

ASSESSMENT OF IMPLEMENTATION OF INTERNATIONAL LAW ON REDUCTION OF AVIATION EMISSION UNDER THE NIGERIAN CIVIL AVIATION REGULATIONS 2015

Abstract

Coping with the problem of expansion in aviation transportation with corresponding increase in volume of aviation emission and consequential environmental pollution has become a global issue. The International Civil Aviation Organization (ICAO), the global body saddled with the responsibility of ensuring reduction in aviation emission created the International Standards Regulations known as Standards And Recommended Practices (ICAO SARPs) for the purpose of regulating aviation emission and achieving clean and sustainable environment. Accordingly all member states of ICAO are expected to adopt and implement the Standards Regulations in their respective states. The newly revised Nigerian Civil Aviation Regulations 2015 is meant to ensure adequate reduction in aviation emission in Nigeria through effective adoption and implementation of ICAO's International Standards Regulations on reduction of aviation emission. This paper assesses implementation of international law on reduction of aviation emission in the newly revised Nigerian Civil Aviation Regulations 2015. It adopts doctrinal research method, relying on library based materials from primary and secondary sources. The paper observes that although the adoption of International Standards and Regulations on reduction of aviation emission has commenced in the Nigerian Civil Aviation Regulations 2015, the process of actual implementation is yet to take good shape and become effective in Nigeria. Therefore, the paper recommends timely and effective implementation of International Standards and Regulations on reduction of aviation emission in the current Nigerian Civil Aviation Regulations.

Keywords: *Assessment, Aviation Emission, International Law, Nigerian Civil Aviation Regulations 2015.*

1. Introduction

The International Civil Aviation Organizations' Standard and Recommended Practices ICAO SARPs)¹ are contained in Annex 16 Vol. II of Chicago Convention. These Standards and Recommended Practices were created and adopted by the International Civil Aviation Organization (ICAO), for the purpose of regulating aircraft emission in the aviation sector. The creation of ICAO Standards And Recommended Practices on aviation environment came up in 1981, as a result of the declaration in Article 2(2)² of Kyoto protocol to the United Nations Framework Conventions on Climate Change (UNFCCC), that developed countries of (Annex I parties), shall pursue limitation or reduction of emission of greenhouse gases from aviation by working through the International Civil Aviation Organization (ICAO). Following this directive, the responsibilities for making and adoption of standards and recommended practices for control of aviation emission became a mandatory function for ICAO. Meanwhile, the Chicago Convention is the legal instrument that created ICAO. The Chicago Convention was established in 1944. Since its creation, it has continued to serve as the body of rules which provide ICAO with the power to make standard and recommended practices to regulate aviation emission in the civil aviation sector. The continued growth of the aviation industry and the demand for sustainable aviation development necessitated the need for ICAO to provide environmental standards for aviation industry because there was no mention of environmental

***Murtala Ganiyu A. MURGAN, PhD**, Lecturer, Department of Jurisprudence and International Law, Faculty of Law, University of Ilorin Nigeria, and

***Ghafur AHMID**, Professor of Law, Ahmad Ibrahim Kulliyah of Laws, International Islamic University, Malaysia.

¹SARPs Annex 16 Vol. II of Chicago Convention 1944, are the standard and recommended practices on aviation environment.

²Article 2 (2) of Kyoto Protocol delegates responsibility for reduction of greenhouse gases in the aviation sector to ICAO.

protection as a mandate area for ICAO in the Chicago Convention until 1981.³ The procedure for creation of SARPs involves a continuous and periodic review by states and member of the aircraft industry of the proposed standards and practice by the Committee on Aviation Environment protection (CEAP). The considered standards are then passed to ICAO Council which also adopts them in form of resolutions. These resolutions finally became Annexes to Annex 16 volume II of Chicago Convention. Accordingly all member states are therefore expected to follow and enforce the standard domestically and this is usually done through adoption into domestic legislation by member states. However, it is relevant to mention that ICAO Assembly achieves its work through the effort of Committee on Aviation Environmental Protection (CAEP). Article 37 of Chicago convention is the authority bestowed on ICAO to produce Standards and Recommended Practices for all parties participating in aviation activities. The Article provides that ICAO should work in line with the changes in aviation industry, to ensure an up to date work and procedure for change driven standards. The article states:

