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THE POLLUTER PAYS PRINCIPLE AND NIGERIAN LEGAL FRAMEWORK FOR AVIATION POLLUTION MITIGATION

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Abstract
The challenges posed by aircraft engine emissions on human health and the global environment are of serious concern; as the demand for aviation services increases with the growing population, the challenges intensify. Reducing the environmental impacts of air transportation depicts a redoubtable issue, particularly because curtailing aircraft engine pollution is cost-effective. In tackling this issue, one key aspect of achieving the same is formulating well-organized policies. Acknowledging this fact, the Nigerian Parliament has adopted the polluter pays principle (PPP) into the Nigerian legal instruments. Most of the environmental laws and regulations in Nigeria are embellished with the aura of the polluter pays principle. The PPP advocates that polluters should pay for the pollution caused by them. In the aviation sector in Nigeria, this principle proposes that airlines and other aviation-connected actors should be responsible for the costs of environmental impacts such as noise pollution, aircraft engine emissions and other forms of pollution emanating from the sector. The paper found out that the Civil Aviation Act of 2022 and the Civil Aviation Regulation of 2023 did not make express provisions but implied provisions for PPP. Nevertheless, the newly adopted International Civil Aviation Organisation (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) provided for PPP under aviation laws in Nigeria. This paper adopted the doctrinal method of research. Thus, primary and secondary materials such as books, journals and internet materials were used.

Keywords: *Polluter pays principle, aviation, legal framework, environmental, Nigeria.*

1.0 Introduction

The legal framework on aviation in Nigeria dates back to the colonial era when the first aeroplane landed in Nigeria,[1] and the colonial government in a bid to regulate the new sector that had just emerged, adopted the Civil Aviation Act of England into the Nigeria's legal system as part of the received English law regulating the aviation industry in Nigeria. This created a background for the first indigenous aviation law in Nigeria, the Nigeria Civil Aviation Act, of 1964[2].

Aviation is one of the swiftest growing sectors in the world economy; it is responsible for the movement of people and goods throughout the world and enabling economic growth. It provides the connection

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[1] O. Ogunbodede, and C Odetunde, 'Current Status of Civil Aviation in Nigeria' [2016] (3) (1) *International Journal of Aviation Management,* 26

[2] I. I. Omoleke, "Legal Policy and Aviation Industry in Nigeria: Constraints to Optimal Safety of Air Transportation" *Journal of Public Administration and Policy Research* vol. 4 (1) (2012).

for the global marketplace and sustains millions of jobs across the globe.[3] Granted, aircraft is associated with a good number of social and economic benefits, and like most other economic activities, it has a wide range of negative consequences on the environment and human health. Hence, there is a need for states to make policies that will abate the environmental hazards from the aviation sector.
Undeniably, every civilised society now holds the view that decent environmental standard is indispensable to human existence. Nigerian government in 1988 faced the worst nightmare with the illegal dumping of 3,800 tons of toxic waste from Italy into the Nigerian river port at Koko village, a community in Delta State[4] . This prompted the Nigeria government to draft the first environmental law laced with the international law principle of PPP, the Federal Environmental Protection Agency Act (FEPA) 1988[5] and the Harmful Wastes (Special Criminal Provisions) Act, 1988. Again, in 1999[6], the PPP was adopted as a motivating mechanism of the 1999 national environmental policy.[7]

The PPP advocates that the polluter should be responsible for the pollution caused by him/her on the environment. This in a way serves as a deterrent to polluters; it serves as a preventive measure in achieving pollution abatement. Consequently, virtually all environmental laws in Nigeria are infused with PPP such as the Minerals and Mining Act 2007, Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN), and Environmental Impact Assessment (EIA) Act, to mention but a few.

The recently enacted Civil Aviation Act (CAA) of 2022[8] is the prime statute regulating aircraft and aviation matters in Nigeria. The CAA 2022 established the Nigerian Civil Aviation Authority (NCAA), and vests it with the power to make policies on aviation regulations ranging from aircraft registration, aviation safety and security; air navigation services; commercial air transport, aerodrome and airspace standards and most importantly to this paper environmental regulations[9].

