REGULATORY IMPACT ASSESSMENT

for the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024

This Regulatory Impact Assessment (RIA) has been prepared by the Cabinet Secretary - Ministry of Roads and Transport pursuant to sections 6 and 7 of the Statutory Instruments Act, Cap. 2A

November 2024

Table of Content

1.0 Chapter One – Introduction

Regulatory Authority and the Legal Mandate

1.1. The Civil Aviation Act

Kenya Civil Aviation Authority (KCAA) is established under the Kenya Civil Aviation Act, Cap. 394 (the Act). The object and purpose for which the Authority was established is to economically and efficiently plan, develop and manage civil aviation, regulate and operate a safe civil aviation system in Kenya in accordance with the provisions of the Act. It also has the primary functions to regulate and oversight aviation safety and security; economic regulation of air services and development of civil aviation; provision of air navigation services; and training of aviation personnel as guided under the provisions of the Convention on International Civil Aviation, related ICAO Standards and Recommended Practices (SARPs), the Act, and the Civil Aviation Regulations.

Section 4 of the Act provides that the provisions of the Act and regulations made thereunder unless expressly excluded apply to: aerodromes used for civil aviation in Kenya; air services established or operating in Kenya; any aircraft registered by the Authority; any foreign aircraft within the Kenya territory; aviation personnel and training schools certified by the Authority; enterprises operating in Kenya in the design, manufacture, maintenance, repair and modification of aircraft and aircraft parts or components; and air navigation facilities and services in Kenya.

Section 82 provides for the power of the Cabinet Secretary responsible for aviation matters to make regulations to give effect to the Act and for regulating air navigation, air transport, air accident investigation and carrying out and giving effect to any convention on aviation ratified by Kenya. The draft Civil Aviation (Environment Protection - Aircraft Engine Emissions) Regulations, 2024 have been developed under the Act.

Section 82(1) of the Act empowers the Cabinet Secretary responsible for transport to make regulations to give effect to and for the better carrying out of the objects and purposes of the Act, and to provide generally for regulating air navigation, air transport, air accident investigation and carrying out and giving effect to any convention.

Further, section 82(2) of the Act is more specific and provides that the Cabinet Secretary may make regulations for, among others:

(a) regulating, by establishing licensing authorities and a system of licensing and otherwise, the use of aircraft (i) for commercial transport; and (ii) for aerial work;
(b) prohibiting the flying of any aircraft — (i) unless there is in force in respect of such aircraft a certificate of airworthiness or permit to fly issued or recognized in accordance with regulations made under this Act; and (ii) except upon compliance with such conditions as to maintenance and repair as may be prescribed or specified in the certificate or permit;
(c) requiring the flight crew, and persons, performing prescribed functions in relation to the operation or maintenance of aircraft, air navigation services, design and construction of aircraft to be the holders of licences of specified kinds;
(d) providing for the manner and conditions of issue, validation, renewal, extension or variation of any licence required in regulations and for the form, custody, production, cancellation, suspension, endorsement and surrender of such;

(e) prescribing the fees to be paid in respect of the issue, validation, renewal, extension or variation of any license, or the undergoing of any examination or test required by regulations made under this Act or any other matters in respect of which it appears to the Cabinet Secretary to be expedient to charge fees;
(f) exempting any aircraft or persons or classes of aircraft or persons from the provisions of any regulations made under this Act;
(g) providing for the investigation in such manner as may be prescribed, including by means of a tribunal established for the purpose, of any accident arising out of or in the course of air navigation and occurring either in or over Kenya or occurring elsewhere to Kenya aircraft;
(h) requiring any person who owns an aircraft or who carries on the business of operating aircraft for hire or reward to furnish to such authorities as may be prescribed such information relating to the aircraft and the use thereof, the crew, the mail, the passengers and the cargo carried, as may be prescribed;
(i) providing for the licensing, inspection and regulation of aerodromes, access to places where aircraft, have landed or may land, access to aircraft factories or maintenance establishments or places where aircraft parts and engines are maintained, for the purpose of inspecting work therein carried on in relation to aircraft or parts thereof.
(j) the design, construction, repair, overhaul, maintenance, operation and use of aircraft, maintenance and repair of facilities and related equipment; and
(k) the control and operation of the aircraft within or directly above the aerodrome for the purpose of limiting or mitigating the effect of noise.

1.2 Statutory Instruments Act, Cap. 2A

KCAA now undertakes public and stakeholder consultations and presents this Regulatory Impact Assessment (RIA) in partial fulfilment of the requirements of the Statutory Instruments Act, Cap. 2A (SIA) which is the legal framework governing the conduct of RIA in Kenya.

The object of the Act is to provide a comprehensive regime for the making, scrutiny, publication and operation of statutory instruments by:

(a) requiring regulation-making authorities to undertake appropriate consultation before making statutory instruments;
(b) requiring high standards in the drafting of statutory instruments to promote their legal effectiveness, clarity and intelligibility to anticipated users;
(c) improving public access to statutory instruments;
(d) establishing improved mechanisms for parliamentary scrutiny of statutory instruments; and
(e) establishing mechanisms to ensure that Statutory Instruments are periodically reviewed and, if they no longer have a continuing purpose, repealed.