On Adoption of international standards and procedure. Each contracting state under takes to collaborate in securing the highest practicable degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, air ways and ancillary services in all matters in which such uniformity will facilitate and improve aviation and its activities, ICAO takes to this, adopts and amends from time to time as may be necessary, international standards and recommended practices and procedures. This is the mandate of ICAO.⁴

The above article clearly states the responsibility of ICAO on international civil aviation. However, the next article in the Chicago convention is Article 38 and this is relevant to be read along with article 37 in the sense that the limit of the power of ICAO on mandatory enforcement of SARPs by ICAO members states. Article 38 states:

Any state which finds it in practicable to comply in all respect with any such international standard or procedure after amendment of the later or which or practices differing in any particular international standard shall give immediate notification to the international civil aviation organization of the differences between its own practice and that established by the international standard. In the case of amendment to international standard, any state which does not make the appropriate amendments to its own regulations or practices shall give notice to the council within sixty days of the adoption of the amendment to the international standard, or indicate the action which it proposes to take if any exists between one or more features of an international standard and the corresponding national practice of that state⁵.

In summary, what can be deduced from the provisions of article 37 and Article 38 above is that while Article 37 bestows on ICAO the power to ensure an update work on the changes in the aviation industry and ensure each contracting state observes conformity with the standards on improvement of aviation services, article 38 limits the mandatory enforcement of standard practices by contracting states are required. Also the procedure for implementing SARPs entails that all contracting states in the Chicago Convention are required to implement SARPs in their different countries at the national level by bringing national regulations and practices into full accord with SARPs. However it is expected that states who find it difficult to comply with SARPs and those who find it necessary to adopt regulation or practice different from SARPs should notify ICAO without delay. At the 32 Ordinary session in 1988, ICAO adopted an assembly resolution which led to the establishment of Universal Safety Oversight Audit programme (USOAP). The

³Heather L Miller, 'Civil Aircraft Emission and International Treaty Law' *Journal of Law and Commerce*, 67(1997) 607.

⁴See Article 37, Chicago Convention 1944 on the responsibilities of ICAO.

⁵See Article 38 Chicago Convention on limitation of mandatory enforcement of standard practices among contracting states.

aim for establishing (USOAP) was to promote national implementation of SARPs among contracting states. The USOAP audit programme entails regular mandatory harmonized safety audit to be carried out on (contracting states). It came into effect in 1999 and at the second half of that year about four states had been audited through the process of seeking cooperation of the contracting states and paying respects to the sovereignty of each contracting state.⁶

In Nigeria, the relevant Act and regulations for compliance and implementation of international law for protection of aviation environment include the Civil Aviation Act 2006, the Civil Aviation Regulations, 20012 and 2015. Therefore, the purpose of this study is to critically analyse the level of compliance and implementation of SARPS in the newly revised Nigerian Civil Aviation Regulations 2015, with a view to ensuring that the Nigerian Civil aviation sector aligns with the global efforts of providing a clean and sustainable aviation environment.

2. Analysis of SARPs Annex 16 Vol. II on Reduction of Aviation Emission

The substantive provisions of ICAO standard and recommended practices are contained in Annex 16 vol. 2 of Chicago Convention. By definition, the international standards are referred to as any specification for political characteristics, configuration, material performance, personnel or procedure which its uniform application is recognized for safety of international air navigation and for which member states are to comply in accordance with convention and where notification of the lying states.⁷ The recommended practices on the other hand, are referred to as “any specification for physical characteristics, configuration, material performance, personnel or procedure which its uniform application is organized as desirable in the interest of safety regulations or efficiency of international air navigation and to which member state shall conform in accordance with the convention”. The simple understanding of the definitions above, is that both the International Standards and Recommended Practices are not binding but notification of difference in respect of standards is compulsory for non-complying states. Also, recommended practices have no obligation on notification of differences and are considered advisory in nature.⁸

From the above, the substantive provisions of SARPs of Annex 16 vol. II. Of Chicago Convention are the standards for control of smoke and gaseous emission from aircraft from international civil aviation. These also include standard on aircraft engine certification and standard for international fuel venting involving international discharge in to the air of liquid fuel nozzle manifold of aircraft during engine shut down in normal flight or ground operations. The main objectives of this annex 16 vol. II (SARPs) is to achieve reduction in the level of aviation emission pollutants from air craft engine.⁹ A careful study of Annex 16 vol. II on ICAO SARPs shows that it is organized into three parts. Part 1 contains definitions and symbols used and meaning ascribed to these definitions. Meanwhile, the definition of Standards and recommended Practices has been given above. Part II contains standard on vented fuel while part III contains standard on smoke and gaseous emission certification which apply to different classes of aircraft engines of the ICAO standards regulations on reduction of aviation emission that are fitted to aircraft under civil aviation.