Similarly, the Chicago Convention[10] of 1944 is the primary international instrument and source which grants regulatory powers to the international community on matters relating to international civil aviation. From its inception, it created the International Civil Aviation Organisation (ICAO) with the authority to make Standards and Recommended Practices to regulate aviation activities.[11] The rapid and constant advancement of the aviation sector and the need for sustainable aviation development compelled the need for ICAO to provide environmental standards for the aviation sector since the

[3] M. Mrazova 'Sustainable Development – the key for green aviation'<www.airbus.com/presscentre/corporate.../key documents.>accessed 17 December 2022

[4] S. F. Liu, 'The Koko incident: developing international norms for the transboundary movement of hazardous waste' (1992) 8(1) *Journal of Natural Resources & Environmental Law* 121, 121–22

[5] Federal Environmental Protection Agency Act Cap F10 Law of the Federal Republic of Nigeria (LFN) 2004, now repealed by the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act 2007.

[6] Harmful Waste (Special Criminal Provisions) etc Act, Cap H1 LFN 2004, under S 12(1)

[7] J. O. Ezeanokwasa, 'Polluter-Pays Principle and the Regulation of Environmental Pollution in Nigeria: Major Challenges' [2018] (70) *Journal of Law, Policy and Globalization* www.iiste.org accessed 3 December 2022

[8] Civil Aviation Act (Repeal and Re-enactment) Act No 30, 2022.

[9] CAA 2022 s 8 (1) (j).

[10] Chicago Convention 1944.

[11] Chicago Convention 1944 art 37.

Chicago Convention never envisaged environmental protection during its inception as an obligation of the ICAO.[12]

The ICAO established the Organization's Committee on Aviation Environmental Protection (CAEP), which comprised of members from ICAO's state parties, intergovernmental entities, and nongovernmental organizations. CAEP reports and makes recommendations to the Council of ICAO. It produces regular updates on aviation's environmental impact and determines whether adjustments should be made to any of ICAO's SARPs that concern the environment. CAEP was established by the ICAO Council in 1983, superseding the Committee on Aircraft Noise (CAN) and the Committee on Aircraft Engine Emission (CAEE).[13] Again, ICAO established the Group on International Aviation and Climate Change (GIACC) to proffer sustainable solutions to aviation's contribution to climate change. The view has been expressed that to date, neither of these ICAO entities has produced a workable roadmap for the industry's approach to climate change.[14]

In Nigeria, the NCAA is vested with the responsibility to regulate the aviation sector and, in a bid, to be at par with the international regulatory body, adopted the ICAO SARPs to regulate the environmental impact of aviation in Nigeria under Part 16 of the NCAA Regulation 2023. This paper aims to inquire into the applicability of the PPP in mitigating aviation pollution in Nigeria and the effectiveness of the implementation if any.

2.0 The Polluter Pays Principle

The Polluter Pays Principle (PPP) is one of the new indispensable principles of environmental law which has been integrated into most of the international treaties and national laws on environmental protection to make the polluter responsible for his actions of polluting the environment. In plain language, the principle denotes that the cost of pollution curtailment should be borne by the polluters and not by their state.[15] This cost is included by the polluter to the cost of manufacturing the goods and it is being handed over to the consumer. It has been argued that; PPP is well thought-out to be a mainly proficient economic mechanism in contemporary environmental policies and is utilised as such in the Organisation of Economic Cooperation and Development (OECD) member states.[16]

Historically, PPP was an economic principle developed in the 1920s.[17] Research has accounted that during the ancient time, the world was not concerned about pollution. Factories that existed then were free to pollute the environment without consequences. There were no safety regulations; people inhaled dangerous gases and lived in filthy environments.[18] Nevertheless, as time progressed, the negative impacts of pollution were felt on human health and the environment, hence, it became a cause for concern and there was a need to find a solution. At the forefront of those looking for solutions to curb

