or severity of the impact has been determined by taking into account several factors. This will vary per topic but may include one or several of the following:

- Intensity of change
- Geographic extent
- Duration
- Likelihood
- Frequency
- Reversibility

The scale used for the magnitude or severity of an impact is 'High', 'Medium', 'Low', and 'very low'. The criteria used to determine this scaling is set out in Table 6 below, where a numerical descriptor has also been assigned.

Table 6: Criteria for rating Impact Severity and Likelihood

Criteria	Value	Rating scales for severity	Rating scales for probability
Severity (the expected magnitude or size of the impact) alongside	1	Very Low - where the impact affects the environment in such a way that natural, and/or cultural and social functions and processes are negligibly affected and valued, important, sensitive or vulnerable systems or communities are negligibly affected.	None – where the impact will not materialize.

Criteria	Value	Rating scales for severity	Rating scales for probability
Probability (The likelihood of the impact occurring)	2	Low - where the impact affects the environment in such a way that natural, and/or cultural and social functions and processes are minimally affected and valued, important, sensitive or vulnerable systems or communities are minimally affected. No obvious changes prevail on the natural, and/or cultural/ social functions/process as a result of project implementation.	Low – where the possibility of the Impact materializing is very low (<20%).
	3	Medium - where the affected environment is altered but natural, and/or cultural and social functions and processes continue albeit in a modified way, and valued, important, sensitive or vulnerable systems or communities are moderately affected.	Medium – where there is a good possibility (30%-60% chance) that the impact will occur.
	4	High - where natural and/or cultural or social functions and processes are altered to the extent that they will temporarily or permanently cease, and valued, important, sensitive or vulnerable systems or communities are substantially affected. The changes to the natural and/or cultural/social- economic processes and functions are drastic and commonly irreversible.	High– where it is most likely (60% - 100% chance) that the impact will occur.

3.17.2 Evaluating the Significance of the Impact

The impact significance of the impact was then established by the product of the two numerical descriptors, i.e., the sensitivity of the receptor and severity of the impact as indicated in Table 7 below.

Table 7: Determination of Impact Significance

			Sensitivity of receptor			
			Very low	Low	Medium	High
			1	2	3	4
Severity of impact	Very low	1	1 Negligible	2 Minor	3 Minor	4 Minor
	Low	2	2 Minor	4 Minor	6 Moderate	8 Moderate
	Medium	3	3 Minor	6 Moderate	9 Moderate	12 Major
	High	4	4 Minor	8 Moderate	12 Major	16 Major
			Minor	Moderate	Major	Major

3.18 Cumulative Impacts

Cumulative impacts are defined as impacts that “result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted”.

In terms of the proposed Project, cumulative impacts may occur in combination with impacts on the physical environment, biodiversity and socio-economic conditions arising from this proposed Project and other planned developments (such as, other Aerodrome projects, industrial activity, and transportation activities, among others) within the study area.

The methodology adopted for the assessment of cumulative impacts in this report comprised the following:

- Review of existing and planned developments/activities in Arua City that have the potential to result in cumulative impacts, and the key drivers that affect them; and
- Identification of key potential cumulative impacts relating to these developments/activities and the proposed Project.

3.19 Mitigation and Enhancement Measures

For major and moderate adverse effects (significant effects) identified through the impact assessment process, mitigation measures have been proposed. Mitigation has been identified in accordance with a hierarchy of options in accordance with good practice including that advocated by the AfDB.

- Avoid - making changes to the project’s design or location to avoid adverse effects on an environmental feature.
- Minimise - reduction of adverse effects through sensitive environmental treatments/design.
- Restore - measures taken during or after construction to repair/reinstate and return a site to the situation prior to occurrence of impacts.
- Compensate/offset - where avoidance or reduction measures are not available, it may be appropriate to provide compensatory/offsetting measures. It should be noted that compensatory measures do not eliminate the original adverse effect, they merely seek to offset it with a comparable positive one.

In addition to mitigation measures, where applicable, enhancement/improvement measures were considered. This approach acknowledged the project preparation stage presents an opportunity to enhance these positive features through innovative design.

3.20 Identification of Residual Effects

Residual effects are those that remain following the implementation of the proposed mitigation and enhancement measures within the environmental assessment. These have been identified for each of the topics by reviewing the predicted impacts against the mitigation measure proposed and then identifying any residual effects caused by the proposed Project.

3.21 Environmental and Social Management Plan

An Environmental and Social Management Plan (ESMP) has been developed to guide implementation of the proposed mitigation measures in an effective manner to ensure sustainability of the project development throughout its life. The ESMP has been provided in Section 9.

CHAPTER 4

4.0 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK ESIA PROCESSES

This chapter discusses the policy, legal and institutional framework within which the entire ESIA process is conducted. Key legislations governing the conduct of ESIA in Uganda are the National Environment Act, No.5 of 2019 and the National Environment (Environmental and Social Assessment) Regulations, No.143 of 2020. The National Environment Act No.5 of 2019 established the National Environment Management Authority (NEMA) and entrusts it with the responsibility to ensure compliance with the ESIA process in planning and execution of infrastructural projects. As funding is sought from the AfDB, the project will also need to be undertaken in accordance with the AfDB Environmental and Social Operational Safeguards requirements.

This chapter therefore provides an overview of the national and AfDB requirements. It is set out as follows:

- National policy framework
- National legal framework
- National regulatory framework
- Relevant International Conventions Ratified by Uganda
- Relevant national institutions
- AfDB Environmental and Social Operational Safeguards requirements
- Project standards

African Development Bank (ADB) Policies;

OS 1: Assessment and Management of Environmental and Social Risk and Impact

OS 2: Labour and Working Conditions

OS 3: Resources Efficiency and Pollution Prevention and Management

OS 4: Community Health, Safety and Security

OS 5: land Acquisition, Restrictions on Access to land and land use, and Involuntary Resettlement

OS 6: Habitat and Biodiversity Conservation, and Sustainable Management of living Natural Resources

OS 7: Vulnerable Groups

OS 8: Cultural Heritage

OS 9: Financial Intermediaries

OS 10: Stakeholder Engagement and Information Disclosure

4.1 National Policy Framework

The purpose of this section is to set out the policy context in which the project being proposed and with which the project must comply.

4.1.1 The National Environment Management Policy, 1994

This policy aims to promote sustainable economic and social development mindful of the needs of future generations and ESIA is one of the vital tools it considers necessary to ensure environmental quality and resource productivity on long-term basis. It calls for integration of environmental concerns into development policies, plans and projects at national, city and local levels. Hence, the policy requires projects or policies likely to have significant adverse ecological or social impacts such as the proposed expansion of Arua Airstrip to undertake an ESIA before

implementation. *This is also reaffirmed in the National Environment Act, No.5 of 2019 Schedule 5 Section 1(a), which makes ESIA a requirement for eligible projects including the proposed expansion of Arua Airstrip.*

4.1.2 National Water Policy, 1999

A key objective of this policy is to guide development and management of water resources in Uganda following integrated and sustainability concept so as to secure and provide water of adequate quantity and quality for all social and economic needs, with full participation of all stakeholders and mindful of the needs of future generations. The policy was set to: -

- i) Promote rational use of water;
- ii) Promote provision of safe water supply for domestic use;
- iii) Promote orderly development and use of water resources for purposes other than domestic including transport or navigation;
- iv) Control pollution and promote the safe storage, treatment and disposal of waste, which could pollute water and impact public health. *The policy is relevant where project development could impact on the quantity or quality of groundwater and surface water resources.*

4.1.3 National Gender Policy, 2007

The National Gender Policy requires that for adequate implementation of gender aspects, there is need to develop a Gender Management Plan. The policy emphasizes equal access to and equal control over economically significant resources and benefits. *This will be relevant to the Airport development efforts since the policy promotes the participation of both men and women at all stages of the project cycle.*

4.1.4 National Aids Policy and National Strategic Framework for HIV/AIDS Activities in Uganda

The National AIDS Policy is aimed at managing the HIV/AIDS pandemic and provides guidance on how to approach the pandemic. Together with the National Strategic Framework for HIV/AIDS activities in Uganda, it provides overall guidance for activities geared towards preventing the spread of HIV/AIDS.

This will be achieved through:

- i) Increased coverage and utilization of HIV prevention services. Attainment of this goal and outcomes is also contingent on,
- ii) Increased adoption of safer sexual behaviours and reduction in risk taking behaviours,
- iii) A strengthened and sustainable enabling environment that mitigates underlying factors that drive the HIV epidemic,
- iv) Strengthened leadership and coordination of HIV prevention programs, and
- v) Strengthened information systems for HIV prevention.

This policy will be relevant in the management of construction activities.

4.1.5 Environment Health Policy, 2005

The Environmental Health Policy concentrates on the importance of environmental sanitation which includes: safe management of human waste and associated personal hygiene; the safe collection, storage, and use of drinking water; solid waste management; drainage; and protection against disease vectors (MOH 2005). Environmental health practices include: safe disposal of human waste, hand washing, adequate water quantity for personal hygiene and protecting water quality, all influence the morbidity and mortality of diarrheal diseases. *The policy will guide implementation of Public Health and hygiene intervention measures on the project.*

4.1.6 Uganda Forestry Policy, 2001

The forest policy puts emphasis on ecological and socio-economic importance of protecting the nation's forest resources. Implementation of this policy is a responsibility of National Forestry Authority (NFA), which provides guidelines for management of forest reserves, community forests and private forests. The Forest Policy entails provisions for safeguard and conservation of forests to ensure sufficient supplies of forest products, protect water resources, soils, fauna and flora. The policy also mandates government with a responsibility to control illegal practices, monitor best practice, measure environmental and social impacts.

Policy Statement 7 on the conservation of forest biodiversity seeks to conserve and manage forest biodiversity in support of local and national socio-economic development. Hence once all likely negative ecological and social impacts are abated, the proposed Airport would be consistent with this policy objective. Policy Statement 8 on watershed management and soil conservation seeks to promote responsible management of forests and awareness in communities to avoid degradation of watersheds. *The policy will guide biodiversity aspects of the project, where relevant.*

4.1.7 The National Land Policy, 2013

The National Land Policy, among other things, seek to re-orient the land sector in national development by articulating, management co-ordination between the land sector and other productive sectors in the economy to enhance the contribution of the sector to the social and economic development of the country. The policy has a bifocal emphasis on ownership of land and land use, stipulates incentives for sustainable and productive use, as well as other measures to achieve land management and land development objectives.

A national land policy is essential for the optimal utilization and management of land resources since it is known that the majority of Ugandans are dependent on land for employment and survival. It is crucial for an integrated and effective system responding to a wide variety of intra-sectoral variables between the land sector and other productive sectors in the economy.

The policy will guide land use aspects of the project, where relevant.

4.1.8 The Equal Opportunities Policy, 2006

The policy provides that gender is one of the priority areas with a focus on equitable access and control of resources and addressing negative cultural practices that limit opportunities for marginalized men and women. The National Equal Opportunities Policy aims at promoting equality of opportunities for all persons in Uganda, irrespective of gender, age, physical ability, health status or geographical location, in all activities, programmes, plans and policies of Government, private sector and Non-Governmental Organizations.

The project should prevent discrimination and meet its duty to make reasonable adjustments in the workplace. The Contractor(s) will be required to show a commitment to equal opportunity and diversity within the workplace with a clear and fair equal opportunities policy as indicated in their ESMP and Code of Conduct.

4.1.9 The National Employment Policy, 2011

This policy proposes an integrated framework for a macro-economic environment that provides linkages of employment creation to labour absorbing economic sectors. The policy is based on sound basic education followed by skills training for more productive employment, promoting agriculture and enhancing its linkage with other sectors; pursuing more innovative strategies for

employment creation and job intensive investments, particularly, within the National Core Projects of the National Development Plan III.

Increasing productivity in both the largest and the smallest enterprises in Uganda; mainstreaming vulnerable groups; strengthening labour administration, social dialogue, improving working conditions and the workplace environment as well as establishing a more appropriate institutional framework for coordination and sustainable employment are also key action areas. *The contractor will be required to provide employment opportunities to all categories of people without discrimination.*

4.1.10 Policy for mainstreaming of Occupational Health and Safety in Health Service Sector 2008

The policy seeks to: -

- Provide and maintain a healthy working environment;
- Institutionalize OHS in the infrastructural development sector policies, programme's and plans; and
- Promote efficient safety management practices. Contribute towards safeguarding the physical environment.

The OHS Policy Statement is guided by the Constitution of the Republic of Uganda and other global, national and sectoral regulations and policies.

Relevancy to the project: The policy also takes into recognition of other Sector Policies, and the Health Sector Strategic Plan and all of which aim to improve the quality of life for all Ugandans in their living and work settings.

4.1.11 Uganda Civil Aviation Master Plan (2014-2034)

The Uganda Civil Aviation Master Plan addresses all aspects of air transport at the State level, with the objective of providing a clear and comprehensive planning and implementation strategy for the future development of the entire civil aviation sector. The NASP contains in-depth information specific to aviation safety aspects that are referenced in the Uganda Civil Aviation Master Plan (CAMP 2014-2034).

4.1.12 Third National Development Plan (NDPIII) 2020/21-2024/25

This plan is the third in a series of six five-year plans aimed at achieving the Uganda Vision 2040. Its goal is "Increased Household Incomes and Improved Quality of Life of Ugandans". The proposed project will promote increased incomes by supporting easy movement in the city as well as general Traffic Improvement. In addition, the upgrade of Airports is included in the Third Uganda National Development Plan 2020/21 – 2024/25 (NDPIII) as part of a multi-pronged, long-term effort to ease the flow of traffic.

4.1.13 Museums and Monuments Policy (2015)

The main aim of the policy is to "create a frame work for preservation and sustainable development of Uganda's Museums and Monuments for the benefit of the people of Uganda and posterity". The policy further provides guidance on collection, research and museum services. Under this policy, all cultural and archaeological artefacts discovered during any activity should be deposited at the National Museum for research, exhibition and posterity. *The above policy will be triggered by the project.*

4.1.13 The Uganda National Culture Policy 2006

The Uganda National Culture Policy aims to promote aspects of Uganda's cultural heritage that are cherished by its people. The policy recognizes that:

- Uganda has several cultural sites and monuments;
- Some of them are man-made while others are natural;
- These sites, monuments and antiquities are important for socio-cultural and educational purposes;
- Cultural beliefs, traditions and values are core to a community's mechanism for survival;
- The policy sets guidelines to enhance the appreciation of these cultural values and to mitigate social practices that are oppressive to people.
- In relation to this project, cultural sites like graves and shrines should be relocated in accordance with the cultural beliefs, traditions and values of the affected community. *The above policy will be triggered by the project.*

4.3 Legal Framework

4.3.1 Constitution of the Republic of Uganda, 1995

The Constitution in its National Objectives and Directive Principles of State Policy according to; Objective XIII provides for the protection of natural resources. It provides that "the State shall protect important natural resources, including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Uganda".

Objective XXVII (i) requires the State to promote sustainable development and public awareness of the need to manage land, air and water resources in a balanced and sustainable manner for the present and future generations. This objective petitions for public awareness about these Airports upgrading and operational scope and activities including an environmental management and monitoring plan hence a need for consultation through public meetings as a step for sustainable development.

Paragraph (ii) of that objective goes ahead to state that the State shall take all possible measures to prevent or minimize damage and destruction to land, air and water resources resulting from pollution or other causes. This it enforces through the lead agencies like NEMA which in turn mandates for an ESIA project report to mitigate damage to the environment.

Article 39 preserves the right of every Ugandan to a clean and healthy environment. The proposed Airport operation status will be radical to clean, healthy and safe environment practises.

The constitution is the cardinal law in Uganda upon which all environmental and social laws and regulations are founded. All environmental and social impact management actions of the project are therefore meant to conform to the constitutional objectives of the Constitution which requires a health environment for all citizens.

4.3.2 National Environment Act, Cap 181

This act repeals, replaces and reforms the law relating to environmental management in Uganda (National Environment Act (NEA), Cap 181). It provides for the management of the environment for sustainable development and mandates the National Environment Management Authority (NEMA) as a coordinating, monitoring, regulatory and supervisory body for all activities relating

to environment. The act also provides sections that are meant to empower NEMA to protect the environment and these include a right to a decent environment Section (3) subsection (1-5).

Section 113 of this Act requires that: -

A developer of a project set out in Schedule 5 shall—

- a) conduct an environmental and social impact assessment by way of scoping;
- b) prepare terms of reference for an environmental and social impact study; and
- c) Undertake an environmental and social impact study as prescribed by regulations.

Section 49 further states that a developer of a project listed in Schedule 4 or 5 shall establish, maintain and implement an environment management system in a manner prescribed by regulations.

It is the specific legislation that deals with ESIA in Uganda. According to Schedule 5 of the National Environment Act, No.5 of 2019 section 1(a) requires that any construction of public Airports not being community access Airports, including — (i) Enlargement or upgrade of existing public Airports should undertake full ESIA involving scoping, public consultation, an environmental action plan.

4.3.3 Physical Planning Act 2010-as amended by 2020 Act

Section 2 A provides that every Ugandan has a right to a clean and healthy environment in according to article 39 of the constitution.

Section 3 provides that the entire country is declared a planning area and this Act shall apply to the entire country in all respects.

Section 33 (1) provides that a person shall not carry out a development within a planning area without obtaining development permission from a physical planning committee.

Section 37 of the principal Act states that the approving authority may grant preliminary approval of a development application for which an ESIA is required, subject to an applicant obtaining an ESIA certificate, in accordance with the National Environmental Act.

The developer is required to secure approval of the proposed developments from the area physical planning committee before implementation of any activities at the project site.

4.3.4 Land Act, Cap 227

The Act addresses four issues namely, *holding, control, management and dispute resolution* related to land ownership. As regards tenure, the Act repeats in Section 3 provisions of Article 237 of the Constitution which vests all land in the citizens of Uganda, to be held under *customary, freehold, mailo and leasehold* tenure systems. It then defines the incidence of each tenure regime (section 4); provides mechanisms of acquisition of certificates of customary ownership (sections 5-9); the conversion of customary tenure to freehold (sections 10-15), or collective management of land held under customary law (sections 16-27); the protection of the rights of women, children and persons with disability (sections 28); the conversion of leasehold into freehold (section 29) and the security of tenure for ‘tenants by occupancy’ (sections 30-39).

4.3.6 Town and Country Planning Act, Cap 246

Uganda’s 1995 Constitution provides that government may, pursuant to laws made by parliament and government policies, regulate the use of land. The principal law on land use and land planning

in urban and rural areas is the Town and Country Planning Act. The Act establishes the Town and Country Board charged with the duty of planning and orderly development of towns and rural areas. The board advises the minister and local authorities in its duties. Local Planning Committees may be formed, to which the board may delegate duties. *The Act established guidelines for developing planning schemes, acquisition of land and compensation for acquired lands. The Second Schedule to the Act outlines measures designed to safeguard the natural environment.*

4.3.7 Local Governments Act, 2020

This Act provides for decentralised governance and devolution of central government functions, powers and services to local governments that have own political and administrative set-ups. The district has powers to oversee implementation of development activities like for such Airport. It also has units such as District Land Tribunals responsible for solving complaints that arise from land valuations, acquisition and compensation payments. According to Section 9 of the Act, a local government is the highest political and administrative authority in its area of jurisdiction and shall exercise both legislative and executive powers in accordance with the Constitution.

4.3.8 Public Health Act, Cap 281

This Act aims to avoid pollution of environmental resources that support health and livelihoods of communities. The Act gives local authorities authority (Section 103) to prevent pollution of watercourses in interest of public good like the advance pollution effects from upgrading Airports.

4.3.9 The Traffic and Airport Safety Act, Cap 361, 1998

The Act provides for administration, registration and licensing of motor vehicles, driving permits, licenses for Public service vehicles, private omnibus, and goods vehicles. It provides for use of motor vehicles, control of traffic, enforcement and information on the National Airports and Airport Safety Council. Use of motor vehicles will be relevant on account of the many vehicles to be used by the contractor and the management/control of traffic both during construction and operation of the Airport.

4.3.10 The Occupational Safety and Health Act No.9 of 2006

The health and safety of persons at work and the handling of hazardous processes and chemicals during manufacture, storage, transport and sale are in the purview of the Occupational Safety and Health Act, No.9 of 2006. The purpose of the Act is to improve the working conditions of working people and in particular their safety, health, and the hygiene of their working environment - to ensure that they work in an environment, which is reasonably free from all hazards that can lead to injury and poor health. It provides for the safety and health, of persons at work such as in quarries, factories, plantations and other workplaces where hazardous work may be found. It expands the scope of application beyond the "factory" into any "work place" where workers may be present for the purpose of work and may sustain injury and or disease in the course of their work. Quarrying, Airport construction and workshop chores/activities are therefore covered under this Act.

4.3.11 Employment Act, Cap 219

Employment Act, 2006 repeals Employment Act (Cap 219) enacted in 2000 and it is the principal legislation that seeks to harmonise relationships between employees and employers of the contracted company to upgrade the proposed Airport, protect workers' interests and welfare and safeguard their occupational health and safety through:

- Prohibiting forced labour, discrimination and sexual harassment at workplaces (Part II; Part IV);
- Providing for labour inspection by the relevant ministry (Part III);
- Stipulating rights and duties in employment (weekly rest, working hours, annual leave, maternity and paternity leaves, sick pay, etc. (Part VI); and
- Continuity of employment (continuous service, seasonal employment, etc. (Part VIII).

4.3.12 The Water Act, Cap.152 of 1995

Part I Section 6 (1) stipulates that notwithstanding any other law to the contrary; no person shall acquire or have a right to:

- (a) Use any water
- (b) Construct or operate any works; or
- (c) Cause or allow any waste to come into contact whether directly or indirectly with any water, other than under the provision of this Part of the Act.

Section 31 of the Act provides for Prohibition of Pollution. Subsection 1 states that a person commits an offence if, unless authorized under this Part of the Act, causes or allows;

- waste to come into contact with any water;
- waste to be discharged directly or indirectly into water; and
- Water to be polluted.

Developer shall take all precautions to avoid water source pollution.

4.3.13 Access to Airports Act, Cap 350

The Access to Airports Act seeks to ensure that a private land owner who has no reasonable means of access to public highway may apply for leave to construct a Airport of access to a public high way. This law also establishes a mechanism of applying for such a Airport. It also establishes a legal regime to ensure the safety of the neighbouring environment.

4.3.14 Uganda National Airports Authority Act, 2006

The Uganda National Airports Authority (UNRA) Act, 2006 provides for the establishment and operation of the UNRA for the purpose of managing the provision and maintenance of the national Airports network in a more efficient and effective manner; to render advisory services to Government; and for related matters.

The purpose of this Act was to establish the UNRA;

- a) to facilitate the delivery of Airports services;
- b) to create an environment that is conducive to the efficient and effective management of the national Airports network and other services provided by the Authority; and
- c) to promote the potential for the continuous improvement of the services provided by the Authority.

The Authority is headed by an Executive Director whose functions are outlined under section 19 who is responsible for the day-to-day operations and administration of the Authority.

4.3.15 the Historical Monuments Act Cap 46, 1967 Amended in a Decree in 1977

The Historical Monuments Act of 1967 provides for the preservation and protection of historical monuments and objects of archaeological, paleontological, ethnographical and traditional interest and for other matters connected therewith.

This Act is enforced through the Ministry of Tourism, Wildlife and Antiquities mandated to maintain, conserve and sustain tourism, wildlife and cultural heritage of Uganda. It formulates and implements policies through the Department of Museums and Monuments where it undertakes the following key functions:

- Conservation and maintenance of important physical cultural resources;
- Provision of professional knowledge and information regarding the archaeology and palaeontology of Uganda;
- Monitoring the implementation of policies and strategies of historical and cultural heritage conservation and development;
- Promote public awareness about cultural and natural heritage through formal and informal education.
- This Act is also supported by the Ministry of Gender, Labour and Social Development (Department of Culture and Family Affairs). The Ministry is responsible for enforcing the National Culture policy and coordinating Cultural Institutions, thereby ensuring the protection of the Uganda's cultural resources.

In compliance with this Act, the project will properly document and deposit all archaeological artefacts collected from the sites to the Department of Museums and Monuments for conservation, as well as consult Department of Culture and Family Affairs on matters of intangible heritage.

4.3.16 the Traditional Rulers Act (Restitution of Assets and Properties) Cap 247 of 1993

Under the Reinstitution of Traditional Rulers statute of 1993, confirmed by the constitution of Uganda in 1995, kingdoms and chiefdoms were given right to own their cultural property. In the area of the project, Lugbara and Alur kingdoms are recognized. The kingdoms are the custodian of some cultural sites and traditional belief systems hence key stakeholder in the project area. The institution will be one of the key stakeholders that will guide the formulation of Cultural Heritage Management Plan.

4.3.17 Climate Change Act, 2021

This is an Act to give the force of law in Uganda to the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement; to provide for climate change response measures; to provide for participation in climate change mechanisms; to provide for measuring of emission reporting and verification of information, among others. The plan establishes mechanisms for the development of the National Climate Change Action Plan and District Climate Change Action Plans, which plans will prescribe measures for adaptation and mitigation of climate change impacts.

The project should, therefore, remain cognisant of the relevant City and National Climate Change Action Plans that will be established to ensure that its activities remain aligned with the established climate change initiatives.

4.4 Regulatory Framework

4.4.1 The National Environment (Environmental and Social Assessment) Regulations, No.143 of 2020

Section 12 (1) of this Regulation stipulates that a developer of a project under section 113 of the Act and set out in Schedule 5 of the Act shall undertake scoping and an environmental and social impact study in accordance with these Regulations. Section 15 (1) upon approval of the terms of reference, the developer shall undertake an environmental and social impact study. As per section 16, public participation is a requirement. In the course of this study, various stakeholders will be informed of the project concept, and their views shall be documented. As a key phase of the ESIA process, this Scoping Report is contributing to the initial identification of impacts to focus the assessment.

4.4.2 National Environment (Waste Management) Regulations S.1. No. 49, 2020

These regulations require waste disposal in a way that would not contaminate water, soil, and air or impact public health.

4.4.3 National Environment (Noise, Vibration Standards and Control) Regulations, 2003

Part III Section 8 (1) requires machinery operators, to use the best practicable means to ensure that the emission of noise does not exceed the permissible noise levels. The regulations require that persons to be exposed to occupational noise exceeding 85dBA for 8 hours should be provided with requisite ear protection.

The regulations require that the Airport support facilities to install pollution control equipment for onsite management of effluent before it can be discharged into water or land. In compliance with these regulations, the project will develop a WMP and will provide for installation of appropriate equipment and measures for effluent management including monitoring of effluent.

4.4.4 The Building Control (Accessibility Standards for Persons with Disabilities) Code, 2019

The code provides for the following with regard to Persons with disabilities:

Section 4 requires that a facility in a building used specifically by a person with disability shall be clearly marked with an international symbol for access, and the international symbol.

Section 5. (1) Requires that there shall be one parking space reserved for a person with disability at a work place.

Section 6. (2) requires that there shall be a means of access suitable for use by a person with disability from outside of a building and within the building.

Section 10. (1) requires that A doorway shall allow free access for a wheelchair user.

Section 12. (1) requires that A ramp or series of ramps shall provide a safe, comfortable and convenient route for a wheelchair user.

Section 16 (1) requires a building under this Code shall have one or more toilets or unisex toilet suitable for use by for a person with disability.

The project will ensure the needs of people with disabilities are specifically considered.

4.4.5 The National Environment (Air Quality Standards) Regulations S.I. No. 22 of 2024

The draft national air quality standards provide the regulatory limits for emissions of CO_x, NO_x, SO_x, VOC and particulates. (Refer to proposed Project Standard 4.6).

4.4.6 The National Environment (Audit) Regulations S.1. No.47 Of 2020

Regulation 23 (sub-regulation 1) provides that the developer should establish, maintain and implement an environment management system in accordance with section 49 of the National Environment Act No.5, 2019. The environment management system shall include: -

- a) an environmental management policy and goals, reflecting a commitment by the developer of the project or activity to implement the environment management system and to communicate it to all employees;
- b) the environmental management and monitoring plan provided for under section 122(3) of the Act and the National Environment (Environmental and Social Assessment) Regulations, 2020;
- c) structures and assignment of responsibilities for the implementation of the environment management system, including appointment of persons responsible for its implementation and coordination;
- d) objectives, targets, procedures and practices for mitigating environmental and social impacts or risks associated with the project or activity and for securing compliance with legal requirements;
- e) a system of keeping and managing information and records; and
- f) mechanisms for reporting, monitoring and evaluating the performance of the environment management system to ensure the suitability, adequacy and effectiveness of the system.

Regulation 23 (sub-regulation 3) further states that a developer shall periodically review the environment management system and demonstrate continuous improvement in the environmental performance of the project or activity.

4.4.8 National Environment (Wetlands, River Banks and Lake Shores Management) Regulations, 2000 (No. 3 of 2000)

These Regulations provide for the management of wetlands and wetland resources, as well as river banks and lake shores. On wetlands, the Regulations aim to provide for the conservation and wise use of wetlands and their resources in Uganda, to ensure water catchment conservation and flood control, to ensure the sustainable use of wetlands for ecological and other purposes, to ensure that wetlands are protected as habitats for species of fauna and flora, and to prevent pollution. The regulations establish the Technical Committee on Biodiversity Conservation which is responsible for advising on the wise use, management and conservation of wetland resources. District Environment Committees are also established. The Minister may declare protected wetlands under regulation 8.

Other regulations on wetlands concern inventorying of wetlands, their use and granting of use permits. Part III of these Regulations applies to all river banks and lake shores in Uganda. Its provisions aim at sustainable use and protection of river banks, preventing siltation of rivers and lakes, as well as controlling pollution or degrading activities. They provide for an inventory of degraded river banks to be made by local authorities and institute a permitting system for persons wishing to use river banks.

Section 34 provides that an ESIA be carried out for a project which may have significant impact on a wetland, riverbank or lakeshore in accordance with part 10 of the NEA No. 5 of 2019.

Drainage from the proposed Arua Airport drain into the wetland systems around at the lower end therefore, these regulations are of relevant to the project.

4.4.9 The Water (Waste Discharge) Regulations, No. 32, 1998 (under section 107 of the water act, cap 152)

Regulation 4 provides for prohibition on the discharge effluent or waste. Sub-regulation 1 stipulates that no person shall discharge effluent or waste on land or into the aquatic environment contrary to the standards established by the Authority in consultation with the lead agency under section 26 of the National Environment Act, 2019. No. 5 unless he or she has a waste discharge permit issued by the Director. The project activities will generate waste and it shall ensure that it's disposed in compliance with these regulations and other relevant regulations.

4.4.10 the Civil Aviation [Aerodromes] Regulation, 2022

In a nutshell these Regulations govern the establishment and operations of aerodrome facilities and include standards and specifications required for one to set up an aerodrome. *This regulation will be relevant in the proposed expansion of Arua Airstrip*

Regulation 6 of these regulations requires any person constructing an aerodrome to have a valid construction permit from the Civil Aviation Authority. However, it emphasizes application for the construction permit only after securing approval of the proposed aerodrome from the National Environment Management Authority, which is NEMA in the case of the proposed project.

- According to the regulations, the application for the construction permit of an airport should have the following contents;
- A detailed design of the proposed construction including related architectural requirements approved by the relevant authority;
- Airport data in accordance with the characteristics of the critical aircraft for which the aerodrome is intended; and
- A topographical map of the proposed aerodrome site as specified by the Authority.

The Authority shall prior to issuance of a construction permit; assess the suitability of the place proposed for consideration:

The proximity of the place to other airports and landing area including military aerodromes;

Obstacle, terrain and existing airspace restriction; and

That it is not against public interest that the place where the airport is to be constructed should be used as such. According to

Regulation 7, the authority shall issue an aerodrome construction permit where the application meets the aforementioned and any other requirements as may be specified by any relevant authority.

The airport developer or contractor will be expected to apply for the said permit bearing in mind all requirements.

Regulation 12 requires the application for license of operation of an aerodrome to be accompanied by among other requirements, an environmental impact assessment report thus the need for the Environmental Impact Assessment being undertaken for the project.

