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I. ABSTRACT

International aviation, though a significant and accelerating source of global greenhouse gas emissions, remains conspicuously absent from the binding architecture of national climate commitments under the *Paris Agreement*. In response to this regulatory void, the International Civil Aviation Organization [**"ICAO"**] adopted the Carbon Offsetting and Reduction Scheme for International Aviation [**"CORSIA"**], a market-based scheme allowing airlines to meet emissions obligations through the purchase of carbon credits. This paper argues that the foundational structure of CORSIA is legally fragile, operationally incoherent, and ethically skewed while being grounded in fungible, voluntary offsets and ultimately, deployed across an increasingly fragmented governance landscape. With the help of a comparative legal analysis of four overlapping regimes- CORSIA, the European Union Emissions Trading Scheme [**"EU ETS"**], the ReFuelEU Aviation Regulation, and the United Kingdom's 2025 hybrid consultation model, the paper studies how international aviation emissions are governed by contradictory legal obligations, divergent compliance assumptions, and a widening equity gap, particularly disadvantaging carriers from the Global South. Beyond critique, this paper proposes for a binding reform framework- an International Framework Agreement on Aviation Emissions [**"IFAAE"**], centred on enforceable emissions caps, a central ICAO-administered registry of high-integrity, non-fungible credits, and differentiated obligations consistent with the principle of common but differentiated responsibilities. Without such harmonisation, the promise of climate accountability in aviation will remain suspended in legal illusion- fungible in form, but fragile in substance.

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II. INTRODUCTION

Few sectors reflect the asymmetries of global climate governance as starkly as international civil aviation. Despite accounting for over two percent of global greenhouse gas emissions, a figure projected to triple by 2050,[1] the sector remains structurally excluded from binding state-level commitments under the *Paris Agreement*.[2] The agreement seeks to regulate emissions through nationally determined contributions [**"NDCs"**] without directly addressing transboundary emitters such as airlines.[3] In this regulatory lacuna, the ICAO introduced the CORSIA, a market-based compliance mechanism that permits operators to offset emissions exceeding a specified baseline by purchasing carbon credits from ICAO-approved programs.[4]

CORSIA purports to offer a uniform international framework for decarbonising aviation. Yet its operational design reveals profound legal and institutional fragility. The scheme treats all carbon credits as interchangeable, regardless of their source, quality, or verification.[5] At the same time, it lacks a binding dispute mechanism, an enforceable emissions cap, and a centralised system of liability.[6] At the same time, CORSIA remains formally non-binding under international law, implemented through ICAO's Standards and Recommended Practices [**"SARPs"**], which lack the force of treaty obligations and are applied inconsistently across jurisdictions.[7]

Further complicating the regulatory terrain is the emergence of overlapping regional instruments that reflect conflicting legal philosophies and compliance methodologies. The EU ETS,[8] the ReFuelEU Aviation Regulation,[9] and the United Kingdom's 2025 hybrid consultation model[10] each present divergent approaches- market rationing through emissions allowances, command-and-control fuel mandates, and dual-credit pricing mechanisms respectively. These regimes do not merely operate in parallel to CORSIA; they often collide with it, producing jurisdictional ambiguity, enforcement inconsistencies, and compliance uncertainty for operators engaged in international routes.

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[1] Int'l Energy Agency, *Aviation: Tracking Report 2023*, https://www.iea.org/reports/aviation.
[2] Paris Agreement, art. 4(1), Dec. 12, 2015, U.N. Doc. FCCC/CP/2015/L.9/Rev.1.
[3] UNFCCC, *Nationally Determined Contributions Registry*, https://unfccc.int/NDCREG.
[4] ICAO, Resolution A39-3: Consolidated Statement on Environmental Protection – Global MBM Scheme (2016).
[5] Gilles Dufrasne, *CORSIA: The First Global Carbon Market for Aviation Falls Short*, Carbon Market Watch (Oct. 2021).
[6] David Boyd, *The Environmental Rights Revolution: A Global Study of Constitutions, Human Rights, and the Environment* 137–138 (2012).
[7] ICAO, *Annex 16 to the Convention on International Civil Aviation*, Vol. IV: CORSIA (2022).
[8] Directive 2003/87/EC of the European Parliament and of the Council, 2003 O.J. (L 275) 32 (as amended by Directive 2023/958).
[9] Regulation (EU) 2023/2405 of the European Parliament and of the Council, 2023 O.J. (L) 2023/2405.
[10] UK Dep't for Transp., *Implementing the Carbon Offsetting and Reduction Scheme for International Aviation*: Consultation Document (Feb. 2025), https://assets.publishing.service.gov.uk/media/67b4b82fb56d8b0856c2fe89/dft-implementing-corsia-consultation.pdf.