[12] H L Miller, 'Civil Aircraft Emission and International Treaty Law' [1998] (63) *Journal of Air Law and Commerce*697<https://scholar.smu.edu/jalc/vol63/iss4/3> accessed 3 September 2023.
[13] Jane Hupe, 'Committee on Aviation Environmental Protection-CAEP' <www.icao.int/env> accessed 3rd August, 2023.
[14] Jane Hupe, 'Committee on Aviation Environmental Protection-CAEP' <www.icao.int/envn> accessed 3 August, 2023.
[15] Wetstone and others "Transboundary Air Pollution: The Search For An International Response", (1984) *The Harvard Environmental Law Review, (*8) 97
[16] M. Munir, 'History and Evolution of the Polluter Pays Principle: How an Economic Idea Became a Legal Principle? [2013] https://www.researchgate.net/publication/272304435 accessed 14th September 2023.
[17] *Ibid.*
[18]M. G. Woodroof, "Pollution Control: Why not Cost Allocation? (1971) (21) *Drake Law Review*, 133, 146

the menace were the economists. It was discovered by economists that the inequality of social costs and private costs shows that economic resources were not being properly allocated in society, and the misallocation of such resources is because of their improper cost allocation[19].

Pollution in economic language means improper cost allocation. Consequently, the cost of these resources is not shown in the product price. The practice was that the manufacturer automatically discharges the waste into the air as an alternative to processing the waste since processing the same will cost him additional capital.[20] Over the years, economists have tried to categorize and compute externalities. There were different solutions proposed to the issue which is known as externality. A good number have commonly accepted the position that absolute efficiency could be achieved only if all external costs were in some way internalized to the company that manufactured them.[21] Hence, the probable solution to the issues of externality is the very foundation of the PPP.

The polluting party usually the manufacturer is mandated to pay for injuries caused to humans and the natural environment. The principle intends to uphold stability amid industrial development and the conservation of a healthy environment and at the same time equal distribution of liability[22]. It will not be out of place for one to assert that the PPP advocates mainly for equal allocation of liability. The principle advocates that polluters should internalize the costs of the pollution which emanates from their factory as a result of production, in that the cost of their products and services would replicate the actual costs of the mechanism which the government accepts in eradicating and controlling emissions[23].

The principle became internationally visible first in 1972 in the recommendation of the OECD Council on Guiding Principles concerning International Economic Aspects of Environmental Policies.[24] The OECD recommendation states that,

> The principle to be used for allocating costs of pollution prevention and control measures to encourage rational use of scarce environmental resources and to avoid distortions in international trade and investment is the so-called 'Polluter Pays Principle'. This principle means that the polluter should bear the expenses of the above-mentioned measures (that is, pollution prevention and control measures) decided by the public authorities to ensure that the environment is in an acceptable state. In other words, the cost of these measures should be reflected in the cost of goods and services which cause pollution in production and/or consumption. Such

[19] Thompson and N Donald, *The Economics of Environmental Protection, (1973* Cambridge, Massachusetts,) 8
[20] B. J. Philippe, *Studies in International Environmental Economics, (1976* Ingo Walter ed.)136
[21] A V Kneese, *The Economics of Regional Water Quality Management, (1964* The John Hopkin Press, Baltimore)40
[22] S Wolf and N Stanley, Wolf and Stanley on Environmental Law (5th ed. Routledge 2011) 14
[23] G E Imo, Analysis of the Polluter Pays Principles in Nigeria, University of Ibadan Law Journal.
[24] Organization for Economic Co-operation and Development (OECD), Environment and Economics: Guiding Principles Concerning International Economic Aspects of Environmental Policies, May 26, 1972, Annex Par. 1, Doc. No. C (72)128, 1972 WL 24710 Paris: Organization for Economic Co-operation and Development.