Standard Relating to Vented Fuel¹⁰

The provisions in part II of the ICAO SARP apply to all turbine engine powered aircraft in international navigation that are manufactured after 18th February 1982. According to this part, the certification for prevention of international fuel venting shall be granted by relevant authority based on satisfactory evidence that the aircraft or the aircraft engine comply with the requirement of chapter. However, a note on the

⁶ICAO milestone achievement of 1999 emphasized safety and security of Global Air Transportation. News released at p10, 19/19 icao website on line <http://www.icao.int/icao/en/1999> accessed 7/5/15.

⁷See part I, Standard And Recommended Practices (SARPs) Annex 16 vol. II

⁸Also, see SARPs above on definition of recommended practices.

⁹ See ICAO Assembly resolution in force at 5th oct.2001 in ICAO document 9790.

¹⁰See part II, of SARPs, Annex 16 vol. II

recommended practices is also written on the requirement part II. The recommended practices states that documents attesting certification on fuel venting may take the form of certification or a statement contained in another documents approved by the certifying authority. Further, contracting states shall recognize as a valued certifying a certification on fuel venting granted by another contracting state provided the requirement for granting the certification was not less stringent than the provision of volume II of this annex.¹¹ However, it is observed that the above contains no provisions stipulating any avenue for redress to a contracting state that has been granted a certification by another contracting state under less stringent condition than those contained in the annex. It is also observed that part II of the annex that required manufacture of aircraft engine to prove to the certification authority with satisfactory evidence that his product satisfies the emissions and fuel venting standard and safety standard is in adequate. Although the above standard is applicable to aircraft manufactured after 1982, the fact that considerable number of commercial aircraft in service is manufactured before 1982 shows that the standard contained in part II of annex 16 can only succeed in the control of fuel venting partially. Further, it is observed that this provision contains no statement on whether or not the certification is subject to expiry and renewal.

Standard on Smoke and Gaseous Emission¹²

The standards relating to control of aviation emissions certification are contained in part III Annex 16 of Chicago Convention. This requires certification of aircraft engine and not the aircraft. Just like in the case of standard on vented fuel the certification authority for engine or equivalent procedure had been carried out, national certification will be exempted the standards on smoke are made in form of regulating smoke and apply to turbo engine and turbo fan engine manufactured on or after Jan 1993. The gaseous emission standards for Hydro carbons (HC) and Carbon monoxide (CO) are applicable to engine with rated output is greater than 26.7 KN and whose date of manufacture is on or after 1986.¹³ Engine can be certified during test unless they meet with the above regulatory standard which the above regulatory standard which expressed inform of regulatory level.

As regards emission limits for oxides of Nitrogen, three level of stringency of regulatory level are prescribed by standard. The first level of stringency which is least straight is for engine model manufactured on or before 31 December 1995 or for which the date of manufacture of the model engine was or before 31 January 1999.¹⁴ The most level of stringency test applies to engines or model for which management for individual production was after Dec 1999 for date of manufacture of individual engine. The third level of stringency applies to engine or model which production of the first individual production was 31st December 2003. Engine with higher rated thrust pressure are attached to most stringency standard engine for international air navigation must meet its emission of its Nitrogen Oxides when measured and when tested, must meet up with recommended and required standard before it can be certified. However, different standards are recommended for aircraft engine intended for propulsion at subsonic speeds and supersonic speeds.¹⁵ In both cases, engine shall be tested according to specified reference landing and takeoff LTO cycles. The emission measured and reported with the specified standard. The emissions to be controlled are smoke and gaseous emissions which in a generic term comprises of Hydro Carbon (HC), Carbon Monoxide (Co) and Oxides of Nitrogen (NO_x). The shortcoming of the above standards is that since the standards are designed to deal with the problem of air quality control within the airport vicinity and since this standard is

¹¹See part II chapter 1.3 of SARPs Annex 16 vol. II.