Regulation 40 requires an aerodrome operator to ensure that is an adequate number of qualified and skilled personnel to perform the activities for aerodrome operation and maintenance.

Regulation 43 prohibits a person to store fuel, pyrotechnic materials and other highly inflammable or dangerous goods at an aerodrome except with a permit from the authority. The developer of the project is therefore expected to apply for a permit in case such items are to be stored at the airport.

The regulations under regulation 44 provide for safety measures against fire including not smoking in prohibited place, which should be heeded to.

The regulations require a license applicant to submit an aerodrome manual to the Authority for approval, the requirements of which are stated in regulation 59 and 60.

According to regulation 64, the Aerodrome manual should include a wildlife management plan to control wildlife hazards at the airport. The regulations under part IX stipulate the need for aerodrome lights which should be incorporated into the project.

The regulations under regulation 105 and 106 require an airport operator to develop and implement a safety inspection programme and a fire prevention programme respectively. The developer of the airport of the airport is expected to develop these programmes.

4.5 Relevant International Conventions Ratified by Uganda

International Standards

Relevant international standards and guidelines are listed below:

- In addition, general good international environmental, health and safety (EH&S) practice, best available techniques (BAT) and best environmental practice will be adapted;
- IFC Performance Standards, 2012;
- IFC Environmental, Health and Safety Guidelines for Airports;
- World Bank Group Guidelines - Pollution Prevention and Abatement Handbook 1998;
- Equator Principles III, 2013;
- International Standards Organisation ISO14001 and OHSAS18001 management system standards;
- ICAO – safety and environmental requirements;
- IATA Standards; and
- African Development Bank Group Integrated Safeguards System.

The IFC Performance Standards (2012) (IFC PSs) set out the standards that the project owner is required to meet throughout the life of an investment. There are eight IFC PSs as follows:

- PS 1 Assessment and Management of Environmental and Social Risks and Impacts;
- PS 2 Labour and Working Conditions;
- PS 3 Resource Efficiency and Pollution Prevention;
- PS 4 Community Health, Safety and Security;
- PS 5 Land Acquisition and Involuntary Resettlement;
- PS 6 Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- PS 7 Indigenous Peoples; and

According to the guidance, airport developments fall within Category A. Therefore, a comprehensive and transparent ESIA will need to be conducted to quantify impacts in order to develop mitigation measures to minimise significant risks associated with the Proposed Project.

The table below outlines the relevant International Conventions further ratified by the Government of Uganda.

Table 8: Relevant International Conventions Ratified by Uganda

Relevant International Conventions	Areas of concern
The UNESCO Convention in the Protection of the World Cultural and Natural Heritage (1972)	Ensure the identification, protection, conservation, preservation and transmission to future generations of the cultural and natural heritage (Article 4); Ensure that effective and active measures are taken for the protection, conservation and preservation of the cultural and natural heritage situated on its territory, each State Party to this Convention shall endeavor, in so far as possible, and as appropriate for each country (Article 4);
The Convention on Biological Diversity (CBD).	The Convention's main objective is to ensure the conservation of biological diversity and sustainable use of its components
The African Convention on the Conservation of Nature and Natural Resources (1968), and the Protocol Agreement on the Conservation of Common Natural Resources (1982)	The Parties shall take effective measures to prevent land degradation, and to that effect shall develop long-term integrated strategies for the conservation and sustainable management of land resources, including soil, vegetation and related hydrological processes.
Convention for the Safeguarding of the Intangible Cultural Heritage 2003	The purposes of this Convention are: To safeguard the intangible cultural heritage; To ensure respect for the intangible cultural heritage of the communities, groups and individuals concerned; To raise awareness at the local, national and international levels of the importance of the intangible cultural heritage, and of ensuring mutual appreciation thereof; and To provide for international cooperation and assistance.
Convention for the Protection of the Ozone Layer and Its Montreal Protocol	Is a protocol to the Vienna Convention for the Protection of the Ozone Layer) (a protocol to the Vienna Convention for the Protection of the Ozone Layer) is an international treaty designed to protect the ozone layer by phasing out the production of a number of substances believed to be responsible for ozone depletion. The treaty was opened for signature in January 1987 and was last revised in 1999 at Beijing. It has been ratified by 96 countries including Uganda. The Ozone depleting substances are Chlorofluorocarbons (CFCs) and Hydro chlorofluorocarbons (HCFCs). The ozone shield is important because it protects plant and animal life on land from the sun's ultraviolet rays, which can cause skin cancer, cataracts, and damage to the immune system. Thinning of the ozone layer also may alter the DNA of plants and animals. They also act as

	greenhouse gases, with several thousand times the per molecule greenhouse potential of carbon dioxide.
Rio Declaration (Or Agenda 21)	The concept of public participation in development planning project is key aspect in this convention. From the most important conventions and declarations, one should note the Rio World Conference on Environment and Development in 1992 (in Brazil), followed by the Aarhus Convention in 1998 (in Denmark), public participation in environmental matters became like a human right. 'Free access to information for the public and active participation in development project Processes'. Moreover, the World Commission encourages a stakeholder's involvement to be ensured by governments in all stages of the projects starting from early planning. The public has been involved and will continue to be engaged in throughout the different phases of the project.

4.6 International Requirements

4.6.1 The International Civil Aviation Organization (ICAO)

Air transport supports economic and social development worldwide yet contributes to the production of greenhouse gases. The fact that emissions will inevitably increase with the anticipated growth of air transport makes it imperative for the sector to act. The International Civil Aviation Organization (ICAO) involvement in aviation environmental protection emphasizes the value of a common, coordinated and global approach to addressing the impact of air transport operations on noise and local air quality around airports, and the much broader challenge of climate change. The environmental programme of ICAO has grown larger in scope since the coming into force of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. This framework created a mechanism for ICAO to interact and cooperate with other UN bodies on greenhouse gas emissions issues, while continuing to deal with an expanding list of noise and local air quality issues.

ICAO has established environmental protection Standards and Recommended Practices (SARPS), policies and guidance for international application. The key focuses of ICAO guidelines in its Annex 16A & B that require coordinated approach include aircraft noise and engine emissions. It also pays attention to integrated measures to abate adverse environmental impacts including technological improvements, operating procedures, organization of air traffic, appropriate airport and land use planning, as well as application of available market-based alternatives. Environmental protection is one of the Strategic Objectives of ICAO. The Committee on Aviation Environmental Protection (CAEP) is a technical committee of the ICAO Council, responsible for conducting studies and recommending measures to minimize and reduce aviation's impact on the environment, including setting certification Standards for aircraft noise and aircraft engine emissions.

ICAO has three environmental goals for international aviation, which aim to: (i) Limit or reduce the number of people affected by significant aircraft noise; (ii) Limit or reduce the impact of aviation emissions on local air quality; and (iii) Limit or reduce the impact of aviation greenhouse

gas emissions on the global climate.” In support of these goals and in its role as international aviation’s leading environmental body, CAEP has established environmental documents, including reports, guidance material, and/or specific studies that help to ensure that the most up-to-date information on aviation environmental issues is fully available to State authorities and the broader aviation community for future planning and related decisions and actions. Uganda joined ICAO as a member in 1967, and thus the ICAO policies are applicable to the proposed airport project.

4.6.2 Manual of Aerodrome Standards (MOAS)

The standards basically give guidance to the design of the aerodromes. Section 2.11.1 of the standards require information concerning the level of protection provided at an aerodrome for aircraft rescue and firefighting purposes to be made available.

Section 3.4 requires the incorporation of runway end safety areas and gives the dimensions which should be considered during the design for the project.

Section 9.2.1 requires that Rescue and fire-fighting equipment and services are provided at an aerodrome.

Under section 9.4.1, the standards require establishment of a maintenance programme, including preventive maintenance at an aerodrome to maintain facilities in a condition which does not impair the safety, regularity or efficiency of air navigation. In a bid to reduce bird strike hazards, the standards stipulate under section 9.5.3 that garbage disposal dumps or any such other source attracting bird activity on, or in the vicinity of, an aerodrome shall be eliminated or their establishment prevented, unless an appropriate study indicates that they are unlikely to create conditions conducive to a bird hazard problem. This should be borne in mind during the design of the proposed aerodrome.

4.6.3 Airport Planning Manual

The airport planning manual prepared by ICAO is directed at authorities responsible for the planning and development of airports and particularly those which may not have experienced planning departments or staff. It is compiled in a manner intended to be suitable for use by these authorities for finance and in advising airport consultants, engineers and planners of the airport authorities’ requirements for development work. Under section 2.9.1, it mentions protecting and enhancing the environment and public awareness as some of the goals of the airport master planning process. Under section 5.1.3, it mentions an environmental study as a major step in the site evaluation and selection process for an airport and in section 5.3 points out the key environmental aspects to look out for the site evaluation. The ESIA for the proposed project is being undertaken in line with the manual’s recommendation.

4.7 Institutional Framework

The key institutions relevant to the project are summarized below:

4.7.1 Ministry of Works and Transport (MoWT)

The Ministry of Works and Transport exists to formulate policies, plans, set standards, build capacity, carryout advocacy, regulate, monitor, and evaluate the works and transport sector. The Ministry also provides policy and strategic guidance to parastatal bodies under its supervision namely Civil Aviation Authority (UCAA), Standard Gauge Railway and Uganda Railways

Corporation (URC). The Works and Transport sector is a cluster of priority sectors of the economy comprising public building works, road, railway, water and air transport.

4.7.2 Uganda Civil Aviation Authority (UCAA)

AIR TRANSPORT services in Uganda started with the flying boats that landed at Port Bell, Luzira at the shores of Lake Victoria, to deliver mail. This was an extension of the Wilson Airways that itself started air operations in neighbouring Kenya in 1929. In 1946, the Directorate of Civil Aviation (DCA) was formed, followed by the construction of the country's airport at Entebbe in 1947. Entebbe International Airport was commissioned by princess Elizabeth of England in 1952. Following the establishment of the East Africa Community, Civil Aviation services were under a DCA and several government departments, leading to segmentation. The need to harmonize and run the services led to the establishment of the Civil Aviation Authority in 1991.

4.7.3 National Environmental Management Authority (NEMA)

The National Environmental Act provides for the establishment of NEMA as the principal agency responsible for coordination, monitoring and supervision of environmental conservation activities. NEMA is under the Ministry of Water and Environment (MoWE) but has a cross-sectoral mandate to oversee the conduct of ESIA through issuance of ESIA guidelines, regulations and registration of practitioners. It reviews and approves the scoping report in consultation with any relevant lead agencies like for such a project.

4.7.4 Ministry of Gender Labour and Social Development

The Department of Occupational Safety and Health in the Ministry is responsible for inspection of workplace environment to safeguard occupational safety, rights of workers and gender equity. The mantle lies on the contractor to apply for registration of work place to this department as per Schedule 2 and 3 of the Occupational Safety and Health Act.

4.7.4 Town and Country Planning Board

Constitution of the Republic of Uganda provides for the formation of the Town and Country Planning Board that should plan and oversee orderly progressive development of land in towns and rural areas.

Others include: -

- 1) Ministry of Lands, Housing and Urban Development (MLHUD)
- 2) Ministry of Water and Environment (MoWE)
- 3) Ministry of Works and Transport (MoWT)
- 4) Ministry of Gender, Labour and Social Development (MGLSD)
- 5) Directorate of Water Resources Management (DWRM)
- 6) Petroleum Supply Department and Distribution (PSDD)
- 7) National Water and Sewerage Corporation (NWSC)
- 8) Ministry of Tourism, Wildlife and Antiquities (MTWA)

4.8 AfDB Environmental and Social Operational Safeguards Requirements

The AfDB Bank Group classifies all operations, including those involving financial intermediaries (FIs) and non-sovereign entities, into one of three E&S classifications: High risk (Category 1), moderate risk (Category 2) or low risk (Category 3). In determining the appropriate project's E&S risk classification, the Bank takes into account relevant issues, such as: the project's E&S categorization as per national legislation, the project's type, location, sensitivity, and scale; the

nature and magnitude of the potential E&S risks and impacts; and the capacity and commitment of the Borrower (including any other entity responsible for the implementation of the project) to manage the E&S risks and impacts in a manner consistent with the Oss

African Development Bank (ADB) Policies

OS 1: Assessment and Management of Environmental and Social Risk and Impact

OS 2: Labour and Working Conditions

OS 3: Resources Efficiency and Pollution Prevention and Management

OS 4: Community Health, Safety and Security

OS 5: land Acquisition, Restrictions on Access to land and land use, and Involuntary Resettlement

OS 6: Habitat and Biodiversity Conservation, and Sustainable Management of living Natural Resources

OS 7: Vulnerable Groups

OS 8: Cultural Heritage

OS 9: Financial Intermediaries

OS 10: Stakeholder Engagement and Information Disclosure

4.8.1 OS1. Environment and Social Assessment

This overarching safeguard governs the process of determining a project's environmental and social category and the resulting environmental and social assessment requirements. UCAA is fully aware of the significance of making sure that the community is informed about the project, which is determined by the regularity of stakeholder interactions and sensitization events that should be held within the project's scope and geographical boundaries.

The key to effective consultation is inclusion; particularly, the strategy used must guarantee that all groups are welcomed into the process on equal footing and are given the chance to voice their ideas with the assurance that they would be appropriately considered. According to OS 1, the developer (contractor included) is also required to ensure the satisfaction of a significant segment of the community. Stakeholder involvement must start early in the project preparation process and must continue throughout the project, according to AfDB. The outcomes of such engagement should be adequately considered in the project design.

The contractor developed a stakeholder engagement plan in compliance with the AfDB OS1 for the efficient implementation of the proposed expansion of Arua Airstrip with minimal political resistance and increased public acceptability of the project. The SEP's objectives were followed, and they were significant in ensuring E&S compliance.

The borrower and the project implementation team (client, consultant, and contractor) are required by AfDB Operating Safeguard 1 (OS1) to hold meaningful consultations with communities (all project stakeholders and beneficiaries) who are likely to be impacted by environmental and social impacts and to provide documentation of those consultations.

UCAA adhered to the OS1, and several consultations were performed within the boundaries of the project. A up-bottom approach to consultation was adopted. With the ultimate goal of enabling people to have a say in the construction process in order to avoid any adverse environmental and social consequences, the Arua City and Ayivu Division Authorities Technical and Political relevant officers to the project, the 7 LCIs, and communities were engaged.

According to OS1, the contractor and developer must, respectively, implement a Grievance Redress Mechanism (GRM) for the community and workforce. The client established community GRCs, and L&T supported the GRCs in registering cases and settling those that were manageable. Regular staff meetings were also held to address any complaints brought up by the workers.

According to the AfDB, stakeholder analysis and key information are the foundations upon which discussions should be founded. A better understanding of the project and community acceptance of the project is provided by the main project messages. Prior to the project's actual construction phase, UCAA will make sure that participants access all the necessary project information in addition to environmental and social information. UCAA will further provided the necessary information, such as sensitization and awareness of HSE, HIV/AIDS prevention, Child Labor and protection, environmental protection and conservation, health and safety, internal. Early in the project preparation process, the project's material will be disseminated, and it will be continued as needed throughout the project's phases.

The consultations will be held on time, within the framework of significant project preparatory procedures, in an acceptable language, and in easily accessible places. UCAA will keep written records of consultations for reporting and record-keeping purposes.

4.8.2 OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation

The safeguard maintains the requirement to provide compensation at full replacement cost, emphasizes the significance of resettlement that raises living standards, income earning capacity, and overall means of subsistence, and highlights the requirement to prevent social factors like gender, age, and stakes in the project's success from barring specific project-affected persons.

The proposed expansion of Arua Airstrip will not require compensation or relocation of people because land was fully acquired by UCAA except that it needs some boundary opening due to tampered mark stones. However, a partial evaluation for select PAPs will be conducted by the UCAA especially if it deems necessary following the further studies of the proposed site.

4.8.3 OS 3: Biodiversity and Ecosystem Services

This safeguard's primary objectives are to safeguard biological variety and promote the sustainable use of natural resources. The safeguard emphasizes the need to "respect, conserve, and maintain the knowledge, innovations, and practices of indigenous and local communities and to protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements. It also reflects the significance of biodiversity on the African continent and the value of key ecosystems to the population. In compliance with OS 3, UCAA made sure to respect both the values and cultures of the local community and to preserve the environment. During the planning of the project area, the recognized endangered species was avoided, and alternatives were proposed. Additionally, UCAA established a Chance Finds Procedure that placed a focus on protecting cultural heritage in the project area. UCAA will recruit some people from the project area (Ayivu Division, Arua City) to the project to reduce the influx of people from other ethnic backgrounds.

4.8.4 OS 4: Pollution Prevention and Control, Greenhouse Gases, Hazardous Materials and Resource Efficiency

This safeguard applies to a wide variety of pollution, waste, and hazardous material impacts for which there are accepted international conventions and thorough sector-specific norms that

other multilateral development banks adhere. Additionally, it presents vulnerability analysis, tracks greenhouse gas emissions levels, and offers a thorough analysis of any potential reduction or compensation measures. A waste management strategy will be developed by UCAA which will be put into action. The Plan will provide instructions for managing all waste categories. The employees will receive waste management training, and the purchase of coloured trash cans to help to assure garbage sorting. Following that, waste will be picked up once a week by a waste collection company that was engaged.

4.8.5 OS 5: Labour Conditions, Health and Safety

AfDB OS 5 safeguard outlines the requirements the Bank expects of its clients or borrowers with regard to working conditions, rights, and protection against abuse or exploitation. The OS5 has specific objectives which include;

- Protection of workers' rights;
- Establish, maintain, and improve the employee– employer relationship;
- Promote compliance with national legal requirements and provide supplemental due diligence requirements where national laws are silent or inconsistent with the OS;
- Align Bank requirements with the ILO Core Labor Standards, and the UNICEF Convention on the Rights of the Child, where national laws do not provide equivalent protection;
- Protect the workforce from inequality, social exclusion, child labour, and forced labour; and
- Establish requirements to provide safe and healthy working conditions.

In accordance with Operational Safeguard Number 5 (OS5) of the AfDB, UCAA will ensure that the contractor will provide its personnel with access to necessities such as private restrooms, washing facilities, acceptable work temperatures, safe food, and drinking water. Additionally, safety precautions for employees will closely be followed. During the building phase, all employees will have access to the required PPE. The contractor will provide medical treatment for the staff. This will be accomplished by identifying nearby medical facilities.

4.9 Project Standards

The following standards are relevant to the project:

Air Quality

Table below sets out the Ugandan national air quality standards, 2024 and IFC EHS guidelines for ambient air quality.

Table 9: Regulatory air quality standards for selected gases

Pollutant	Uganda Regulation		IFC EHS Guidelines	
	Averaging time for ambient air	Standard for ambient air	Averaging time for ambient air	Standard for ambient air (mg/m ³)
Carbon monoxide (CO)	8 hours	10 mg/m ³	No information available	No information available
Hydrogen Sulphide (H ₂ S)	1 hour	42 µg/m ³	No information available	No information available

Pollutant	Uganda Regulation		IFC EHS Guidelines	
	Averaging time for ambient air	Standard for ambient air	Averaging time for ambient air	Standard for ambient air (mg/m ³)
Nitrogen dioxide (NO ₂)	24 hours	50 µg/m ³	1 year 1 hour	40 (guideline) 200 (guideline)
Smoke	Not to exceed 5 minutes in any 1 hour	Ringlemann scale No. 2 or 40% observed at 6m or more	No information available	No information available
Soot	24 hours	500µg/Nm ⁻³	No information available	No information available
Sulphur dioxide (SO ₂)	24 hours	20 µg/m ³	24 hours 10 minutes	125 (interim target 1) 50 (interim target 2) 20 (guideline) 500 (guideline)
Ozone (O ₃)	8 hours	120 µg/m ³	No information available	No information available
Particulate Matter PM ₁₀	24-hour	60 µg/m ³	1 year 24 hours	70 (Interim target 1) 50 (Interim target 2) 30 (Interim target 3) 20 (guideline) 150 (Interim target 1) 100 (Interim target 2) 75 (Interim target 3) 50 (guideline)
Particulate Matter PM _{2.5}	24-hour	35 µg/m ³	1 year 24 hours	35 (Interim target 1) 25 (Interim target 2) 15(Interim target 3) 10 (guideline) 75 (Interim target 1) 50 (Interim target 2) 37.5 (Interim target 3) 25 (Guideline)

Source: National Air Quality Standards (2022) and IFC EHS Guidelines (2007)

Noise

Table below sets out the Ugandan National Environment (Noise Standards and Control Regulations, 2003) and IFC EHS Standards for noise.

Table 10: Maximum permissible Noise for General Environment

Facility	Noise limits dB(A)			
	Ugandan Noise standards		EHS Noise management	
	Day (6.00 am – 10.00 pm)	Night (10.00 pm – 6.00 am)	Day (7.00 am – 10.00 pm)	Night (10.00 pm – 6.00 am)
Hospital, convalescence home, home for the aged, sanatorium and institutes, conference rooms, public library, environmental or recreational sites.	45	35	55	45
Residential buildings	50	35	55	45
Mixed residential (with some commercial and entertainment)	55	45	0	0
Residential + industry or small-scale production + commerce	60	50	0	0
Industries	70	60	70	70

Source: National Environment (Noise Standards and Control Regulations, 2003) and IFC EHS Guidelines (2007)

Water Quality

Uganda National Bureau of Standards (UNBS) is responsible for developing standards for the different products on the Ugandan market including portable water. Tables 11 - 14 provide the physical, chemical, microbiological, and radioactive limits for both untreated and treated portable water according to the Uganda Standard, US EAS 12: 2014, Potable water — Specification.

Table 11: Portable water characteristics (Physical, Chemical and Inorganic)

No.	Characteristic	Treated potable water	Natural potable water
Physical Parameters			
1	Colour (TCU ² max)	15	50
2	Turbidity (NTU max)	5	25
3	pH	6.5 – 8.5	5.5-9.5
4	Taste	Not objectionable	Not objectionable
5	Odour	Odourless	Odourless
6	Conductivity (µS/cm) max	1500	2500
7	Suspended matter	Not detectable	Not detectable
Chemical Parameters			
1	Total dissolved solids	700	1500
2	Total hardness, as CaCO ₃ ,	300	600
3	Aluminium, as Al+++,	0.2	0.2
4	Chloride, as Cl-	250	250

² True colour units (TCU) mean 15 hazen units after filtration.

No.	Characteristic	Treated potable water	Natural potable water
5	Total Iron as Fe	0.3	0.3
6	Sodium, as Na ⁺	200	200
7	Sulphate SO ₄	400	400
8	Zinc, as Zn ⁺⁺	5	5
9	Magnesium, as Mg ⁺⁺	100	100
10	Calcium, as Ca ⁺⁺	150	150
Limits for inorganic contaminants in natural and treated potable water			
No.	Substance	Treated potable water limit of concentration mg/L, max.	Natural potable water
1	Cadmium, as Cd	0.003	0.003
2	Lead, as Pb	0.01	0.01
3	Copper, as Cu	1.000	1.000
4	Mercury (total as Hg)	0.001	0.001
5	Manganese, as Mn	0.1	0.1
6	Selenium, as Se	0.01	0.01
7	Ammonia (NH ₃)	0.5	0.5
8	Chromium Total, as Cr	0.05	0.05
9	Nickel, as Ni	0.02	0.02
10	Cyanide, as CN	0.01	0.01
11	Barium, as Ba	0.7	0.7
12	Nitrate as NO ₃ ⁻	45	45
13	Boron, as Boric acid	2.4	2.4
14	Fluoride, as F	1.5	1.5
15	Bromate, as BrO ₃ ⁻	0.01	0.01
16	Nitrite	0.003	0.003

Table 12: Portable water characteristics (Organic)

Sl. No.	Substance (Arrange alphabetical order)	Limit µg/L max.
Aromatics		
	Benzene	10
1	Toluene	700
2	Xylene	500
3	Polynuclear aromatic hydrocarbon	0.7
Chlorinated Alkanes and Alkenes		
4	Carbon tetrachloride	2
5	1,2-Dichloroethane	30
6	1,1-Dichloroethylene	0.3
7	1,1-Dichloroethene	30
8	Tetrachloroethene	40
Phenols		
9	Phenols	2
10	2,4,6-Trichlorophenol	200
Trihalomethanes		
11	Chloroform	30

Sl. No.	Substance (Arrange alphabetical order)	Limit µg/L max.
Pesticides		
12	Aldrin/Dieldrin	0.03
13	Chlordane (total)	0.3
14	2,4- Dichlorophenoxyacetic acid	30
15	DDT (total)	1
16	Heptachlor and Heptachlor Epoxide	0.03
17	Hexachlorobenzene	1
18	Lindane BHC	2
19	Methoxychlor	20
20	Surfactants (reacting with methylene Blue)	200
21	Mineral oil	0.01
22	Organic matter	3.0

Table 13: Portable water characteristics (microbiological)

No.	Type of micro-organism	Potable water
1	Total Coliforms in 100 mL	Absent
2	<i>E. coli</i> in 100 mL	Absent
3	<i>Staphylococcus aureus</i> in 100 mL	Absent
4	Sulphite reducing anaerobes in 100 mL	Absent
5	<i>Pseudomonas aeruginosa</i> fluorescence in 100 mL	Absent
6	<i>Streptococcus faecalis</i> in 100 mL	Absent
7	<i>Shigella</i> in 100 mL	absent
8	<i>Salmonella</i> in 100 mL	Absent

Table 14: Portable water characteristics (Radioactive)

Sl. No.	Radioactive material	Limits in Bq/L
1	Gross alpha activity	0.5
2	Gross beta activity	1

Discharge Standards

Table 4-8 sets out the National Environment (Standards for Discharge of Effluent into water or land) Regulations, 2020. Maximum permissible levels for discharge of waste have been provided under Schedules 2, 3 and 4 of the aforementioned regulations and have been shown in Tables 4-8 and 4-9.

Table 15: Effluent Discharge Limits

No.	Parameter or Pollutant	Unit	Maximum Permissible Limit
1	Temperature increase	°C	≤5
2	Odour		Not detectable
3	Color	TCU	50
4	pH	Units	5.0-8.5
5	Electrical Conductivity	µS/cm	1000

No.	Parameter or Pollutant	Unit	Maximum Permissible Limit
6	Total Dissolved Solids	mg/L	750
7	Total Suspended Solids	mg/L	50
8	Biological Oxygen Demand (Unfiltered)	mg/L	50
9	Chemical Oxygen Demand	mg/L	70
10	Cyanide (Free)	mg/L	0.1
11	Cyanide (AD)	mg/L	0.5
12	Cyanide (Total)	mg/L	0.1
13	Nitrogen (Total)	mg/L	10
14	Nitrogen (Ammonia)	mg/L	10
15	Nitrogen (Nitrates)	mg/L	10
16	Total Kjeldahl Nitrogen	mg/L	10
17	Phosphorus (Total)	mg/L	5
18	Sulphates	mg/L	500
19	Chlorides	mg/L	250
20	Chlorine (Residual)	mg/L	0.2
21	Total Coliforms	CFU/100ml	400
22	Fluorides	mg/L	2
23	Sulphides	mg/L	1
24	Urea	mg/L	1

Table 16: Standards for inorganic substances Effluent Discharge requirements are for direct discharge into surface water, land or sewer

No.	Parameter or Pollutant	Unit	Maximum Permissible Limit
1	Aluminum	mg/L	0.5
2	Antimony	mg/L	0.5
3	Arsenic	mg/L	0.1
4	Barium	mg/L	10
5	Beryllium	mg/L	0.1
6	Cadmium	mg/L	0.01
7	Calcium	mg/L	100
8	Chromium (Hexavalent)	mg/L	0.05
9	Chromium (Total)	mg/L	0.5
10	Cobalt	mg/L	0.1
11	Copper	mg/L	0.5
12	Iron (Total)	mg/L	3.5
13	Lead	mg/L	0.1
14	Magnesium	mg/L	100
15	Manganese	mg/L	1
16	Mercury	mg/L	0.01
17	Nickel	mg/L	0.5
18	Selenium	mg/L	0.02
19	Silver	mg/L	0.5
20	Tin	mg/L	2
21	Total Metal	mg/L	10
22	Vanadium	CFU/100ml	1
23	Zinc	mg/L	2

Source: The National Environment (Standards for Discharge of Effluent into water or land) Regulations, 2020

Table 17: Construction Project Permit and Regulatory Compliance

S/N	Permit/Regulation	Issuing Authority	Purpose/Description	Status
1.	ESIA Certificate	National Environment Management Authority (NEMA)	Required to ensure compliance with environmental regulations and assess the project's impact.	Ongoing
2.	Workplace Registration Permit	Ministry of Gender, Labour, and Social Development	Ensures the construction site operates legally with respect to workplace conditions.	To be got
3.	Fuel Storage Permit	National Environment Management Authority	Regulates the safe handling and storage of fuel on-site.	To be acquired
4.	Surface and underground Water Abstraction Permit	NEMA	Ensures sustainable use of water resources when abstracting water from a surface source.	Ongoing
5.	Stone Quarry Certificate	NEMA	Ensures legal extraction of materials from quarries in compliance with environmental guidelines.	To be acquired
6.	Offices and Equipment Permit	Local Authorities or NEMA	Ensures that office buildings and equipment comply with environmental regulations.	Ongoing
7.	Waste Management Permit	NEMA	Regulates the management of hazardous and non-hazardous waste generated at the construction site.	Ongoing
8.	Air Quality Emissions Permit	NEMA	Ensures compliance with air quality standards and manages dust emissions from construction activities.	Ongoing

CHAPTER FIVE

5.0 GENERAL ENVIRONMENT AND SOCIAL BASELINE

This chapter provides information on the physical, biological and the socio-economic environment of the study area relevant to the proposed development. This baseline is based on observations from a sit reconnaissance along the proposed Arua Airstrip as well as reviewing the available secondary information and initial stakeholder consultation.

5.1 Physical environment

5.1.1 Location of Arua City

Arua City lies in the North Western Corner of Uganda between latitude 030 10'N and 300 50'N and longitude 300 30'E and 310 30'E. It is bordered by the Democratic Republic of Congo on the west, Maracha district on the North, Terego district on the East, Vura County (Residual Arua district) and Madi Okolo district on the South and South East respectively.

The total land area of Arua city is 403.3 Km², of which about 75.0% of the city land is arable and approximately 25% of the land use is commercial and residential. The distances from the city headquarters to Kampala - Uganda's Capital City - is 520 kilometres. Arua city is the largest commercial and social coordinating point for the entire the West Nile Region and the bordering countries of DR Congo and South Sudan. Arua city is 75km from South Sudan to the North. The average altitude of Arua city is 1,200 m above sea level.