> measures should not be accompanied by subsidies that would create significant distortions in international trade and investment.[25]

In 1974 the guiding principle was further stretched out by the OECD's Recommendation on Implementation of the Polluter Pays Principle[26], authenticating the exact value of the principle, that is: the distribution of cost for abatement of pollution and control mechanisms effected by government establishments. This suggested that the government should help to absorb the costs of environmental pollution in certain situations via tax reliefs, subsidies and any other way possible.[27] instances, where the government will help, are when the necessity to put into practice a persuasive and stringent pollution control rule speedily or when there are socio-economic challenges that have grown to the point that justifies the rendering of governmental help[28]. PPP was acknowledged and defined by the OECD under the extended producer responsibility, as:

> [w]here manufacturers and importers of products should bear a significant degree of responsibility for the environmental impacts of their products throughout the product life-cycle, including upstream impacts inherent in the selection of materials for the products, impacts from manufacturers' production process itself, and downstream impacts from the use and disposal of the products. Producers accept their responsibility when designing their products to minimise life-cycle environmental impacts and accept legal, physical, or socioeconomic responsibility for environmental impacts that cannot be eliminated by design.[29]

PPP fundamentally means that polluters should pay for pollution abatement, and manage mechanisms for the environmental damage caused as a result of their factory production and that the government should not subsidize pollution. It is important to note that the OECD document was simply a recommendation and such not binding on any state, but the principles enshrined in the document have formed part of most environmental law treaties. A clear example is Principle 16 of the Rio Declaration on the Environment and Development1992 which provides that,

> *...National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the costs of pollution, with due regard to the public interest and without distorting international trade and investment.*[30]

[25] OECD 'Recommendation of the Council on Guiding Principles concerning International Economic Aspects of Environmental Policies' OECD/LEGAL/0102 Annex A(a)(4) https://legalinstruments.oecd.org/public/doc/4/4.en.pd. accessed 19 November 2022.
[26] OECD 'Recommendation of the Council on the Implementation of the Polluter-Pays Principle' OECD/LEGAL/0132 https://legalinstruments.oecd.org/public/doc/11/11.en.pdf. Accessed 20 November 2022.
[27] *Ibid.*
[28] *Ibid.*
[29] OECD 'Fact sheet: extended producer responsibility' https://www.oecd.org/env/waste/factsheetextendedproducerresponsibility.htm#:~:text=Extended%20Producer%20Responsibility% 20is%20a,materials%20for%20the%20products%2C%20impacts. accessed 20October 2023.
[30] Article 16 of Rio Declaration 1992.

PPP can also be seen today in regional regulations such as the European Community (EC). The EC accepted the principle in its scheme of action on environmental protection in 1973 and 1975 respectively.[31]

In Nigeria, Regulation 13(1) National Environmental (Mining and Processing of Coal, Ores and Industrial Minerals) Regulations, 2009 provides that, "the collection, treatment, transportation and final disposal of wastes within the specified standards and guidelines, shall be the responsibility of the facility generating wastes[32]." Consequently, in the event of pollution resulting in an impact on the environment whether socio-economically or health-wise, "the facility shall… be responsible for; the cost of clean-up; remediation; reclamation; compensation to affected parties; and cost of damage assessment and control.[33]" Regulation 14 provides that "all generators of wastes, owners or occupiers of premises where wastes are generated shall be legally and financially responsible for the safe and environmentally sound disposal of their wastes."[34]

PPP has advanced from just a recommendation by the OECD in 1972 to gaining legal status into virtually all contemporary environmental instruments in the world. At its beginning, it was entirely an economic principle intended to be used as a pollution abatement mechanism and to prevent the alteration of competition.[35] PPP has evolved from an incomplete internalisation of pollution costs into absolute internalisation of these costs and has extended to include the cost of government administrative actions caused by pollution.[36]