¹²See SARPs part III Annex 16 Vol. II, Chicago Convention.

¹³Part III SARPs Annex 16 vol. II.

¹⁴Ibid

¹⁵See part III chapt 1&2 of SARPs Annex 16 Vol. II.

recommended for emission within LTO¹⁶ circle below 915 metres (3000 feet), the certification standards do not include other flight regime at climb and cruise level.¹⁷ The two standards are explained below.

Engine Intended for Supersonic Propulsion¹⁸

The standards for supersonic propulsion apply to all turbo jet and turbo fan engines manufactured before or after Feb. 1982. Emission of Hydro carbon (HC), Carbon monoxide (CO) and Oxides of Nitrogen (NO_x) measured and reported must conform to the standard before certification can be granted. However, only one level of stringency is available as no emission will be determined for this after burning can be allowed by the certificating authority using the inference LTO cycle and the fact that the validity of such data provided is adequately demonstrated.

All Engines Intended for Subsonic Propulsion¹⁹

The standard for engine certification in this category is applicable to all turbo jet and turbo fan engines and other engines designed for certification. The standard on smoke on turbo jets and turbo fans only apply to aircraft manufactured before 1st Jan 1983 while those aircraft before 1965 are exempted from certification. It is also noted that all turbo jets and turbo fan engines including other engines designed for application are to meet up with the required standards before being approved for certification.

3. Compliance and Implementation

While compliance is an act of obedience and falling in line with a laid down procedure or regulation, implementation can be explained as an act of putting a plan into action or starting to use a plan.²⁰ It is also defined by Oxford English Dictionary, as the process of putting a plan into effect.²¹ According to Webster Dictionary, Implementation involves the act of putting into action some practical actions for accomplishing actual fulfilment.²² While implementation puts into effect some definite plans, it is also understood to be an intended and systematic activities aimed at ensuring that a policy is put into effect by committed career officers. Implementation consists of arranged activities of government which are directed towards achievement of objectives of the organization. A complete definition of Implementation explains that implementation entails Intention, Output and Outcome. This involves getting outcome in relation to the original intention through the output.²³ According to Eriklane, J. policy and outcome are regarded as the key instruments of Implementation and based on this a successful implementation requires that both policy and outcome must come together as a fundamental basis of implementation.²⁴ Based on the above, the process for implementing the provisions of UNFCCC, the Kyoto Protocol and the ICAO regulations on reduction of aviation emission in Nigeria, will not only involve that such international conventions and regulations be adopted, ratified and domesticated by Nigeria, but also include their application and utilisation by respective agencies in Nigeria. According to the above, the practice with UNFCCC and Kyoto Protocol I calls for adoption of their international measures on reduction of emissions in the national policy and legislation of member states. Buttressing this, Article 4(2) A of UNFCCC and Article 2(1) of Kyoto Protocol, call for adoption and implementation of international regulations in the local legislation of member states. In addition

¹⁶The reference emission Landing and Take Off (LTO) cycle consists of: Climb, Approach and Taxi/ground idle see part III.

¹⁷See John Craston, Civil Aviation and The Environment, UNEP, Industry and Environment publication, 1993 at 16.

¹⁸See SARPs part III, chpt 2.1 .

¹⁹See part III, Chpt.4.2 SARPs Annex 16 Vol. II

²⁰Cambridge English Dictionary' accessed December 22, 2015, Dictionary Cambridge.org/dictionary/English/implement.

²¹ 'Oxford Dictionary,' accessed December 22, 2015, www.oxford dictionaries.com/definition/English .

²² Meriam Webster, www.meriam webster.com/dictionary/implement accessed February 20,2015.

²³Eriklane Jan, 'The Concept of Implementation' accessed February 20, 2016, www.journal.lub.se/index/file329/2870.