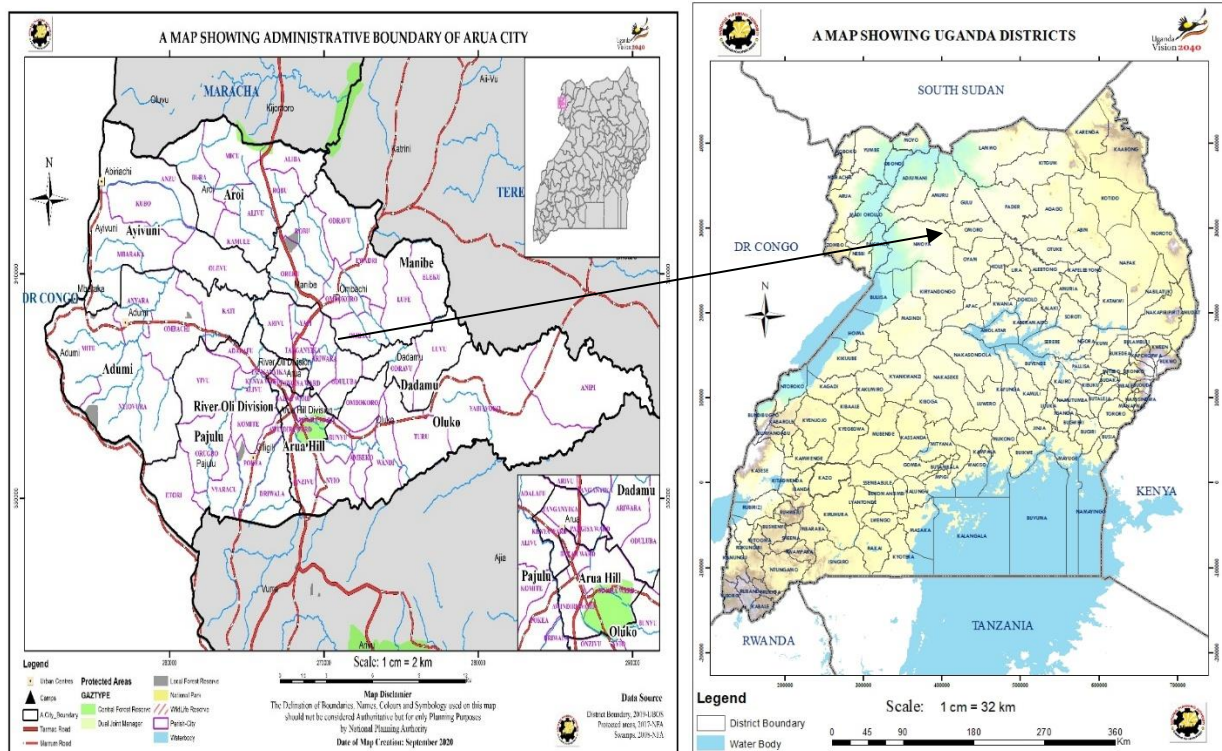


Figure 16: Arua city Map and its location on the Map of Uganda

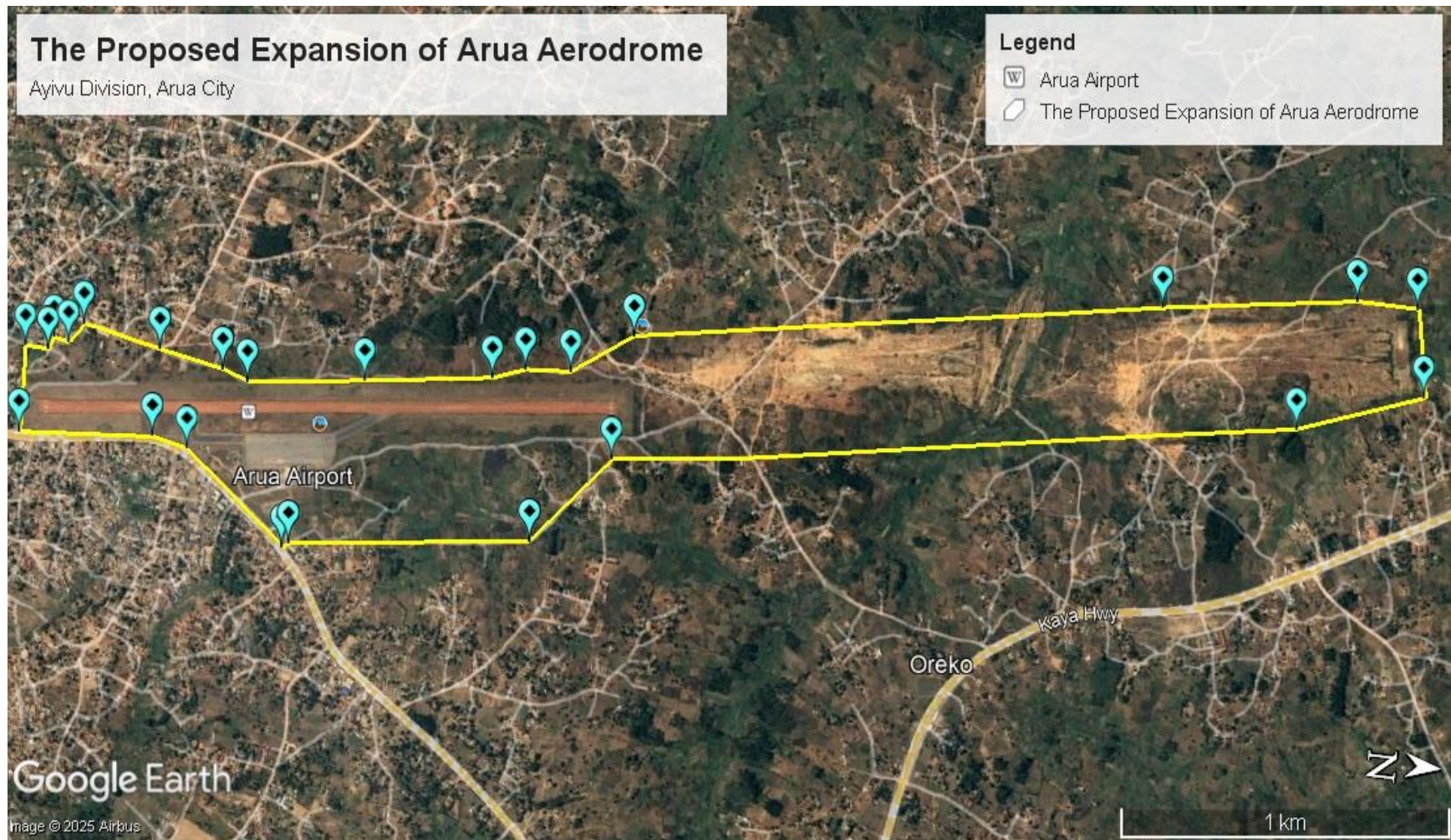
5.1.2 Location of the Proposed Project Site (Arua Airstrip)

The proposed project is located seven cells of Kijoro, Amvua, Ombavu, Ekali, Mucera, Dadau, Nyaza A and Nyaza B Cell in Ayivu Division, Arua City. The proposed Aerodrome is 449km from Arua City through Kamapala-Gulu Highway, Karuma-Arua Highway, Kaya Highway (Arua-Maracha-Koboko Road), and about 3km from Arua City through Adjumani Road to Kaya Highway. Below are the GPS Coordinates for the proposed site;

Table 18: GPS Coordinates for the proposed site (Arua Airstrip)

S/N	Eastings	Northings	Zone	Elevation (M)
01	268086	336357	36N	1207
02	267838	336343	36N	1207
03	267842	336414	36N	1208
04	267805	336428	36N	1207
05	267816	336474	36N	1207
06	267756	336515	36N	1209
07	267869	337024	36N	1207
08	267744	337851	36N	1207
09	267735	337987	36N	1207
10	267611	338165	36N	1207
11	267271	340531	36N	1206
12	267526	340573	36N	1207
13	267662	340195	36N	1207
14	267973	338136	36N	1207
15	268236	337915	36N	1207
16	268331	337179	36N	1207
17	268081	336865	36N	1207
18	268055	336758	36N	1207

Figure 17: Google Map showing the location of the proposed site (Arua Airstrip)



5.1.2 Topography

Arua city topography is characterized by fairly flat land with spotted hills and valleys. The most notable hills are Arua hill, Awindiri hill, Ediofe hill, Adumi hill, and Bogolobi hill. Whereas the notable valleys are River Enyau, River Osu and River Oli which are seasonal and mainly supplied by rain water. The major valleys are aggraded with alluvial and swamp deposits. River Enyau is the major source of water for Arua city and the surrounding districts.

5.1.3 Climate

Arua city has a bi-modal rainfall pattern with light rains between May and June. The wettest months are normally August and September which receive 120mm / month. The average total rainfall is 1250mm. The mean monthly evaporation ranges from 130mm - 180mm. In the dry season (December - March) temperatures remain high throughout. *Table 19* displays the average monthly climate indicators for Arua City based on 9 years of historical weather readings.

Table 19: Average climate indicators for Arua City

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
 Avg. Temperature	25	25	25	25	24	22	22	22	23	23	23	24
 Avg. Temperature Max	30	30	29	28	28	26	26	26	27	27	27	28
 Avg. Temperature Min	16	18	18	18	18	17	16	17	17	17	17	17
 Avg. Rain Days	0	0	0	0	1	2	1	2	1	2	1	0

5.1.3 Soils

Arua city is underlain by pre-Cambrian rocks of basement complex, which include granites and metamorphic rocks. The rocks are composed of largely aplitic granulite, which generally form enclaves in the gneiss complex. A wide range of basement rock type represented includes: quartzites, schists, amphibolite, charnockites, phyllites, mylonites and others. Red coarse sands, silts and subordinate amounts of clay, gravel and diatomite, represent them. Most of the hills are of inselburgs type and rise abruptly from the plains as steep, bare marshes of fresh solid rock usually with no soil cover at all. On hilltops grey granite and gneiss are left exposed over wide areas. These gneisses and granites are intensively metamorphosed and deformed. Soil depth is not more than 15cms. However, it is fairly fertile along valleys and hill slopes due to alluvial deposits found on the lower portions of slopes.

The predominant soils are ferralitic and sand loams covering large areas in the city. These soils are fine textured with loose structure erodible and easily erodible and easily leached. Most soils are acidic. There is a lateritic layer in most soils. This reduces the rooting depth and moisture conditions, where it is close to the surface, making the land difficult to cultivate. Sub-soils lack minerals for plants. They are good for building / construction purposes.



Figure 18: General overview of the soils at the proposed site

Arua District is underlain by early Proterozoic granitised rocks, which include the Aruan and Watian Series). The main rock groups are pyroxene gneisses, charnockites and acid gneisses. Pleistocene to recent alluvium deposits and black soils occur in the rift valley trough. The weathering pattern of the rocks varies, which in turn determines the groundwater potential in the District.

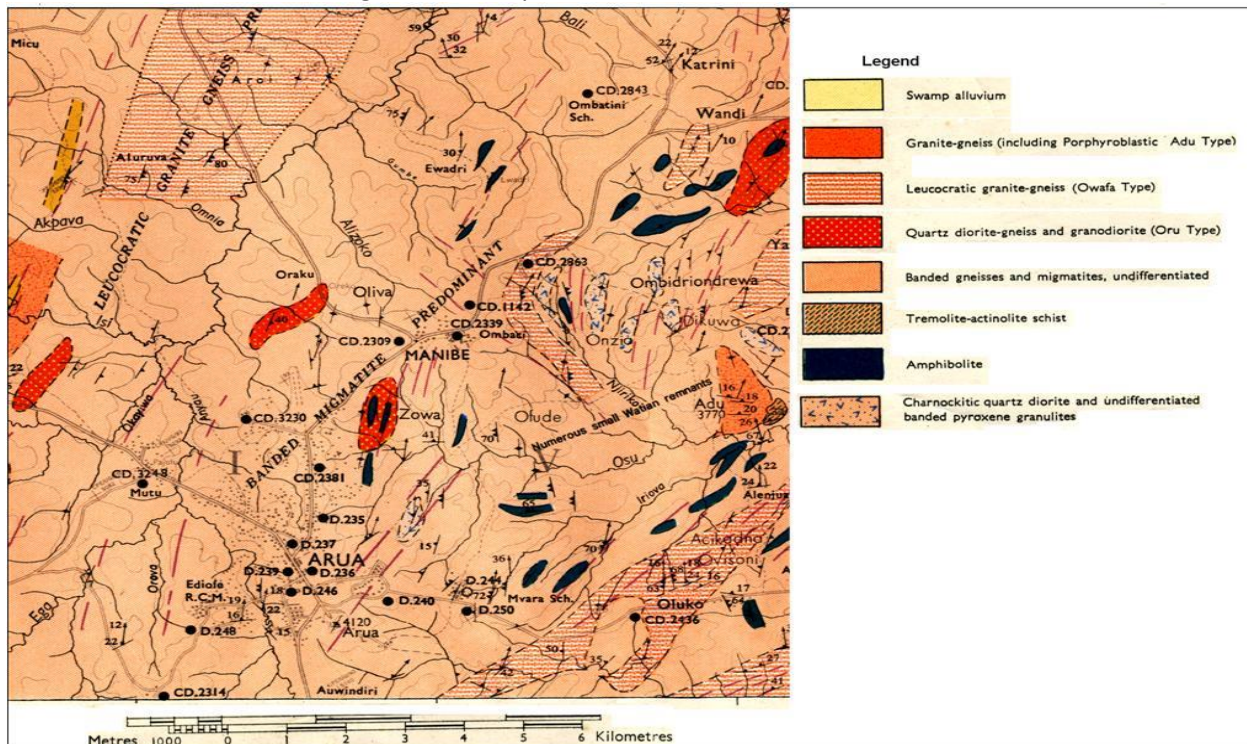


Figure 19: Geological map of the Arua region of West Nile (GSMD, 1964)

5.1.4 Vegetation

The natural vegetation used to be characterized with equatorial type of savannah grasslands, with small pockets of natural forests on hills, especially on the slopes of Arua hill and Ediofe hill. The original vegetation was composed of mixed woody savannah, which has greatly been reduced by subsistence farming and construction of buildings that currently occupy about 7% of the total land area.

Forests are an important part of the vegetation of Arua city. This is again divided into natural and artificial forests. But in Arua city the predominant type is the artificial forests. The notable example of artificial forests is Arua reserve forest (Barifa), Giligili forest reserve and Lokiragodo forest reserve. The Savannah by far is the predominant vegetation in the region. The vegetation is *Butyrospermum – hyperthermia* savannah. It is characterised by such trees as *Isobulinia doka*, *Danieh cliveer* and *Afzaha Africana*. In the central parts of Arua, the vegetation consists mainly of *butyropernum-Hyparrhenia Savannah with dry hyperthermia grass savannah*. Post-cultivation communities of *Imperata-Panicum-Hyparrhenia* and *Hyparrhenia-Peridium* are found on the lower ground. Palm savannah is found to the northeast. Also present are dry *combretum-Acacia-Heteropogon* and *Butyrospermum-Hyparrhenia savannah*.

5.1.5 Air Quality

Background

Ambient air quality conditions reflect both anthropogenic and natural sources in Arua City. These include; dust, smoke particles, and vehicle fumes. Arua City, and Uganda in general, do not have government-controlled air quality monitoring stations and therefore there is no regular air quality monitoring in Arua City. However, private entities such as research organisations, embassies (such as that of the United States) monitor Kampala and other cities' air quality to collect baseline data of their interest. Additionally, project developers are expected to collect baseline air quality data and monitor air quality parameters within their areas of operation in accordance with the relevant laws and regulations.

Generally, there is limited information about local air quality for Arua. Various anthropogenic sources appear to contribute to the elevated coarse particle and PM_{2.5} levels in Arua, such as soil dust disturbed by vehicles on unpaved runway and taxiways plus roads, Aircrafts and vehicle emissions particles, and burning of biomass. One World Bank study noted that the approximately 374 kg firewood burned per Arua resident per year is a key contributor to the high level of PM emissions (ICF, 2009)³.

Air quality in Uganda is governed by the National Environment Act, Cap 181, the National Environment (Air Quality Regulations), 2024. Additionally, other international guidelines of good industry practice -the 2021 World Health Organisation (WHO) Air Quality Guidelines (AQG) and World Bank Guidelines.

The National Environment Management Authority has developed the National Environment (Air Quality standards), Regulations, 2024 for Ambient air Quality standards and Tolerant Limits for Respirable Particulate Matter (RSPM) and other pollutants such as the volatile organic compounds from various sources that should be adhered to. The National Environment (Air Quality standards), Regulations, 2024 are presented in Table 5.3 below:

a) Particulate Matter

Particulate matter (PM) are solid compounds suspended in air that are sufficiently small to be inhaled PM is categorised by particle diameter (measured in μm), PM_{2.5} and PM₁₀ whilst ambient concentration is usually quantified as $\mu\text{g}/\text{m}^3$. Some PM are of natural origin (bushfires, dust, sea spray, aerosols, etc.) but anthropogenic PM (diesel, coal and biomass combustion and emissions from metal refineries etc.) are the most dangerous to health. High atmospheric concentrations of human-made PM, and toxic and oxidative chemical characteristics render them disproportionately hazardous. Elemental and complex chemical species of PM are diverse, with surface shape, chemistry and charge impacted by emission source and environmental conditions. (Pryor et.al, 2022) Receptors to these particulate matter concentrations are business communities in the trading centers, residential areas, health facilities, schools, project workers and the existing users of the airfield. The findings from the air quality baseline measurements undertaken for this ESIA are as indicated in Table 20 below:

Table 20 : Particulate Matter levels in Arua City

Standards	PM _{2.5}	PM ₁₀	AQI ⁴	Prevailing weather conditions	Potential Sources/Activity
WHO Air Quality Guidelines (AQG) /24-hour	15 µg/m ³	45 µg/m ³			
The National environment (Air Quality Standards) Regulations, 2024/24-hr period	35 µg/m ³	60 µg/m ³			
Ayivu Division					
Point 1: Aerodrome access road	42.5	66.5	118	Cloudy	Suspended particles in the area.
Point 2: Runway	20.6	31.3	68.5	Cloudy	Suspended particles in the area.
Point 3: Undeveloped land for expansion	23.7	38.0	75.5	Cloudy	Suspended particles in the area.

b) Passive Air Quality Sampling (Sox/NOx/BTEX)

The monitoring results have been presented in Tables 21 below. It should be noted that these comparisons are for indicative purposes only, given the sampling was undertaken for 2 weeks and the guidelines are over 24-hour or annual means.

⁴ Air Quality Index (AQI) is a relative indicator of pollution levels. As per the United States Environmental Protection Agency, satisfactory pollution is considered to be where AQI values are at or below 100. Additionally, it considers that when AQI values are above 100, air quality is unhealthy: at first for certain sensitive groups of people, then for everyone as AQI values get higher.

Table 21: Passive Monitoring Results for Ayivu Division

LOCATION: Aerodrome access road						
Parameter	Concentration µg/m³ <i>Expressed as worst-case scenario</i>	NAG, 2024 ⁵	World Bank Guidelines	WHO Guidelines	Remarks	
		<i>Expressed as 24-hour mean in µg/m³</i>				
SO ₂	0.03	20 µg/m³	150	125	Within safe limit	
NO ₂	45.08	50 µg/m³	150	200	Within safe limit	
Volatile Organic Compounds – BTEX: Source – Aerodrome patrol Motor vehicles and Motorcycles in the newly acquired land for expansion						
Parameter	Concentration (µg/m³)	Averaging period	Guideline µg/m³	Reference	Comments	
Benzene	0.09	Annual	9	World Bank	Within safe limit	
		Annual	5	NAG, 2024	Within safe limit	
Toluene	2.61	24-hour	7500	WHO	Within safe limit	
		1 week	260	NAG, 2024	Within safe limit	
Ethylbenzene	0.89	1- hour	2000	Alberta, Canada	Within safe limit	
Xylene	3.78	24-hour	2300	Alberta, Canada	Within safe limit	
LOCATION: Aerodrome patrol Motor vehicles and Motorcycles in the newly acquired land for expansion						
Parameter	Concentration µg/m³ <i>Expressed as 24-hour mean</i>	NAG, 2024	World Bank Guidelines	WHO Guidelines	Remarks	
		<i>Expressed as 24-hour mean in µg/m³</i>				
SO ₂	0.08	20 µg/m³	150	125	Within safe limit	
NO ₂	23.85	50 µg/m³	150	200	Within safe limit	
Volatile Organic Compounds – BTEX: Source - Aerodrome patrol Motor vehicles and Motorcycles in the newly acquired land for expansion						
Parameter	Concentration (µg/m³) as a worst-case scenario	Averaging period	Guideline µg/m³	Reference	Comments	

⁵ NAG refers to the National Air Quality Guidelines which are the National Environment (Air Quality) Regulations, 2024.

Benzene	0.11	Annual	9	World Bank	Within safe limit	
		Annual	5	NAG, 2024	Within safe limit	
Toluene	1.04	24-hour	7500	WHO	Within safe limit	
		1 week	260mg/m³	NAG, 2024	Within safe limit	
Ethylbenzene	0.31	1- hour	2000	Alberta, Canada	Within safe limit	
Xylene	1.33	24-hour	2300	Alberta, Canada	Within safe limit	
LOCATION: Current 3C Arua Aerodrome Runway						
Parameter	Concentration µg/m³ <i>Expressed as a worst scenario</i>	NAG, 2024	World Bank Guidelines	WHO Guidelines	Remarks	
		Expressed as 24-hour mean in µg/m³				
SO₂	0.14	20	150	125	Within safe limit	
NO₂	31.23	50	150	200	Within safe limit	
Volatile Organic Compounds – BTEX: Source - Current 3C Arua Aerodrome Runway.						
Parameter	Concentration (µg/m³)		Averaging period	Guideline µg/m³	Reference	Comments
Benzene	0.11		Annual	9	World Bank	Within safe limit
			Annual	5	NAG, 2024	Within safe limit
Toluene	1.28		24-hour	7500	WHO	Within safe limit
			1 week	260	NAG, 2024	Within safe limit
Ethylbenzene	0.40		1- hour	2000	Alberta, Canada	Within safe limit
Xylene	1.71		24-hour	2300	Alberta, Canada	Within safe limit

5.1.6 Noise Baseline

Background

National Environment (Noise Standards and Control) Regulations, 2003 define noise as “any unwanted and annoying sound that is intrinsically objectionable to human beings or which can have or is likely to have an adverse effect on human health or the environment”. High Noise is a form of energy which affects humans and animals and is referred to as noise pollution. The most studied effects have been on humans where it can lead to hearing damage, which may be partial or complete. The potential damage in humans does not only depend on noise levels but also on exposure duration.

The severity of noise is measured in decibel (dB). Table below shows the Maximum Permissible Noise Levels for a construction Site as per the National Environment (Noise Standards and Control) Regulations, 2003; and Draft National Environment (Noise and Vibration) (Standards and Control) Regulations, 2013 shows Permissible Vibration Limits for construction to minimize the risk of Building Damage. Refer to Table 22 for the maximum permissible noise levels for a construction site.

Table 22: Maximum Permissible Noise Levels for construction site

Noise control Zone	Sound Level dB(A) (Leq)	Sound level dB (A) (Leq)
	Day	Night
Residential	60	40
Commercial	75	50
Industrial	85	65

6:00AM-10:00PM-Day Time

10:00PM-6:00AM-Night time

Time frame takes into considerations of human activities.

The baseline noise situation at Arua Airport is mainly shaped by noise sources that include; Aircrafts and vehicular traffic along and within the Aerodrome, trade and market activities, and noise from construction sites, etc. There is no centralized data collection center to monitor Arua’s noise levels, and as such there is no baseline data available for noise levels within Arua.

The results of the instantaneous spot measurements for noise undertaken as part of this ESIA are presented in Tables 23 and 24 below for day time and night time measurements respectively. This shows the details of the average background noise measurements, in the form of LAeq, LAF max, LAF Min, recorded within the vicinity of the surveyed Aerodrome site.

Table 23: Noise Levels Aerodrome (Daytime)

Location description and Coordinates	Duration (minutes)	IFC Standards (Noise Exposure/hour	National Noise limit (dB(A) LEQ) ⁶	Recorded noise level			Existing noise sources
				LAF Max	LAF Min	LAeq	
Ayivu Division							
Point 1: Aerodrome Access Road	60	55	75	76.1	62.95	69.5	Motor traffic and business operations
Point 2: Aerodrome runway	60	55	75	59.7	51.35	55.5	Motor traffic and business operations
Point 3: Undeveloped land for expansion	60	55	75	59.2	51.2	55.2	Human and motor vehicle movement

Table 24 : Noise Levels Arua Aerodrome (Night time)

Location description and Coordinates	Duration (minutes)	IFC standards (Exposure/hour)	National Noise limits (dB(A) LEQ)	Recorded noise level (LAF Max)	LAF Min	LAeq AVG	Existing noise sources
Ayivu Division							
Point 1: Aerodrome Access Road	60	45	50	72.4	64.3	68.35	Motor traffic and business operations.
Point 2: Aerodrome runway	60	45	50	68.9	61.2	65.05	Motor traffic and business operations.
Point 3: Undeveloped land for expansion	60	45	50	67.8	59.9	63.85	Human and motor vehicle movement

The interpretation of the results is as presented below:

⁶ Apply to both continuous and intermittent noise

Day time

The average (LAeq) noise level assessment at areas sampled ranged from 55.2-69.5 dB(A). The noise level emissions at all these areas were found to be below the permissible exposure threshold of 75dB(A).

Night time

The average (LAeq) noise level assessment at areas sampled ranged from 67.8-72.4 dBA with the noise level emissions at most of the areas being above 50 dB(A), the Permissible Level for noise within a commercial area (access road) during night time. The main source of emissions was identified as motor traffic, operation of small bars, and night time prayer at churches.

5.1.7. Water sources near the Airport

The physico-chemical variables of water namely; temperature (°C) and pH (units according to ISO 10523: 2008), electrical conductivity (µS/cm) and total dissolved solids (ppm) (ISO 284: 2003) were measured *in situ* (procedures certified by the International Organisation of Standardization - ISO) just below water surface using portable meters. All the meters had previously been calibrated with standard buffers prior to use in the field. River water samples for analyses of physical, chemical and microbiological quality parameters were collected using a standard sampler from just below the surface at 0.2 m depth. The results are presented in Section

Water quality analysis

Water samples (0.5-litre) were collected into clean, capped PVC bottles, placed in a cooler and out of sunlight while on transit to the science laboratory of the Department of Chemistry, Kyambogo University. Samples were analysed within 12 hours from extraction from the river. Determinations in the laboratory included major physical, chemical and microbiological quality parameters such as turbidity, colour, nitrates, sulphates, chlorides, total alkalinity, total phosphorus, BOD, COD, iron, manganese. Quality control was followed during the water quality analysis using standard methods according to APHA/AWWA/WEF (1998).

5.2 Arua City Administrative Structure

Arua City has Two (2) city divisions: Arua Central and Ayivu, forty-nine (54) wards and four hundred fifty-nine (459) cells. It is also important to note that the city has three constituencies' Arua Central, Ayivu West and Ayivu East. The city council is the highest political authority, headed by the mayor. Below is the summary of administrative units.

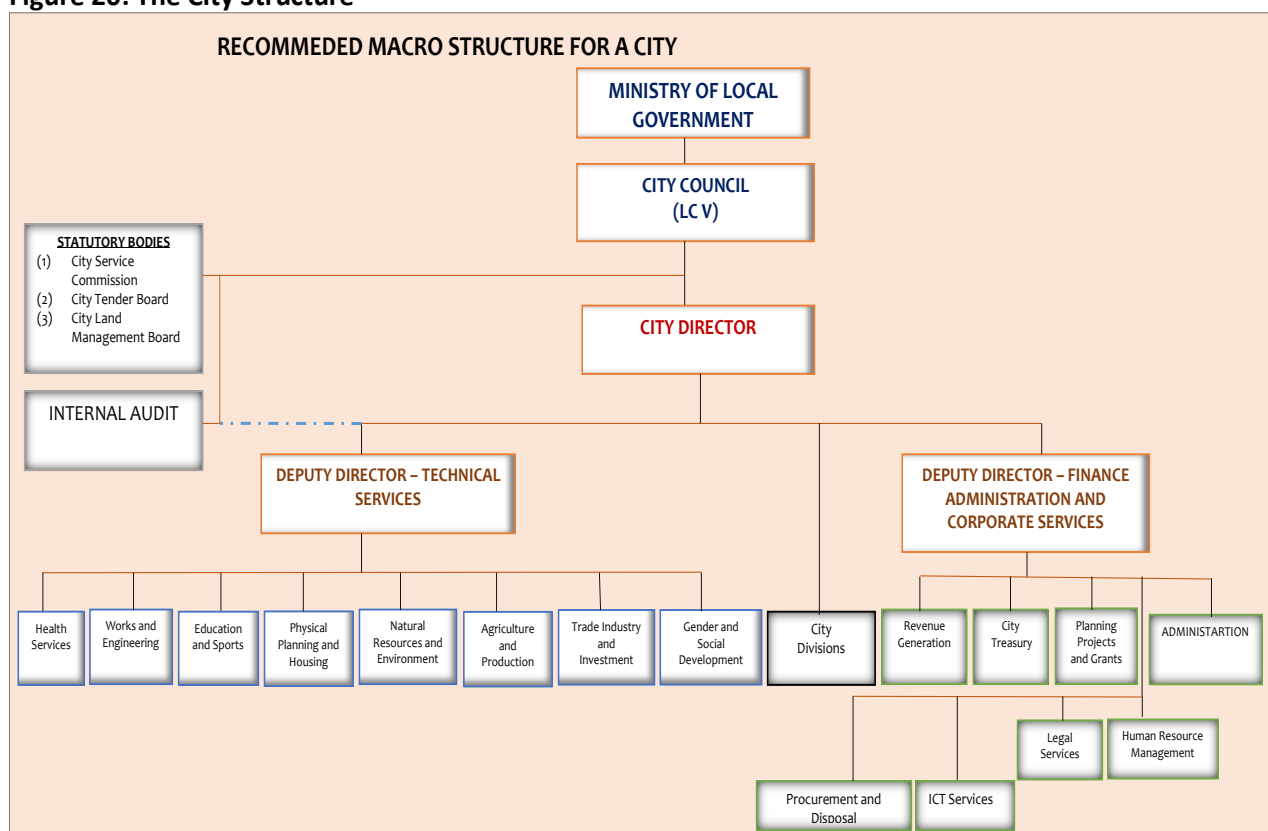
Table 25: Summary of Administrative Units

City	Name of City Division	No. of Wards	No. of cells
Arua city	Arua Central Division	3	22
		3	28
	Ayivu Division	9	67
		9	79
		8	67
		7	51

		6	61
		7	53
		4	41
Total		54	469

The city has the technical team distributed in Twelve (12) departments; and it is headed by the City Town Clerk. Each of the department has a head and under each department, there are a number of sections / units.

Figure 20: The City Structure



5.3 Demographic Characteristics

Uganda conducted her 6th post-independence National Population and Housing Census in May 2024. The National Housing and Population Census of 2024 provides information for facilitating monitoring of Government programmes and projects.

Key Findings of the recent National Population and Housing Census are;

- 1) **Population Size and Growth:** Uganda's population as of May 2024 was 45,905,417 persons, reflecting an average annual growth rate of 2.9 percent since the last Census in 2014.

- 2) **Demographic Composition:** A half of the population is under the age of 18. Five in every one hundred persons are aged 60 and above.
- 3) **Housing and Living Conditions:**
 - a) Eight in ten (81.1%) households have access to improved water sources
 - b) Slightly over a half (53.4%) of households have access to electricity (25.3% from grid and 28.1% from solar).
- 4) **Literacy:** Seventy four percent of persons aged 10 and above were able to read and write meaningfully in any language.
- 5) **Well-being and Health:**
 - a) One third (33.1%) of the households were in subsistence economy.
 - b) Twelve percent of persons aged 10 and above had experienced at least some form of probable general psychological distress.
- 6) **Labour Force (15 years and above):**
 - a) The working age group was 25,494,490 persons (57.4% of the population).
 - b) The unemployment rate was 12.3 percent.
 - c) The share of Youth (15-24 years) Not in Employment, Education or Training (NEET) was 4,001,528 persons (42.6%).