This paper advances two claims. First, that CORSIA's architecture- grounded in offset commodification and regulatory voluntarism- fails both as a mechanism of environmental accountability and as a credible expression of international legal responsibility. Second, that the coexistence of fragmented and legally incompatible regimes calls for the creation of a harmonised legal framework: one that embeds enforceable obligations, incorporates differentiated responsibilities for developing countries, and restores the primacy of measurable decarbonisation over market illusion. Through comparative doctrinal analysis, regulatory critique, and a forward-facing normative proposal, this paper seeks to chart a new course for the future of aviation climate governance- one that is not only carbon-conscious, but legally coherent and globally just.

III. CORSIA'S LEGAL DESIGN

CORSIA, adopted through ICAO Assembly Resolution A39-3 and implemented via Annex 16, Volume IV of the *Chicago Convention*, was intended to offer a harmonised mechanism for limiting the climate impact of international aviation.[11] Under the scheme, airlines are required to purchase carbon credits to offset emissions exceeding a predefined baseline, with credits sourced from a list of ICAO-approved programs.[12] Framed as a flexible and globally coordinated approach to emissions reduction, CORSIA was positioned as a key complement to the *Paris Agreement*.[13] Yet its legal infrastructure, far from delivering consistency or compliance, is structurally incapable of enforcing environmental integrity or operational transparency.

At the heart of CORSIA lies a market logic premised on credit interchangeability. Carbon units are treated as equivalent regardless of their source, permanence, verification standard, or mitigation type (e.g., avoidance vs. removal). This reliance on undifferentiated credits introduces a structural opacity: credits of questionable additionality or expired climate value can be used to meet compliance obligations without consequence.[14] By divorcing legal compliance from real-world mitigation, CORSIA allows carriers to achieve formal conformity while delivering no guaranteed environmental outcome.[15]

Compounding this flaw is the weakness of its monitoring, reporting, and verification [**"MRV"**] system. Although ICAO has adopted MRV standards through SARPs, these are not binding

[11] ICAO, *Resolution A39-3: Consolidated Statement on Environmental Protection – Global Market-Based Measure Scheme* (2016).
[12] ICAO, *CORSIA Eligible Emissions Units* (updated 2024), https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Emissions-Units.aspx.
[13] UNFCCC, *The Paris Agreement*, Dec. 12, 2015, art. 6(2), U.N. Doc. FCCC/CP/2015/L.9/Rev.1.
[14] Carbon Market Watch, *CORSIA: Tackling Aviation Emissions or Giving Polluters a Free Pass?* (June 2023).
[15] Gilles Dufrasne, *CORSIA's Credibility Crisis*, Carbon Market Watch (2021).

under international law and rely on national implementation without standardised oversight.[16] No uniform registry exists to track the issuance, retirement, or adjustment of credits, and there is no binding obligation on host states to apply corresponding adjustments under Article 6(2) of the *Paris Agreement*.[17] The result is a system prone to double counting, inconsistent reporting, and unverifiable emissions claims- a compliance regime without a legal backstop.[18]

Institutionally, ICAO lacks the competencies required to administer a credible enforcement regime. As a technical agency, it has no adjudicatory forum, no independent investigative authority, and no power to impose sanctions.[19] If an airline purchases non-additional or retroactively revoked credits, there is no legal avenue for redress. Similarly, if a crediting project fails or a registry collapses, the liability falls squarely on the operator- with no institutional buffer or default mechanism.[20] CORSIA, in short, contains no enforceable rights and no remedial guarantees.

What remains is a framework that borrows the language of compliance- *"offsetting,"*, *"neutrality,"* *"verification"*, but strips it of enforceable content. Its dependence on voluntary implementation, its insulation from legal challenge, and its overreliance on private carbon markets create a regime that performs legality while evading its most essential obligations. CORSIA offers not an instrument of climate accountability, but an infrastructure of formal compliance- one that legitimises inaction under the guise of participation.