The Act also makes provision for the making of regulatory impact statements under section 6 as well as contents of the regulatory impact statement under section 7. Sections 6 and 7 require that if a proposed statutory instrument is likely to impose significant costs on the community or a part of the community, the Regulation-Making Authority (RMA)

shall, prior to making the statutory instrument, prepare a regulatory impact statement about the instrument. SIA further sets out certain key elements that must be contained in the RIA namely:

(a) a statement of the objectives of the proposed legislation and the reasons for them;
(b) a statement explaining the effect of the proposed legislation including in the case of a proposed legislation which is to amend an existing statutory instrument the effect on the operation of the existing statutory instrument;
(c) a statement of other practicable means of achieving those objectives, including other regulatory as well as non-regulatory options;
(d) an assessment of the costs and benefits of the proposed statutory rule and of any other practicable means of achieving the same objectives;
(e) the reasons why the other means are not appropriate;
(f) any other matters specified by the guidelines; and
(g) a draft copy of the proposed statutory rule. Section 5 of SIA requires an RMA to conduct public consultations drawing on the knowledge of persons having expertise in fields relevant to the proposed statutory instrument and ensuring that persons likely to be affected by the proposed statutory instrument are given an adequate opportunity to comment on its proposed content.

What is a Regulatory Impact Assessment?

RIA is a systemic approach of critically assessing the positive and negative effects of proposed or existing regulations and non-regulatory alternatives. It is an analytical report to assist decision makers to arrive at an informed policy decision.

As an aid to decision making, RIA includes an evaluation of possible alternative regulatory and non-regulatory approaches with the overall aim of ensuring that the final selected regulatory option provides the greatest net public benefit.

Typically, the structure of a RIA should contain the following elements:

(a) title of the proposal; the objective and intended effect of the regulatory policy;
(b) an evaluation of the policy problem;
(c) consideration of alternative options;
(d) assessment of all their impacts distribution;
(e) results of public consultation;
(f) compliance strategies; and
(g) processes for monitoring and evaluation.

RIA promotes evidence-based policymaking as new regulations typically lead to numerous impacts that are often difficult to foresee. From a societal viewpoint, RIA confirms whether a proposed regulation is welfare enhancing, in that, the benefits will surpass costs.

RIA therefore has an overall objective of not only improving understanding of the real-world impact of regulatory action, including both the benefits and the costs of action, but

also integrating multiple policy objectives, improving transparency and consultation; and enhancing governmental authority.

1.3 International Legislation

Kenya, by virtue of Article 2(5) and (6) of the Constitution has ratified and become part of the international participants in the aviation space. The International Civil Aviation Authority (ICAO) was established as a specialized United Nations (UN) agency under the Convention of International Civil Aviation (Chicago Convention) which helps 193 countries to cooperate and share their skies to their mutual benefit. To achieve this, ICAO has provided for the establishment of international Standards and Recommended Practices (SARPs) the uniform application of which is necessary in order to achieve the highest practicable degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation.

The draft Civil Aviation (Environment Protection-Aircraft Engine Emissions) Regulations, 2024 correspond to the SARPs issued by ICAO as Annex 16 Vol. II to the Convention on international civil aviation. Kenya as a contracting State has an obligation under Article 37 to the Convention on International Civil Aviation to domesticate the SARPs into legally enforceable legislative material.

These regulations are therefore issued in fulfilment of Kenya's international obligations as an ICAO contracting state and to ensure the safety, security, regularity and economic viability of global air transport system.

1.4 Regional Legislative Initiatives

Regionally, Kenya is a member of the African Civil Aviation Commission (AFCAC) which is a specialized body of the African Union (AU) whose mandate is to create a safe, secure, efficient, and sustainable civil aviation industry across Africa that propels development through furthering connectivity.

Further, under the East African Community, Kenya is a member of Civil Aviation Safety and Security Oversight Agency (CASSOA) which is established under Article 92 of the EAC Treaty which in summary states that the Partner States shall undertake to make air transport services safe, efficient and profitable; adopt common policies for the development of civil air transport in the region; harmonize civil aviation rules and regulations and coordinate measures and co-operate in the maintenance of high security.

Under commitments under these regional arrangements and the aspiration to ensure that the regional air transport industry is appropriately managed, Kenya is obliged to issue these regulations to fulfil the regional obligations to a safe, secure and economically viable air transport system.

2.0 Chapter Two – Purpose and Objects of the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024

2.1 Scope

The Proposed Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 shall be applicable to all turbine engine powered aircraft manufactured after 18 February 1982.

2.2 Objective

The objective of the proposed Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 is to establish comprehensive standards and practices aimed at reducing emissions from aircraft engines, thereby enhancing environmental protection in civil aviation.

2.3 Specific objectives

The Draft Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 specific objective is to foster a sustainable aviation industry that prioritizes environmental stewardship while maintaining safety and operational efficiency in civil aviation activities.