Some writers have opined that there are two types of PPP to *wit*: the weak PPP and the strong PPP. The weak type can be seen in the OECD recommendation of 1972 portraying PPP as an economic principle rather than a liability principle.[37] Put differently, the weak type of PPP requires the costs of pollution curtailment to be internalised by the polluter to a point allowed by the government, not providing any subvention for polluters or their pollution abatement endeavours, the strong PPP is far more than only internalisation of the costs of pollution abatement but now ensures that the polluters bring back the environment to the status quo, and where restoration is not possible should clean up the environment from pollutants and also ensure adequate compensation for victims of pollution[38]. Worthy of note is the fact that the adoption of PPP in any legal instrument could either be implied or expressed. When impliedly adopted, the expression 'polluter pays principle' is not seen or used in the statute, however, the system that obliges polluters to pay for the damage caused by their activities is well described within

[31] European Community Regulatory Directives 1975.
[32] National Environmental (Mining and Processing of Coal, Ores and Industrial Minerals) Regulations, 2009 These Regulations were made under the provisions of section 34 of National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007.
[33]Regulation 13 (2), National Environmental (Mining and Processing of Coal, Ores and Industrial Minerals) Regulations, 2009.
[34] National Environmental (Sanitation and Wastes Control) Regulations, 2009.
[35] O O Ojo, Polluter Pays Principle Under Nigerian Environmental Law, *Environmental Liability – Law, Policy and Practice* (2021) 26 (3) Published by Law text Publishing Limited 93.
[36] Nicolas de Sadeleer *Environmental Principles: From Political Slogans to Legal Rules* (OUP 2002) 60.
[37] Eric Thomas Larson 'Why environmental liability regimes in the United States, the European Community, and Japan have grown synonymous with the polluter pays principle' (2005) 38 *Vanderbilt Journal of Transnational Law* 541, 550
[38] Jonathan Remy Nash 'Too much market? Conflict between tradable pollution allowances and the "polluter pays" principle' (2000) 24 *Harvard Environmental Law Review* 465, 473–77.

the statute.[39] This is the case of statute and regulation under review in this paper. The CAA and its regulations did not expressly mention PPP but then provided measures that will be used by aircraft operators in preventing and mitigating aircraft emissions. In contrast, where PPP is adopted expressly in a statute, the expression 'polluter pays principle' will be visibly seen in the provisions of the statute.[40]

Additionally, PPP provides four different functions, to *wit:* redistributive, precautionary, curative/redemptive, and punitive.[41] The redistributive method allows polluters to internalise the cost of pollution-control and abatement activities' costs and possibly will tolerate polluters to continue the actions that are causing pollution if the appropriate and specified price is paid. The preventive method's focal point is on preventing pollution by 'encouraging polluters to reduce their emissions instead of being content to pay charges'.[42] The curative method allows polluters to be accountable for the impacts of their activities on human health and the damaged environment, notwithstanding compliance with the legal and regulatory obligations of bringing the environment back to the status quo, cleaning up the environment and compensating victims, moreover, incentives are made available to prevent pollution as well as for efforts put in place by polluters to control/abate pollution.[43]

It follows that the polluters are under obligation to restore the environmental disaster they have caused as a result of their industrial activities by restoring the environment to a clean, healthy and sustainable condition.[44] The punitive method is purely a deterrent and varies from terms of imprisonment to fine. Defaulters may be convicted to serve as a deterrent to polluters. A defaulter may be fined for the environmental injuries done as a result of their activities, and the court can also direct such companies to be wound up. The implication of this is that PPP's basic focus is on corrective justice[45].

3.0 Polluter Pays Principle in Relation to Aviation Law in Nigeria

PPP under aviation law in Nigeria was not expressly stated with language such as the "polluter shall pay for the environmental damage caused on the environment." However, it is impliedly very active in the provisions of Part 16 of the NCAA dealing with aviation environmental regulation. Historically, the 1999 National Policy on the Environment which was revised in 2016 under article 3.3(iv), named PPP among the regulatory doctrines for environmental policy[46]. Despite the above assertion, the origin of PPP in the guideline and fortification of the Nigeria environment dates back to 1988 which is older than the 1999 Policy on Environment.