IV. CARBON MARKET BREAKDOWN

If CORSIA's legal structure is fragile, its reliance on unregulated carbon markets renders the regime even more vulnerable.[21] The scheme's effectiveness depends on the assumption that emissions can be credibly neutralised through the purchase of offset credits. Yet the underlying market for these credits is under-regulated, opaque, and structurally incapable of delivering environmental equivalence. While ICAO maintains a list of eligible programs, it imposes no

[16] ICAO, *Annex 16 to the Convention on International Civil Aviation*, Vol. IV: CORSIA (2022).
[17] UNFCCC, *Guidance on Article 6.2 Implementation* (2024), https://unfccc.int.
[18] UNEP-CCC, *Article 6.2 Readiness and Double Counting Risks* (2024).
[19] David Boyd, *The Environmental Rights Revolution* 137–138 (2012).
[20] World Bank, *State and Trends of Carbon Pricing 2024*, at 65–68 (on credit liability and offset failure gaps).
[21] Gilles Dufrasne, *CORSIA: The First Global Carbon Market for Aviation Falls Short*, Carbon Market Watch (Oct. 2021).

consistent legal standard for credit quality, durability, or verification- thereby outsourcing compliance to a marketplace that lacks institutional coherence and legal accountability.[22]

Recent efforts to stabilise this landscape, such as Xpansiv's launch of the GEO CP1 contract- a standardised instrument for trading CORSIA-eligible offsets- have sought to impose a degree of uniformity.[23] However, these financial products continue to treat all credits as interchangeable commodities, despite wide variation in climate value. Projects with tenuous additionality or unverifiable baselines are allowed to circulate alongside higher-integrity removals, masking environmental disparities beneath the guise of market liquidity. In effect, the system rewards volume over veracity.

Regulatory oversight of these transactions is minimal. In the United States and other major jurisdictions, carbon credits are often classified as *"environmental commodities"*, placing them beyond the reach of traditional financial regulators such as the Securities and Exchange Commission or the Commodity Futures Trading Commission.[24] This legal vacuum has enabled the proliferation of speculative trading practices without consumer protection, auditability, or dispute resolution. The Verra scandal- in which credits issued under ICAO-approved programs were later found to lack environmental integrity- exposed the systemic risks of outsourcing compliance to self-certifying registries.[25]

Moreover, CORSIA lacks a centralised clearing or settlement system for offset credits.[26] There is no unified registry that records credit issuance, retirement, or cross-border adjustments. In the absence of harmonised data infrastructure, credits may be double counted, improperly retired, or re-entered into circulation, all without legal consequence. While the *Paris Agreement*'s Article 6 aspires to facilitate cooperative market mechanisms, CORSIA's implementation sidesteps its safeguards- offering no contractual clarity, liability guarantees, or institutional enforcement.[27]

This lack of legal rigour transforms offsetting into a form of regulatory theatre. Airlines can purchase credits that satisfy formal reporting requirements while delivering little or no real

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[22] ICAO, *CORSIA Eligible Emissions Units*, https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Eligible-Emissions-Units.aspx.
[23] Xpansiv, *Xpansiv to Launch CBL GEO® CORSIA Phase 1 Standardized Contract*, https://xpansiv.com/xpansiv-to-launch-cbl-geo-corsia-phase-1-standardized-contract-april-29/.
[24] U.S. Commodity Futures Trading Commission, *CFTC Staff Issues Request for Information on Climate-Related Financial Risk* (June 2, 2022), https://www.cftc.gov/PressRoom/PressReleases/8521-22.
[25] Cambridge University & The Guardian, *Revealed: More than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows*, The Guardian (Jan. 18, 2023).
[26] Gilles Dufrasne, *CORSIA: The First Global Carbon Market for Aviation Falls Short*, Carbon Market Watch (Oct. 2021).
[27] Paris Agreement, art. 6(2), Dec. 12, 2015, U.N. Doc. FCCC/CP/2015/L.9/Rev.1.

mitigation. Meanwhile, project developers operate in a speculative environment with unclear fiduciary duties and no binding disclosure obligations. The regime, as currently structured, does not reward decarbonisation; it incentivises arbitrage. Until the carbon credit market is embedded within a credible legal framework- one that enforces quality standards, defines liability, and ensures traceability- CORSIA's climate compliance mechanism will remain a facade: fluid in trade, but hollow in value.

V. CLASHING REGIMES

The international governance of aviation emissions is increasingly defined not by uniformity, but by divergence. Alongside CORSIA, several regional regimes have emerged- each advancing distinct legal principles, compliance mechanisms, and normative visions. While often described as complementary, these instruments operate with internal logic that renders true harmonisation practically and legally elusive.