2.4 The Structure of the Proposed Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024

The structure aims to evaluate the clarity, consistency, comprehensibility, and comprehensiveness of the proposed Regulations in relation to the identified issue. It is essential that the regulations are easily understood by those who may be impacted. To achieve this, KCAA has implemented measures to enhance the clarity of both the text and structure of the proposed Regulations.

The structure of the proposed Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 is as follows:

Part I - General Provisions
Part II - Vented Fuel
Part III - Emission Certification
Part III - Turbojet and Turbofan Engines Intended for Propulsion Only at Supersonic Speeds
Part IV - Particulate Matter Emissions
Part V - Non-Volatile Particulate Matter Emissions
Part VI - Exemptions
Part VII - Offences and Penalties
Part VIII - Savings and Transitional Provisions

SCHEDULES

First Schedule - Symbols

Second Schedule - Measurement of reference pressure ratio
Third Schedule - Smoke emissions evaluation
Fourth Schedule - Instrumentation and measurement techniques for gaseous emissions
Fifth Schedule - Specification for fuel to be used in aircraft turbine engine emission testing
Sixth Schedule - Instrumentation and measurement techniques for gaseous emissions from afterburning gas turbine engines
Seventh Schedule - Compliance procedure for gaseous emissions, smoke, and particulate matter emissions
Eighth Schedule - Instrumentation and measurement techniques for non-volatile particulate matter emissions
Ninth Schedule - Procedures for estimating non-volatile particulate matter system loss corrections

3. Chapter Three – Background and Context

3.1 Policy Background

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.

Goal 9 of the SDGs advocates for building resilient infrastructure, promoting inclusive and sustainable industrialization and fostering innovation. Kenya intends to provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport by 2030.

Kenya Vision 2030 is a nationwide multi-sectorial document that outlines the main policies, legal and institutional reforms as well as programs and projects that the Government plans to implement.

The Vision 2030 aspires for a country firmly interconnected through a network of roads, railways, ports, air, water and sanitation facilities, and telecommunications. The expansion, modernization and management of the aviation sector continues to enhance air transport safety, security, and connectivity across the country and beyond. Civil aviation is a critical catalyst for global and national development. Air transport in Kenya has continued to grow and has contributed to job creation and increased interaction and trade with other countries.

Bottom-Up Economic Transformation Agenda (BETA): The Bottom-Up Economic Transformation Agenda 2022-2027 is the manifesto of the Kenya Kwanza administration that is being implemented from 2022 to 2027. It is built on six main pillars, to be being implemented through five (5) MTP IV sectors that include infrastructure. One of the aims under infrastructure sector is to enhance transport connectivity and the provisions of the regulations are meant to institutionalize a civil aviation regulatory and oversight framework that promotes a sustainable safe and secure air transport system in Kenya.

Kenya Aviation Policy: The Policy aims to foster the growth of aviation business in Kenya to support job creation by positioning Kenya as a recognized regional leader in aviation; maximize the contribution of the aviation sector to Kenya's economic growth and development; and enhance Kenya's connectivity at a national and international level by ensuring safe, secure and competitive access which is responsive to the needs of businesses, tourism and the population. The Policy covers the entire aviation sector in Kenya including key air transport challenges related to regulatory framework, safety, security, environmental aspects, economic regulation, institutional framework, air transport market and stakeholders, air transport infrastructure including planning, development, operation, and management, air transport personnel, and air transport statistics.

Kenya Airspace Master Plan: The Plan outlines the evolution and associated investments to be made by the KCAA in Air Navigation Services (ANS) over the next 15 years. The objectives of the Plan include global and regional consistency, legal/regulatory

considerations, and stakeholder expectations. The plan covers operational evolutions, technical improvements, and human resources development.

The National Aviation Safety Plan (NASP): The Plan is aligned with the International Civil Aviation Organization's (ICAO) Global Aviation Safety Plan (GASP), the NASP outlines objectives, strategic priorities, and safety actions to be taken over three years (2023 to 2025). The Plan includes key elements such as identification of national safety issues, setting aviation safety goals and targets, implementing safety enhancement initiatives (SEIs), and collaborating with industry stakeholders and agencies responsible for safety oversight. The NASP complements Kenya's State Safety Programme (SSP) Document.

3.2 Constitutional and Legal Background

The Constitution: The Constitution recognizes civil aviation as one of the functions under the National Government in the Fourth Schedule.

Chapter 4 of the Constitution provides for the Bill of Rights with Article 46 providing for consumer protection where it applies to goods and services offered by public entities or private persons. Aviation consumers have rights for services of reasonable quality; information necessary for them to get full benefit from the services; and protection of their economic interests.

Chapter 6 of the Constitution provides for leadership and integrity of State officers. Employees of the Authority are public officers and are bound by the various principles provided for in the Constitution. The regulations have largely provided for standardized ways of provision of quality services, information to be used by its consumers for protection of their economic interest, data protection issues, access to information while maintaining technical infrastructure within the aviation sector.

Article 94(6) of the Constitution gives Parliament the power to delegate its legislative authority to a State organ, State officer or person to make provision having the force of law in Kenya.

Civil Aviation Act: The Act was enacted to provide for the control, regulation and orderly development of civil aviation in Kenya; and for connected purposes.