5.3.1 Population findings according to the 2024 Census Report

Table 26: Total Population in Arua City

District/City	Male	Female	Total
Arua City	178,725	205,931	384,656

Table 27: Youth Households by Employment and Education

District/City	Youth HHs	HH Heads Employed	% Employed	HH Heads Educated	% Educated	HHs NEET	% NEET
Arua City	78,619	34,117	43.4	69,898	88.9	15,994	20.3

Table 28: Youth (18–30 years) by Employment Status

District/City	Youth in HHs	Employed	Unemployed	Unemployment Rate (%)	NEET Number	NEET %
Arua City	96,747	28,237	9,285	24.8	54,069	55.9

Table 29: Persons Aged 14-64 Years by Labour Force Status

District/City	In Labour Force	Unemployed	Unemployment Rate (%)
Arua City	83,891	16,730	19.9

Table 30: Persons Aged 15+ Years by Labour Force Status

District/City	In Labour Force	Unemployed	Unemployment Rate (%)
Arua City	85,320	16,742	19.6

Table 31: Households and Average Household Size

District/City	Total Population	Households	Average HH Size
Arua City	380,382	78,619	4.8

Table 32: Households Headed by Youth

District/City	Households	HHs by Youth	%	HHs by Educated Youth	%	NEET Youth	%
Arua City	78,619	34,117	43.4	62,625	88.9	15,994	20.3

Table 33: Households by Vulnerability Indicators

District/City	Total HHs	HHs with Disabled	%	HHs with Orphans	%	HHs with Elderly	%
Arua City	59,283	11,495	5.2	8,480	4.4	1,941	4.4

Table 34: Disability by District and Sex

District/City	Male	Female	Total
Arua City	Not Extracted	Not Extracted	Not Extracted

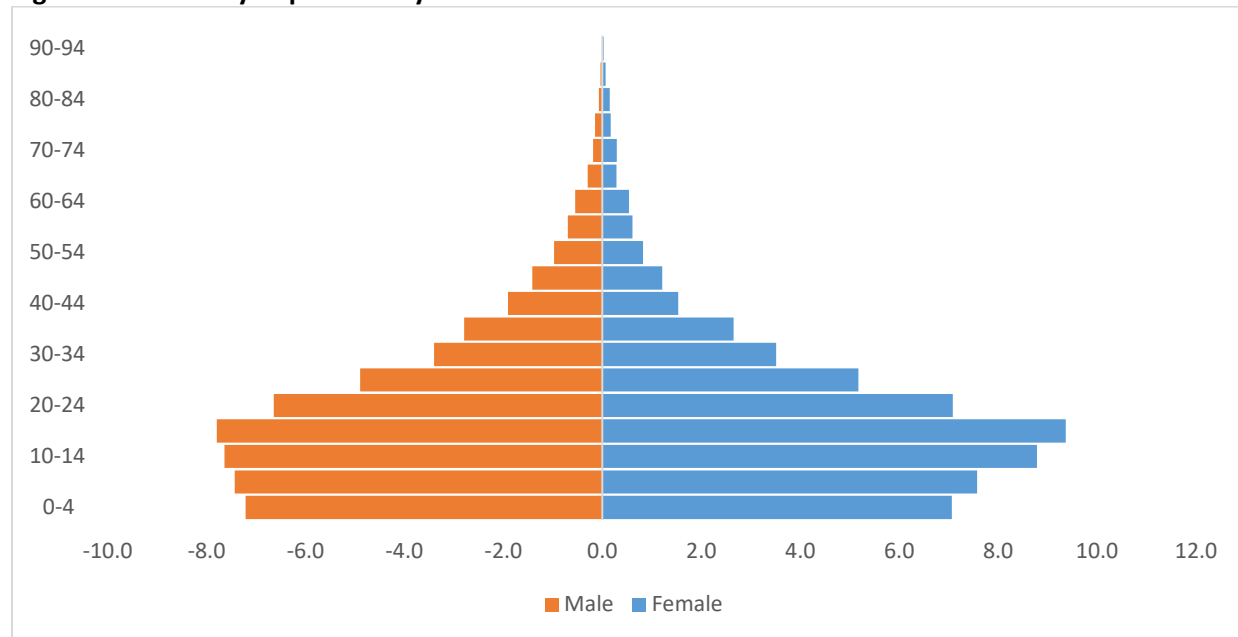
Table 35: Households in Agriculture and Food Security

District/City	Total HHs	HHs in Agriculture	% in Agriculture	% Food Insecure
Arua City	78,619	41,757	53.1	60.3

Table 36: Distribution of Refugees by Sex

District/City	Male	Female	Total
Arua City	6,130	6,762	12,892

Figure 21: Arua City Population Pyramid



5.4 Natural Endowments

Arua City has a total land area of 403 Km², out of which 241 Km² is arable land, 100 Km² is gazetted forests reserves and hills and 62 Km² are used as settlements. Arable land in the city is suitable for agriculture and it is mainly used for small scale subsistence farming by the population, making up to 60% of the land use. Soil erosion and land degradation is one of the most disturbing environmental problems affecting Arua city. This is particularly a present concern in the city. The major factors behind the soil erosion and environmental degradation are overgrazing, land fragmentation, poor farming practices, road constructions, poor road drainage, annual uncontrolled bush fires and over mining of sand as a source of income. However, a valid and reliable database on land degradation in the city does not exist to clearly analyse how much land is degraded or land resources are lost for affirmative action.

The total forest cover in Arua city is 286 hectares comprised of woodlands (54%), bush lands (3%) and grasslands (43%). The city has 117 hectares of Central Forest Reserve and 169 hectares of Local Forest Reserve and about 60 hectares of Private Forests and 90 hectares of community/public land forests. 55% of the forests have been lost, because the forests' trees are the only sources of all building materials (70% of the dwelling units are not permanent houses) and 90% of the households depend on wood fuel for their domestic energy needs. The city has to undertake a deliberate intervention of reforestation and afforestation to improve on the vegetation cover. This should be lobbied for and, consequently, be implemented with strict enforcement of the forest laws and regulations.

The City has rivers and swamps that are mainly used or commonly reclaimed for growing crops, grazing livestock, mining sand, bricklaying, rice growing and vegetable harvesting in both dry and rain season. It is estimated in absence of accurate inventory, but reliable assessments that 30% of permanent wetlands

have been transformed into seasonal wetlands and 50% of seasonal wetlands have been lost or reclaimed for various purposes as mentioned.

Fresh water is obtained from Enyau River and other smaller streams. Water is also obtained from wetlands, underground supplies and rain harvest. Many people are involved in fishing as indicated by the current number of fish ponds in home steads.

Arua City like many local Governments is dependent on agriculture and employs over 80% of the total population. Fertile soils and suitable climate combine to support the cultivation of a number of crops in most parts of the city. Agriculture is mainly subsistence (80%) and takes place on small holdings of approximately two acres using mainly simple farming tools (e.g. hoes, pangas and harrowing sticks). Only 0.5% of the population is engaged in commercial agriculture. Family members constitute the single most important source of labour.

Both food and cash crops are grown. The major food crops include cassava, beans, groundnuts, simsim, millet, potatoes, soya beans and maize. Tobacco is the major cash crop and is the main source of livelihood for the majority of the population in the city. It is grown mainly in the fertile highlands.

Other important economic activities in the city include formal employment, which employs about 9% of the population, petty and formal trade, which employs 3.8% and 0.7% respectively and cottage industry that employs 2.3%. Sand mining and stone quarrying are also carried out in areas endowed with these products to support the construction industry. The remaining proportion of the population depends on family support and other miscellaneous activities.

5.5 Social-Economic Infrastructure

According to the 2024 Population and Housing Census Report, about 80% of the households in Arua city depend mainly on subsistence agriculture as their main economic activity. Only 9.7% of the population was dependent on earned incomes and 0.4% on property income. The major crops grown include tobacco, sweet potatoes, sorghum, cassava, simsim, groundnut, finger millet, maize, pigeon peas, cowpeas and beans. Fishing farming is another main economic activity in the city. Fish ponds and streams are the main source of fish within the city.

Majority of the households that depend on subsistence farming as their main source of livelihood use rudimental tools and methods for cultivation i.e. the hand hoe and family labour resulting into low productivity. Poverty levels in the city have continued to remain high with a poverty index counting at 52.3% as compared to the national poverty index of 31%. This requires a serious change in strategy in which economic activities the population has to engage in. A shift from only relying on seasonal crops and adopting animal rearing for economic purposes to more diversified income-generating activities is intended. Fruit trees cultivation, goat, cattle, rabbit, poultry, piggery and plantation of teak trees have high potentials to raise incomes of the people.

The available statistics also revealed that the overall literacy rate in the city is 65.7% for persons aged 10 years and above, which is slightly below the national average of 69%. The literacy rate among the urban population is higher at 76% than the rural population at 32%. However, all these are below the national

average for both urban at 88% and rural at 67%. The average life expectancy in the city increased from 42 years in 1991 to 52.7 years in 2014 slightly above the national average of 50.4 years. There was a gain of 10.7 years in life expectancy between 2002 and 2014 as compared to a gain of 2.3 years for the nation in the same period. Over 90% of the adult refugees aged 18-59 years self-settled in the city depend on petty trade while less than 1% of the refugees are formally employed by NGOs as community-based trainers.

5.4 Baseline Biodiversity Findings

5.4.1 Flora (Vegetation) Assessment

The Airport vegetation is dominated by patches of lantana camara plus natural vegetation as isolated pockets. There exist some 3 patches of eucalyptus trees in the newly acquired land in the northern northeastern and far eastern parts of the proposed site. The Aerodrome Runway Safety Area is characterized Paspalum (also known as swamp couch grass).

Table 37: Dominant Plant Species by Habitat Type

Habitat Type	Dominant Species	Classification	Conservation Status
	Eucalyptus grandis	Exotic tree	Plantation species
	Imperata cylindrica/spear grass	Tropical perennial grass.	Least Concern

			
Shrubland/grassland	Lantana camara, Acanthus pubescens	Shrubs/invasives	Lantana - Invasive
			
Grassland	Paspalum/couch grass	Exotic grass	Highly interested

5.4.2 Insects: Butterflies, Dragonflies and Ants

Insect biodiversity is a key indicator of ecological health and was well represented across habitat types. Butterflies and dragonflies were particularly abundant in flowering vegetation, playing important roles in pollination and predation respectively. Numerous active ant hills and termite mounds were recorded throughout the area, particularly in cleared or degraded zones. These organisms are essential for nutrient cycling and soil aeration. They also provide food sources for amphibians, reptiles, and small mammals. Butterflies and dragonflies were observed using transects. Ant hills and cross-sections revealed multiple active ground termite mounds and ant colonies. Protect known termite mound zones from trampling and disturbance. Encourage preservation of insect habitats by maintaining a mix of grasses, shrubs, and moisture zones.

Table 38: Key Insect Observations

Group	Species	Habitat	Role
Butterfly	Danaus chrysippus	Wetland fringe	Pollination

			
Dragonfly	<i>Trithemis arteriosa</i>	Marshy sections	Aquatic predator
			
Ants	<i>Pheidole</i> spp., <i>Dorylus</i> spp.	Under logs, mounds	Soil aeration, scavenging
			
Termites	<i>Macrotermes</i> spp.	Ant hills/cross-sections	Decomposers



Mound diameters ranged from 0.6 to 1.4 meters; most were active with signs of fresh soil turnover in the newly acquired land

5.4.3 Birds (Avifauna)

The avifaunal diversity around Arua Aerodrome includes both resident and migratory species, reflecting the site's habitat variety. Birds were observed nesting and perching across different land use zones including the small patches of eucalyptus plantations and shrubs in the newly acquired land, some were observed foraging around the runway, taxiways, aprons and parking areas. Some of the common species that were captured included; Common Bulbul, Woodland Kingfisher, Black Kite, Marabou Stork, Black Headed Heron and the Black stork. However, there are some other species which visit the Aerodrome once in a while according to the Director of Operations and these include but not limited to; Pide Crown, Lizard Buzzard, Barn Owl, and the Squirrel.

The presence of generalist species also signals human-induced habitat alterations. Bird presence is linked to insect abundance, vegetation structure, and seasonal food availability within and around the Aerodrome.

It should be noted that birds are critical in aviation sector as far as safety is concerned. To minimize bird strikes in the aviation sector, airports employ a multi-faceted approach focused on habitat management, visual and auditory deterrents, and, in some cases, population control. This includes modifying the environment to be less attractive to birds, using technology to detect and deter birds, and even employing trained birds of prey.

Table 39: Select Observed Birds by Habitat

Species Name	Common Name	Habitat	Status
Pycnonotus barbatus	Common Bulbul	Trees at the Aerodrome immediate neighborhood	Common on the taxiway and parking area

				
Halcyon senegalensis	Woodland Kingfisher	Agroforest edge		Common
				
Milvus Migrants	Black Kite	Shrub areas (newly aquired land)		Common
				

Leptoptilos Crumenifer	Marabou Stork	Domestic Aerodrome communities	trees at the edges near	Boundaries of the Aerodrome communities near
				
Ardea melanocephala	Black Headed Heron	Between the taxiway	the runway and	Common
				
Ciconia nigra	Black stork	Runway Safety Area (RSA)		Common
				

CHAPTER SIX

6.0 INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

Information disclosure involves divulging understandable information about the proposed project to the general public, affected communities and other stakeholders, beginning early in the project cycle and continuing throughout the life of the project. Information disclosure is intended to facilitate constructive engagement with the affected communities and stakeholders over the life of the project.

Consultation goes beyond information disclosure and involves two-way communication and exchange of information between the proponent and project stakeholders, while active participation involves stakeholders in project design and implementation with the overall goal of ensuring that stakeholder concerns are incorporated into design, planning and outcomes of the proposed Code 4E Arua Aerodrome.

6.1 Public Consultation Process

The International Association for Public Participation defines ‘public participation’ as a means to involve those who are affected by a decision in the decision-making process. It promotes sustainable decisions by providing participants with the information they need to be involved in a meaningful way, and it communicates to participants how their input affects the decision. This chapter describes the process of the public consultation for the proposed Project. Views from national stakeholders, local authorities and the likely affected communities were sought through meetings. The feedback from these consultations has been taken into account when preparing this report.

The National Environment (Environment and Social Assessment Regulation) 2020 requires the developer to seek views of the communities that are likely to be affected by the project and to publicize the intended project, its anticipated effects and benefits in a language understood by those communities for a period of not less than 14 days. English and Lugbara languages were used for the stakeholder consultation and community sensitization respectively. It is further required that days and times of community meetings be convenient for the affected persons and agreed with the local leaders. The AfDB OS provide opportunity for stakeholder engagement and consultation while conducting the ESIA.

The process of stakeholder consultation started at the scoping phase and continued throughout the detailed study phase of the project.

6.2 Participation Objectives

The broad objective of the stakeholder engagement process for this ESIA was to provide the authorities, interested parties and the communities likely to be affected by the project an opportunity to air out their views, concerns, and opportunities as regards the proposed project and to consequently address their concerns.

6.2.1 Specific Objectives

The specific stakeholder engagement objectives were:

- To provide information about the project and to tap into stakeholder information on key environmental and social baseline information in the project study area;
- To provide opportunities to stakeholders to discuss their views, opinions and concerns;
- To manage expectations and misconceptions regarding the project;
- To discuss potential impacts and verify significant or major environmental, social and health impacts identified; and
- To inform the process of developing appropriate mitigation and management measures as well as institutional arrangements for effective implementation.

6.3 Stakeholder Mapping

Stakeholders are persons or groups who are directly or indirectly affected by a project, or who may have interests in and/or influence over its outcomes. Engagement activities were prioritised based on stakeholders' **influence** on the project as well as the **impact** the project has on stakeholders. The overall aim was to ensure that all key stakeholders were identified, and engagement approaches were designed and implemented to:

- Drive effective communication of project information;
- Support confirmation that information has been understood;
- Facilitate feedback from stakeholders; and
- Enable stakeholder input and participation in decisions affecting their lives.

Therefore, stakeholder mapping was the first component in the ESIA stakeholder engagement process and involved identifying and profiling stakeholders, including their representatives, and the relationships between them. Stakeholders were mapped through a range of measures, including:

- Those engaged on previous similar Aviation projects;
- Consideration of the project's activities and study area;
- Scoping of potential project impacts;
- Review of secondary data on the project's social and environmental context; and
- Contact with project relevant government bodies.

Consideration was then given to whether the stakeholders could be influenced or impacted by the Project so that tailored consultation approaches can be developed.

Stakeholder influence refers to the power that a stakeholder has over the project's outcomes. Influence can be direct or indirect. Indirect influence derives, for example, from a stakeholder's ability to influence others or their access to important information. Formal influence may derive from their ability to directly affect decision-making through, for example, the issue of government approval and permitting decisions.

Impacts refer to whether the stakeholder will be impacted by the Project itself, either directly or indirectly.

These impacts and influence levels can be either positive or negative and can be categorised as high, medium, or low, as set out in the following subsection, together with the stakeholder's composition.

6.4 Stakeholder Composition

Stakeholder identification was based on issues related to the project scope of works, relevance and influence of the stakeholders and administrative and traditional setting of the project among others. The methods used to identify relevant stakeholders included: purposive selection, brainstorming, snowball method and use of previous projects conducted in the same area. The stakeholders identified and consulted are categorized as follows:

National Stakeholders/Government Institutions

- Uganda Civil Aviation Authority-UUCAA (Client)
- Ministry of Works and Transport-MoWT
- Ministry of Gender, Labour and Economic Development (MGLSD)
- National Water and Sewerage Corporation (NWSC)
- Directorate of Water Resources Management (DWRM)
- National Information Technology Authority – Uganda (NITA)
- Uganda Police Force (UPF)
- Uganda Telecommunications Corporation (UTEL)

Local Government Institutions/Officials

Officials (both technical and political) from the local government of Arua City (LC 1 leadership of the 7 Villagers of Kijoro, Amvua, Ombavu, Ekaliyo, Mucera, Dadau, Nyaza A and Nyaza B Cell, Ayivu Division, Arua City) were consulted. They included the following.

- Town Clerk and his Deputy
- Environment Officer
- City Engineer
- City Physical Planner
- City Community Development Officer
- City Planner
- City Mayor
- RCC and his Deputy
- LC 1 Chairpersons for the seven Villages that host the proposed Code 4E Arua Aerodrome
- Operations Manager-UCAA-Arua Aerodrome
- Aerodrome Security-AVIPOL
- Port Health-MoH
- Immigration
- Fire Fighting Department
- Airlines
- Aviation Fuel Supplier
- Meteorology Department
- Mayor-Ayivu Division
- Town Clerk - Ayivu Division

6.5 Stakeholder Briefings and Community Consultation

In compliance with national and international guidelines on requirements for the ESIA stakeholder engagement, the ESIA exercise engaged affected parties and groups in both formal (e.g. meetings and FGDs) and informal consultations.

This activity commenced in the month of June 2025 at the scoping phase and continued throughout the detailed phase of the study i.e. in the month of July 2025.

For all meetings, a letter introducing the ESIA Study Team was produced (Appendix G) and a brief introduction of the project was given, the purpose of the ESIA was explained, the various project activities to be undertaken at the different phases of the project were described and the different teams of experts to carry out the activities were provided. The team then guided the participants to obtain their views. Questions from the participants were answered and some misconceptions about the project clarified. Views and concerns from the stakeholders were recorded. In addition, pictures of the meetings were taken and attendance lists were filled by the participants.

Meetings with National and Local Government Leadership and other Stakeholders/Formal Consultation were held

The team made several appointments with the different stakeholders at the local and national levels and these included; national government officials at the selected institutions/ministries, Districts and Divisions. Appointments with some of the stakeholders were made by writing to them directly while for others appointments were made through their secretaries and some leaders were directly approached physically or on phone. In some cases, impromptu meetings were held with the stakeholders. For the local government officials at Arua City Headquarters and Ayivu Division, the leadership was instrumental in mobilization of the relevant stakeholders. Stakeholders were either met individually or as a group in their respective offices for in-depth discussions. For the health, religious and education institutions and NGOs along the proposed Code 4E Arua Aerodrome, information was sought through focused group discussion and formal meetings.

This process was all-inclusive, transparent and highly participatory, through the provision of sufficient information regarding the proposed project. Stakeholders who were consulted enthusiastically participated in the interactions. The project was described and issues arising and the comments and/or areas of concern from the stakeholders were documented.

Table 33 shows the stakeholder engagement schedule for the different meetings held with the different stakeholders whereas Plates 24-34 show the pictorial evidence for the engagements.

Table 40: Stakeholder Engagement Schedule

SN	Date	Activity	Timeframe	Responsible party
01	Wednesday, 11/06/2025	Planning meeting	10am	UCAA
		Airport Reconnaissance visit	11:30am	UCAA
		Lunch break	02pm	All stakeholders

		Arua City mobilization for technical meeting	03pm	UCAA
		Meeting with Assistant RCC	04pm	UCAA
02	Thursday, 12/06/2025	Meeting with the City Mayor	08am	UCAA
		Airport/fieldwork (meeting PAPs and data collection)	09am	UCAA
		Lunch break	01pm	All stakeholders
		Meeting with the Technical staffs of Arua City	02pm	Assistant Deputy Town Clerk
		Meeting with the Local Council Leadership (7 villages)	04pm	UCAA
03	Friday, 13/06/2025	Meeting with UCAA staffs and selected partners	09am	UCAA
		Lunch break	01pm	All stakeholders
		Meeting with Airliners	02pm	UCAA



Figure 22: First planning meeting with the Operations Manager-UCAA Arua Aerodrome



Figure 23: A recap meeting after field visit by the ESIA Team and UCAA Arua Aerodrome



Figure 24: Meeting with all the Arua Aerodrome Service Staffs and Partners



Figure 25: Meeting with all the Airlines and Fuel Service providers at Arua Aerodrome



Figure 26: Meeting with the Deputy Town Clerk



Figure 27: Meeting with Deputy RCC



Figure 28: Meeting with the City Town Clerk



Figure 29: Meeting with the Technical Staffs of Arua City



Figure 30: Meeting with the City Town Clerk



Figure 31: Meeting with the Division Town Clerk and Mayor



Figure 32: Meeting with the LC 1 Chairpersons for the Seven Villages that host the Aerodrome

6.6 Issues Raised

During the consultative meetings, a number of issues/concerns were raised and suggestions provided by the different stakeholders. Refer to Table 34 for the feedback from the parties consulted.

Table 41: Key issues from Stakeholder consultations

S/N	Entity	Concern(s)
01	City Mayor	The Mayor thanked the team and the Government for the intervention. He also asked the team to handle PAPs with care if there was any. Also advised the team not to visit the PAPs' homes without the local authorities.
02	Ayivu Division	The bad roads all around the city and those that access the city were talked about and how they are an inconvenience to travellers. The mayor was so grateful for this upcoming development and he concluded saying that such development means more taxes are to be collected. The team was advised to keep customs when constructing the new airport. Basically, they wanted something that could show culture when constructing the airport something like a symbol that represents the people from Arua. The Division Mayor talked about how the team should avoid all obstacles that could lead to a slowdown in construction. More support was promised to the teams that would be part of the construction. Arua's strategic position was talked about and how this project will benefit not only the people of Arua but also Uganda at large in terms of business and other investments.
03	Local Council leadership of the seven villages	Brief introduction. The local council leaders were very happy because of the confirmation of the good news that was brought to them. The L.C assured the team how they have the skilled people to do the jobs needed therefore they should employ their people not outsiders when the construction starts.
04	UCAA staffs and selected partners	The staff presented the point of floods that affect the airdrome activities due to poor planning of the infrastructures especially the newly constructed 200Pax terminal building. The team was advised to look at the end users when the construction is done. Waste management was talked about and how it's important to cater for such an issue at the airport. The UCAA staff talked about the lack of offices to do their activities very well eg. The firefighting team. From the health team of UCAA, they emphasized on health screening being the first number one priority when such advancements come.

		Need for communication gadgets are key. UCAA-Arua staffs were further requested to submit official concerns to the assessment team to inform the designing process.
05		The different airlines thanked the team and the operations manager for such an opportunity to air out their issues The different airlines also thanked the team because such a development meant more business on their sides They also aired out having hangers for the particular airlines They believe the airport will stay consistent in its services to them and to its customers. The team was also advised to be strategic when constructing the run ways by not fully closing of the operating runways as that would mean no work for them hence no businesses carried out. Airlines were requested to engage their respective managements and submit official concerns to the assessment team which will be considered at the ESIA stage
06	Airlines	The different airlines thanked the team and the operations manager for such an opportunity to air out their issues The different airlines also thanked the team because such a development meant more business on their sides They also aired out having hangers for the particular airlines as soon as the proposed site layout is complete They believe the airport will stay consistent in its services to them and to its customers. The team was also advised to be strategic when constructing the run ways by not fully closing of the operating runways as that would mean no work for them hence no businesses carried out. Airlines were requested to engage their respective managements and submit official concerns to the assessment team which will be considered at the ESIA stage

6.7 Future Consultation Activities

Overall, the consultations undertaken to date show that, despite registering some concerns and questions, that project stakeholders (including institutions, affected residents and local communities) predominantly express overall support for the project as they understood its net benefits. Further consultation meetings will continue as part of the construction phase and into the operation phase. A stakeholder engagement plan (SEP) will be prepared for the next stage of the ESIA.

6.8 Grievance Mechanism

The Grievance Mechanism describes avenues for affected persons to lodge complaints or grievances against the project, its staff, or contractors, during its implementation. It also describes the procedures,

roles, and responsibilities for addressing grievances and resolving disputes. Every aggrieved person shall be able to trigger this mechanism to quickly resolve their complaints.

The Grievance Mechanism will be detailed in the SEP and designed with the objective of solving disputes at the earliest possible time, which will be in the interest of all parties concerned and therefore, it implicitly discourages referring such matters to the Tribunal for resolution.

All attempts shall be made to settle grievances amicably. Although the grievance mechanism is yet to be finalised, it is likely that those seeking redress and wishing to state grievances will do so by notifying their Local Leaders. The Local Leaders will inform and consult with the Grievance committee to determine validity of claims. If valid, the Local Leaders will notify the complainant and s/he will be assisted. If the complainant's claim is rejected, the matter shall be brought before the UCAA for settlement.

The grievance mechanism will be fed from five main sources:

- i) Community residents,
- ii) Supervising engineer, clerk of works or contractor,
- iii) UCAA,
- iv) AfDB,
- v) Monitoring team who will forward issues/concerns identified in the field to responsible grievance officer.

The Local Leaders shall maintain records of grievances and complaints, including minutes of discussions, recommendations and resolutions made.

CHAPTER SEVEN

7.0 ANALYSIS OF PROJECT ALTERNATIVES

7.1 Introduction

The analysis of alternatives is part of the ESIA process and is done to ensure that the best among all possible options is selected. For this Project, the concept of project alternatives has been considered in line with the feasibility study. Analysis of alternatives has focused on implementation modalities of the proposed Code 4E Arua Aerodrome taking into account, a combination of environmental, governance, social and economic factors. The principle used in the choice of an alternative was to minimize both the environmental and social impacts, technical challenges and the cost of construction. In addition, it is important to note that the said Aerodrome is already existing as Code 3C Aerodrome and just requires rehabilitation and modification to Code 4E. Justification for not selecting the recommended alternative following the analysis has been given in accordance with the requirements of section 4.1.1.2 of the Guidelines for Environmental and Social Impact Assessment in Uganda.

Alternatives are *“different means of meeting the general purpose and requirements of the activity”* which includes alternatives to:

- The property on which or location where it is proposed to undertake the activity;
- The type of activity to be undertaken;
- The design or layout of the activity;
- The technology to be used in the activity; and
- The operational aspects of the activity.

Two types of alternatives exist: Fundamental Alternatives and Incremental Alternatives.

- Fundamental Alternatives are projects that are completely different from the proposed project and usually involve a different type of methodology on the proposed project site, or a different location for the proposed project.
- Incremental Alternatives are modifications or variations to the design of a project that provide different options to reduce or minimise environmental impacts.

Several project alternatives were considered so that there is maximum economic benefit to the nation and optimal resource utilization while keeping environmental and social impacts within acceptable range. Sections 7.2 and 7.3 below present a discussion and rationale of the fundamental and incremental alternatives, respectively.

7.2 Fundamental Alternatives

There were no fundamental alternatives considered because the Aerodrome is already existing as Code 3C Aerodrome and just requires rehabilitation and modification to Code 4E. Secondly, land for expansion could easily be acquired making it the best alternative.

7.3 Incremental Alternatives

The following incremental alternatives were considered:

Option 1: 'No Project' Scenario

The "no project option" means that the proposed expansion of Code 3C Arua Aerodrome to Code 4E International Aerodrome would not be undertaken, leaving it in its current state.

This Arua Aerodrome is currently existing and provides only inland viable routes for businesses, markets and services. If the 'no project' option is adopted, from the socio-economic standpoint, the following benefits will be foregone:

- Increased accessibility to businesses, administrative centers, markets and services internationally;
- Boost in economic activities in the area;
- Enhanced development into the area;
- Improvement in drainage and aesthetics;
- Reduced flooding; and
- Improvement in the value of property and higher-class status of the communities and surroundings.

Option 2: Development of Alternative New Code 4E Arua Aerodrome Compared to the Existing Code 3C

This would mean developing new a new Aerodrome within the same project area. This option was considered the most expensive alternative in terms of compensation and also it would have major environmental and social economic implications. Most of the impacts under this option would be irreversible especially along the sensitive ecosystems. Given that Code 3C Arua Aerodrome already exists and the key issue associated with it is its quality rather than its location, and that the proposed project area requires a big chunk of land which may not be found and even when located can be very expensive to buy in Arua City, development of alternative alignments is not a tenable option.

Option 3: Expansion of the existing Code 3C Arua Aerodrome to Code 4E

Although initially high costs are incurred in construction and Rehabilitation of Aerodromes and Airports, this alternative is sustainable in that major expansion and maintenance interventions are expected after a long period of time, making this option cheaper in the long run. Additionally, the expanded Aerodrome will boost economic development in the Arua City and Uganda at large, as the value of land along this proposed Code 4E Aerodrome will increase attracting large investments, travel time will reduce, economic activities will sprout along and within the said Aerodrome and Aircraft maintenance costs are anticipated to go down. Technically, the proposed Code 4E Arua Aerodrome will provide better and reliable flights with better geometric characteristics.

From the environmental and social economic view, upgrading works will involve earthworks and the requirement for raw materials. However, all these environmental impacts are temporary since they only happen during the construction phase. Additionally, a plan with financial resources for environmental restoration is always incorporated in the project to ensure that the disturbed areas are rehabilitated to as near as possible the initial situation.

CHAPTER EIGHT

8.0 IMPACT ASSESSMENT AND MITIGATION MEASURES

This section identifies the potential environmental and social impacts that may occur as a result of the project. Impacts have been identified related to the pre-construction and construction and operation phases of the project. Impact predictions were based on the consultants' previous experiences with similar assignments; professional judgment; data collected in the field; and international good practice guidelines such as the AfDB's Environmental and Social Operational Safeguards. Firstly, Section 8.1 summarises the method used for impact identification and assessment, as presented in Section 3.9. Section 8.2 discusses the assessment of potential impacts identified as well as of proposed mitigation or enhancement measures. Finally, section 8.3 gives an overview of the project's cumulative impacts.

8.1 Method for Impact Identification and Assessment

8.1.1 Overview

The impact assessment process comprised the following steps:

- Identification of receptors and their sensitivity;
- Identification of the Proposed Project activities that may have an impact on the environmental and social receptors;
- Identification of the potential impacts of the Proposed Project;
- Identification of impact severity/Severity of the planned activities;
- Evaluation of the significance of the impact;
- Identification of mitigation measures and residual impacts;
- Consideration of cumulative impacts; and
- Consideration of unplanned events.

8.1.2 Identification of sensitive receptors

Sensitive receptors were identified based on the baseline conditions identified for each topic and in accordance with relevant guidelines, as appropriate. Sensitive receptors included:

- Physical (i.e. non-living environmental components, including air quality, water bodies, soils);
- Ecology (i.e. habitats, flora and fauna); and
- Human (i.e. landowners and residents of local communities, local economy, cultural heritage).

The sensitivity of the environmental and social receptors was then determined by the specialists by ranking the components of the baseline data collected during the ESIA. Numerical descriptors i.e., 1, 2, 3, or 4; which are equivalent to very low, low, medium or high sensitivity respectively were assigned

to illustrate the level of sensitivity of a given receptor. Table 35 below provides the interpretation of each numerical descriptor.

Table 42: Numerical Descriptors

Numerical Descriptor	Description
1	An attribute of low quality and rarity on a local scale with potential for substitution locally. The receiving environment or receptor has a high natural resilience to imposed stresses.
2	An attribute with a medium quality and rarity on a local scale with limited potential for substitution, or an attribute of low quality and rarity on a regional or national scale. The receiving environment or receptor has a moderate natural resilience to imposed stresses.
3	An attribute with a high quality and rarity on a local scale with little or no potential for local substitution, or with a medium quality or rarity on a regional or national scale with limited potential for substitution. Sensitive area or receptor with little resilience to imposed stresses.
4	An attribute with a high quality and rarity on an international, regional or national scale with little or no potential for substitution. Sensitive area or receptor with little resilience to imposed stresses.