²⁴ Ibid.

to that, Article 12 of ICAO's Chicago Convention 1944, also states that each contracting states undertakes to keep its own regulations as much as possible, uniform with the regulations established from time to time with that of Chicago Convention.²⁵ In line with the above, it is observed that Nigeria partially domesticated the International Conventions and Regulations on aviation emission as it signed the UNFCCC Convention on 13th June 1992 and ratified on 29th August 1994.²⁶ Nigeria also ratified the Kyoto Protocol to the UNFCCC on 10th December, 2004 and it came into force on 10th March 2005.²⁷ Also, Nigeria joined the International Civil Aviation Organization (ICAO), adopted and ratified the International Convention on International Civil Aviation Organization (Chicago Convention) on 14th November, 1960.²⁸

After ratification of conventions and protocols, the next process is proper domestication of the international conventions and regulations into Nigerian laws. The application of international conventions and regulations to regulate aviation industry in Nigeria became possible through application of Section 12 of the constitution of Federal Republic of Nigeria 1999 as (amended),²⁹ while Section 30³⁰ of the Civil Aviation Act 2006 further allowed for adoption and implementation of partially domesticated international convention and regulations in the Nigerian Civil Aviation Regulations. By the above, the power to make necessary regulations for implementing the provisions of UNFCCC 1992, the Kyoto Protocol 1997 and the ICAO regulations on regulation of emissions in the aviation industry in Nigeria became transferred to the Civil Aviation Act 2006 which in turn transferred this to the Nigerian Civil Aviation Authority Regulations 2012 and 2015.

4. Nigerian Civil Aviation Regulations 2015 And Implementation of International Regulations

The Nigerian Civil Aviation Regulations 2015 was introduced as a follow up to the Nigerian Civil Aviation Regulations 2012 which was complained to lack provisions for reduction of aviation emission. Among the aims of the 2015 Regulations is ensuring alignment of the Nigerian Civil Aviation Regulations with the recent amendment of International Civil Aviation Organization (ICAO), in response to observation received from stake holders from aviation industry through completion of regulations in the ICAO annexes. Also the aim is to standardized operational procedure, implementation and enforcement in the industry.³¹ The new Regulations is made up of twenty parts. It is up dated to include part 20 on safety management in line with ICAO regulations. Part 1 deals with the General Policy, part 2 deals with Personnel Licensing, part 3 is on Aviation Training Organization, part 4 is on Registration and Marking, part 5 is about Air Worthiness while part 6 is on Approved Maintenance organization. Part 7 is for instrument and equipment, part 8 deals with Operations, part 9 part is about Operator Certification and administration, part 10 is on Commercial Air transport by foreign air carrier within Nigeria, Part 11 is on Commercial Aircraft Operation used for specialised services, part 12 deals on Aerodrome Regulations, part 14 is on Air Navigation Services, part 15 is about Carriage of dangerous goods by air, part 16 is on Environmental Protection Regulations, part 17 is on Aviation Security, part 18 is on Economic Regulation, part 19 deals with Consumer Protection Regulations while part 20 is on Safety Management.³²

²⁵See Article 12, Chicago Convention 1944, see also Article 4 section 2 (a) UNFCCC1992 and Article 2 (1), Kyoto Protocol to UNFCCC which call for adoption and implementation of international conventions and regulations in the local legislations of member states.

²⁶United Nations Frame Work Convention on Climate Change, status of Ratification of Convention accessed 15, 2015 unfccc.int/essentialbackground/coventions/status_of_ratification/items/2631.php.

²⁷United Nations Frame Work Convention on Climate Change, Status of Ratification of Kyoto Protocol, accessed December 15, 2015, unfccc.int/Kyoto.protocol/status_of_ratification/item/263.php.

²⁸See ICAO Member states list, accessed December 16, 2015, www.icao.int/secretariat/secretariat/legal/list_of_parties/chicago_en.pdf viewed .

²⁹The Constitution of Federal Republic of Nigeria Section 12, 1999.

³⁰See Civil Aviation Act (Repeal and Re- enactment) Act No 6, 2006.

³¹See Press statement released by Sam Adurogboye, General Manager, Public Relations on behalf of the Director General, Nigerian Civil Aviation Authority, May 18, 2016 on www.ncaa.gov.ng/new-civil-aviation-regulations-takes-effect-from accessed November 23, 2016, 1.

³²See full text on regulations, Nigerian Civil Aviation Regulations 2015 on from accessed November 22, 2016.