Section 4 of the Act provides that the provisions of the Act and regulations made thereunder unless expressly excluded shall apply to: aerodromes used for civil aviation in Kenya; air services established or operating in Kenya; any aircraft registered by the Authority; any foreign aircraft within the Kenya territory; aviation personnel and training schools certified by the Authority; enterprises operating in Kenya in the design, manufacture, maintenance, repair and modification of aircraft and aircraft parts or components; and air navigation facilities and services in Kenya. Section 82 provides for the Regulations that can be made by the Cabinet Secretary responsible for aviation matters to give effect to the Act and for regulating air navigation, air transport, air accident investigation and carrying out and giving effect to any convention on aviation ratified by Kenya.

Civil Aviation Act: The Civil Aviation Act, Cap. 394 was enacted to provide for the control, regulation and orderly development of civil aviation in Kenya; and for connected purposes.

Section 4 of the Act provides that the provisions of the Act and regulations made thereunder unless expressly excluded shall apply to: aerodromes used for civil aviation in Kenya; air services established or operating in Kenya; any aircraft registered by the Authority; any foreign aircraft within the Kenya territory; aviation personnel and training schools certified by the Authority; enterprises operating in Kenya in the design, manufacture, maintenance, repair and modification of aircraft and aircraft parts or components; and air navigation facilities and services in Kenya. Section 82 provides for the Regulations that can be made by the Cabinet Secretary responsible for aviation matters to give effect to the Act and for regulating air navigation, air transport, air accident investigation and carrying out and giving effect to any convention on aviation ratified by Kenya.

3.3 Domestic Context

The KCAA is established under the Civil Aviation Act with the object and purpose to economically and efficiently plan, develop and manage civil aviation, regulate and operate a safe civil aviation system in Kenya in accordance with the provisions of the Act. Further, the Act requires that the Cabinet Secretary shall make regulations to give effect to and for the better carrying out of the objects and purposes of the Act, to provide generally for regulating air navigation, air transport, air accident investigation and carrying out and giving effect to any convention on aviation.

The Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 enable KCAA to effectively discharge its mandate by establishing operational standards that ensure that the aviation system in Kenya is aligned to the standards established internationally and applicable globally.

The Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 therefore are issued in fulfilment of the obligations set forth in the Civil Aviation Act and in support of the mandate of KCAA.

3.4 International Context

The Convention on International Civil Aviation, which, has been ratified by Kenya established the International Civil Aviation Organization (ICAO) with a mandate to support, coordinate and help countries to diplomatically and technically realize a uniquely rapid and dependable network of global air mobility, connecting families, cultures, and businesses all over the world, and promoting sustainable growth and socio-economic prosperity wherever aircraft fly.

As a global forum of States for international civil aviation, ICAO develops policies and standards, undertakes compliance audits, performs studies and analyses, helps and builds aviation capacity through many other activities and the cooperation of its Member States and stakeholders.

Article 37 of the Convention on International Civil Aviation provides for Adoption of international standards and procedures requiring each contracting State undertaking to collaborate in securing the highest practicable degree of uniformity in regulations, standards, procedures, and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation.

ICAO adopts and amends international standards and recommended practices and procedures dealing with various aspects of air navigation and such other matters concerned with the safety, regularity, and efficiency of air navigation as may from time to time appear appropriate.

Further, Article 12 of the Convention requires that each contracting State undertakes to adopt measures to ensure that every aircraft flying over or manoeuvring within its territory and that every aircraft carrying its nationality mark, wherever such aircraft may be, shall comply with the rules and regulations relating to the flight and manoeuvre of aircraft there in force. Each contracting State undertakes to keep its own regulations in these respects uniform, to the greatest possible extent, with those established from time to time under this Convention. Over the high seas, the rules in force shall be those established under this Convention. Each contracting State undertakes to ensure the prosecution of all persons violating the regulations applicable.

Internationally, each of the 193 contracting States has, in compliance with their national commitments and obligations under the Convention, established national civil aviation regulations with the objective of governing the aviation industry in their jurisdiction.

Article 12 of the Convention relating to scheduled air services provides that no scheduled international air service may be operated over or into the territory of a contracting State, except with the special permission or other authorization of that State, and in accordance with the terms of such permission or authorization.

The lack of an appropriate set of regulations in one contracting state jeopardizes the safety, security and economic status of international air navigation. The Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 are therefore proposed to ensure fulfilment of State obligation and alignment of the Kenyan aviation system with international requirements and allow Kenya effectively to explore the potential economic and geopolitical benefits of participating in international air navigation.

4. Chapter Four – Evaluation of the Problem

4.3 Currency of the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024

The Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations are new regulations (being published for the first time). ICAO adopted Annex 16, Volume II of the Chicago Convention, containing Standards and Recommended Practices relating to the implementation of Environmental Protection - Aircraft Engine Emissions. Annex 16 Vol. II was first published in 1981 and the current publication is the fifth edition of July 2023. Kenya is therefore not in compliance with the terms of the Convention of which it is a signatory. The gap in the regulations can therefore only be bridged through promulgation of these new regulations.