8.1.3 Identification of Project Activities

Proposed activities for each phase of the Project were identified through a review of the Proposed Project Description.

8.1.4 Identification of Potential Impacts

An environmental or social impact, in accordance with the definition provided in the National Environment (Environment and Social Assessment) Regulations 2020 is: any change, potential or actual, to (i) the physical, natural, or cultural environment, and (ii) impacts on surrounding community and workers, resulting from the business activity to be supported.

Relevant impact characteristics include:

- Adverse or beneficial;
- Direct or indirect;
- Short, medium, or long-term in duration; and permanent or temporary;
- Local, regional or global scale affect; including trans-boundary (neighbouring countries), and;
- Cumulative (such an impact results from the aggregated effect of more than one project occurring at the same time, or the aggregated effect of sequential projects. A cumulative impact is *“the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions”*).

8.1.5 Sources of Impact

The sources of impact can be defined as all the activities linked to the project likely to have an impact on the environment and communities. The sources of impact are grouped by project phases: pre-construction, construction, operation and decommissioning phases. The activities resulting in impacts are discussed under each impact section.

8.1.6 Identification of Impact Severity for planned activities

Impact severity (or magnitude) describes the importance of the actual change that is predicted to occur to the receptor. It is determined based on the professional judgement of the specialist team taking into account the following characteristics:

- Type of impact (i.e., direct, indirect, induced);
- Size, scale, or Severity of impact;
- Nature of the change compared to baseline conditions (i.e., what is affected and how);
- Geographical extent and distribution (e.g., local, regional, international); and
- Duration and/or frequency (e.g., temporary, short-term, long-term, permanent).

This methodology requires assigning of numerical descriptors to the impact Severity for each potential impact. The numerical descriptors are 1, 2, 3, or 4; which are equivalent to very low, low, medium or high respectively.

8.1.7 Evaluating the significance of Impact

The impact significance was then calculated as the product of the two numerical descriptors i.e. the sensitivity of the receptor and the severity of the impact as indicated in Table 36.

Table 43: Determination of impact significance

			Sensitivity of receptor			
			Very low	Low	Medium	High
			1	2	3	4
Severity of impact	Very low	1	1 Negligible	2 Minor	3 Minor	4 Minor
	Low	2	2 Minor	4 Minor	6 Moderate	8 Moderate
	Medium	3	3 Minor	6 Moderate	9 Moderate	12 Major
	High	4	4 Minor	8 Moderate	12 Major	16 Major

The definitions provided in Table 8.2 were applied as follows:

- **Major adverse impact** – where the Project would cause a significant deterioration to the existing baseline;
- **Moderate adverse impact** – where the Project would cause a deterioration to the existing baseline;
- **Minor adverse impact** – where the Project would cause a barely perceptible deterioration to the existing baseline; and
- **Negligible** – no discernible deterioration to the existing baseline.

For positive impacts, the impact assessment approach only covers identification of the impact and potential enhancement measures.

8.1.8 Mitigation and Residual Significance

For major and moderate adverse impacts (significant impacts) identified through the impact assessment process, mitigation measures were proposed. Mitigation measures were identified in accordance with a hierarchy of options that are aligned with good practice:

- **Avoid** - Making changes to the project's design or location to avoid adverse effects on an environmental feature.
- **Minimise** - Reduction of adverse effects through sensitive environmental treatments/design.
- **Restore** - Measures taken during or after construction to repair/reinstate and return a site to the situation prior to occurrence of impacts.
- **Compensate/offset** - Where avoidance or reduction measures are not available, it may be appropriate to provide compensatory/offsetting measures. It should be noted that compensatory measures do not eliminate the original adverse effect, they merely seek to offset it with a comparable positive one.

In addition to mitigation measures, where applicable, enhancement/improvement measures have been considered. This approach acknowledges the project preparation stage presents an opportunity to enhance these positive features through innovative design.

Residual impacts are those that remain following the implementation of the proposed mitigation and enhancement measures within the environmental assessment. The significance of the impact is then re-assessed, assuming application of the mitigation measures, to derive the 'residual' impacts caused by the Project.

8.1.9 Cumulative Impact Assessment

The assessment of cumulative impacts has considered the effects of other developments in the vicinity of the Project which are under construction or have been consented, which when combined with the effects of the Project may have an incremental effect. Arua City is known as one of the fastest growing cities in Uganda. This means that there are a number of development activities taking place continuously, and with it many negative impacts combined. Expansion of Arua Airport will automatically contribute towards the negative cumulative impacts of development in the city.

8.1.10 Impacts of Unplanned Events (contingencies)

Impacts associated with unplanned events (or contingencies), such as vehicle accidents, earthquakes, floods or fires, are difficult to assess within the framework outlined above, because:

- The frequency of unplanned events is usually low, since operational procedures are designed to minimise the risk of an occurrence;
- The Severity of these impacts is difficult to quantify, since there is a wide range of possible events (i.e., the impact Severity is highly variable); and
- Unplanned events that may result in a severe environmental or social impact usually result in high financial, social and political liabilities and costs for the developer. Therefore, the project ought to have substantial built-in controls to avoid such occurrences. The probability of unplanned events (contingencies) occurring should always be low so they are not assessed (in terms of assigning a significance rating) in the impact assessment, whereas expected potential impacts are assessed.

Nevertheless, the potential levels of consequence to environmental and social receptors of unplanned

impacts (or contingencies), should such an event occur have been discussed, and mitigations measures proposed.

8.2 Positive Impacts

8.2.1 Improved Aviation mobility of Aircrafts, reduction in travel time and increased reliance

The purpose of the project is to expand the existing Code 3C Arua Aerodrome to Code 4E. The current poor condition in terms of infrastructure and services at the existing Code 3C Aerodrome makes aviation movements for aircrafts limited and slow. The proposed expansion of Code 3C Arua Aerodrome to Code 4E will therefore improve on the limitations and reliance on aviation mobility within Arua City and the country at large hence reducing travel time for Air transport users.

	Construction	Operation (Post Construction)
Project phase impacted		√

8.2.2 Regional Economic Impacts

The proposed expansion of Code 3C Arua Aerodrome to Code 4E Aerodrome will have a number of positive national, regional and local economic and employment benefits especially during construction and operational phases. It will principally beneficially impact the national economy through state receipt of import duties and value added taxes on construction supplies, and through state receipt of workforce income tax contributions.

	Construction	Operation (Post Construction)
Project phase impacted	√	√

8.2.3 Employment

The proposed expansion of Code 3C Arua Aerodrome to Code 4E Aerodrome presents income opportunity for contractors, the local communities and tax revenue for government. It is estimated that over 80 people will be directly employed during construction, some of which will be sourced from local communities. This will be over a period of approximal 2 years. It is worth noting that the unemployment rate in Uganda was 11.9% in 2021 as per the United Nations Development Programme (UNDP) Annual Report, 2023.

Priority will be given to local residents wherever casual work is needed. The majority of the employment opportunities will be for low-skilled labor, which will be hired from local communities. This presents a positive but short-term economic benefit for the local communities. However, it is common for the largest proportion if not all of this labor to comprise male workers.

Evidence also shows that it is reasonable to conservatively assume a two-fold employment multiplier (Macfarlane, 2000) for construction projects of this type and scale in this country context, which would result in short-term Project 'spin-off' employment for up to approximately 160 people.

During the operational phase, it is expected that people will be employed to undertake routine maintenance of the proposed Code 4E Arua Aerodrome by UCAA.

	Construction	Operation (Post Construction)
Project phase impacted	√	√

Impact Enhancement:

The contractor should use locally available labor for the unskilled labor requirements and where the required skills are available locally, the local people will be given first priority commensurate to their level of training. The contractor should also consider on job training and skilling of the labor force. This will have the advantage of enabling the local community take responsibility in owning up the project.

- The construction contractor will involve local leaders in recruitment process to ensure full and fair participation of local communities and screening out of lawbreakers.
- To help reduce economic marginalisation, the contractor will ensure its recruitment process is fully disclosed to the public and open to all people locally of working age and ability, including women. The process should be based on appointment by merit rather than by any political, clan, or class affiliation but should be affirmative with regard to promoting opportunities to less advantaged and more vulnerable people locally.
- Additional training and upskilling to the workforce should be provided wherever possible.
- The contractor(s) will be obligated to work with City Labor Officer to ensure that Uganda's labor laws (Employment Act Cap. 226) are complied with.
- In the context of the short-term nature of construction phase employment, and in an environment of high-level household economic dependence, it is incumbent on UCAA to help promote fiscal sustainability and responsible wage expenditure among directly contracted project workers (and, to the extent possible, indirectly contracted workers) and to enhance their opportunities for transitioning to new income generating activities after retrenchment. To this end, it is recommended that the contractor(s):
 - i) Review their project employee retrenchment policy to ensure the policy fully addresses duration of notice, severance payment, re-training, and skills inventory and job search support measures that mitigate the most adverse impacts of employee retrenchment as part of an employee adjustment package; and
 - ii) Pay project salaries into bank accounts or an equivalent post office or project guarantee facility and give workers personal financial management briefings as part of their induction that encourage wage apportioning to savings that can be drawn on post-retrenchment to give transitional support to them and their dependents.

8.2.4 Skills Development

The Project will provide an opportunity to upskill those that work on the project during the construction phase. Particularly, unskilled and semi-skilled labor will get an opportunity for skill development.

Skills to be acquired may include use of construction equipment, operation of heavy materials, health and safety procedures at construction sites, mixing concrete materials and tar, laying drainage, laying pavements, excavating trenches etc. The duration of the impact will be medium-long term, for the period of construction but with skills that can then be used on other construction projects in Arua.

	Construction	Operation (Post Construction)
Project phase impacted	✓	

Enhancement measures:

Provision of on-job training for the workers (unskilled and semi-skilled) in various areas of construction. This could be achieved through deliberately placing unskilled workers with semi-skilled personnel and semi-skilled with skilled workers.

8.2.5 Income to material/equipment suppliers and contractors

During construction, there will be a demand for construction materials that could have a positive direct impact on local businesses. For example, construction will require gravel (murram) and aggregate (stone), etc some of which can be sourced locally. Other materials are bitumen, water, cement, stones and steel. Some of these materials required for the project will be sourced nationally and internationally to ensure that the desired quality is achieved. Procurement of these resources connotes income to suppliers and owners of land where borrow pits and quarry sites will be located.

	Construction	Operation (Post Construction)
Project phase impacted	√	√

Impact Enhancement

- Priority to be given to local companies when sourcing construction materials and supplies.
- The contractor shall ensure adequate, fair, and prompt payments to local suppliers.
- Earth materials needed for construction, for example, murram, aggregate (stones and sand) should be largely obtained locally, if present in the required quantities and quality.
- The contractor shall enter into agreements with local suppliers and shall ensure adherence to the conditions therein.
- The contractor shall ensure fair, adequate and timely payment to the suppliers.

8.2.6 Benefit to local wholesale/retail businesses

In addition to the above opportunities, the presence of the construction workforce will provide an opportunity for traders and businesses to sell their goods and commodities such as food stuffs, drinks and other consumable products to the workforce. This salary-based expenditure of construction employees on transport, assets, hard goods and consumables, will principally provide additional stimulus to the local economy, thereby improving the incomes of local business with potential knock-on effects of improving the welfare of the local communities. These impacts are likely to positively impact men and women.

This project will have construction works on-going for a period of 2 years and therefore this is likely to result in a medium term, though temporary, impact.

	Construction	Operation (Post Construction)
Project phase impacted	√	

Impact Enhancement

- During the project progress meetings with local community, the residents will be informed about the project and how their businesses can benefit from the project.
- The Contractor should procure goods locally wherever possible, including perishable goods provided by stall holders who could adversely affected by the Project.
- Construction staff will be advised of opportunities to purchase from Project-affected persons/businesses.

8.2.7 Rental income for workers camp and equipment yard site owners

Land will be required on which to set up temporary contractors' camp and equipment yard. Owners of land on which these facilities will be erected will earn a rental income negotiated with the Contractor. This is a positive but medium-term (for the period of construction) and reversible benefit ceasing with project

completion or whenever such facilities are no longer required in a given location.

	Construction	Operation (Post Construction)
Project phase impacted	√	

Impact Enhancement:

- The contractor shall enter into agreements with the land owner and shall ensure adherence to the conditions therein.
- The contractor shall ensure fair, adequate and timely payment to the land owners.

8.2.8 Improved access to businesses

The effects of expanded Aerodrome are likely to improve access to international and local businesses within and across the neighboring countries during the operations phase.

	Construction	Operation (Post Construction)
Project phase impacted		√

Impact enhancement

- The contractor shall ensure that the proposed Code 4E Arua Aerodrome is designed such that it accommodates all potential air transport users and have sufficient safety measures to enhance user experience.

8.2.9 Improved access to international and local social facilities

The development of the proposed Code 4E Arua Aerodrome are likely to improve access to international and local socio-community facilities, including, in particular, access to health centers, hospitals, cultural sites, businesses, Green Parks, schools etc.

As a result of improved Aerodrome conditions, private investors might be attracted to invest in the area to improve health services, schools, industries etc.

	Construction	Operation (Post Construction)
Project phase impacted		√

8.2.10 Increased value of land

The price of land and property along and near the proposed Code 4E Arua Aerodrome is likely to increase following the Aerodrome improvement. This will provide monetary benefits to the owners of the property. This impact will be long term. However, it will only benefit the property owners while tenants and buyers may have to pay higher prices.

	Construction	Operation (Post Construction)
Project phase impacted		√

8.2.11 Improved Aviation Health and Safety

Once completed, the works will reduce potential risks to, and negative impacts on, the health and safety of air transport Pax.

	Construction	Operation (Post Construction)

Project phase impacted		√
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8.2.12 Improved security in the area

The solar/electric lights along and within the proposed Code 4E Arua Aerodrome will increase visibility on at night which should contribute towards reducing crime in the study area. This impact will be long term and will benefit all Aviation Pax and area residents.

	Construction	Operation (Post Construction)
Project phase impacted		√

8.2.13 Aesthetic value and enhancement of habitats

The proposed Code 4E Arua Aerodrome is expected to contribute to the improvement of scenery in all areas affected by the project. The expanded Aerodrome with good landscaping, street lighting and good drainage will improve the aesthetic value of the area. Additionally, there will be a reduction in the levels of fugitive dust on the murrum runway and emissions after construction leading to cleaner buildings and vegetation⁷ within and around the Aerodrome.

The impact will be long term but will require constant efforts from the respective divisions and behavioral change from the people to maintain the aesthetic.

	Construction	Operation (Post Construction)
Project phase impacted		√

8.3 Negative Impacts

8.3.1 Improper management of excavated materials during construction

The majority of the material generated during the construction phase is anticipated to be excavated spoil-material. Examples of notable on-site construction activities that will result in the generation of excavated spoil include (but are not limited to):

- Breaking up the existing runway, taxiway and parking surface;
- Reinforcement of the formation layer (sub-grade); and
- Any additional dismantling required.

	Construction	Operation (Post Construction)
Project phase impacted	√	

Impact characterization

It is envisaged that excavated material will be sent to approved landfill or stockpile areas if it cannot be recycled on-site.

If waste material is improperly managed and disposed of during construction of the proposed Code 4E

⁷ An accumulation of dust on leaves can “clog” the stomata and thereby impact on normal photosynthetic, transpiration and cellular respiration rate (Sharifi et al., 1997) and finer dust can be directly taken into the stomatal openings (Farmer, 1993) adversely impacting the biological fitness of plants. Prolonged smothering can result in the death of an individual and long-term impacts can result in habitat degradation

Arua Aerodrome, the impact duration would be short to medium term. The extent of the impact would be local and limited to the immediate neighborhood of disposal sites on land but might also have considerable spatial extent downstream of deposition site in a wetland/valley through runoff from the disposal site. Impact Severity can therefore be considered high. Impact receptors are communities, watercourses, and wetlands. Therefore, impact significance is major as illustrated in Table 45 below.

Table 44: Impact Significance Improper management of cut to spoil during construction

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures:

The contractor will, in consultation with the City Environment Officer and the supervising engineer identify suitable sites for temporary stockpiling of the cut to spoil material which shall later be used in Aerodrome rehabilitation and restoration of borrow pits and quarries, as appropriate. Some of the parameters to be considered in site selection shall include;

- Access to the site;
- Drainage of the area;
- Zoning or physical development planning of the area by the local authority;
- Settlement patterns in the area;
- Consent from the land owner
- Security of the area; and
- Sensitivity of the environment and its neighboring areas (Materials must be stored away from surface watercourses, flood zones and groundwater recharge areas to prevent environmental harm to water), among others.

The contractor will, wherever possible, seek to recycle cut on site. Proposed waste management methods for excavated material (other than removal by truck to landfill) include:

- Material to be used as backfill around structures;
- Material to be left on-site and graded to levels;
- Materials to be re-used on similar local construction projects; and
- Materials to be recycled (on or off site) or screened and re-used (on or off site).

This will depend on the characteristics of the materials and therefore, it is not possible at this stage to confirm the amount of re-use of cut material on site. Undertaking such on/off-site reuse and recycling not only reduces the amount of waste leaving site, but also reduces the need to import material. This in turn will reduce the amount of site traffic for trucks removing material and reduce the burden on limited local waste management infrastructure.

The contractor shall develop and implement a stockpile management plan to guide in proper handling and management of these temporary stockpile sites. Components of the plan should include;

- Procedure for stockpile site selection (including environment and social screening)
- Stockpile site risk analysis and impact management
- Materials flow and management
- Materials inventory and Record keeping
- Onsite inspection checklist
- Site restoration plan

Under no circumstances will the Contractor accept requests from persons who wish to use cut- to spoil (stripped overburden) to illegally reclaim wetlands.

With the implementation of the above mitigation measures, the residual impact significance will remain moderate though may be reduced to low depending on amount of material that is ultimately recycled.

8.3.2 Health and Safety and pollution impacts from mismanagement of generated waste

The construction phase is usually accompanied by generation of a number of wastes that range from construction wastes, hazardous wastes to domestic wastes. Wastes which will be generated during the construction phase include the following:

- Vegetation waste from site clearance;
- Excavated materials from earthworks (e.g. cuttings, re-grading works);
- General construction waste (e.g. wood, scrap metal, concrete, empty cement bags); and
- Domestic wastes generated by site workers (plastic bottles (mostly drink/ water bottles), paper, cloths, food scraps, sewage)

During operations-phase, the nature and volume of wastes will be as normally expected and managed by UUCA. Wastes may be generated from specific maintenance operations (e.g., upkeep of landscaped areas) and may include; concrete, silts and organic wastes (vegetation).

	Construction	Operation (Post Construction)
Project phase impacted	√	√

Construction Phase

Impact characterization:

Such wastes generated do not only contaminate the environment but also cause diseases among the community and render some soils infertile. Excavated materials and residual wastes may give rise to impacts during their handling, temporary stockpiling or storage on site, transportation and final disposal. Heaping of debris affects the aesthetics of the area and leads to accidents like cuts from sharp objects.

These waste if not properly managed will have the following negative impacts:

- Heaps of collected rubbish pose a nuisance and a human H&S risk;
- Associated with bad odour;
- Harbour disease causing vectors like flies, rodents and etc; and
- Contaminate the soil or the environment on which it sits, and this can pose a long-lasting negative impact.

There are potentially a significant number of risks to human health and the environment that may be associated with the handling, storage and disposal of waste, both on and off-site. Disposal of waste to the existing open landfill will clearly have the most negative impact to the environment and human health. Therefore, management of all this waste is crucial to the health and safety of the workers and host community.

There is a medium likelihood of occurrence of this impact given that construction activities inevitably result in the generation of wastes. Some of these waste materials, especially plastic/polythene, are not biodegradable may cause long term injurious effects to the environment. However, the generation of wastes will be for the period of construction only, which is considered medium term. Overall, the impact Severity is rated medium. Receptors that could be affected from the mismanagement of wastes include construction contractor staff and neighboring local community, who are considered to be receptors of medium sensitivity. The significance of the impact before Mitigation is therefore rated **Moderate**. Refer to Table 38.

Table 45: Impact significance of Mismanagement of generated waste

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

General Mitigation Measures

Waste management during the construction phase will include implementation of appropriate procedures, protocols and monitoring of materials being delivered and handled. These are described in the Construction-phase Waste Management Plan

The following Waste Management Hierarchy as illustrated in Figure 35 below should be followed for all wastes:



Figure 33: The Waste Management Hierarchy

The following mitigation measures should be implemented:

- segregate wastes by type for recycling purposes;
- separate hazardous wastes to reduce contamination;
- clearly label all segregated waste; and
- do not mix or dilute hazardous waste.

Inert wastes such as aggregates and concrete will be recycled wherever possible by the contractor.

- i. In summary, waste management procedures should be implemented to minimize potential impacts to the environment. This may be achieved by consideration and application of the following protocols:
 - Avoiding and/or reducing waste generation where practical by improvements or changes in the project design or site procedures;
 - Reusing/recycling/recovering materials where possible and thereby negating / minimizing disposal requirements (e.g., by waste segregation according to type, separation of recyclable materials such as metal, reuse of wood from site hoarding/concrete formwork, utilization of excavated material for filling or landscaping);
 - Ensuring that all treatment and disposal options comply with best practice and all relevant guidelines and legislation; and
 - Training site staff in waste minimization and management practices.
- ii. A waste Management Plan (WMP) will be developed by the contractor, to ensure that measures for handling all project-generated waste are in place; The WMP will be consistent with the waste legislation of Uganda and other national and international best practices. The WMP will be a conclusive approach to manage all waste components in accordance with the best health, environmental,

economic and engineering practices (and responsive to public attitudes). The plan should include the following;

- Waste sources and streams (Nature and Type of Waste Materials);
 - Waste Management Hierarchy (Reduce, Reuse, Recycle, disposal);
 - Storage and disposal (Location and type of waste storage bins, Collection and Transportation, Waste storage and transportation permits, storage of hazardous waste;
 - Training and Awareness;
 - Waste inventory and record keeping; and
 - Waste management checklist, among others
- iii. All materials will be re-used or transported off site as soon as possible to minimize the potential for adverse environmental impacts. It is recognized that some stockpiling of materials will be required in some instances although these will be segregated in terms of material type as far as practical to facilitate material re-use (i.e. top soil for landscaping, suitable fill for engineering works).
 - iv. All excavated material will be handled in a manner that minimizes the release of fugitive dust (especially during hot and dry weather) e.g. by covering the haulage trucks with tarpaulin and where possible the movement of material will be kept to a minimum.
 - v. The contractor will be obligated to ensure responsible waste management, for example identification and engagement of a NEMA-approved waste contractor, in consultation with UCAA, who will dispose of waste to a licensed area/ landfill;
 - vi. Waste will be collected, sorted and temporarily stockpiled in a designated area before haulage off site.
 - vii. Waste minimization will be emphasized and implemented throughout this stage of the project;
 - viii. Avoiding and/or minimize waste generation where practical by improvements or changes in the project design or site procedures;
 - ix. The principles of an integrated solid waste management system will be implemented i.e. reduction at source, reuse and recycle. This will be implemented by use of accurate estimates of dimensions and quantities of materials required, use of durable materials that will not require replacement often, providing proper facilities for handling and storage of construction materials to minimize waste by damage;
 - x. Waste will be removed from the site in a manner consistent with national regulations (for example, transporters will be licensed). While transporting waste, care will be taken to prevent waste spreading to areas outside the site boundary;
 - xi. Construction workers will be provided with appropriate protective gear during handling of waste;
 - xii. Provide an area within the construction site to allow for sorting and segregation of materials; ensure sufficient segregation of wastes;
 - xiii. Material will be covered during heavy rainfall;
 - xiv. Using dust suppression techniques (such as dampening with fine water spray and covering with tarpaulin); and
 - xv. Locating stockpiles to minimize potential visual impacts.
 - xvi. For hazardous wastes, the waste handler should be registered by NEMA and licensed specifically to handle hazardous waste.

Impact Mitigation Enhancement

Options to improve recovery rates should be explored to divert a potentially significant quantity of material over the course of construction going to landfill. To achieve the recovery rates, site-sorting of waste needs to be implemented to enable segregation of waste types. The benefits of segregating wastes include:

- Tracking the types of waste being produced;
- Identifying where efforts to reduce waste are needed;
- Reducing disposal costs if inactive wastes are not contaminated by active wastes; and
- Increasing the potential for re-use and recycling of materials.

Overall, if careful planning and management measures are used, as outlined as mitigation measures above, it will aid the prevention, reuse and recycling the materials where possible and will minimize the overall amount of material disposed of to landfill. With the implementation of the mitigation measures, the residual impact significance is **Negligible**.

Impact Characterization:

The total volumes and types of operational waste materials will be dependent upon the nature and frequency of the maintenance works undertaken and cannot be accurately estimated at this stage. Data related to operational waste types generated by planned/unplanned repair or maintenance of the Aerodromes is not readily available and as such a table depicting these waste types has not been provided, however it is known that such wastes are likely to be both non-hazardous/ inert and hazardous, as follows:

- Concrete;
- Bituminous materials;
- Oil;
- Lubricants; and
- Waste electrical and electronic equipment (WEEE).

Maintenance and repair works may require workers to be based on-site for an extended period of time, requiring temporary welfare facilities. Operational waste types that are likely to be generated by maintenance staff are:

- Organic waste;
- Paper;
- Plastic;
- Glass;
- Metal; and
- Other (hazardous or non-hazardous).

Furthermore, uncontrolled Aviation Solid Waste (ASW) is likely also present within and along the proposed Code 4E Arua Aerodrome due to lack of appropriate waste skips and infrequency of collection. Whilst this is not a project operational impact, this waste could impact on the Project as it may enter into drainage channels, necessitating more frequent maintenance clearance of the drainage channels to maintain their functionality. This will result in the generation of MSW which will require disposal.

The daily anticipated volume of wastes arising from an operational Code 4E Arua Aerodrome is likely to be low. Impacts will be short-term, localised in spatial extent and limited to the expansion activities. The impact Severity is rated low. Operation and maintenance staff, and the adjacent local community are considered receptors of medium sensitivity. Overall, therefore the significance of the impact will be **Moderate**. Refer to Table 39 below.

Table 46: Impact significance of Mismanagement of generated waste

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

General Mitigation Measures

- An operation and maintenance WMP should be prepared and implemented.
- With the implementation of the above mitigation measures, the residual impact significance will be minor to negligible.

With the implementation of the mitigation measures, the residual impact significance is **negligible**.

8.3.3 Direct Vegetation Loss, Degradation and Fragmentation

A significant impact to remnant natural vegetation and flora is expected to occur during the construction phase when vegetation adjacent to the earmarked Code 4E Arua Aerodrome.

A number of plant species were observed and recorded within and around the proposed Code 4E Arua Aerodrome. The plants were observed to have important ecological and socioeconomic value such as hosting bird nests, providing ground cover for erosion control, provision of food to man and birds as well as being of commercial, medicinal and ornamental purposes among other uses.

	Construction	Operation (Post Construction)
Project phase impacted	✓	

Impact characterization

It was observed during the surveys that natural terrestrial vegetation within the project host areas and in the immediate footprint of the extents of the proposed Code 4E Arua Aerodrome, was highly fragmented and to a great extent anthropogenically modified. The majority of these vegetation species are not protected or threatened species, and none of the sections of the proposed Code 4E Arua Aerodrome was observed to traverse a pristine natural habitat. As such, their sensitivity in general is **Low**. However, in areas where *Jacaranda mimosifolia*, which is listed as Vulnerable in its native range of South America and legally protected tree species (*Milicia excelsa*, *Mangifera indica*, and *Markhamia*) are present, the sensitivity would be considered **High**. In relation to the extent of vegetation clearance, it is likely that clearance will be required for the proposed site verges to complete these works and therefore, overall

severity of the impact would be **Medium**. Therefore, for the most part the impact significance is **Moderate** however, where legally protected or threatened species are present, the impact significance would be **Major**. Refer to Table 40 below.

Table 47: Impact Significance for Direct Vegetation Loss, Degradation and Fragmentation

			Sensitivity of receptor			
Severity of impact			Very low 1	Low 2	Medium 3	High 4
	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures

- Avoid the use of fire and herbicides to clear vegetation
- Maintain a minimal footprint for vegetation clearance
- Avoid disturbance of ecologically sensitive areas where feasible
- Sensitive and progressive habitat clearance to facilitate fauna dispersal
- Identify and enforce no-go zones in areas of ecologically sensitive habitat adjacent to construction areas
- Workforce awareness training
- Project staff and contractors banned from collecting timber / non-timber products (NTFP) in the vicinity of the Project including protected areas
- Progressive revegetation of disturbed areas.
- Establish Aerodrome side vegetation where practicable.

With respect to the majority of vegetation, with the implementation of the above mitigation measures, the residual impact significance will be minor. With respect to any protected or threatened, the residual impact significance can be expected to be moderate.

8.3.4 Invasive Alien Species

Several alien invasive species were recorded in the vicinity of the proposed Code 4E Arua Aerodrome (i.e. *Imperata cylindrica*, *Tithonia diversifolia*, *Lantana camara* and *Brousonetia papyrifera*). These species are aggressive competitors and as such are capable of progressively colonizing and dominating areas of terrestrial

	Construction	Operation (Post Construction)
Project phase impacted	√	√

Impact characterization

Without control, there is a risk that the movement of heavy machinery, vehicles and human activities may spread these species through the transfer of seeds, saplings and rhizomes from currently affected areas to new receptor sites. There is also a risk that the introduction of people, vehicles and goods from outside the area of the Project could result in the introduction of non-native and/or invasive plant species. Such plants can pose a threat to the floristic diversity of habitats by out competing native species. This risk is

expected to be greatest during the Construction phase when soil disturbance and heavy vehicle movements will peak and during the post construction phase when revegetation of disturbed areas will be undertaken. Impact severity can be considered **Low**. Impact receptors will be plant communities surrounding the proposed site. The sensitivity of these areas is **Low**. Therefore, impact significance is **Minor**. Refer to Table 41.

Table 48: Invasive Alien Species

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation Measures

- Implement an invasive species eradication program within the Project Footprint;
- Establish wash-down bays and ensure vehicles are inspected before entering work sites and washed down where needed to remove seeds and rhizomes;
- Inspect sites that are sources of construction materials such as borrow pits to ensure that there are free of any invasive species;
- Ensure non-invasive species used for revegetation and Aerodrome plantings; and
- Report any identified invasive species to UCAA or NEMA for long term management.

With the implementation of the above mitigation measures, the residual impact significance will remain minor.

8.3.5 Direct Habitat Loss, Degradation of Fauna Habitats

It is expected that vegetation clearance works will result in the temporary and permanent loss of fauna habitats that occur in areas where active construction activities will be undertaken such as within the shoulders of the proposed Code 4E Arua Aerodrome incase the Aerodrome is expanded, material laydown areas etc. It should be noted that most of the habitats in the project host areas were observed to be significantly degraded, however the clearance of trees and ground vegetation will deprive urban dwelling fauna such as birds, of habitats.

	Construction	Operation (Post Construction)
Project phase impacted	V	

8.3.6 Impact Significance of Light Spill

It is expected that artificial lighting will be used during construction works for any night time project construction activities and for security lighting at specific locations (e.g. entrances and exits, storage areas etc.) to ensure safety and security of personnel and property and for lighting Aerodrome sections post construction. Light-spill is known to cause disturbance to crepuscular (fauna that are active primarily during dawn and dusk) and nocturnal species (i.e. bats and some birds) and can cause a range of behavioral changes such as altered feeding and roosting patterns. Light-spill may affect the circadian rhythms and cycles of activity of nocturnal, crepuscular and diurnal species, disruption of seasonal

acclimatization, disrupts predator-prey relationships, increases prey intake and alters reproduction behavior (Gaston et al., 2013; Longcore and Rich, 2004).

Many species use lights capes (e.g. moonlight) as cues for movement around their environment and altering these lights capes by light pollution may disrupt these movements by disorienting the animal (Gaston et al., 2013). This can potentially result in physiological stress and thereby reducing biological fitness.