The PPP was one of the mechanisms adopted for environmental protection after the ugly incident at Koko. PPP was entrenched under section 12(1) of the Harmful Wastes (Special Criminal Provisions) Act, 1988, to the effect that where any damage has been caused by any harmful waste which has been

[39] John Pezzey 'Market mechanisms of pollution control: "polluter pays", economic and practical aspects' in R Kerry Turner (ed) *Sustainable Environmental Management: Principles and Practice* (Belhaven Press 1988) 190, 208–209.
[40] *Ibid.*
[41] Nicolas de Sadeleer *Environmental Principles: From Political Slogans to Legal Rules* (OUP 2002) 34.
[42] *Ibid 36.*
[43] *Ibid 37*
[44] Gina Elvis-Imo 'An analysis of the polluter pays principle in Nigeria' (2016) 1(1) *Ajayi Crowther University Law Journal* 1, 3.
[45] All Answers Ltd 'Polluter pays principle case study' UKEssays.com) https://www.ukessays.com/essays/environmentalstudies/polluter-pays-principle.php?vref=1. Accessed 20 November 2022
[46] S 1.5 (3) of the National Policy on Environment 1999 (now revised in 2016)

deposited or dumped on any land or territorial waters or contagious zone or Exclusive Economic Zone of Nigeria or its inland waterways, any person who deposited, dumped or imported the harmful waste or caused the harmful waste to be so deposited, dumped or imported shall be liable for the damage…[47] All the environmental protection regulations enacted under the then Federal Environmental Protection Agency (FEPA) Act 1988 expressly included PPP and it engaged every sector to set up anti-pollution apparatus for the purification of emission and biochemical discharges stemming from the sector.[48]

Flowing from the above, section 1 of the Civil Aviation Act 2022 which deals primarily with the objective of the NCAA lists the objective of the Authority to include (a) providing for effective legal and institutional framework for the regulation of civil aviation in Nigeria in conformity with the standards and recommended practices set by the International Civil Aviation Organisation (ICAO); (b) establish rules of operation and divisions of responsibility within the Nigerian civil aviation system to promote aviation safety and security; (c) ensure that Nigeria's obligations under international aviation agreements are implemented; and (d) consolidate the laws relating to the regulation of civil aviation in Nigeria.[49] Under section 8 (1) (j) the Nigeria Civil Aviation Authority (NCAA) is empowered to issue rules and regulations on aviation environmental protection[50].

Accordingly, the Nigeria Civil Aviation Authority ensures implementation and compliance with international policies and laws on mitigating aviation pollution. It embraced the ICAO policies on curtailing the environmental impact of the aviation sector. The NCAA in line with its powers under the CAA 2022 enacted the Civil Aviation Regulation 2023 to be at par with the international community. In particular, Part 16 of the regulation made elaborate provision for protection of the environment and it incorporated the ICAO Standard and Recommended Practices (SARPs) in Annex 16 Volume I and Volume II.

Part 16 of the Civil Aviation Regulation 2023 gave detailed environmental protection from noise evaluation measures, noise measurement points; and maximum noise level for each aircraft specification to venting fuel and aircraft engine emissions. It enjoins all aircraft operators to obtain its noise certificate which must be on-board the aircraft at all times and the same shall not be transferrable to another aircraft.[51] For fuel venting the regulation provides that aircraft shall be so designed and constructed as to prevent the intentional discharge into the atmosphere of liquid fuel from the fuel nozzle manifolds resulting from the process of engine shutdown following normal flight or ground operations.[52] Worthy of note is the fact that the regulation mandates aircraft operators to use aircraft that are quieter to maintain the prescribed maximum noise level allowed for a particular type of aircraft. Without these certificates, an aircraft is prohibited from operating within Nigerian aerospace.