4.4 Sustainability of Civil Aviation System

4.4.1 International Obligation

The Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 play a crucial role, the absence of these Regulations could undermine Kenya's ability to meet international climate obligations, damage its global reputation for environmental responsibility, and create serious economic and legal consequences for both the aviation sector and broader international relations. It could also hinder global efforts to reduce the environmental impact of aviation and may isolate the country from key international collaborations and markets.

4.4.2 Aviation Safety/Economics

The Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 are primarily focused on minimizing the environmental impact of aviation. However they are closely linked with technological advancements, operational practices, and industry standards that can directly or indirectly influence safety.

The absence of the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations could pose a variety of risks to aviation safety, from mechanical failures due to outdated engines to operational inefficiencies that could affect flight performance and safety. The failure to adopt modern technologies and best practices designed to optimize engine performance and minimize environmental impact could lead to higher risks for both crew and passengers. It is essential to recognize that safety and environmental protection are closely intertwined in aviation, and the absence of comprehensive emissions regulations could undermine both.

4.4.3 Operational Rights to Other Jurisdictions

Lack of the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations in place could have serious ramifications for Kenya’s

operational rights in international aviation. These problems could range from restricted access to foreign airspace and airports, difficulties in negotiating air traffic agreements, to punitive measures and exclusion from regional and multilateral aviation partnerships. Non-compliance with international environmental standards may reduce airlines' competitiveness, hinder their expansion into new markets, and ultimately limit their ability to operate internationally.

4.4.4 Reduction of Cost of Doing Business

These regulations, while primarily aimed at environmental protection, also play a crucial role in shaping operational efficiency, long-term sustainability, and financial viability for airlines and related businesses.

Not having these Regulations in place can lead to a significant increase in operational costs for airlines and the aviation industry at large. From higher fuel and maintenance costs to lost opportunities for green financing and missed technological advancements, airlines that fail to implement emissions-reducing measures will face higher long-term expenses. These challenges can erode profitability, reduce competitiveness, and hinder business growth, making it more difficult to succeed in an increasingly sustainability-focused global market.

5. Chapter Five – Stakeholder Consultation

5.1 Legal requirements relating to public participation and consultation

The need to amend the Civil Aviation (Environment Protection - Aircraft Engine Emissions) Regulations, 2018 was necessitated by a series of ICAO State Letters informing the State of amendments to Annex 8 that would become effective on specified dates. Kenya as a contracting State was therefore required to bring its regulations into uniformity with the adopted and amended SARPS.

Public participation plays a crucial role in democratic governance by ensuring transparency, inclusivity, and accountability in decision-making processes. The Constitution places emphasis on public participation as a fundamental principle of governance. Article 10 of the Constitution outlines the national values and principles of governance, including public participation, which is crucial for achieving accountability, transparency, and public involvement in decision-making processes.

In addition, Article 118 of the Constitution provides the right to public participation in legislative and other processes of the State. This ensures that the public has an opportunity to participate in matters that affect them directly.

The requirement for public participation applies to regulation making too. As such, before the draft regulations would be forwarded for promulgation, a series of stakeholder/public engagement was conducted.

5.2 The Process of Public Consultation

The first of a series of stakeholder meetings covering a set of eleven (11) civil aviation regulations was physically held at the Ole Sereni Hotel in Nairobi on 30th April 2019. The second stakeholders meeting was held hybrid (both physically at Four Points by Sheraton Hotel and virtually) between 14th – 18th June 2021. The third public engagement was a physical meeting with stakeholders held at the Emara Ole Sereni Hotel between 14th and 15th February 2022.

In each of the engagements, comments and input from stakeholders was taken and incorporated into the regulations as appropriate and the outcome presented in the succeeding engagement forum. To conclude stakeholder engagement, KCAA organized for a final regulations validation workshop at the Panari Hotel in Nairobi between 6th and 8th May 2024 to allow stakeholders to confirm that the Authority had considered and incorporated their comments and input in the final drafts of the regulations. This was the final activity that paved way for the review of the regulations to proceed to the next stage.

5.3 Public Notice and Awareness

Each stakeholders engagement fora was advertised at least twenty-one (21) days before the date of the engagement in a major local daily in accordance with applicable requirements for stakeholder engagement. Additionally, formal notice of the same was posted on the KCAA official website. All sets of regulations to be discussed during the

public participation fora were well spelt out in the adverts. An online registration form was provided on the website in addition to a form to collect stakeholder comments which was uploaded alongside the regulations on the KCAA website www.kcaa.or.ke.

5.4 Public participation forum

The physical stakeholder engagement was conducted at the Ole Sereni Hotel in Nairobi on 30th April 2019 and attended by 102 participants. The hybrid stakeholder engagement held between 14th and 18th June 2021 attracted a total attendance of 718 aviation stakeholders and members of the public. The stakeholder engagement reports, local daily newspaper adverts, copies of signed or digital attendance lists as applicable, Matrices containing input from stakeholders and how the same were incorporated in the regulations form annexures to this report.

5.5 Analysis and Feedback

The Authority received many memoranda from the industry and general public using the forms provided to collect stakeholder feedback. Some memoranda were delivered physically, in writing or by email. Memoranda received before stakeholder meetings were analysed, the Authority's response documented in a matrix and the same presented during the physical or virtual stakeholder engagement sessions.