	Construction	Operation (Post Construction)
Project phase impacted	√	√

Impact characterization

Negative impacts to fauna such as birds inhabiting the project host areas in Arua are likely to be minimal since the use of artificial lighting is already widespread in these areas. Additionally, the areas do not host significant populations and diversity of fauna hence the severity of this impact can be considered **Very Low**. The sensitivity of fauna in the project area is **Low**. Therefore, impact significance is **Minor**. Refer to Table 42.

Table 49: Impact Significance of Light Spill

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures

- I. Lighting design will incorporate the minimum wattage required for a safe working environment
- II. Lights pointed downward and toward operational areas, minimizing light egress

Many impacts experienced during the construction phases will continue in varying degrees and intensities into the Operation Phase.

With the implementation of the above mitigation measures, the residual impact significance will remain minor.

8.3.7 Disrupted traffic and access

There will be an increase in traffic during construction as a result of construction vehicles (staff and HGVs) ingressing and egressing work sites. During construction, the works activities themselves (e.g. closures and diversion) may disrupt traffic flow and impede access to social infrastructure e.g. schools, hospitals, shops, leisure parks, entertainment places, health services, markets and worship centre.

During operation, the project is anticipated to result in a positive impact on traffic and this is addressed above under positive impacts.

	Construction	Operation (Post Construction)
Project phase impacted	√	

Impact characterization:

The increase in traffic and potential for diversions could result in considerable disruption of economic and social activities in the project area and may cause stress and resentment of project activities.

Without mitigation measures in place, the project could result in temporary blockage of access to social amenities and property, which may lead to loss of income of traders and disruption to residents. In cases where access to health facilities is blocked, it could lead to loss of lives.

The likelihood of increased traffic, diversion and access issues, without mitigation, is medium. At this stage, there is insufficient information on the period of time over which such impacts would be experienced and therefore, taking a precautionary approach the severity could be high. Sensitive receptors include the Aerodrome users, local community, road users, business owners and users and others such as school going children and teachers. Their sensitivity is considered to be High. Overall impact significance is therefore **Major**. Refer to Table 43.

Table 50: Impact significance of Disrupted Traffic and Access.

Severity of impact			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures:

- i. Detailed planning of the construction phase and temporary arrangements for traffic will be paramount for proposed Code 4E Arua Aerodrome. Depending on the use along the road, the provision of night time working may also need to be considered. A detailed traffic management plan will be prepared and agreed with the relevant authorities.
- ii. Appropriate ingress/egress will be required where construction traffic requires to move to/from compounds to the works site.
- iii. During all works, the contractor should phase activities in such a way as to provide temporary access in sections around the active Aerodrome sections, settlements and socio-economic facilities at all times.
- iv. With regards to traffic management, the Contractor should:
 - a. Identify alternative routes and provide adequate and appropriate signs warning Aerodrome and road users about traffic detours. This should take into account any sensitivities such as settlements.
 - b. Notify the community of the detours in advance through community meetings, radio and other measures.
 - c. Employ flag persons at detours to guide/ control traffic.
- v. All diversions will be planned and their routes approved by the Supervising Engineer.

With the implementation of the above mitigation measures, the residual impact significance will be **minor**.

8.3.8 Potential Conflict in Water Use

Water will be required for the construction workforce on site and at construction compounds, and

construction activities such as water bousing.

No water requirements have been identified for the operation phase.

	Construction	Operation (Post Construction)
Project phase impacted	v	

Impact characterization;

During the ESIA study exercise it was observed that part of the project area especially sections within City are water stressed. Water required for the construction works (including water for dust suppression) will be obtained from the main water system in agreement with the National Water and Sewage Cooperation. The likelihood of this impact occurring is high as water will be required during the construction period and, although the demand is not known it is likely to result in a low/medium severity of impact. The sensitivity of the existing mains water is considered to be medium due to water stressed areas. The overall impact significance is **Moderate**. Refer to Table 44.

Table 51: Impact Significance of Potential Conflict in Water Use

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures:

- The contractor will develop and implement a Water Management Plan.
- The contractor should monitor water use. Water efficiency should be promoted through training. Additionally, the contractor should consider use of non-portable water for less sensitive activities such as dust suppression.
- Regarding drinking water for workers and visitors, the contractor shall procure adequate bottled water that shall be kept at the work sites and distributed as appropriate.
- Contractor shall obtain water abstraction permit to use the available vast water source.
- The project should acquire water abstraction permits with conditions to guide the amount of water to be abstracted as stipulated in the Water Supply Regulations (1999). Water abstraction will comply with rates allowed by the DWRM permit that will be obtained.

With the implementation of the above mitigation measures, the residual impact significance will be minor.

8.3.9 Pollution and hazardous waste spillage

During construction activities, there is potential of spillage of hazardous wastes may include used oils, bitumen and lead acid batteries among others. A spill of liquid, solid or gaseous waste could have an adverse effect on land, water or air and consequently on workers, local communities, and flora and fauna.

Whilst there will be ongoing maintenance activities during operation, these are not considered to result in a significant impact and are therefore not considered further.

	Construction	Operation (Post Construction)
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Project phase impacted	V	
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Impact characterization

During construction activities, there is potential of contamination associated with the construction activities such as; excavation, construction fleet maintenance; culvert civil works, which include: release of sediments, fuels and lubricating oils; generation of welding wastes; generation of paints and solvents wastes; and hydro-testing chemicals if used (for example, biocides, oxygen scavengers and corrosion inhibitors of the pipes), etc. Oils and greases contain hydrocarbons and/or heavy metals such as lead, chromium and cadmium.

These construction activities could result in the contamination of soils. Depending on the size and nature of the spillage, and the physical properties of the soil (including soil porosity, soil potential for contaminant sorption, degradation, soil saturation), this could lead to contaminant migration and impacts at some distance from the site. It is also possible that earthworks may mobilize currently unidentified contamination or damage currently unidentified infrastructure that may result in a leak of contaminants.

There is also a risk of contamination of surface waters from leaks and spills where works are close to surface water bodies, but also due to runoff from work areas into nearby streams and wetlands. Construction activities are a major source of pollutants to natural water bodies such as rivers, streams and wetlands (Brinkmann et al 1985). Increased water runoff and seepage from the work sites could potentially result in contamination of these surface water and in turn affect underground source aquifers.

Hazardous waste maybe toxic to humans and animals if ingested or inhaled causing minor to adverse effects like death, flammable and could cause fire outbreaks that destroy property and lives or corrosive when in contact with human skin and other material.

The likelihood of the impact occurring is high considering the usually low level of safety at construction sites in Uganda and the severity of the impact is medium given the location and nature of the works proposed. Receptor sensitivity (soils, local communities, water bodies, flora and fauna) is high. Overall impact significance is **Major**. Refer to Table 45.

Table 52: Impact Significance of Pollution and hazardous waste spillage

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures

- The contractor should prepare and implement a spill contingency plan/procedure that outlines the main sources of hazardous waste within the construction activities, procedure for spill containment, roles and responsibilities of contractor's key staff in spill response among others.
- As part of the management measures, the contractor should:

- a. Ensure that spill kits are available on site and workers are trained on how to use them.
 - b. Prohibit use of hazardous material by unauthorised personnel; this could lead to poor handling hence spillage.
 - c. Sensitize workers on hazardous waste management.
 - d. Contractor should provide well labelled special containers for storage of hazardous waste.
 - e. Fuel handling and oil spill measures should be implemented to prevent, control and address spill or leaks.
 - f. Any hazardous wastes including material soiled with hazardous wastes and empty containers of hazardous materials should be stored in a designated area on site for regular removal and disposal by a registered contractor.
 - g. Fuel handling and oil spill measures should be implemented to prevent, control and address spill or leaks. Fuel and oil handling should be assigned to trained personnel and done at designated places at the contractor's camp.
 - h. All construction equipment should be kept in good operating condition to avoid oil or fuel leakages that might contaminate water resources.
- iii. In addition, the following should be employed:
- a. Transportation and disposal of hazardous waste should be done by a licensed hazardous waste handler.
 - b. Water quality of the source (at construction site) should be monitored on a monthly basis, with samples taken and analysed for all forms of contaminants.
 - c. Where necessary, alternative drainage shall be created to avoid localised floods.
 - d. Unnecessary vegetation clearance will be avoided.
 - e. For civil works undertaken during rainy periods, silt traps and interceptor drains shall be provided on site.
 - f. Overburden or other construction materials shall not be stored or dumped near wetlands.

With the implementation of the above mitigation measures, the residual impact significance will be **Moderate to Minor**.

8.3.10 Impacts on Soils and Drainage

Impacts on soils may include soils erosion, compaction and contamination. Any erosion or pollution of soils could ultimately result in mobilization towards nearby waterways, resulting in sedimentation and contamination.

No impacts related to soil erosion are anticipated in operation.

	Construction	Operation (Post Construction)
Project phase impacted	√	

Impact Characterization

The construction works may result in the following:

- Soil erosion is most likely to occur during the construction period due to excavation, dredging, removal of vegetation cover and temporary storage of gravel and overburden at the site. During drainage works, culverts may be replaced along some sections and this could alter surface water hydrology especially during the rainy season, leading to localized floods or ponding.

- Loss and deterioration of soils from excavation, removal and stockpiling. Inappropriate storage (e.g. stockpile too high) or storage for too long may result in loss of soil structure, which can increase the risk of soil deterioration, including encouraging processes such as soil erosion and soil compaction.
- Compaction where soils are left in situ but are subject to traffic loads. There is an increased risk of compaction in areas where soils are left in situ but are subject to camp facilities, construction traffic loads and the presence of stockpiles.

Overall, given that existing Code 3C Aerodrome will be expanded to Code 4E, the disturbance to soils is not considered extensive. It is not anticipated that significant areas of undisturbed soil will require removal. Any soils that are removed are likely to be re-used on site. However, given the scope of work, the severity of the impact has been considered Medium. Significant stockpiling of soils is not anticipated. Without mitigation, contamination of soils may arise, as may mobilization of soils from open works into local watercourses. Soils as receptors are of medium sensitivity. Watercourses and wetland are also considered to be of medium sensitivity. Therefore, impact significance is **Moderate**. Refer to Table 46.

Table 53: Impact significance on Soils and Drainage

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures:

- The Contractor should develop and implement a Drainage, Erosion and Sediment Control Management Plan. Mitigation measures will include the management of drainage systems, minimisation of soft soils loading, risk-assessed allocation of soil and spoil storage areas, monitoring of excavation and construction works and monitoring of surface water features and drainage paths. A Spill Prevention and Response Plan for all chemicals, fuels and oils used during the Project will also be prepared.
- Soil and ground disturbance will be restricted to the construction corridor and loss of soil will be minimised.
- Stored soils will be managed to prevent contamination and change of geotechnical properties. Wherever possible the potential for re-use of soils on site will be increased;
- Areas of ground excavation and exposed soils and spoil heaps will be limited as far as possible to reduce the potential for erosion and sediment runoff. Additionally, during heavy rainfall, potentially polluting activities will be limited, as appropriate.
- Where practicable, the drainage system will be installed before commencement of construction. Where this is not practicable, silted water will be appropriately managed prior to entering into any water feature. Sediment and erosion controls (e.g. cut-off drains, swales, detention / retention basins, mesh fencing, sandbags, straw bales etc.) will be implemented at construction sites, where required, to limit the loss of soil from the site; where necessary, alternative drainage shall be created to avoid localized floods.

- vi. Unnecessary vegetation clearance will be avoided.
- vii. For civil works undertaken during rainy periods, silt traps and interceptor drains shall be provided on site. When construction is undertaken during rainy periods, the free flow of water shall be maintained using sludge pumps or flexible hoses to bypass the construction site without stagnating and contaminating the water.
- viii. Overburden or other construction materials shall not be stored or dumped near wetlands.
- ix. Spillage prevention, bunding and restrictions will apply near artificial drains and water bodies to minimise impact. Material will be stored away from soils and water bodies where possible. Any pollution of soil / water will be remediated as far as practicable.

With the implementation of the above mitigation measures, the residual impact significance will be **minor**.

8.3.11 Impacts on noise and vibration

Temporary noise and vibration effects will occur as a result of the use of equipment, earthworks, movement of construction workers and construction vehicles, and quarry/borrow pit activities. During construction, the use of vehicle engine and transmission mechanisms are also a source of noise. During operation, potential impacts will be associated with potential increases in Aircraft and road traffic noise levels, following the implementation of the project.

In the absence of piling activities, vibration levels from typical mobile construction equipment are generally imperceptible at distances greater than around 20 m from the source. It is expected that vibration generating equipment will not be located at distances less than 20 m from any noise sensitive receptor for any prolonged period of time. On this basis there are no anticipated significant effects from construction vibration, and this has therefore not been considered any further.

	Construction	Operation (Post Construction)
Project phase impacted	V (noise)	V (Noise)

Construction

Impact characterisation:

The noisiest construction activities will be earthworks and the laying of the new runway and taxiways. Noisy activities for prolonged periods can also have adverse occupational health and safety impacts on workers. However, overall significance typically depends on the period of time of the noise generating activity. Noise impacts may also arise from the movements of construction traffic. However, the existing 3C Arua Aerodrome is already subject to Aviation traffic noise. Noise impacts due to construction are temporary and for the most part localized and of short duration at a single site.

In summary, in general the severity of impact of construction activities, taking into consideration impact magnitude and duration, on noise levels at identified noise sensitive receptors is expected to be **medium**. With the sensitivity of receptors assessed to be **High**, the significance of the impact is considered to be **Major**. It is acknowledged that these impacts are likely to be localized significant, and ultimately the significance of effect will depend on the duration of the construction activities at each site and on the existing ambient noise levels at receptor locations. Refer to Tables 47.

Table 54: Impact Significance of construction noise

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures:

Best practice working methods should be implemented as part of the working methodology. This will serve to minimize the noise and vibration impacts at sensitive receptors in the vicinity of the construction works. Typical best practice measures which could be implemented are listed below:

- i. Restrict working hours for noisy activities;
- ii. When reasonably practicable, take account of the periods when surrounding receptors are more sensitive to noise and plan the working hours accordingly;
- iii. Where reasonably practicable, adopt quiet working methods, using plant with lower noise emissions;
- iv. Where reasonably practicable, adopt working methods that minimise vibration generation;
- v. Locate plant away from noise and vibration sensitive receptors, where feasible;
- vi. Use silenced and well-maintained plant conforming with the relevant AfDB directives relating to noise and vibration;
- vii. Start-up plant and vehicles sequentially rather than all together;
- viii. Carry out regular inspections of noise mitigation measures to ensure integrity is maintained at all times;
- ix. Provide briefings for all site-based personnel so that noise and vibration issues are understood and mitigation measures are adhered to;
- x. Manage plant movement to take account of surrounding noise sensitive receptors as far as is reasonably practicable; and
- xi. Use acoustic enclosures for static items of plant that could cause a disturbance;
- xii. Avoid unnecessary revving of engines and switch off equipment when not required;
- xiii. To reduce the likelihood of noise complaints, community liaison and communication throughout the construction phase should be undertaken to provide information to occupants of properties located near the construction works. It is envisaged that the community liaison campaign would provide local residents with the following information:
 - The nature of the works being undertaken;
 - The timing and expected duration of the works;
 - The contractor's working hours;
 - Mitigation measures that have been adopted to minimise noise; and
 - Contact details in the event of a disturbance.

With the implementation of the above mitigation measures, the residual impact significance will be **minor to moderate**, but short term in nature.

Operation

Impact characterisation:

The potential impacts during operation of the proposed Project will be associated with potential increases in Air and Road traffic noise levels, following the improvement of the Aerodrome. Taking into account the high sensitivity of receptors, and likely change in noise impacts as a low severity, overall, a moderate impact significance is anticipated. Refer to Table 48.

Table 55: Impact Significance of operational noise

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures:

Noise control measures can be applied directly to the noise source, within the project area, or at the noise sensitive receptor to reduce noise levels. The noise mitigation measures considered for the Project are design measures that may have a beneficial effect on noise levels include:

- Traffic calming measures at entry sections of the Aerodrome;
- Provision of safe and convenient Pax terminal.

With the implementation of the above mitigation measures, the residual impact significance will be minor.

8.3.12 Impacts on Air Quality

Construction activities can give rise to dust emissions under particular circumstances if not effectively managed. The Project has the potential to affect receptors near to the main construction sites due to dust generated from site preparation, site excavation, construction activities and the tracking out of dust from HGVs onto the local road network.

The operation of vehicles and equipment will result in emissions of carbon monoxide, sulphur dioxide, and oxides of nitrogen. However, the emissions will only be emitted during the use of machinery during active construction periods. As the runways and taxiways will be paved and in improved condition compared to the current condition, there will be no dust generation impacts during operation.

	Construction	Operation (Post Construction)
Project phase impacted	√	√

Construction

Impact characterisation:

Earth works will result in exposed areas of soil which will potentially generate dust when it is windy, with dust potentially being generated when winds blow at all times of day or night, not just during active periods of construction. There is the potential for elevated dust deposition and soiling at properties within

350m of the works, if dust raising activities are not effectively controlled and mitigated. The level and distribution of dust emissions will vary according to the duration and location of activity, weather conditions, and the effectiveness of suppression measures.

Given the proximity of sensitive receptors along and within the proposed site, the sensitivity of receptors is considered to be **high**. The severity of impact is considered to be **medium** due to the exposure of soils during the works but that impacts are likely to be localised and short-term in nature at any one site. Overall, the impact in relation to dust is considered to be **Major** without mitigation. Refer to Table 49.

Table 56: Impact Significance of dust

			Sensitivity of receptor			
Severity of impact	Very low	1	Negligible 1	Low 2	Medium 3	High 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Construction activities typically require HGV movements, which have the potential to increase traffic emissions and affect local air quality. The main sources of gaseous emission during construction will be construction machinery, equipment and trucks used for material transportation. The greatest impact on air quality due to emissions from vehicles and plant will be in the area. Generally, it is considered that additional vehicle movements generated during the construction phase will have the potential to influence local air quality at sensitive receptors located within 200 m of runway used by construction traffic. Traffic contribution to pollutant concentration reduces with increased distance from the construction site, with negligible effect beyond 200 m⁸.

As annual concentrations of gaseous emissions from construction equipment and construction traffic are considered unlikely to reach the WHO guidelines on the basis of similar Aerodrome projects, the predicted severity of gaseous emissions is Low. Given the proximity of sensitive receptors along and within the project area, the sensitivity of receptors is considered to be **high**. Overall, the impact significance is considered to be **Moderate** without mitigation. Refer to Table 50 below.

Table 57: Impact Significance of gaseous emissions

			Sensitivity of receptor			
Severity of impact	Very low	1	Negligible 1	Low 2	Medium 3	High 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures:

- i. Contractor shall comply with Ugandan dust emission standard.
- ii. The Contractor should prepare and Air Quality Management Plan.
- iii. The Contractor should inform communities and stakeholders of construction schedule in advance of activities.
- iv. Where practicable, implement a wheel washing system dislodge accumulated dust and mud prior to leaving the sites.
- v. All project staff including drivers to be inducted for environmental awareness and site procedures, for example vehicle speed, use of designated roads to reduce suspension of dust.
- vi. Regular dust suppression of the proposed site and the earthwork sites.
- vii. Soil stripping during windy periods will be prohibited where this does not constrain the construction programme; or water dousing will be employed.
- viii. Construction vehicles will strictly follow approved routes to avoid creating multiple earth tracks.
- ix. Earth material transporting trucks shall be covered with tarpaulin.
- x. Regular inspection and maintenance of machinery and equipment.
- xi. Construction vehicles shall be inspected at the start of construction and regularly to ensure the vehicles meet relevant emission standards.
- xii. Vehicles and machinery that meets the emission standard only shall be allowed to operate.
- xiii. Prohibit idling of road construction machinery in wrong places
- xiv. Parked construction vehicles and equipment will not be located close to sensitive receptors (e.g. health centres, schools).
- xv. Avoid site runoff of water or mud from site compounds by providing appropriate temporary drainage.
- xvi. Conduct regular air quality monitoring at active construction sites.
- xvii. Enforce speed limits for all construction vehicles
- xviii. Ensure a community grievance mechanism in place.

With the implementation of the above mitigation measures, the residual impact significance will be minor to moderate, but short term in nature.

Impact characterisation:

The primary source of emissions impacting on air quality during operation is from Aviation traffic. There may be a change in ambient concentrations of nitrogen dioxide (NO₂) and PM₁₀ at sensitive receptors as a result of changes in Aviation emissions within the area resulting from increases in Aviation traffic flow. Aircraft emissions are influenced by a number of factors including the use of fuel by Aircrafts and Pax vehicles, Aircrafts and vehicle types, emissions standard for the Aircrafts and vehicles, and speed travelled by both.

It is anticipated that during operation there will be improved efficiency of Aviation journeys on the improved Aerodrome with the current situation of unreliable slow traffic. In addition, there should be less congestion, with potentially lower emissions from traffic during peak times, and a potential improvement in air quality, offsetting any increase in concentrations in these areas arising from any potential increases in traffic.

As annual concentrations of gaseous emissions from operational traffic is considered unlikely to reach the WHO guidelines based on existing data, and there is no specific increase in emissions as a direct result of this project, the predicted severity of gaseous emissions is **Very Low**. Given the proximity of sensitive receptors along and within the Aerodrome, the sensitivity of receptors is considered to be **high**. Overall, the impact significance is considered to be **Moderate**. Refer to Table 51 below.

Table 58: Impact Significance of gaseous emissions

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures:

There are no mitigation measures proposed for the operational phase of the Project, assuming total concentrations would not exceed Ugandan air quality standards.

The residual effects of the operational phase on local air quality are considered to be Minor provided that concentrations meet air quality standards.

8.3.13 Potential encounter and destruction of physical cultural resources

No direct impacts on known cultural heritage features are anticipated as a result of the Project for construction or operation though some indirect effects may arise.

During construction, there is a risk of damage though construction activities unearthing archaeological remains that may lead to their loss or permanent displacement due to land disturbances during construction activities. It should be noted that archaeological and paleontological resources mostly are buried underneath, they may therefore be degraded and displaced unknowingly (chance finds) as most works will involve excavations.

	Construction	Operation (Post Construction)
Project phase impacted	√	

Impact characterization;

Since some physical cultural resources were identified along the material transport roads during the study. During construction, the movement and transportation of materials, construction equipment and personal around and adjacent to works sites could result in an impact on the setting or access to the cultural heritage feature. Dust may also be an issue.

There is also the potential to unearth archaeological remains that may lead to their loss or permanent displacement of these resources due to land disturbances during construction activities. These earthworks have the potential to remove or degrade currently unrecorded archaeological sites within the Project footprint.

On the basis that there are no direct impacts on cultural resources and that the Code 3C Arua Aerodrome is existing and some level of earthworks has been undertaken in the past, in general it is considered the likelihood of this impact occurring is **medium**. The sensitivity of these resources is considered to be **medium**. The severity of the impact, given the above, is considered to be **low** given the scope of the proposed project. The overall impact significance is **Moderate**. Refer to Table 52.

Table 59: Impact significance of Potential encounter and destruction of PCR

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures

- The contractor will implement a chance finds procedure.
- Sensitization of workers to be aware of the possibility of encountering archaeological remains and the procedure to be followed. Training will be conducted to ensure the workers manage the PCRs as per set regulations and guidelines.
- In compliance with the law, any chance finds should be reported to the Department of Museums and Monuments of the Ministry of Tourism, Wildlife and Antiquities and the UCAA Director General.
- Local leaders and religious leaders should be notified if the finds are not of interest to the Department of Museums and Monuments. These shall guide the contractor in reburial of such finds.

With the implementation of the above mitigation measures, the residual impact significance will be minor.

8.3.14 Impact on utilities within the project area

Since the proposed Code 4C Arua Aerodrome is located within - Arua City, water pipes, power lines and telecommunication lines cross or run close and within the project area. It may be necessary to relocate these utilities before commencement of construction. There is also the potential for unforeseen damage to utilities during the construction works.

No impacts on utilities are anticipated during operation.

	Construction	Operation (Post Construction)
Project phase impacted	V	

Impact characterization

It will be necessary to relocate these utilities before commencement of construction. The relocation of these utilities may cause temporary disruption in the delivery of services to people near and within the project area. This impact will be short term, lasting the period during the relocation of the service infrastructure. It will be local in extent with a low probability of occurrence given that designs have maintained the existing alignment. However, overall impact severity would be **medium** because disruption

of services such as water supply would inconvenience the receiving population. The sensitivity of the receptors, i.e. the users of the utilities, is considered **medium**. Overall significance is therefore **moderate**.

Table 60: Impact significance of Impact on utilities within the project area

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures

- Project implementation will be done in close consultation with the respective utility service companies such as NWSC and telecommunication companies. The contractor will liaise with all the utility lines operators to identify the locations of the utility lines within the proposed site.
- The contractor will liaise with the utility providers to carry out temporary or permanent relocation, and to protect the utility infrastructure to ensure minimal damage and disruption of services.
- The contractor will liaise with utility owners to provide early warning to the communities about any possible disruption in service provision for the different utilities. Existing communication channels such as phone text messages to consumers, media announcements could be utilized.

With the implementation of the above mitigation measures, the residual impact significance will be minor.

8.3.15 Impacts on community Health and Safety (H&S)

There are several potential community H&S risks and impacts that need to be considered in construction phase works typical to all construction sites.

During operation, improved Aerodrome conditions will increase on the volume of Pax which may encourage over speeding of vehicles which may increase the rate of accidents along the Aerodrome access roads. However, it is anticipated that with improved Aerodrome conditions, Aviation traffic will flow more easily, avoiding the need for rushing to miss the numbered flights which, together with appropriate traffic lights and Pax calming measures, where implemented, should result in a positive impact. For this reason, this is not considered further as a negative impact for operation.

	Construction	Operation (Post Construction)
Project phase impacted	✓	

Impact characterization:

During construction, construction works may result in public injuries as a result of, for example; use of machinery and equipment such as vibrators, graders, trucks, rollers/compactors, excavators, concrete mixers, vehicles close to the general public – especially where the presence of construction sites attracts inquisitive children; and increase construction traffic on the roads potentially leading to an increased risk of accidents. These potential impacts will be associated mainly with the communities and those in businesses living in close proximity to construction site, including schools and health centres.

Construction activities also generate dust, noise and vibrations that can impact on the health and wellbeing of local communities. Dust may be a particular problem with 50 m of track out (vehicle) routes

and 350 m from works sites, and noise generally within 50 m of noisy activities. Noise and construction activities in general can disrupt the learning process for schools.

Impacts specifically on health and diseases is addressed separately.

As site construction works will be restricted access areas, the main source of risk of injury will be from construction traffic. This risk is likely to be higher in areas around schools. However, the increase in traffic is anticipated to be high it will be short term in nature at any one site and therefore of **medium severity**. Local communities, in particular children, are considered to be receptors of **high sensitivity**. The overall impact significance without mitigation is therefore considered to be **Major**. Refer to Table 54.

Table 61: Impact significance of construction impacts on community health and safety

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures

- i. The contractor will prepare a Community Health, Safety and Security Plan and a Traffic Management Plan that covers on and off construction site areas.
- ii. The contractor will conduct continuous sensitization of the local community and workers regarding public safety and health.
- iii. The contractor will engage affected school administrators to sensitize pupils/students about the risks associated with the Aerodrome construction and necessary precautions they need to undertake. Information regarding the work plan for construction activities along sections with schools will be disseminated to the respective schools in a timely manner to enable the school administrations make any necessary plans that they may see fit e.g. sensitization of their pupils and students etc.
- iv. The contractor will provide site signage and barriers at dangerous spots e.g. around excavations, diversions and narrow sections of works/access.
- v. Works sites will be cordoned off with no access to the general public, including children. Where practical, additional screening should be provided e.g. with iron sheets.
- vi. The contractor will ensure the provision of safe access and egress across works for local communities including provision for vulnerable people e.g. children, disabled.
- vii. In relation to traffic, the contractor will:
 - a. Work in close collaborations with Traffic Police to enforce traffic rules and regulations along the construction and Aerodrome access roads.
 - b. Employ flag persons in busy or sensitive (e.g. schools) sections of the roads.
 - c. Ensure that all project trucks and vehicles are serviced regularly and operated by licensed operators.
 - d. Drivers shall be required to observe speed limit of 20Km along road sections near schools.
 - e. Operations to provide alternative access in case a school access is affected should be considered.
 - f. Construction vehicles to keep to agreed access routes, minimize risk and disruption to project

- affected communities and other road users and adhere to speed limits.
- g. Continuous sensitization of truck drivers and equipment operators to take caution when working in areas close to schools especially regarding speed control.
 - viii. Dust suppression will be used where practical by regular sprinkling of water on project roads and material haulage routes. Sprinkling especially close to towns, settlements and institutions can be done thrice a day depending on the weather.
 - ix. Contractor to develop and implement a fully coordinated stakeholder grievance mechanism.
- With the implementation of the above mitigation measures, the residual impact significance will be **minor to moderate**.

8.3.16 Increase risk of HIV/AIDS and other Sexually transmitted diseases (STDs)

Whilst a significant influx of construction personnel is not anticipated, as the project is located within Arua city and the construction employment numbers are around 80 staff, nonetheless a construction project can result in a temporary influx to the project sites. Furthermore, the construction staff on site tend to be male and with any construction project of this nature, there is an increase the risk of spread of HIV/AIDS and other STDs among workers and in the community.

No impacts are anticipated in relation to this in operation as the Aerodrome already exists and needs upgrade only.

	Construction	Operation (Post Construction)
Project phase impacted	v	

Impact characterization:

The risk of HIV/AIDS and other STDs should be seen in the context of its prevalence in Arua City 4.2% which is slightly higher. The impact of increased risk of HIV includes pressure on local health systems, impact on community livelihood and social cohesion. Increased HIV prevalence would result into reversal of economic gains within the community and may reduce the ability of the community to benefit from the project.

Unless adequate sensitization of all workers and communities in the project area is undertaken by contractor, the likelihood of the impact occurring is medium considering some level of awareness among general populace and the impact severity is high given it could have a long-term lasting impact on the individual's life. Sensitive receptors are the workers and local communities, especially women and young girls, who are considered receptors of high sensitivity. Overall, the impact significance is **Major**. Refer to Table 55 below.

Table 62: Impact Significance of Increased risk of HIV/AIDS and other STDs to workers and community

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures

- i. To reduce the risk of Project workers further escalating the city's STD problem and impacting their health, or the health of project community members, community awareness and responsibility (that includes instruction on sexual harassment, conduct, and health) will be included as part of the induction programme for all Project employees and contractors.
- ii. All Project employees and subcontractors will be issued with a Code of Conduct addressing main contractor's expectations and punitive measures concerning their discipline and behavior (including for inappropriate sexual fraternization).
- iii. Where appropriate, provision of free male and female condoms to the workforce.
- iv. The contractor will undertake community liaison/sensitization in advance of works to ensure that the local community and road users are aware of the constructions works and associated risks such as HIV/AIDS.
- v. The Contractor will develop and implement a fully coordinated community grievance mechanism.

With the implementation of the above mitigation measures, the residual impact significance will be minor.

8.3.17 Impact on security

In relation to security, the presence of the construction workforce may lead to risks associated with 'local influx'. This can increase the risk of stealing project materials and equipment and/or engaging local community members to assist in theft.

The presence of a construction work site and compounds with work equipment can also lead to the threat of theft for the materials and/or equipment.

Security personnel may be used by the contractor which, if not vetted, can result in clashes with local communities and reports of the use of too much force.

During operation, no impacts on security have been identified.

	Construction	Operation (Post Construction)
Project phase impacted	√	

Impact characterization:

The risk of theft is generally higher with a higher degree of influx. Given the nature of this project, a significant influx of people is not anticipated. Nonetheless, the threat of theft is likely to be high given that works are proposed in the capital city that already has a crime rate of 8.53% in 2021⁹. The theft of project materials can pose a risk to the local community and workers, and lead to an increase in the project cost and/or project delays.