However, part 16 which provides for Aviation Environmental Protection is the relevant part that is analysed in this study on reduction of aviation emission. A careful study of part 16 of NCAR 2015 shows that it is made up of three sub parts namely, Noise Certification, Prevention of Intentional Fuel Venting and Emission Certification. Part 16.1-16.7 deals with various regulatory requirements for noise certification. However, the issue of reduction of noise emission is outside the scope of this study. Part 16.18-16.18.2 deals with Vented Fuel Administration on aircraft, its applicability and prevention of international fuel venting by aircraft. According to the above, it is stated that aircraft shall be designed and constructed as to prevent international discharge of liquid fuel into the atmosphere from the nozzle manifold, during the process of engine shut down after normal flight or aircraft operations on the ground. The provision of this subpart applies to all engine powered aircraft embarking on international flight after 18th February 1982. Certification on Vented Fuel prevention shall be granted by the Nigerian Civil Aviation Authority after providing satisfactory evidence of compliance with aircraft engines requirement.

In comparison with the provisions in the Nigerian Civil Aviation Regulations 2012 it is observed that part 16.18-16.18.2 of the new Nigerian Civil Aviation Regulations 2015 contains standard and recommended practices on reduction of aviation which are not contained in the 2012 regulations. Therefore, the NCAR 2015 is an improvement on 2012 Civil Aviation Regulations in the sense that it provides for reduction of aviation emission. The NCAR 2015 is a change from the general belief that lack of provision of regulations for reduction of aviation emission in the Nigerian Civil Aviation Regulations 2012 is responsible for non-implementation of international Regulations on reduction aviation emission in Nigeria. Based on the above, it is hereby said that there is provision for reduction of aviation emission in the Nigerian Civil Aviation Regulations 2015. On relevance of NCAR 2015 to reduction of aviation emission, based on the fact that the provisions on part 16.18- 16.18.2 of the NCAR 2015 are meant for reduction of aviation emission, it shall be said that part 16.18-16.18.2 is very much relevant to reduction of aviation emission. On Compliance with implementation of ICAO International standard Regulations on reduction of aviation emission which is the main thrust of this research. It is observed that inclusion of provisions 16.18-16.8.2 which call for prevention of Vented fuel during aircraft operation in the air or on the ground in Nigeria, clearly shows that the ICAO international Regulations and standard requirement on reduction of aviation, have been greatly adopted into the Nigerian Civil Aviation Regulations 2015. However, as regards the issue of actual implementation of international regulations on reduction of aviation emission which involves utilization, administration and monitoring application of International Standards on fuel venting on aircraft in Nigeria, it is observed that the Department of Air Transport Regulations (DATR) of the Nigerian Civil Aviation Authority officially agreed to carry out the implementation activities on prevention of fuel venting with effect from July 1, 2016. Apart from the above, it is observed that no report has been available on implementation of International Standard on Fuel Venting by the NCAA, while the period between July and December 2016 to date is also considered a short time for a meaningful assessment of Implementation of Fuel Venting Prevention regulations in the Nigerian Civil Aviation Regulations. Therefore, the above report shows that the Nigerian Civil Aviation 2015 contained and adopted International Standard and Regulations on reduction of aviation emission which is contrary to observation of non-implementation of international Standard and Regulations on reduction of aviation emission recorded in Nigerian Civil Aviation Regulations 2012. It also shows that although the adoption of International Regulations on reduction of aviation emission has commenced in the Nigerian Civil Aviation regulations 2015, its implementation is still inadequate because it will need time to mature and take shape.

A careful study of the revised 2015 Regulations shows that Part 16, 19-, 16.39 deals with Engine Emission Certification for aircraft that are involved in international air navigation. This process includes emission certification, administration of emission certification and its applicability on turbo jet and turbo fan engines intended for propulsion only at subsonic speeds. According to this subpart, emissions shall be controlled for certification of aircraft engine on smoke, gaseous emission, unburnt hydro carbons, carbon monoxide, and oxides of Nitrogen.³³ On comparison with the Nigerian Civil Aviation Regulations 2012, it is observed that the newly revised Nigerian Civil Aviation Regulations 2015, improved upon the inadequacies of Nigerian Civil Aviation regulations 2012 as its part 16. 19, 16.19-39 now provides standard and recommended practices on reduction on aircraft engine emission certification thereby contributing to reduction of aviation