Regulation 16.3.1.4 (c) is to the effect that at approach noise measurement point is 108 EPNdB for aeroplanes with a maximum certificated take-off mass of 280,000 kg or over, decreasing linearly with

[47] Regulation 1 (1) of the 1991 National Environmental Protection (Effluent Limitation) Regulations.
[48] FEPA has been repealed by National Environmental Standards, Regulations Enforcement Agency (NESREA). Act, it is believed that by virtue of 35 these regulations have been made by the NESREA Act.
[49] S 1 Civil Aviation Act 2022.
[50] *Ibid* S 8 1 (j).
[51] Civil Aviation Regulation 16.2.1.1 (d).
[52] *Ibid* reg.16.18.2.1.

the logarithm of the mass down to 101 EPNdB at 35 000 kg, after which the limit remains constant.[53] It further made provisions for the trade of excess sum of noise measurement points under 16.3.1.5. (a) where it states that if the maximum noise levels are exceeded at one or two measurement points: (1) the sum of excesses shall not be greater than 4 EPNdB, except that in respect of four-engined aeroplanes powered by engines with a bypass ratio of 2 or more and for which the application for a certificate of airworthiness for the prototype was accepted, or another equivalent prescribed procedure was carried out by the certificating authority, before 1 December 1969, the sum of any excesses shall not be greater than 5 EPNdB (2) any excess at any single point shall not be greater than 3 EPNdB, and (3) any excesses shall be offset by corresponding reductions at the other point or points.

Regulation 16.17.1.1 deals with the balanced approach to noise management. It provides that "the balanced approach to noise management consists of identifying the noise problem at an airport and then analysing the various measures available to reduce noise through the exploration of four principal elements, namely reduction at source (addressed in a subpart of this subparts), land-use planning and management, noise abatement operational procedures and operating restrictions, to address the noise problem most cost-effectively.[54] Under regulation 16.17.1.2 aircraft operating procedures for noise abatement shall not be introduced unless the regulatory authority, based on appropriate studies and consultation, determines that a noise problem exists.[55] Again, under 16.17.1.3 Aircraft operating procedures for noise abatement shall be developed in consultation with the operators that use the aerodrome concerned.[56]

PPP can be seen in these provisions though in a very subtle manner, from the production of aircraft, the producers are enjoined to manufacture quieter aircraft and the aircraft operators are also enjoined to make use of such quieter aircraft and alternative sustainable biofuel. Here the regulation enjoins the airline operators to be responsible in adhering to rules that will abate noise pollution and intentional venting of fuel into the atmosphere or excess carbon emissions into the air. The regulation went further under 16.17.1.4 to refer to the factors to be taken into consideration in the development of appropriate aircraft operating procedures for noise abatement which shall include (a) the nature and extent of the noise problem including (1) the location of noise-sensitive areas; and (2) critical hours ; (b) the types of aircraft affected, including aircraft mass, aerodrome elevation, temperature considerations ; (c) the types of procedures likely to be most effective ; (d) obstacle clearances; and (e) human performance in the application of the operating procedures.[57]

The Aviation Regulation Part 16 2023 applies the PPP through polluters paying for the unrestricted running costs for regulatory and abating environmental pollution; here the aircraft operators are enjoined to purchase specific aircraft for their businesses which will reduce noise and use sustainable alternative fuel to abate intentional fuel venting into the air, there is a provision for carbon offsetting schemes to reduce the amount of carbon being released into the atmosphere by an aircraft within a given period. In a situation where an airline exceeds its permitted amount of emission, it can only purchase

[53] *Ibid* reg. 16 .3.1.4 (c).
[54] Civil Aviation Regulation 16.17.1.1.
[55] *Ibid* 16.17.1.2.
[56] *Ibid* 16.17.1.3.
[57] *Ibid* 16.17.1.4.

from an airline that has not exceeded its permitted limit. These mechanisms are sustained by the rules as contained in the regulations such as Guidance on the Balanced Approach to Aircraft Noise Management (Doc 9829), Carbon Offsetting and Reduction Scheme for International Aviation (COARSIA) where the aircraft operator is under obligation to monitor and record its fuel use from international flights by an eligible monitoring method[58] and such aircraft operator's fuel use monitoring method should be submitted for approval by the Authority when the Emissions monitoring is approved, the aircraft is mandated to use the same eligible monitoring method for the entire compliance period.[59]

Another method that portrays the PPP is through the polluters paying for the wide-ranging pollution control and abatement requirements. Such measures include land planning (Airport Planning Manual, Part 2, (Doc 9184) and Community Development Agreement which deals with the responsibility of giving the host community a sense of belonging in the control and reduction of pollution within their vicinity.[60] PPP can also be seen in the airline bearing the costs for the common responsibilities for pollution control and abatement, which are ancillary to different phases of their operation as an airline and a breach of any of these responsibilities gives rise to the airline losing its certificate to operate.