The severity is rated as **low** because the project activities will be undertaken within an enclosed area by relatively small number of workers and there will be a strict recruitment policy by the contractor. A **medium** sensitivity is identified for the local community and the contractor/project as theft could affect

⁹ <https://www.macrotrends.net/global-metrics/countries/uga/uganda/crime-rate-statistics>

the wellbeing of local communities and workers as well as delay construction works or even hinder project implementation. The significance of the impact is **Moderate**. Refer to Table 56.

Table 63: Impact Significance of security

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation Measures

All reasonable effort will be made to minimize insecurity and theft issues during construction activities. Specific mitigation measures include:

- In the case that security personnel are deployed, the contractor will be required to undertake a due diligence investigation to make sure they have appropriate licensing, experience and training for security contractors. Security guards should be hired from a registered company that have records of each guard, to protect both the contractor and the project site. The contractor will ensure that any private security service providers comply with Ugandan Law.
- The contractor should involve local leaders in recruitment of workers who should all present national IDs for easy identification.
- The contractor should ensure adequate lighting at the site at night.
- The contractor should collaborate with police stations within the project locations.
- “No Trespassing” signs will be prominently displayed on fencing or the perimeter of the job site. Such signs will discourage unauthorized intrusion onto the job site and if correctly worded aids in the prosecution of apprehended trespassers.

With the implementation of the above mitigation measures, the residual impact significance will be minor.

8.3.18 Labor Risks

Labor conditions and associated risks cover a wide range of issues that could arise during the construction phase such as discrimination, unfair dismissal, lack of contracts, etc. It is anticipated that the workforce will be predominantly Ugandan. Employees will include experts, semi-skilled and non-skilled labor force. During operation, the existing workforce from UUCA will be used plus some external employees like Airlines, fuel service providers therefore, some impacts are anticipated.

	Construction	Operation (Post Construction)
Project phase impacted	√	

Impact characterization

If not managed in accordance with the legislation, there could be significant impacts associated with labor grievances, supply chain issues, occupational health and safety, child and forced labor.

The potential impacts on employment, labor and working conditions could be **low risk** (severity) to Project development outcomes prior to implementation of mitigation measures, and receptors (the workers) are

considered to be receptors of high sensitivity, resulting in a Moderate significance of the impact without mitigation measures in place. Refer to Table 57.

Table 64: Impact Significance of labour risks

			Sensitivity of receptor			
Severity of impact			Very low 1	Low 2	Medium 3	High 4
	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

It is expected that the contractor will comply with the Ugandan Labor Code and will ensure that all employees, permanent and temporary, will be provided with a contract. It is also expected that the Project will be in compliance with the Labor Code on working hours, working condition, occupational health and safety and management of non-employee relations and grievances.

The contractor will prepare and implement a detailed Human Resources policy and Labor Management Plan; an outline of the Labor Management Plan is provided in the stand alone ESMP with further details on measures to be employed. In summary:

- i. The human resource policy will be readily available and understandable to all employees, and set out its approach to managing employees, including rights under Ugandan labor and employment law, and employee rights to join worker organizations and bargain collectively.
- ii. Working conditions, including wage and benefit entitlements, will be documented and communicated to all employees who will be informed of, and have access to, a labor grievance mechanism from point of contract. The contractor will include in its human resource policy a clear statement that it will not employ forced labor, nor employ children in a manner that is exploitative or likely to interfere with their education or be harmful to their mental, moral or social development.
- iii. Opportunities for employment will be discussed with local leaders and communities to maximize affected persons involvement in the construction phase wherever possible.
- iv. The contractor shall fulfil the employer's requirements in relation to welfare facilities as enlisted in the contract and required by different legislations like Occupational Safety and Health, Employment Act, AfDB Guidelines, etc.
- v. The Human Resource Officer will liaise with the Project team to orient all workers in existing policies including human resource, Child protection, Alcohol and Drug Abuse, Sexual Harassment, GBVH, Environmental Protection, HIV/AIDS Policies etc. The key safeguards requirements of Environment, Social, Health and Safety issues are complied with, and the consequences of noncompliance shall be discussed across all staff. Staff will be given an opportunity to ask and clarify on a number of issues including circumstances under which the job could be lost and the safety measures for the job including disciplinary mechanisms, grievance redress mechanisms etc.
- vi. In the context of the short-term nature of construction phase employment, and in an environment of high-level household economic dependence, it is incumbent on THE CONTRACTOR to help promote fiscal sustainability and responsible wage expenditure among directly contracted Project workers (and, to the extent possible, indirectly contracted workers) and to enhance their opportunities for transitioning to new income generating activities after retrenchment. To this end, it is recommended

that THE CONTRACTOR:

- a. Review its Project employee retrenchment policy to ensure the policy fully addresses duration of notice, severance payment, re-training, and skills inventory and job search support measures that mitigate the most adverse impacts of employee retrenchment as part of an employee adjustment package; and,
- b. Pay project salaries into bank accounts or an equivalent post office or project guarantee facility and give workers personal financial management briefings as part of their induction that encourage wage apportioning to savings that can be drawn on post-retrenchment to give transitional support to them and their dependents.

With the implementation of the above mitigation measures, the residual impact significance will be **minor**.

8.3.19 Occupational health and safety

Construction traffic, excavation and working with equipment may pose accident risk to workers either when equipment is operated by inexperienced workers or when in a poor mechanical condition.

Whilst there will be OHS aspects post-construction, related to operation and maintenance activities, these activities are currently undertaken by UUCAA and their contractors and therefore, no additional impacts are anticipated to be created as a result of this Project.

	Construction	Operation (Post Construction)
Project phase impacted	V	

Impact characterization

As with all construction sites, there is a potential that workers could be exposed to an additional level of personal safety risk relating to workplace activities. Arua City, being an area with relatively high temperatures during daytime, construction workers are likely to suffer heat rash, in addition to burns from handling hot bitumen during surfacing of the runways, taxiways, and parking. Construction activities will require the use of noisy machinery that can damage hearing if the appropriate personal protective equipment (PPE) is not worn. Airborne dust from the site can affect worker's respiration. Lack of hand wash water and mobile toilet facilities at work sites could also pose considerable inconvenience and health risk to workers. Additional risks include accidents that could be minor while others could be grave leading to permanent disability or loss of life of construction workers.

The likelihood of an accident or threat to health happening without mitigation in place is high considering the usually low level of safety at construction sites in Uganda. The extent of the impact could be large given there will be around 80 workers in site. The overall severity in terms of potential number of workers that could be affected is considered medium to high. The receptor sensitivity is high considering the potentially grave consequences of occupational accidents. While largely reversible, some impacts such as loss of human life and body injury are irreversible. Should a hazard cause harm to a worker, the overall significance of the impact is considered **Major**. Refer to Table 58.

Table 65: Impact Significance of Occupational health and safety

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures

- i. The contractor will be required to develop management arrangements and procedures to avoid hazards and, where this is not possible, mitigate the risks to workforce health and safety in accordance with the hierarchy of risk management.
- ii. A qualified Health and Safety Officer will be recruited by the contractor to oversee OHS matters on a daily basis. Health and Safety committees will be set up and routine Health and Safety Inspections will be undertaken to identify risks associated with various activities in order to mitigate them early enough.
- iii. The contractor will develop and implement a detailed OHS plan. Requirements to include (but not to be limited to):
 - a. Site Rules
 - b. Job and task specific hazard analysis and controls for all activities.
 - c. Requirements for and enforcement of PPE use.
 - d. Safety training for personnel. All construction workers will be oriented on safe work practices and guidelines and ensure that they adhere to them.
 - e. Develop and implement an emergency response procedure.
 - f. Maintain statistics of total work hours, lost time, incidents, injuries, near misses etc.
 - g. Toolbox talks every morning to share information on risks, accident prevention, etc.
 - h. Ensure no prohibited materials such as asbestos containing materials (e.g. pipes) are procured or used.
- iv. Measures within the OHS plan will include:
 - a. Hoarding off of the work sites to prevent access by unauthorized person.
 - b. Appropriate signage will be used to warn staff and/or visitors that are not involved in construction and operation activities in risky places.
 - c. All workers will have company identification.
 - d. "No smoking" signs in office, construction compounds as well as high risk areas prone to fire hazards e.g. near fuel tanks.
 - e. Signage reminding workers of use of PPE at appropriate locations within the camp.
 - f. Strict instructions will be given to drivers and operators of equipment/machinery.
 - g. Road traffic signs should be installed on access roads to control speed of vehicles transporting material to the site
 - h. Clear communication line will be set between workers and operators/ drivers of heavy equipment.
- v. The contractor will develop and implement a detailed Emergency Preparedness and Response Plan detailing preventative measures for all types of incidents covered in the plan. It should include as a minimum:

- a. Identification of potential emergencies and risk assessments e.g. spills, fires, collisions, worker injury
 - b. Roles and responsibilities
 - c. Development of procedures to respond to identified emergencies
 - d. Equipment required e.g. first aid facilities, firefighting equipment, etc.
 - e. Testing and inspection regimes for emergency equipment
 - f. Muster points. evacuation routes
 - g. Training requirements
 - h. Communication protocols to workers, public and other affected parties
 - i. Location of nearest medical facilities
 - j. Update and review cycle
- vi. First Aid kits fully equipped with the necessary materials will be provided at all working sites. The contractor will have trained first aiders on site. The contractor's Health and safety officer in conjunction with the City Health Officer shall organize and conduct regular First Aid trainings of all workers. The contractor shall identify and have MoU with Medical service provider for referral cases. With the implementation of the above mitigation measures, the residual impact significance will be minor.

8.3.20 Gender impacts

The concerns include; denial of employment opportunities to women; sexual harassment of female workers by the male workers especially their superiors; physical violence; male partners forcefully taking away women's pay; lack of proper public facilities such as toilets on the works site; potential physical health risks and impacts stemming from a well-documented increase in prostitution near infrastructure construction sites that are dominated by young, male workers with disposable income.

No impacts during the operation phase are anticipated.

	Construction	Operation (Post Construction)
Project phase impacted	√	

Impact characterization;

By their very nature construction jobs are expected to have a bias towards male employment, with most unskilled and skilled labor jobs expected to be undertaken by men. However, there will be opportunities for local women to obtain jobs in catering, service industry and administration. There may also opportunities for women experts to conduct technical work in planning and designing the proposed project during the detailed design phase. Gender based violence and harassment is also likely to be more prevalent due to the large temporary workforce.

The potential risk to females during the construction period is also elevated. A high disposable income especially for males increases predisposition to extra marital affairs, including with under-age females. Community consultations revealed situations where men with new disposable income completely abandon their families resulting into single mothers. Some husbands reportedly become unruly and abuse their wives because they feel they can access any woman of their choice. Other potential negative impacts on women include immorality especially with the young girls of the area in efforts to gain favor for employment opportunities. Such activities can result into spread of sexually transmitted diseases such as HIV/AIDS and other sexually related diseases, abandonment by partners in case of unwanted pregnancies

among others.

Unless adequate sensitization of workers and the community is undertaken, the likelihood of the impact occurring is high (considering some level of awareness among general populace). The duration of the impact will be short-term lasting for construction phase but associated social and health effects are long-term and irreversible. The overall severity of the impact given the baseline conditions is considered to be high. The overall impacts significance without mitigation will be **Major**. Refer to Table 59 below.

Table 66: Impact Significance of Gender inequalities including Gender Based Violence

			Sensitivity of receptor			
			Very low 1	Low 2	Medium 3	High 4
Severity of impact	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures

- i. The contractor will develop and implement a sexual harassment policy containing reporting procedures in case of any incident and penalties to the culprits. The contents of the policy will be disseminated to all workers.
- ii. The HR Policy and Labor Management Plan will cover the following:
 - a. Provision of equal opportunities for women.
 - b. Hours of work that enable women attend to their home activities before and after work.
- iii. The contractor will develop and implement a Code of Conduct that will prohibit use of abusive and obscene language and prohibit sexual relations with the local communities. The Code of Conduct will include measures to prevent Gender Based Violence and Harassment.
- iv. In terms of sensitization and training, the contractor will provide:
 - a. Induction and continuous sensitization of all workers and supervisors about sexual harassment. This will include gender sensitization to the work force on matters such as gender sensitive communication and on the gender sensitive conduct of workers towards women amongst others.
 - b. Workers will be sensitized on their gender rights and responsibilities.
 - c. Information dissemination about dangers of HIV/AIDS to the community throughout the period of the project. The messages will be passed on using the locally understood language for better understanding.
 - d. A formal Community Grievance Mechanism.
- v. In terms of working conditions, the contractor will provide:
 - a. Gender sensitive mobile toilets with handwashing facilities for workers at site.
 - b. Gender responsive PPE.
 - c. Material prohibiting violence and sexual harassment will be displayed in conspicuous places at all work sites including the accommodation facilities.
- vi. The contractor will recruit a Social Development Officer/ Sociologist to ensure compliance with Gender and equity requirements.

With the implementation of the above mitigation measures, the residual impact significance will be

minor to moderate.

8.3.21 Child Sexual Abuse and Exploitation

Given the presence of schools near the project area, there is an increased risk that workers will engage in sexual relationships with schooling and under aged children.

	Construction	Operation (Post Construction)
Project phase impacted	√	

Impact characterization:

During a community meeting, concern was raised about previous construction projects where child labor and early pregnancy was reported. The community indicated that re-occurrence of such behaviors may reduce community support for the project. Without targeted mitigation, the likelihood of this impact occurring is **high** and the extent and therefore severity of the impact could be medium considering there are sensitive receptors along and within the proposed site. The sensitivity of children is considered high given their vulnerability to exploitation. Overall, impact significance is **Major**. Refer to Table 60.

Table 67: Impact significance of Child Sexual Abuse and Exploitation

			Sensitivity of receptor			
Severity of impact			Very low 1	Low 2	Medium 3	High 4
	Very low	1	Negligible 1	Minor 2	Minor 3	Minor 4
	Low	2	Minor 2	Minor 4	Moderate 6	Moderate 8
	Medium	3	Minor 3	Moderate 6	Moderate 9	Major 12
	High	4	Minor 4	Moderate 8	Major 12	Major 16

Mitigation measures

- The contractor will be required to develop a child protection plan which will be implemented in collaboration with community leaders.
- No child (any person below 18 years) shall be employed by the contractor or sub-contractor on this project.
- The contractor to provide barriers (hoarding) of the school sections near the construction material roads to minimize interruption of children's learning during construction activities
- The contractor will be required to collaborate with communities to provide information on child abuse cases.
- Integrate HIV and AIDS awareness in school sensitization and local community sensitized on the risks of child abuse.
- The contractor should consult and engage the school administration before works commencement near the schools.
- Minimize the interaction of children with the workers, and closely monitor and report worker's behavior/conduct.
- Cases of abuse should be reported to the police for investigation and prosecution.

With the implementation of the above mitigation measures, the residual impact significance will be minor.

8.3.22 Cumulative Impacts

The project specific timing of the works is not yet confirmed, and at any rate will occur over a period of

time due to the implementation of the project in batches. As such, it is not possible to identify specific other proposed schemes that will occur at the same time as this project. Therefore, generic impacts are identified below. These mainly relate to the construction phase, as it is anticipated that improved Aerodrome during operation will have a positive impact on other developments through improved access and travel times.

The main cumulative environmental and socioeconomic impacts resulting from the Project include the following;

- i. Incremental air quality impacts as a result of increase in Aviation traffic associated with material and equipment haulage, which may cumulatively generate total suspended particles (dust particles) of more than 300 $\mu\text{gN m}^{-3}$ and trigger ppm or $\mu\text{gN m}^{-3}$ of toxic gases above the air quality standards 2024. These may have such effects; allergies, irritation of the eyes, coughing, sneezing, asthma attacks, form dust layers coating on property and vegetation, furniture. The Project is expected to have minor to moderate air quality impacts during the construction phase if it were to take place at the same time as other larger developments, and they will be minor in the operations phase.
- ii. Cumulative noise impacts of the proposed development in conjunction with other concurrent projects in the vicinity arising from simultaneous demolition and construction works. Activities such as movement of construction vehicles and machinery including: trucks, concrete mixer, earth works, offloading and loading of equipment and material at site among others will generally contribute to the increase in noise levels. These may have such effects; Irritability, anxiety, mental fatigue, interfere with sleep, recreation, and personal communication, and physical damage to the eardrum, blood pressure and pulse rates due to excessive noise exposure. The Project is expected to have minor to moderate air quality impacts during the construction phase if it were to take place at the same time as other larger developments.
- iii. Increased infrastructure development will lead to increased impervious surface area, hence more storm water runoff during construction and operation causing; stream channel erosion, Wetland degradation, fragmentation, and loss, altered area hydrology, sediment transport and pollutant loading, Litter and refuse. This is likely to have a moderate significant impact over time.
- iv. Trade items, aggregate and other construction materials. This will affect suppliers of those products. Other sectors of the economy would be benefited by employees hired in the construction industry who may increase their expenditures in restaurants, grocery stores, and shops. Project construction itself will lead to indirect, or spinoff, jobs, and spending in the region and the overall, impact significance is **positive**.

Mitigation Measures to Cumulative Impacts

- i. Constant community sensitization on air pollution and continuous monitoring of air quality against the Air Quality Standards as per the regulations during the construction phase.
- ii. Continuous project activities awareness to the community.
- iii. Continuous monitoring of regulatory noise limits for a construction site in a commercial area (75 dBA) and that in a residential area (60 dBA) as provided for by the National Environment (Noise Standards & Control) Regulations, 2003.
- iv. Deployment of contractor's code of conduct and adherence to community and City bylaws, national legal framework on social and health conduct.

CHAPTER NINE

9.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

This Section presents the Project environmental and social management plan (ESMP), including mitigation measures; environmental and social monitoring and reporting; ESMP updating; capacity building; roles and responsibilities; and ESMP budget.

The Contractor will be responsible for developing a more detailed ESMP prior to construction (the Construction ESMP, or CESMP). UUCAA will be responsible, through the Supervision Engineer, to review and support effective implementation of the CESMP.

The project is a design-and-build project, involving engineering, procurement and construction plus facilitating the finance (EPC+F). Thus, the contractor will take full responsibility as a main contractor for final designs and all construction works according to final designs agreed with UCAA. The contractor will engage engineering design consultants and the environmental and social Consultants.

Having approved the final designs, UCAA will exercise limited control and supervision of the project, through the appointment of an Owners' Engineer (OE) to represent UUCAA.

9.1 Mitigation Measures

Environmental management involves reducing the significance of adverse environmental and social impacts associated with the project through implementation of proposed mitigation measures. It can also involve enhancement of the positive environmental and social impacts of the project.

The construction and operation phase mitigation measures identified in Section 8 are summarized in Table 9.1 below, along with timeframe, lead responsibility for implementation and source of funds. An ESMP Framework and outline ESMP have been developed for the project. They contain actions that should be undertaken by the Contractor to ensure minimal adverse impact of the project on the environment and on the communities during the construction phase.

9.2 Environmental and Social Monitoring Plan

The construction monitoring plan (which is part of the ESMP) is presented in Table 9.1.

Compliance monitoring will involve inspections to verify compliance with ESMP requirements and with relevant laws and regulations. Where required by legislation, ambient monitoring will be undertaken to provide useful feedback on the extent and severity of actual air, water and noise impacts against predicted impacts and relevant ambient standards.

During the operation phase it is expected that NEMA will require annual Environmental Audit and annual reporting during the first phases of operations.

9.3 Roles and Responsibilities

9.3.1 Uganda Civil Aviation Authority (UCAA)

Although the contractor will have the primary role in delivering on the measures set out in the ESMP, the Developer (UCAA) will have the ultimate responsibility for ensuring that measures are delivered. In this respect, the Developer will review and approve the contractor's plans for delivery of the actions contained in the ESMP and subsequently during the project construction phase, will review contractor performance through monitoring, audits and inspection.

UCAA is also expected to ensure planning and implementation of the following:

- Continuous sensitization of communities along and within the project area in regard to extents of acceptable activities therein.
- Have and implement anti-theft measures against theft of Aerodrome infrastructure.
- Plan for construction of any additional legally recognized Corporate Social Responsibility

During operation, the UCAA will be key in ensuring compliance to relevant operational, environmental and social safeguards. Principally, this will involve taking a lead in ensuring that discipline in garbage disposal by local communities to ensure that garbage is not disposed off in the newly constructed water drains. This will be further supported through implementation of the Construction Stakeholder Engagement Plan (CSEP) by UCAA

The Directorate of Legal affairs will be key in handling of criminal cases during both the construction and operation phases. The Contractor will work in close collaboration with UCAA to reduce thefts of project materials during construction and the UCAA will work with Directorate of Operations in Uganda Police Force regarding any sabotage on built infrastructure.

9.3.2 MoWT

The Ministry of Works and Transport exists to formulate policies, plans, set standards, build capacity, carry out advocacy, regulate, monitor and evaluate the Works and Transport sector. The Ministry also provides policy and strategic guidance to parastatal bodies under its supervision namely, Uganda Civil Aviation Authority (UCAA), Standard Gauge Railway and Uganda Railways Corporation (URC). In addition the Ministry provides political and operational oversight in collaboration with the Ministry of Finance, Planning and Economic Development which is its parent Ministry. The Works and Transport Sector is a cluster of priority sectors of the economy comprising public building works, road, railway, water and air transport.

9.3.3 Owner's Engineer

The contract will be based on the Conditions of Contract for Plant and Design Build for Electrical and Mechanical Plant, and for Building and Engineering Works, Designed by the Contractor". This implies that the role of the Employer's or Owner's Engineer will be reduced to approving final designs and otherwise generally monitoring the works on behalf of UCAA. This will also include monitoring works in relation to the approved CESMP. During the construction phase of the project, the Owner's Engineer may include as part of his/her team a Sociologist and an Environmental Management Specialist/ environmentalist (EMS) to assist in this monitoring as per the Employer's Requirements. However, the contractor will be responsible for adhering to the CESMP as per the Lender's requirements.

9.3.4 The Contractor

During site preparation and construction, the Contractor will be responsible for ensuring compliance with all relevant legislation (highlighted in Section 4 of the ESIA Report) as well as adherence to all environmental and socio-economic mitigation measures specified in the ESMP. The Contractor will be expected to develop a detailed CESMP for implementation during the construction phase.

The Contractor will also be expected to demonstrate commitment to the CESMP at all levels in the Contractor's management structure. The Contractor will be required to have in place individuals responsible for overall environment management (including community liaison) and, safety and health management. The Contractor's community liaison team will be required to work with the Owner's Engineer Sociologist to implement the social aspects of the ESMP. The Contractor will be required to undertake regular environmental and socioeconomic audits and inspections and provide reports to the Owner's Engineer to monitor and evaluate performance against the measures and objectives established in the ESMP.

The Contractor's community liaison team will be expected to work closely with UCAA to implement the Stakeholder Engagement Plan.

9.3.5 Government Bodies and Utility Service Providers

Government bodies including NEMA, MoLHUD, MoGLSD, MoKMA, MoWT, MTA (Department of Museums and Monuments), Uganda Police Force, Petroleum Supply Department, Local authorities and utility service providers (NWSC, Telecommunication companies, UEDSL, among others) have monitoring roles to them as prescribed in the relevant legislation and the Contractor will liaise with them as shall be required.

9.3.6 Stakeholder Involvement

UCAA and the Contractor will continue to engage with the stakeholders throughout the project cycle. A system should be established with the stakeholders to ensure that stakeholders receive information on the progress of work and its implications, employment and others. Grievances will be handled through the structure that will be established by the project and the existing Local Council system. The Contractor shall also be required to have a Stakeholder Engagement Plan and Grievance Management Plan throughout the construction phase.

9.3.7 Reporting

Annual reports containing all data obtained during the environmental monitoring throughout the year will be submitted to NEMA by the Developer up to the end of the construction period. During construction, quarterly monitoring reports prepared by the Developer or its consultant will be submitted to NEMA by the developer.

Table 68: Environmental and Social Management Plan

Project Phase / Potential Environmental / Social Impacts/Issues	Proposed Mitigation Measures	Monitoring indicators	Location	Timeframe/Monitoring Frequency	Responsibility	
					Implementation	Monitoring
Impact on utilities within the project area.	- Impacts on public utilities shall be minimized by incorporating environmentally friendly construction methods in the engineering design. Proper work scheduling should be developed after consultation with local leaders. - The lead agency for such utility infrastructure should be consulted before commencement of project related activities.	Number of sensitive receptors avoided/affected	Within and outside the site plus Access Road corridors and drainage structure locations	Detailed design, prior to construction	Contractor	UCAA E and S Unit

	• Additional public consultation will be undertaken prior to and during the construction phase to ensure that the public is aware of planned construction activities.					
Impacts on Physical Cultural Resources due to Project siting	• Site survey during pre-construction • A chance find procedure will be prepared	No. of PCRs identified and recorded Chance finds procedure developed and implemented	The entire Project area	Detailed design, prior to construction	Contractor	OE EMS Specialists/ Sociologist and UCAA, Consultant Archeologist
Impacts on ecological sites	No ecologically sensitive area at the proposed site	Ecological sites likely to be impacted	The entire Project area.	Detailed design, prior to construction	Contractor	OE EMS Specialists/ Sociologist and UCAA, Consultant Archeologist
Impact on Ecology (i.e. habitats, flora and fauna) due to change in the	• Site survey during pre-construction • No ecologically sensitive area at the proposed site	Foot print of Aerodrome furniture recorded	The entire project area	Prior to construction	Contractor	OE, EMS Specialists/Sociologist

existing alignment		Records of fauna and flora in place				
Impacts of Land acquisition and resettlement impacts	• Site survey during pre-construction • Work within the existing secured project land to avoid displacement • Prepare and implement LRP	Project Affected Persons (PAPs) resettled	Across the proposed project	Prior to construction	Contractor	OE Sociologists
Improper management of excavated materials during construction	• The contractor shall, in consultation with the City Environment Officer and the supervising engineer identify suitable sites for temporary stockpiling of the cut to spoil material which shall later be used in Aerodrome rehabilitation and restoration of borrow pits and	Quantity of excavated material reused onsite.	Material yards	Throughout the construction phase of the project/Monthly	Contractor	UCAA, NEMA

	quarries, as appropriate					
Health and Safety impacts from mismanagement of generated waste	• Implementation of the waste management hierarchy. • Implementation of a waste management plan.	• Number of trainings undertaken in line with waste management; • Presence of sufficient waste receptacles onsite • Contract with a licensed waste handler Quantity of waste generated	Construction sites, material yards	Throughout the construction phase of the project/Monthly	Contractor	OE EMS Specialists UCAA, NEMA
Disrupted traffic and access	• Detailed planning of the construction phase and temporary arrangements for both Aircrafts and Vehicle traffic will be paramount for the project • Consider night working where practicable	• Traffic Management Plan in Place • Appropriate traffic signages • Flags personnel deployed	Project Site	Throughout the construction phase of the project/Daily	Contractor	UCAA, NEMA

	• Prepare and implement a detailed traffic management plan.					
Pollution and hazardous waste spillage	• Develop and implement a Spill contingency Plan/procedure • Have the requisite spill response measures in place such as drip trays, spill kits, among others.	• Spill contingency Plan/procedure in place • Sufficient drip trays and spill kits in place	Project site, Equipment and material yards, project vehicles	Throughout the construction phase of the project/Daily	Contractor	OE EMS Specialists UCAA, NEMA
Impacts on Soils and Drainage	• Develop and implement a Drainage, Erosion and Sediment Control Management Plan • Restrict soil and ground disturbance to the construction corridor. • Avoid direct discharges to surface water features	• Drainage, Erosion and Sediment Control Management Plan in place • Evidence of ground disturbances limited to working areas	Project sites	Throughout the construction phase of the project/Daily	Contractor	OE EMS Specialists UCAA, NEMA

Impacts on noise and vibration	• Develop and implement a Noise and Vibration Management Plan. • Best practice working methods should be implemented as part of the working methodology • Restrict working hours for noisy activities • Avoid unnecessary revving of engines and switch off equipment when not being used.	• Noise and Vibration Management Plan in place • Routine monitoring of noise emission • Training of machine operators on minimizing noise pollution Number of noise and vibration related complaints by the community	Project site, Equipment yards	Throughout the construction phase of the project/Quarterly	Contractor	OE EMS Specialists UCAA, NEMA
Impacts on air quality	• Develop and implement an Air Quality Management Plan • Implement dust suppression measures • Regulate speed limits on sites under construction.	• Air Quality Management Plan in place • Volumes of water used in dust suppression Routine monitoring of air quality	Project site	Throughout the construction phase of the project/Quarterly	Contractor	OE EMS Specialists UCAA, NEMA

Potential encounter and destruction of physical cultural resources	• Implement a chance finds procedure • Train and sensitize workers on identification and handling of archaeological remains	• Chance finds procedure in place • Number of chance finds reported • Number of Trainings undertaken in relation to chance finds	Project site	Throughout the construction phase of the project/Monthly	Contractor	OE EMS Specialists/Sociologist UCAA, NEMA Department of Museums and Monuments of the Ministry of Tourism, Wildlife and Antiquities
Impact on utilities within the project area	• Develop and implement a Construction Stakeholder Engagement Plan (CSEP)	• CSEP in place • Evidence of engagement with utility service providers	Project site	Throughout the construction phase of the project/Monthly	Contractor	OE EMS Specialists/Sociologist UCAA, Utility Service Providers
Impacts on community health and safety (H&S)	• Develop and implement a Community Health, Safety and Security Plan, and a Traffic Management Plan. • Develop and implement a Community grievance mechanism.	• Community Health, Safety and Security Plan, and a Traffic Management Plan in place • Evidence of community sensitization	Project site	Throughout the construction phase of the project/daily	Contractor	OE EMS Specialists/Sociologist UCAA, NEMA MoGLSD

	• Conduct continuous sensitization of the local community and workers regarding public safety and health. • Ensure the provision of safe access and egress across works for local communities including provision for vulnerable people e.g. children, disabled.	Community grievances addressed				
Increase risk of HIV/AIDS and other Sexually transmitted diseases (STDs)	• Undertake Community liaison/sensitization • Develop and implement a Community grievance mechanism. • Develop and implement an HIV/AIDS Management Plan	• Evidence of community sensitization programs on HIV/AIDs • Community grievance mechanism in place • HIV/AIDS Management Plan	Project site, material yards and equipment yards	Throughout the construction phase of the project/Monthly	Contractor	OE Sociologist UCAA, MoGLSD

	• Provide free male and female condoms to the workforce	• Presense of condom dispensing areas				
Impact on security	• Ensure adequate lighting at the site at night • Collaborate with police stations within the project locations. • Install appropriate signage such as “No Trespassing” signs on fencing or the perimeter of the job sites. • In the case that security personnel are deployed, the contractor will be required to undertake a due diligence investigation to make sure they have appropriate licensing, experience and	• Adequate lighting provided at the site at night • Evidence of collaboration with police • Appropriate signage in place • Due diligence in place, were applicable	Project site, material yards and equipment yards	Throughout the construction phase of the project/daily.	Contractor	OE Sociologist UCAA, Uganda Police Force

	training for security contractors.					
Labour Risks	• Develop and implement a Labour Management Plan (LMP)	• Labour Management Plan in place • Staff contracts issued • Evidence of staff appraisals and reward mechanisms • Evidence of Labour related trainings conducted - Staff grievances addressed	Project site	Throughout the construction phase of the project/Quarterly	Contractor	OE Sociologist UCAA, MoGLSD
Occupational health and safety	• Develop and implement an Occupational, Health, Safety (OHS) Plan • Undertake safety trainings for staff • Undertake safety audits • Develop and implement an	• OHS Plan in place • Evidence of safety trainings conducted • Displayed list of First Aiders at work sites • Emergency Preparedness	Project site	Throughout the construction phase of the project/Daily	Contractor	OE EMS Specialists/Sociologist UCAA, MoGLSD

	Emergency Preparedness and Response Plan • Provide appropriate safety gear	and Response Plan in place Evidence of safety gear issued				
Gender impacts	• Have an HR Policy on recruitment and Code of Conduct in place • Develop and implement a Labour Management Plan • Provide trainings on Sexual Harrassment • Develop and implement a Community Grievance Mechanism	• HR Policy and Code of Conduct in place • Number of women employed during construction • Evidence of trainings on Sexual Harrassment conducted - Community Grievance Mechanism in place	Project site	Throughout the construction phase of the project/Quarterly	Contractor	OE Sociologist UCAA, MoGLSD
Child Sexual Abuse and Exploitation	• Develop and implement a Child Protection Plan • Undertake HIV and AIDS awareness	• Develop and implement Child Protection Plan • Grievance Redress	Project Site and project affected communities	Throughout the construction phase of the project/Quarterly	Contractor	OE Sociologist UCAA, MoGLSD

	sessions in schools and communities • Collaborate with communities to provide information on child abuse cases • Develop and implement a Grievance Redress Mechanism	Mechanism in place and grievances addressed Evidence of community sensitisation undertaken				
Potential Conflict in Water Use	• Develop and implement a Water Management Plan • Obtain water abstraction permit • Monitor water use	• Water Management Plan in place • Relevant permits in place Records of water usage	All project sites	Throughout the construction phase of the project/Monthly	Contractor	OE EMS and Sociologists
Loss of plant species and degradation of habitats	• Areas to be cleared should have visible boundaries to avoid clearing areas that should not otherwise be cleared. • The use of fire and herbicides to clear vegetation should not be tolerated.	• Areas of land cleared • Change in habitat quality (Noticeable deterioration in quality of one or more habitat types between surveys/reports)	Project Footprint	Construction – regular monitoring	Contractor	• OE EMS Specialists UCAA

	• The footprint for vegetation clearance should be minimal. • Undertake sensitive and progressive habitat clearance to facilitate fauna dispersal from disturbed areas. • Undertake workforce awareness training about the need to avoid footprint creep • Undertake progressive revegetation of disturbed areas.	Flagging of globally threatened plant species within 20 meters of the construction activity.				
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Proliferation of invasive plants	• Invasive weed spread will be minimised by implementing the following preventative controls: • Use of local non-invasive plant species for revegetation purposes • Compliance with the wash-down procedures for vehicles and equipment entering worksites and site access control • Inspecting sites that are sources of construction materials such as borrow pits to ensure that they are free of any invasive species • Implementing an invasive species	• Change in presence, location, area, numbers of invasive species • Presence of a new invasive species • Increase in number and/or distribution of one or more invasive species at one site • Increase in the number of sites infested with invasive species Rapid increase in number and/or distribution of an invasive species at more than one site	In the entire Project area focussing particularly on vegetated Aerodrome side areas. Project revegetated areas and nearby aquatic ecosystems	Construction and Operation	Contractor/UUCAA, MOWT	• OE EMS Specialists - NEMA
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	eradication program within the Project Footprint • Reporting any identified invasive species to UUCAA, MOWT and NEMA for long term management					
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9.4 CESMP Updating

The CESMP will be updated during engineering design. The updating should address any changes made to alignment of the project and other relevant design aspects, including revised mitigation measures as required. In addition, site-specific ESMPs for sensitive areas will be developed. The revised ESMP will be reviewed by UCAA and relevant local authorities. The ESMP will also be updated if necessary, during implementation if the E&S monitoring identifies significant impacts or issues that are not being appropriately addressed by the existing mitigation or monitoring measures.