³³See Part 16.18-16.8.2 of The Nigerian Civil Aviation Regulations 2015 as contained Federal Republic of Nigeria Official Gazette, Lagos, 10th February.2016.

emission. On relevance to reduction of aviation emission, it is observed that sub part 16.19- 16.19.39 is concerned about reduction and certification of aircraft engine emission; therefore it is highly relevant to reduction of aviation emission. On implementation of international regulations, it has been stated that the main objective of introducing the newly revised Nigerian Civil Aviation Regulations 2015, is to align and ensure compliance with the international standard and practices of the International Civil Aviation Organization on reduction of aviation emission as provided in Annex 16 Volume II of Chicago Convention 1944. Accordingly, part 16.19- 16.19.39, clearly adopted the provisions of ICAO Annex 16 Vol. II of Chicago Convention when it states that the Nigerian Civil Aviation Authority shall grant emission certificate based on satisfactory evidence that aircraft engine complies with stringent requirement which are equal with this sub part. It also states that compliance with emission level of subpart 16.18.2 and 16.18.3 shall be demonstrated by using the procedure described in appendix 6 of ICAO Annex 16 Vol II.³⁴ Further, the information applicable to the engine type and required for issuance of engine certificate shall include: the name of authority, manufacturers type and model justifications, statement of additional modification, modest thrust, reference pressure ratio and others. The above requirement shall however be applicable to turbo jet and turbo fan engine intended for propulsion only at subsonic speeds.³⁵

The above shows that the Nigerian Civil Aviation Authority has adopted the provisions of ICAO International Standard Regulations on reduction of aviation emission into the Nigerian Civil Aviation Regulations 2015. The above is a similar practice with other counterpart countries like the US and the UK. However, with regard to proper act of implementation of international standard and regulations on reduction of aviation emission which involves utilization, administration and monitoring application of international standard and regulations on aircraft, it is also observed that the officially approved take off time of July 2016 did not allow implementation of International Standard and Regulation on reduction of aviation emission take place on time in the Nigerian Civil Aviation Authority. While no report is available from the NCAA on implementation of regulations on aircraft emission, the remaining period from July to December 2016 is considered not adequate for recording a meaningful assessment of implementation of International Standard regulation on Aircraft Emission Certification in Nigerian Civil Aviation Regulation. Therefore, while it can be said that International Regulations on reduction of aviation emission has been adopted in the Nigerian Civil Aviation Regulations 2015, its implementation is inadequate because it is yet to mature and become fully applied by 2017. This inadequacy in implementation will soon need to be improved upon. The above observation on the adoption of International Standard and Regulations on reduction of aviation emission in the new Nigerian Civil Aviation Regulations 2015. To further buttress the claim that the implementation of International Standards and Regulations is yet to take place in Nigeria, it is clearly observed in the official statement released by the Nigerian Civil Aviation Authority in August 2017, that Nigeria will join the International Civil Aviation Organization on the implementation of the pilot phase of Carbon Offsetting Reduction Scheme for International Aviation (CORSIA) in 2021³⁶. The above statement therefore finally confirms the poor position of Nigeria on reduction of aviation emission and mitigating the menace of flood and climate change in Nigeria.

5. Conclusion and Recommendations

From the above, it is found that the revised Nigerian Civil Aviation Regulations 2015 so far complied and adopted the provisions of International Standard Regulations on reduction of aviation emission. However, it is observed that the real act of implementation of the International Standards is yet to fully take shape and given relevant reports. It is hereby recommended that the Nigerian Civil Aviation Authority rise up to the new challenge by ensuring that the relevant International Standards and Regulations on reduction of aviation emission are implemented with a view to availing Nigeria a clean and sustainable air environment.

³⁴See Subpart 16.18.2 and 16.18.3, Nigerian Civil Aviation Regulations 2015. www.ncaa.gov.ng/new-civil-aviation-regulations accessed November 22, 2016.

³⁵Ibid.

³⁶See press statement of Captain Muhtar Usman, Director General, Nigerian Civil Aviation Authority as reported by Mauren Ihuha Maluhenyi of Punch News Paper, Nigeria, 24, Aug. 2017.