Each comment was analysed feedback given to every input received from stakeholders initially on the floor of the physical or virtual engagement during question and-answer sessions which came immediately after presentations of the regulation, or in writing where stakeholder input and comments were received in writing or after the engagement sessions.

For stakeholder input and comments requiring substantial analysis and amendment to draft regulations, the stakeholders were invited to shed more light on their comments and requests through physical or virtual meetings, in writing or email. Their input was then discussed and analysed together with the drafters of the regulations and where consensus was reached, the regulations were either redrafted to incorporate their input or retained in cases where taking the stakeholder comments would contravene ICAO standards or international standards and practices.

The Authority kept in touch with stakeholders at all stages of the development of the regulations ensuring that they were fully involved and part of the process.

5.6 Credibility and Integrity of the Process

To ensure that the process of public participation was credible and passed the integrity test, KCAA:

(a) did not engage in conduct involving dishonesty, fraud, deceit, misrepresentation or discrimination and avoided relationships or actions which could be legitimately interpreted as a conflict of interest; and

(b) took into consideration the social and economic status, religious beliefs, ethnicity, and other social diversities of those engaging in public participation.

Any complaint arising from the public participation process was to be referred to the Director-General and resolved as appropriate including provision of additional time and contact to address any stakeholders concerns. However, no complaint was received.

6. Chapter Six – Cost Benefit Analysis

6.3 Costs and Benefits Generally

The draft Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 aims to foster a sustainable aviation industry that prioritizes environmental stewardship while maintaining safety and operational efficiency in civil aviation activities as well as ensure that Kenya aligns with international environmental protection standards for aircraft registered in Kenya and any foreign registered Aircraft operating in Kenya.

It is however impossible to fully quantify the cost that goes into ensuring that Aircraft Engine Emissions for International Aviation, which is a cardinal element of all civil aviation activities, is maintained at all times. Furthermore, standards complied with the promulgation of these regulations have been meticulously studied and trialled at an international level. The results of such trials and tests have proven that the benefits accrued are worth the cost, hence the adoption of the standards and recommended practices into ICAO Annex 16 Volume II.

The table below summarizes the problems promulgation of new regulations is supposed to treat, the proposed amendments as well as the attached benefits and costs:

Table 01

PROBLEM	PROPOSED REFORM	BENEFITS	COST
Non-Compliant Regulations	Introduction of new regulations to align with international standards set by the International Civil Aviation Organization (ICAO) i.e. Annex 16, Vol II Fifth Edition of July 2023.	Improved alignment with international standards will enhance Safety of Aircraft.	Cost of running aircraft engine emissions oversight function

6.4 Consideration of Alternatives to the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024

Table 02

Option	Impact
Option One: Maintenance of the Status Quo	Maintaining status quo means that no regulations are developed, thus the challenges of currency and keeping up with the international obligations and requirements will not be addressed.

Option	Impact
Option Two: Administrative measures	Issuance of directives and circulars to the various entities and hoping that they will be implemented. Administrative measures do not have the force of law and may be challenged in court of law. These include Advisory Circular and Aeronautical Information Circular.
Option Three: Promulgating the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024	The promulgation of the civil aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 will create a sustainable aviation industry that prioritizes environmental stewardship while maintaining safety and operational efficiency in civil aviation activities as well as ensure that Kenya aligns with international environmental protection standards for aircraft registered in Kenya and any foreign registered Aircraft operating in Kenya.

6.5 Impact analysis of the Options

Table 03

Aviation Sector	Option one: Maintenance of the Status Quo	Option two: Administrative measures	Option three: Promulgating the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024
Maintenance Organisation	1. As aircraft engines evolve to meet stricter emissions regulations, maintenance organizations may face higher initial costs for training, specialized tools, and diagnostic equipment required to service these engines. The complexity of maintaining newer	1. Without clear, enforceable standards, maintenance practices could become less standardized, leading to potential gaps in safety protocols. Maintenance organizations may be left uncertain about which emissions reduction technologies or procedures to prioritize, increasing the risk of suboptimal	1. The regulations will likely prompt the adoption of newer, more fuel-efficient engines and components that meet stricter emissions standards. Maintenance organizations will need to develop and integrate new maintenance procedures, diagnostic tools, and repair techniques suited to these advanced systems.