CHAPTER 10

10.0 CONCLUSIONS AND SUMMARY RECOMMENDATIONS

This Section of the report presents the ESIA conclusions associated with the proposed expansion of Code 3C Arua Aerodrome to Code 4E as well as a summary of the recommendations to mitigate potential negative impacts and enhance positive impacts.

10.1 Conclusions

Based on the current assessment, it is evident that the proposed Project will have both positive and negative impacts. The project will have significant positive impacts on the people and the economy within Arua City and country at large. The project is expected to improved mobility of Aircrafts, reduce travel time and increase Aviation traffic reliance, with consequent positive impacts on local and regional economy, employment, skills development, income to material/equipment suppliers and contractors, benefit to local wholesale/retail businesses, Rental income to equipment yard site owners, Improved access to improved international and local social facilities, Increased value of land, Improved health and safety, and Aesthetic value.

However, as any other development, the Project will also have negative impacts. The majority of the negative impacts will be realized during the construction phase, and most of these impacts' significance is moderate before the application of mitigation measures. Only those impacts that are rated as being of major significance prior to the application of the recommended mitigation measures are described in more detail below:

Improper management of excavated materials during construction

A range of earthworks and construction activities are expected during the construction phase of the project. If not properly management, stockpiling the excavated material could cause several challenges such as diversion of storm water courses, flooding of surrounding infrastructure such as shops, disruption of Aviation traffic flow, among others.

However, with the implementation of the recommended mitigation measures, the impact significance will be moderate though may be reduced to low depending on amount of material that is ultimately reused/recycled.

Direct Vegetation Loss, Degradation and Fragmentation

A significant impact to remnant natural vegetation and flora is expected to occur during the construction phase when vegetation adjacent to the proposed Code 4E Arua Aerodrome will be cleared to allow civil works. The majority of these vegetation species are not protected or threatened species, and the project area doesn't traverse a pristine natural habitat. However, in areas where *Jacaranda mimosifolia*, which is listed as Vulnerable in its native range of South America and legally protected tree species (*Milicia excelsa*, *Mangifera indica*, and *Markhamia*) are present, the sensitivity would be considered high and any clearance of these species would result in a major significant impact. With the implementation of specific mitigation measures to avoid these species and, where this is not possible, obtain relevant licenses to remove the species, the residual impact significance will be moderate.

Disrupted traffic and access

There will be an increase in traffic during construction as a result of project vehicles (staff and HGVs) increasing and egressing work sites. During construction, the works activities themselves (e.g. closures and diversion) may disrupt traffic flow and impede access to social infrastructure e.g. schools, hospitals, shops, leisure parks, entertainment places, health services, markets and worship centre.

With the implementation of mitigation measures, its impact significance will be minor given the short-term nature of impacts at any one location.

Pollution and Hazardous Material Spillage

During construction activities, there is potential of spillage of hazardous materials and waste which may include used oils, bitumen and lead acid batteries among others. A spill of liquid, solid or gaseous waste could have an adverse effect on land, water or air and consequently on workers, local communities, and flora and fauna.

Upon implementation of the proposed mitigation measures, the impact significance will be moderate to minor.

Impacts on noise and vibration

Temporary noise and vibration effects will occur as a result of the use of equipment, earthworks, movement of construction workers and construction vehicles, and quarry/borrow pit activities. During construction, the use of vehicle engine and transmission mechanisms are also a source of noise. With the implementation of mitigation measures, the impact significance minor to moderate, but short term in nature.

During operation, potential impacts will be associated with potential increases in Aircrafts and Vehicle traffic noise levels, following the proposed construction. With the implementation of mitigation measures, the impact significance shall be minor.

Impacts on air quality

Construction activities can give rise to dust emissions under particular circumstances if not effectively managed. The Project has the potential to affect receptors near to the main construction sites due to dust generated from site preparation, site excavation, construction activities and the tracking out of dust from HGVs onto the local road network. With the implementation of the mitigation measures, the impact significance will be minor to moderate, but short term in nature.

Impacts on community health and safety (H&S)

There are a number of potential community H&S risks and impacts that need to be considered in construction phase works typical to all construction sites. During construction, construction works may result in public injuries as a result of, for example; use of machinery and equipment such as vibrators, graders, trucks, rollers/compactors, excavators, concrete mixers, vehicles close to the general public – especially where the presence of construction sites attracts inquisitive children; and increase construction traffic on the roads potentially leading to an increased risk of accidents. These potential impacts will be associated mainly with the communities and those in businesses living in close proximity to the Aerodrome, including schools and health centres. With the implementation of the above mitigation measures, the residual impact significance will be minor to moderate.

Increased risk of HIV/AIDS and other Sexually Transmitted Diseases (STDs)

Whilst a significant influx of construction personnel is not anticipated, as the project is located within the capital city and the construction employment numbers are around 80 staff, nonetheless a construction project can result in a temporary influx to the project sites. Furthermore, the construction staff on site tend to be male and with any construction project of this nature, there is an increased risk of spread of HIV/AIDS and other STDs among workers and in the community.

No impacts are anticipated in relation to this in operation as there exists Code 3C Arua Aerodrome. With the implementation of mitigation measures, the impact significance will be minor to moderate.

Occupational Health and Safety

Construction traffic, excavation and working with equipment may pose accident risk to workers either when equipment is operated by inexperienced workers or when in a poor mechanical condition. Additionally, construction workers shall be exposed to equipment noise and vibrations that could impact their health. However, with the implementation of the mitigation measures, the impact significance will be minor.

Gender Impacts

The concerns include; denial of employment opportunities to women; sexual harassment of female workers by the male workers especially their superiors; physical violence; male partners forcefully taking away women's pay; lack of proper public facilities such as toilets on the works site; potential physical health risks and impacts stemming from a well-documented increase in prostitution near infrastructure construction sites that are dominated by young, male workers with disposable income. No impacts during the operation phase are anticipated. With the implementation of mitigation measures, the impact significance will be minor to moderate.

Child Sexual Abuse and Exploitation

Given the presence of schools near the proposed Aerodrome, there is an increased risk that workers will engage in sexual relationships with schooling and under aged children. Whereas the risk is high, the impact significance will be minor upon implementation of mitigation measures.

10.2 Summary of Recommendations

The appropriate recommendations have been presented in the form of mitigation measures for the identified impacts and further included in the project Environmental and Social Management Plan (ESMP) – presented under Section 9. These mitigation measures need to be implemented for the proposed Project. In particular, the following recommendations are made for the impacts that have been rated as being of major significance.

Recommendations for the construction phase

- Identify suitable sites for temporary stockpiling of the cut to spoil material which shall later be used in Aerodrome rehabilitation and restoration of borrow pits and quarries, as appropriate;
- Develop a Traffic Management Plan inclusive of Aviation/Air and Road transport that should detail temporary arrangements for traffic, the provision of night time working (where practicable), among others;
- Develop and implement a Spill Contingency Plan/procedure;

- Develop and implement a Drainage, Erosion and Sediment Control Management Plan. Mitigation that includes the management of drainage systems, minimization of soft soils loading, risk-assessed allocation of soil and spoil storage areas, monitoring of excavation and construction works and monitoring of surface water features and drainage paths, among others;
- Develop and implement a Noise and Vibration Management Plan. The plan shall provide guidance to aspects such as noise and vibrations monitoring, working hours for noisy activities;
- Develop and implement an Air Quality Management Plan that shall guide on aspects such as air quality monitoring, dust suppression, among others;

ANNEXES

Annex 1: Approved ToRs



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

NEMA House
Plot 17, 18, & 21, Jinja Road,
P.O. Box 22255, Kampala,
UGANDA
Tel: 256-414-251064, 251065,
251068
Fax: 256-414-257521
Toll free: 0800-1444444
E-mail: info@nema.go.ug
Website: www.nema.go.ug
Twitter @nemaug
Facebook @NemaUG

NEMA/4.5

3rd July 2025

The Permanent Secretary
Ministry of Works and Transport
P.O. Box 7174
Kampala, Uganda
KAMPALA.

Email: ps@works.go.ug
Tel: 0414320101/9

RE:	REVIEW OF THE SCOPING REPORT AND TERMS OF REFERENCE FOR CONDUCTING AN ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF CODE 3C ARUA AERODROME TO CODE 4E IN AYIVU DIVISION, ARUA CITY.
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This is in reference to the Scoping Report and Terms of Reference (**ESIATOR/16881/2025/7**) for conducting an Environment and Social Impact Assessment (ESIA) for the above-mentioned project, which was submitted to this Authority on 3rd July 2025 for review and consideration.

Review of the submitted documentation has been concluded and this Authority grants formal approval of the said TOR for undertaking the ESIA of the proposed project. In addition to the scope of the study provided in the

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TOR, you should pay due attention to the following while undertaking the ESIA:

- i. The proposed expansion of Arua Aerodrome from Code 3C to Code 4E should comply with the Civil Aviation (Aerodrome Standards) Regulations, ICAO Annex 14 standards for Code 4E aerodromes, and provisions under the Physical Planning Act, 2020. Demonstrate compliance through a matrix table aligning national and international requirements with project design.
- ii. Undertake early and comprehensive consultations with Civil Aviation Authority (CAA), the Arua City Physical Planner, and the District Engineer, to determine the technical feasibility and planning conformity of the proposed upgrade.
- iii. If during the consultations, CAA and relevant technical agencies determine that the expansion is inconsistent with safety or planning regulations, or that the proposed site does not meet critical operational safety criteria (e.g., runway length, clear zones, obstacle limitation surfaces), the ESIA shall not proceed, and a revised concept or location should be considered. If consent is granted, proceed to undertake the ESIA, incorporating the critical elements outlined below.
- iv. Provide a comprehensive description of the entire project including proposed new runway or runway extension, terminal infrastructure, taxiways, apron expansions, fuel storage and refuelling systems, hangars, security fencing, air traffic control systems, firefighting and rescue facilities, lighting, and navigational aids. Include detailed phasing of construction activities and the expected workforce per phase.
- v. Provide a detailed analysis of potential sources of environmental pollution and hazards including aircraft noise, air emissions from aircraft and construction equipment, storm water run-off, hazardous materials handling (fuel, lubricants, firefighting foam), construction debris, and solid waste during operation. Propose mitigation and management options.
- vi. Provide coloured, clear, and well-labelled satellite maps and layout diagrams (*preferably A4*) showing the full expansion footprint, all new components, buffer zones, nearby infrastructure, airspace protection zones, and restricted areas. GPS coordinates of key infrastructure must be provided in UTM coordinate system.
- vii. Undertake a comprehensive baseline assessment of the current environmental and social conditions in the proposed expansion area, including vegetation cover, fauna (especially bird populations), soil, groundwater, surface water, land use, ambient air quality, and noise levels.

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- viii. Carry out detailed consultations with key stakeholders and Lead Agencies including but not limited to the Civil Aviation Authority, Ministry of Lands, Housing and Urban Development, Arua City Council, Department of Occupational Safety and Health (Ministry of Gender, Labour and Social Development), National Forestry Authority (if any forest reserves are nearby), and the affected communities. Ensure stakeholder views are well-documented and addressed in the ESIA.
- ix. Obtain written clearance from Arua City Council regarding the appropriateness of the proposed expansion in relation to the Physical Development Plan of Arua City and national urban planning frameworks.
- x. Provide a well-labelled and legible copy of the proposed site layout plan (*preferably A3 paper size*) clearly showing existing and proposed infrastructure, access roads, safety buffer zones, apron areas, and facilities for fuel storage and firefighting. Clearly delineate any protected road reserves or utilities corridors.
- xi. Identify and analyse all potential impacts during construction, operation, and decommissioning phases. These should include both direct and indirect impacts such as noise and air pollution, displacement of people, interference with natural ecosystems, and potential for bird strikes.
- xii. Prepare an Environmental and Social Management and Monitoring Plan (ESMMP) in matrix format that clearly outlines mitigation measures, responsible parties, performance indicators, timelines, and monitoring frequency for all key components of the project.
- xiii. Conduct an alternatives analysis that explores various project design and technology options, phasing, and site layout alternatives. Justify the preferred option based on technical, environmental, and socio-economic criteria.
- xiv. Append to the ESIA report authentic copies of land ownership documents, evidence of acquisition or lease agreements, and where applicable, resettlement action plans for any displaced persons.
- xv. Identify any other critical environmental and social concerns not initially foreseen in the Scoping Report and TOR and include an evaluation of these issues in the final ESIA report.

In accordance with Regulation 18(1) of the National Environment (Environmental and Social Impact Assessment) Regulations, S.I No. 143/2020, submit to this Authority the estimated cost of the project evidenced by a certificate of valuation of the capital investment of the project, issued by a qualified and registered valuer.

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In compliance with Regulation 49(2) of the National Environment (Environmental and Social Impact Assessment) Regulations of 2020, you are required to make payment of a non-refundable administration fee amounting to thirty percent (30%) of the total ESIA fees payable, upon submission of the Environmental and Social Impact Statement.

This Authority further guides that only registered Environmental Practitioners, including the Team Leader, should be contracted to carry out the ESIA study in accordance with the provisions of the National Environment Act Cap. 181 and the Environmental Practitioners Registration Guidelines.

This is therefore, to recommend that you proceed with conducting the ESIA for the proposed aerodrome expansion project. Please note that the approval of the TOR does **not grant permission** to commence implementation of any proposed project activities, as this communication is **not a Certificate of Approval**.

Looking forward to your cooperation and receipt of a comprehensive ESIA Report for the Authority's further action.



Edward Adraku Odipio
For: Executive Director

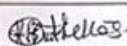
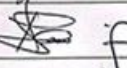
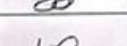
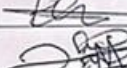


Annex 2: Attendances List(s)


 THE REPUBLIC OF UGANDA
MINISTRY OF WORKS AND TRANSPORT

Attendance List Date: 20/06/2025

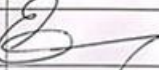
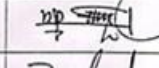
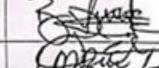
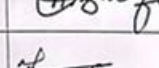
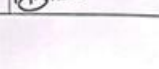
Project Name: ESIA Stakeholder engagements for the Expansion of Anja Aerodrome

SN	NAME	DESIGNATION	CONTACT	SIGNATURE
01	OKELLO LAURENCE OTIM	Department of Meteorological Services	0779253958	
02	Elisha Stock	AIM AIR Manager	0784701009	
03	Aleg Giteu Hailo	Office Manager AIM	0772 700 486	
04	Muto Bosco Robert	CRU LINK Station Manager	0775442535	
05	ABDUL RAPHAEL VINI	MAF - ARUA OFFICE	0772514040	
06	KARUNGI CHRISTOPHER	DALBY InCHARGE	070100265	
07	ROBERT N MWANIKWA	WATCO AIR STATION MANAGER	0776516642	


 THE REPUBLIC OF UGANDA
MINISTRY OF WORKS AND TRANSPORT

Attendance List Date: 13/06/2025

Project Name: ESIA Stakeholder engagements for the proposed Expansion of Anja Aerodrome

SN	NAME	DESIGNATION	CONTACT	SIGNATURE
01	Alier Pacific	FF	0753 47489	
2	Anna Emmanuel	Fire Officer	0772424163	
3	DEATLE ALEX	HO - OFFICE OF PRESIDENT	0782350585	
4	BYARUKAJOA JOHN	Com UPDF	0784764898	
05	OMEDA B.F. IDAVOL	Dir AVPOL	0772302976	
06	TUMUSIME STEPHEN	IC INVESTIGATOR SECURITY - AVIA	0705802977 0774857432	
07	ATUKURUZA ROBINAH	Aviation Security	0701460391	



THE REPUBLIC OF UGANDA

MINISTRY OF WORKS AND TRANSPORT

Attendance List

Date: 13/06/2025

Project Name: EIA & stakeholder engagements for the expansion of Arua Aerodrome

SN	NAME	DESIGNATION	CONTACT	SIGNATURE
08	Musekole Rashed	Aviation Security	0752409251 0775037718	MR.
09	Matsiko R.S.	Airport Expert	0704557598	Matsi
10	HARUNA BOSSWE TOBOM	parliament (MCH) + MCH/Airport	0392156284	JHE
11	Mahmud Alias	I/C border health	0777999265	Alias
12	PAMELA LICORN SMITH	UIC ARUA AIRPORT	0775845320	P.Licorn



THE REPUBLIC OF UGANDA

MINISTRY OF WORKS AND TRANSPORT

Attendance List

Date: 13/06/2025

Project Name: EIA & stakeholder engagements for the expansion of Arua Aerodrome

SN	NAME	DESIGNATION	CONTACT	SIGNATURE
08	PAMELA LICORN SMITH	ARUA AIRPORT UIC	0775845320	P.Licorn



THE REPUBLIC OF UGANDA

MINISTRY OF WORKS AND TRANSPORT

Project Name: The proposed Expansion of Arua Airport Attendance List Date: 12th / 6 / 2025

SN	NAME	DESIGNATION	CONTACT	SIGNATURE
1	BREKONDA ROSEMARY	Environment officer - MWT	0772847887	
2	ALICE LILIAN MUTESI	Env't Officer MWT	0782367551	
3	TITI ANZOYO GLOREN	Sociologist MWT	0774476298	
4	PAMELA LICORU SMITH	UCAA ARUA Airport IIC	0775845320	
5	FRED WATHUM	STO / Arua city	0758679470	
6	Doree Tudeh	CEO	0772578957	
7	Oluru Byron	Forst officer for Environment officer	0777999976	



THE REPUBLIC OF UGANDA

MINISTRY OF WORKS AND TRANSPORT

Project Name: ESIA Stakeholder engagements for the Expansion of Arua Aero-drome Attendance List Date: 25/06/2025

SN	NAME	DESIGNATION	CONTACT	SIGNATURE
1	KYASANKU DAVID	CITY TOWN CLERK	0772890729	
2	Mugomba Geoffrey	City division town clerk - MWT	0775832597	
3	Arutia Malon	MAYOR ARUA - DISTRICT	0782985024	



THE REPUBLIC OF UGANDA

MINISTRY OF WORKS AND TRANSPORT

Attendance List

Date: 12th / 6 / 2025

Project Name: ESIA & stakeholder engagements for the Expansion of Arua Aerodrome

SN	NAME	DESIGNATION	CONTACT	SIGNATURE
08	ERIKU FESTUS	LCI MUCEVA CELL	0775798977	



THE REPUBLIC OF UGANDA

MINISTRY OF WORKS AND TRANSPORT

Attendance List - LCs

Date: 12th / 6 / 2025

Project Name: ESIA & stakeholder engagements for the Expansion of Arua Aerodrome

SN	NAME	DESIGNATION	CONTACT	SIGNATURE
1	OFEZI SUNDA	Councillor AYIKU DW	0776641487	
2	OPIFENI PATRICK	LCI C/MAN DADA	0783448300	
3	ONGOLO HAMID	LCI C/MAN MIEFIELD	0786148529	
04	ASIDRI JHAN	LCI C/MAN FAKALO	0772-820697	
05	BRAHAN KUDA	L.C. TANIGANI Keta Gen. Dist. Cell	0780899903	
06	FETI TILO	LCI OMBAVU	0789513527	
07	ALIONI PETER	LCI ANDREWS	0778457726	



THE REPUBLIC OF UGANDA

MINISTRY OF WORKS AND TRANSPORT

Attendance List

Date: 11/06/2025

Project Name: ESIA & Stakeholders engagements for the Expansion of Arua Aerodrome

SN	NAME	DESIGNATION	CONTACT	SIGNATURE
	PAMELA LICOBU SMITH	AIRPORT OPS OFFICER INCHARGE ARUA AIRPORT	0775845320	
	ONDORI STELLA	office attendant	0785508209	
	Musema Innocent	Physical planning Dept	0761099324	



THE REPUBLIC OF UGANDA

MINISTRY OF WORKS AND TRANSPORT

Attendance List

Date: 11/06/2025

Project Name: ESIA & Stakeholder engagements for the Expansion of Arua Aerodrome

SN	NAME	DESIGNATION	CONTACT	SIGNATURE
1	KUBIRI CHARLES	Adm Clerk	0782744758	
2	DANIEL COMBONI - B.	Ass. RCC - Arua City Mgr	0779696926	
3	GRIBAREO FIONA	Ass. RCC - Central Div	0786560834	
4	WARIIRI Sam Nyakoo	City Mayor	0782448871	

Annex 3: Introduction Letter(s)

Telephone General :0414-320101-9
Hon. Minister :0414-235730/255028
Hon. Minister Of State (Works) :0414-349487
Hon. Minister Of State (Transport) :0414-320026
Permanent Secretary :0414-259139/222
Fax :0414-236369

Email: mwot@works.go.ug
website: www.works.go.ug

In any correspondence on this subject
please quote No.



THE REPUBLIC OF UGANDA

Ministry Of Works And Transport
Plot 57-59 Jinja Road
P.O. Box 7174
Kampala - UGANDA

10th June, 2025

The Hon. Clerk
Arua City

11 JUN 2025

Signature
P.O. Box 77, ARUA CITY

INTRODUCTION OF THE ENVIRONMENT AND SOCIAL SAFEGUARDS TEAM FOR THE PROPOSED EXPANSION OF ARUA AIRPORT

The National Development Plan IV, 2025/26 – 2029/30 prioritizes development of Arua Airport. This is because the runway is short, the surface is gravel and/or grass, and cannot handle the growing passenger and air traffic. Arua airport is strategically located in the tri-state border of Uganda, DRC and Sudan, and is one of the busiest airports in the country. The airport serves as a hub for passengers from Southern Sudan and DRC connecting through Entebbe International Airport. It is gazetted as an International Entry/Exit point by UCAA.

Currently, the runway is of length 1800m by 30m width, taxiways & apron are of murrum surface. A new terminal building with a capacity of 200Pax was constructed, and a total of 73.6Ha of land were recently acquired for future development. The program of upgrading and modernization of infrastructure at Arua airport is required to meet the growing traffic and provide better services to passengers, airlines and other users of the airports; support the operations of bigger aircrafts; enhance the safety and security requirements.

However, the African Development Bank's Environmental and Social Operational Safeguards and the National Environment Management Act No. 05 of 2019 (NEMA) requires that projects of such magnitude and funded by the AfDB requires initial environment and social assessment that results into the preparation of:

- (i) Environment and Social Impact Assessment Report (ESIA);
- (ii) Environment and Social Management Plan (ESMP);
- (iii) Stakeholders' Engagement Plan (SEP); and
- (iv) Disaster and Emergency Response Plan (DERP).

In order to achieve the above, a number of activities have been planned including the following:

- (i) Data collection (primary and secondary data);
- (ii) Analysis of the collected data;
- (iii) Stakeholders' mapping;
- (iv) Stakeholders' engagement; and
- (v) Preparation of the necessary reports and submission to AfDB and NEMA.

Therefore, the ministry hereby introduces to you the assembled Safeguard Team that will conduct the above activities for the above proposed project. You are further requested to render them all necessary support for the timely and smooth execution of the said project.

Charles Muganyizi
For: Permanent Secretary

Telephone General : 0414-320101/8
Hon. Minister : 0414-235730/255028
Hon. Minister Of State (Works) : 0414-349487
Hon. Minister Of State (Transport) : 0414-320026
Permanent Secretary : 0414-239139/322
Fax : 0414-236369

Email: enwot@works.go.ug

website: www.works.go.ug

In any correspondence on this subject
please quote No.



THE REPUBLIC OF UGANDA

Ministry Of Works And Transport

Plot 57-59 Jinja Road

P.O. Box 7174

Kampala - UGANDA

10th June, 2025

The Mayor
Arua City

INTRODUCTION OF THE ENVIRONMENT AND SOCIAL SAFEGUARDS TEAM FOR THE PROPOSED EXPANSION OF ARUA AIRPORT

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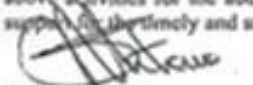
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Charles Mutebo
For: Permanent Secretary



Telephone General
on, Minister
on, Minister Of State (Works)
on, Minister Of State (Transport)
Permanent Secretary

email: mwt@works.go.ug
website: www.works.go.ug

any correspondence on this subject
please quote No.

0414-320101-9
0414-235730/235028
0414-349487
0414-320026
0414-239139/322
0414-236369



THE REPUBLIC OF UGANDA

Ministry Of Works And Transport
Plot 57-59 Jinja Road
P.O. Box 7174
Kampala - UGANDA



PAMELA LUCAS SMITH

10th June, 2025

The In Charge
Arua Airport

**INTRODUCTION OF THE ENVIRONMENT AND SOCIAL SAFEGUARDS TEAM FOR THE
PROPOSED EXPANSION OF ARUA AIRPORT**

The National Development Plan IV, 2025/26 – 2029/30 prioritizes development of Arua Airport. This is because the runway is short, the surface is gravel and/or grass, and cannot handle the growing passenger and air traffic. Arua airport is strategically located in the tri-state border of Uganda, DRC and Sudan, and is one of the busiest airports in the country. The airport serves as a hub for passengers from Southern Sudan and DRC connecting through Entebbe International Airport. It is gazetted as an International Entry/Exit point by UCAA.

Currently, the runway is of length 1800m by 30m width, taxiways & apron are of murrum surface. A new terminal building with a capacity of 200 Pax was constructed, and a total of 73.6Ha of land were recently acquired for future development. The program of upgrading and modernization of infrastructure at Arua airport is required to meet the growing traffic and provide better services to passengers, airlines and other users of the airports; support the operations of bigger aircrafts; enhance the safety and security requirements.

However, the African Development Bank's Environmental and Social Operational Safeguards and the National Environment Management Act No. 05 of 2019 (NEMA) requires that projects of such magnitude and funded by the AfDB requires initial environment and social assessment that results into the preparation of:

- (i) Environment and Social Impact Assessment Report (ESIA);
- (ii) Environment and Social Management Plan (ESMP);
- (iii) Stakeholders' Engagement Plan (SEP); and
- (iv) Disaster and Emergency Response Plan (DERP).

In order to achieve the above, a number of activities have been planned including the following:

- (i) Data collection (primary and secondary data);
- (ii) Analysis of the collected data;
- (iii) Stakeholders' mapping;
- (iv) Stakeholders' engagement; and
- (v) Preparation of the necessary reports and submission to AfDB and NEMA.

Therefore, the ministry hereby introduces to you the assembled Safeguard Team that will conduct the above activities for the above proposed project. You are further requested to render them all necessary support for the timely and smooth execution of the said project.

Charles Mutembo
For: Permanent Secretary

Telephone General
Hon. Minister
Hon. Minister Of State (Works)
Hon. Minister Of State (Transport)
Permanent Secretary
Fax

Email: works@works.go.ug
Website: www.works.go.ug

In any correspondence on this subject,
please quote No.

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Plot 57, 59 Jinja Road
P.O. Box 7174
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P.O. Box 7174
Kampala - UGANDA

Received by Secretary
RCC 0774007044

10th June, 2025

The *RCC*
Arua City

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Charles Mutebi
For: Permanent Secretary

Annex 4: Proof of Land ownership

M.P.33705.

UGANDA
REGISTRATION OF TITLES ORDINANCE
CERTIFICATE OF TITLE

FREEHOLD REGISTER, VOLUME 239 , FOLIO 2 .

DESCRIPTION OF LAND

ALL THAT piece of land delineated and edged red on the plan hereto annexed containing the following area or thereabouts and situate as follows:—

Area	County	District
78.5 ACRES.	AYIVU.	WEST NILE.

and known as ARUA AIRFIELD.

OWNERSHIP

UGANDA LAND COMMISSION, OF P.O. BOX 361, KAMPALA

is ~~are~~ now the proprietors of an estate in fee simple in the land above described subject to the conditions and incumbrances hereinafter set out.

Dated this 16TH day of MAY,

01 APR 2008

Ministry of Lands, Housing
And Urban Development
P.O. Box 361, Kampala, Uganda

Permanent Secretary
Ministry of Lands, Housing
And Urban Development

Registry Copy

ASSISTANT Registrar of Titles.

OWNERSHIP—continued

REGD.2.9.2002
AT 11.10 A.M
INST.327250

CIVIL AVIATION AUTHORITY OF P.O BOX 5536, KAMPALA.



For Permanent Secretary
Ministry of Lands, Housing
and Urban Development



WABE HITE
ATZAY COUNTY
ARUA
SHIPP 11/14/PA/WW/3,2 and
19/WW/3 & 4

[Signature]
E. R. DOWNER
For COMMISSIONER OF LANDS & SURVEY

11th April, 1967

29264532

REVENUE SECTION
No. 2000
01 APR 2000
Ministry of Lands, Housing Urban Development
Kampala, Uganda

[Signature]
For Permanent Secretary
Ministry of Lands, Housing
and Urban Development

PLAN OF THE LAND COMPRISED IN THIS FOLIO

CERTIFIED TRUE COPY
for Commissioner, Land Registration

REVENUE SECTION
Receipt No.
Shs.
01 APR 2008
Ministry of Lands, Housing
And Urban Development
P.O. Box 7086, Kampala, Uganda

For Permanent Secretary
Ministry of Lands, Housing
and Urban Development