A. The EU Emissions Trading Scheme

The EU ETS represents the most legally mature and institutionally embedded emissions trading system in the aviation sector. It applies a hard cap on emissions and allocates allowances to operators, who must either abate or purchase additional units on the open market. Unlike CORSIA's offset-centric model, the EU ETS is grounded in domestic legislation with direct effect, backed by financial penalties for non-compliance and a well-regulated registry for trading. As of 2024, its scope includes both intra-European Economic Area flights and outbound international routes- creating jurisdictional overlap with CORSIA for non-European carriers.[28]

The regime is notable for its legal clarity: emissions must be accounted for annually, with allowances surrendered through a centralised Union Registry.[29] The environmental integrity of compliance is enforced through publicly accessible MRV data, transparent auctioning rules, and Commission oversight. However, its divergence from CORSIA's offset-based logic- and its extraterritorial reach- has raised diplomatic friction, particularly among states that perceive it as unilateral and potentially protectionist.

B. The ReFuelEU Aviation Regulation

[28] European Commission, *Revision of the EU Emission Trading System for Aviation* (Apr. 2023), https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/aviation_en.
[29] Commission Regulation (EU) No. 389/2013, Union Registry Regulation, art. 34, 2013 O.J. (L 122).

The ReFuelEU initiative takes a radically different approach. Rather than incentivising reductions through market exchange, it imposes binding targets for the use of sustainable aviation fuels [**"SAFs"**], beginning with a 2% blending requirement in 2025 and escalating to 70% by 2050.[30] This command-and-control model prioritises technological transition over emissions compensation, thereby bypassing many of the market distortions associated with carbon credit schemes.

ReFuelEU addresses some of the core critiques of CORSIA: it avoids reliance on unverifiable offsets, ties compliance to actual fuel usage, and incentivises supply chain transformation. Legally, it operates through direct regulation of fuel suppliers and airlines within the EU, enforced through penalties and certification requirements.[31] However, its regional nature and technology-specific mandates make it difficult to align with either CORSIA or the EU ETS, and it may entrench disparities for operators without SAF infrastructure- particularly those in developing economies.

C. The United Kingdom's 2025 Hybrid Consultation Model

Post-Brexit, the United Kingdom has charted a distinct regulatory trajectory. In 2025, the Department for Transport initiated a consultation process proposing two options for aligning domestic aviation emissions regulation with international frameworks: a standalone UK ETS model, and a hybrid system incorporating both the UK ETS and CORSIA-based offsetting.[32] The latter approach attempts to reconcile international coordination with domestic control but risks replicating the weaknesses of both regimes.

The proposed hybrid model raises several legal and administrative concerns. Without a clear integration mechanism between UK allowances and CORSIA-approved offsets, airlines may face duplicative charges for the same emissions.[33] Moreover, questions of credit eligibility, MRV standardisation, and enforcement consistency remain unresolved. In attempting to accommodate divergent instruments, the UK model exemplifies the difficulty of convergence in a fragmented legal ecosystem.

D. Synthesis: Divergence as Dysfunction

[30] Regulation (EU) 2023/2405 of the European Parliament and of the Council of 18 October 2023 on ensuring a level playing field for sustainable air transport, art. 4, 2023 O.J. (L, 2023/2405).
[31] Id. arts. 8–11.
[32] UK Department for Transport, *Implementing the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)*, Consultation Document (Mar. 2025), https://www.gov.uk/government/consultations/implementing-the-carbon-offsetting-and-reduction-scheme-for-international-aviation-corsia.
[33] Id. at 12–14.

What unites these three regimes is not a shared regulatory purpose, but a shared incompatibility with CORSIA's logic. The EU ETS centres on quantified cap-and-trade- ReFuelEU mandates supply-side technological change; the UK model experiments with regulatory layering. Each framework assumes different enforcement structures, legal triggers, and normative priorities- leaving airlines operating across jurisdictions to navigate overlapping and often contradictory obligations.[34]

Rather than constituting healthy legal pluralism, this multiplicity of regimes exposes the absence of a coherent global architecture for aviation emissions. It creates compliance inefficiencies, institutional duplication, and an unequal regulatory burden, particularly for operators lacking access to SAF markets or trading infrastructure. Under current conditions, regime interaction does not result in regulatory synergy- it entrenches dysfunction.