Aviation Sector	Option one: Maintenance of the Status Quo	Option two: Administrative measures	Option three: Promulgating the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024
	engines could also increase the potential for maintenance errors if organizations are not sufficiently prepared. 2. Maintenance organizations will need to comply with additional regulatory requirements tied to emissions standards, such as documentation and reporting for emissions data, which could add administrative burdens and potential costs to operations. 3. The transition period where older aircraft are phased out and newer models are integrated into fleets may lead to temporary disruptions in maintenance schedules and training, possibly increasing the risk of maintenance-related issues or delays during this period.	maintenance or overlooking necessary upgrades to meet best safety practices. 2. Uncertainty about the specific requirements for engine performance and emissions could lead to inconsistent maintenance schedules or improper handling of aircraft engines, increasing the likelihood of engine malfunctions, failures, or other safety incidents. 3. A lack of investment in modern, safe technologies could leave airlines operating older, less reliable engines, increasing the risk of mechanical failures, increased downtime, and potential safety hazards due to outdated equipment.	2. Maintenance personnel may require further training and certification to handle modern, emissions-compliant engines and their associated technologies. This could lead to a skills upgrade in the workforce, enhancing safety by improving the competence of maintenance teams. 3. Newer engines that meet stricter environmental standards often have longer intervals between overhauls, reducing the frequency of certain maintenance activities. This can improve the reliability and safety of aircraft over time.
Aviation Service Consumer	1. The adoption of more advanced, emissions-compliant aircraft may result in higher operational costs for airlines. These increased costs may be passed on to consumers in	1. Passengers may be exposed to higher risks from outdated engines and aircraft that do not meet the latest safety standards. Increased maintenance	1. With the focus on modernizing the fleet to meet emissions regulations, newer, safer aircraft are likely to be introduced. These planes will benefit from the

Aviation Sector	Option one: Maintenance of the Status Quo	Option two: Administrative measures	Option three: Promulgating the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024
	the form of higher ticket prices, especially during the initial phases of implementing emissions-reduction technologies. For some passengers, this could make air travel more expensive. 2. The process of upgrading fleets to meet the new emissions standards may temporarily affect flight schedules, leading to potential delays or cancellations during the transition period, which could inconvenience passengers.	failures, especially related to older engines, could lead to higher chances of delays, cancellations, or even more serious safety incidents, reducing confidence in air travel. 2. Without mandated reporting, it may be difficult for passengers or authorities to assess the true safety record of airlines, leaving them vulnerable to unreported safety issues such as engine failures, which could undermine public trust in the aviation system. 3. If airlines are left to voluntarily adopt emissions-reducing technologies or maintain outdated fleets, they may incur higher operational costs. These costs could eventually be passed onto consumers in the form of higher ticket prices or less competitive offerings.	latest advancements in engine technology, reducing the likelihood of engine-related failures, which directly contributes to passenger safety. 2. The efficiency of newer aircraft, especially in terms of fuel consumption and engine performance, can reduce the likelihood of operational disruptions caused by engine issues or maintenance delays. This will lead to a more reliable travel experience for passengers. 3. Passengers who are concerned with environmental sustainability will benefit from reduced carbon emissions, as airlines will likely adopt more sustainable practices and technologies in response to the regulations. This could attract passengers who prioritize flying with environmentally responsible airlines.
The State	1. The State may face increased regulatory	1. Without legally binding emissions	1. Reducing aircraft engine emissions can

Aviation Sector	Option one: Maintenance of the Status Quo	Option two: Administrative measures	Option three: Promulgating the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024
	oversight and enforcement responsibilities as it implements and monitors compliance with emissions regulations. This could require additional resources for regulatory agencies, including increased staffing and investment in infrastructure for inspections and monitoring. 2. Airlines that do not have the capital to invest in new aircraft or technologies may face financial difficulties in complying with the new regulations. This could result in domestic airline bankruptcies or reduced air services, which may negatively affect the state's aviation sector and broader economy, especially if regional carriers are disproportionately impacted.	regulations, the State may lack the legal leverage to ensure airlines adhere to the safety measures needed to reduce emissions-related risks. This could result in gaps in safety oversight and reduced accountability for airline operations. 2. The lack of reviewed regulations means that the government may face challenges in enforcing emissions and safety compliance, relying on voluntary cooperation from airlines and other stakeholders. Airlines may not feel the same level of obligation to comply as they would under a formal regulatory framework. 3. If the State fails to implement comprehensive emissions regulations, it could fall short of meeting international obligations, particularly those set by organizations like	lead to improved air quality around airports, as well as a decrease in pollution from the aviation sector. This can have a direct positive impact on public health, especially in urban areas near airports, by lowering levels of air pollutants like particulate matter, nitrogen oxides, and carbon dioxide. 2. By adopting regulations that align with international standards set by bodies like ICAO, the State can demonstrate its commitment to global environmental goals. This can improve the country's international standing and enhance diplomatic relations, particularly with regions that have stringent environmental policies. 3. The State can position itself as a leader in green aviation, attracting investment in sustainable technologies and fostering innovation in the aviation industry. This could result in job creation in sectors related to green aviation