PPP was also introduced in the recent initiative aimed at tackling aviation environmental pollution and climate change via the ICAO Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). The NCAA Civil Aviation Order 2022 (NCAA/CAO/2022/002) applies to all Aircraft Operators of an aeroplane with a maximum certificated take-off mass greater than5700 kilogram (kg)conducting international flights on or after 1 January 2019 except humanitarian medical and firefighting flights.[61] The Order provides requirements for offsetting carbon emissions and the NCAA are to calculate for each of the aeroplane operator attributed to it amount of carbon emissions required to be offset in a given year from 1 January 2021 to 31 December before consideration of the CORSIA eligible fuel.[62] They are also authorised to calculate, for each of the aeroplane operators attributed to it, the amount of CO2 emissions required to be offset in a given year from 1 January 2024 to 31 December 2035 before consideration of the CORSIA eligible fuel.[63]

Here we can see PPP in action in that offsetting permits an airline to pay off for its atmospheric discharges by funding a mitigation of emissions in another sector, although aviation carbon offsetting may not involve airlines reducing their carbon emissions into the atmosphere but then it offers an environmentally operative choice for sectors where the possibility for more emissions reductions is restricted. CORSIA aims to ensure a sustainable aviation sector by introducing sustainable aviation fuel, new proficient processes and improved practice of structural mechanisms to keep on mitigating the sector's carbon emissions. The idea of offsetting is not projected to substitute other efforts, nor will CORSIA create fuel proficiency not as much of a day-to-day importance, rather CORSIA will aid in

[58] Civil Aviation Order 16.21.2.1
[59] Ibid 16.21.2.1 (c)
[60] There is currently a bill at the National Assembly intending to pass into law specific compensation for host communities for noise and other associated damage they are suffering.
[61] *Ibid* 16.21.1.1
[62] *Ibid* 16.22.1.2(a)
[63] *Ibid* 16.22.1.2(b)

reducing certain levels of emission increase in the aviation sector in as much as durable technological and sustainable green aviation fuel results can advance and be reinvented into the aviation sector.

4.0 Conclusion/Recommendation

Having looked at the Civil Aviation Act 0f 2022 and the Civil Aviation Environmental Regulation, it is the position of this paper that PPP has been embedded into the Civil Aviation regulation in Nigeria, though in a very subtle manner. Adopting Part 16 0f the Aviation Regulation and particularly the ICAO CORSIA into the aviation sector in Nigeria demonstrates that the aviation sector is concerned and committed to providing a sustainable aviation sector. It is clear evidence that the sector is pursuing a healthy environment for its citizenry in line with section 20 of the 1999 Constitution of the Federal Republic of Nigeria which charges the government to protect and improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria. The sector never ended up adopting the ICAO CORSIA which contains the PPP but then again it made sure that it was domesticated and came into force immediately.

The introduction of the PPP by the NCAA into aviation environmental regulation is a clear expression of the commitment of the aviator sector to seeing that the industry in Nigeria is adhering to the international body in charge of aviation (the ICAO) in ensuring a green and sustainable aviation sector. This is a clear indication that Nigeria is striving to attain better objective of maintaining a sustainable environment beneficial to both present and future generations. It is strongly recommended that all the entities set up under the regulation for monitoring, validation and verification of carbon offsetting and noise abatement diligently discharge their duties and ensure compliance on every side to exterminate the implementation and enforcement challenges usually associated with Nigerian parastatals. It is believed that when these duties and properly discharged the PPP will strive more in the aviation sector in Nigeria.