Aviation Sector	Option one: Maintenance of the Status Quo	Option two: Administrative measures	Option three: Promulgating the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024
		the International Civil Aviation Organization (ICAO).	technologies, maintenance, and infrastructure.
The Authority	1. The introduction of emissions standards will create a need for more complex regulations and compliance mechanisms for airlines and maintenance organizations. Regulatory bodies will need to develop new systems to manage certifications, inspections, and ongoing monitoring of emissions, potentially creating challenges in terms of resource allocation and enforcement. 2. Authorities may face capacity challenges as they work to ensure that all airlines comply with the new regulations. Smaller or less-resourced regulatory bodies may struggle to manage the workload associated with inspections, audits, and certifications. This could lead to potential gaps in safety oversight or delays in the approval of new aircraft and technologies. 3. During the transition phase, where both old and new aircraft are in	1. Without formal regulations, safety oversight may become more reactive and less systematic, potentially allowing unsafe practices to persist in the absence of stringent checks and balances. This could result in gaps in aircraft inspections, engine certifications, or maintenance audits, leading to an overall decline in aviation safety. 2. Lack of clear guidelines could result in discrepancies in safety audits, inconsistent enforcement of safety procedures, and difficulty in ensuring that all operators maintain safe, compliant fleets. This could undermine aircraft safety in the long term. 3. The voluntary nature of administrative measures may not	1. Regulatory bodies will play a pivotal role in ensuring that airlines meet safety and emissions standards. The implementation of stringent emissions regulations will likely coincide with a more rigorous safety framework, as environmental regulations often require robust testing, certification, and ongoing compliance checks. This could lead to overall improvements in safety standards across the aviation sector. 2. Aviation authorities will be able to enhance their data collection and monitoring systems for both emissions and aircraft performance. These improvements can lead to better insights into aviation safety trends, helping authorities to take proactive steps in preventing incidents related to aircraft engine performance or emissions issues.

Aviation Sector	Option one: Maintenance of the Status Quo	Option two: Administrative measures	Option three: Promulgating the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024
	operation, there may be a temporary increase in safety risks. Older aircraft that have not been upgraded to meet emissions standards may still be in use, and there may be a learning curve for maintenance organizations and regulators as they adapt to new technologies and compliance requirements.	carry the same weight or urgency as formal regulations, leading to a relaxed safety culture across the aviation sector. Airline operators may not feel compelled to prioritize emissions-reducing technologies or safety-critical upgrades.	3. As emissions regulations push for cleaner and more efficient technologies, regulatory bodies will encourage innovation in the aviation sector. This could lead to the development of safer, more efficient engines and aircraft systems that benefit the entire aviation ecosystem.

6.6 Preferred Option

Based on the above analysis, it is clear that the third option which is the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 is the preferred option. The benefits and impact of promulgating the civil aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 by far outweigh any estimated cost of its implementation. The other two options have little or no impact in addressing the problems outlined above.

7. Chapter Seven – Compliance and Implementation

As different aspects of the proposed Regulations are evaluated and analysed, it is important to determine how compliance and implementation of the actual provisions will be achieved. It is the duty of the Regulator to assess the adequacy of the institutional framework and other incentives through which the Regulations will take effect, and design responsive implementation strategies that make the best use of them.

In an ideal situation an institution responsible for enforcement of the Regulations should have the capacity of co-ordination of institutional frameworks from a whole-of-government perspective, independent and sufficient authority, political support at a high political level, and integration into a broad concept of reform.

KCAA has put in place a plan as outlined in the Strategic Plan 2023/24-2027/2028 to strengthen its institutional capacity to enable it enforce compliance with the proposed Regulations once they are published.

8. Chapter Eight – Conclusions & Recommendations

8.3 Conclusions

8.3.1 Based on the above analysis, the following conclusions are drawn in respect of the draft Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024:

8.3.2 Regulations making mandate: Article 94(6) of the Constitution gives Parliament the power to delegate its legislative authority to a State organ, State officer or person to make provision having the force of law in Kenya. Subsequently, section 82 of the Civil Aviation Act empowers the Cabinet Secretary in consultation to give effect to and for the better carrying out of the objects and purposes of this Act, to provide generally for regulating air navigation, air transport, air accident investigation and carrying out and giving effect to any convention.

8.3.3 Provisions of the Statutory Instruments Act: Section 5 requires that a regulation making authority to conduct public consultations and drawing on the knowledge of persons having expertise in fields relevant to the proposed statutory instrument; and to ensure that persons likely to be affected by the proposed statutory instrument had an adequate opportunity to comment on its proposed content. Sections 6 and 7 require that a RIA be prepared where a statutory instrument is likely to impose significant costs on the community. This RIA thus contains certain the following key elements:

(a) a statement of the objectives of the proposed legislation and the reasons.
(b) a statement explaining the effect of the proposed legislation.
(c) a statement of other practicable means of achieving those objectives, including other regulatory as well as non-regulatory options.
(d) an assessment of the costs and benefits of the proposed statutory rule and of any other practicable means of achieving the same objectives; and
(e) the reasons why the other means are not appropriate.

8.3.4 The RIA structure and content requirements established in the Statutory Instruments Act requirements have been fully met. Additionally, public consultation requirements in respect of the Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations will be fully adhered to.

8.3.5 Other legal frameworks: The draft Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 proposes to publish regulations in harmony with other civil aviation regulations to effectively govern the civil aviation system in Kenya.

8.3.6 The draft Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 as drafted are clear, consistent, comprehensible and comprehensive enough to cover all matters and meet the established drafting standards.

8.4 Recommendations

8.4.1 In view of the above conclusions, it is recommended that the draft Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations, 2024 be adopted.

9. Annexures

9.3 The Draft Civil Aviation (Environmental Protection - Aircraft Engine Emissions) Regulations 2024

9.4 Matrix for Stakeholder Consultations