VI. NO ENFORCEMENT, NO REMEDY

Beneath CORSIA's veneer of neutrality lies a deeper distributive failure. For airlines based in the Global South- including India, much of Sub-Saharan Africa, and Southeast Asia- the scheme imposes a compliance structure that is blind to both developmental disparity and technological access.[35] While framed as universally applicable, CORSIA's operational burdens fall unequally, and its supporting infrastructure privileges actors already embedded in well-developed carbon markets and sustainable fuel networks.

The first dimension of inequity is infrastructural. Airlines in the Global South face restricted access to high-integrity offsets, which are increasingly scarce and costly due to rising global demand and the consolidation of quality verification programs in the Global North. Although many offset projects originate in developing countries, credit monetisation is often intermediated by external registries, creating pricing asymmetries[36] and market dependency. These operators also face limited access to SAF production and distribution systems- a constraint that renders compliance under emerging fuel mandates functionally inaccessible.[37]

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[34] International Council on Clean Transportation, *The Evolution of Aviation Climate Policy: Global and Regional Trends* (2024), https://theicct.org/publication/aviation-climate-policy-review-2024/.

[35] Ochieng, David Ong'are, *Fair Skies? Assessing the Equity Implications of CORSIA for African Aviation*, Climate Policy 23:2 (2023): 145–162.

[36] UNEP Copenhagen Climate Centre, *Article 6 Readiness and the Carbon Market Landscape in Africa* (Feb. 2024), https://unepccc.org/article-6-pipeline/.

[37] International Renewable Energy Agency [IRENA], *Global SAF Outlook: Technology, Feedstock and Deployment Challenges* (Mar. 2024), https://www.irena.org/publications/2024/Mar/Global-SAF-Outlook.

Second, the administrative and financial burden of CORSIA disproportionately affects carriers in developing jurisdictions. Compliance requires sophisticated MRV capacity, familiarity with ICAO-approved credit markets, and the legal infrastructure to process cross-border carbon transactions.[38] Where such systems are underdeveloped or institutionally weak, airlines may be forced to rely on lower-quality credits or face exclusion altogether. This structure imposes costs not only on emissions but on capacity- penalising those least equipped to engage with the regime.

From a normative standpoint, this undifferentiated model contravenes the foundational principle of common but differentiated responsibilities, enshrined in both the *Rio Declaration* and the *Paris Agreement*.[39] By imposing uniform compliance thresholds while ignoring unequal access to mitigation tools, CORSIA replicates historical injustices under the guise of market neutrality. It fails to recognise that carbon parity is not carbon justice- and that an ostensibly level playing field can reinforce structural imbalances when institutions and access are anything but equal.

Moreover, this burden-shifting occurs without any embedded mechanism for capacity building, technology transfer, or preferential treatment for least developed states.[40] While CORSIA aspires to global uniformity, its implementation amounts to a de facto redistribution of regulatory risk from highly resourced carriers to those least able to absorb it. It constructs a single rulebook in a radically unequal regulatory landscape.

In this sense, CORSIA is not merely inefficient or ineffective- it is unjust. It places the cost of compliance on those least responsible for cumulative emissions, least capable of rapid decarbonisation, and least represented in global market governance. By erasing context in the name of neutrality, it erodes the legitimacy of climate law itself.

VII. A NEW TREATY MODEL

Beyond its structural weaknesses and distributive inequities, CORSIA suffers from a profound accountability void. While it purports to regulate compliance through offset acquisition, the regime offers no remedy when those offsets fail, no enforcement when participants default, and

[38] UNFCCC, *Biennial Transparency Report of Guyana* (Feb. 2024), https://unfccc.int/sites/default/files/resource/Guyana_First%20Biennal%20Transparency%20Report_February%202024%20-%20Final.pdf.
[39] United Nations Framework Convention on Climate Change, art. 3(1), May 9, 1992, 1771 U.N.T.S. 107.
[40] Climate Action Network International, *Carbon Offsetting and the Global South: Assessing Equity under CORSIA* (Dec. 2023), https://climatenetwork.org/wp-content/uploads/2023/12/CORSIA-Equity-Global-South-Report.pdf.

no legal clarity when market actors collapse. In this sense, CORSIA does not merely reflect a gap in design- it enshrines a void in legal obligation.[41]

The first manifestation of this void lies in the treatment of failed or invalidated credits. If a carbon credit is later deemed non-additional, double-counted, or otherwise non-compliant- whether due to fraud, verification failure, or revocation by the issuing registry- there is no requirement within CORSIA for the credit to be replaced, nor any liability assigned.[42] Airlines that act in good faith may remain technically compliant, even if the emissions they were supposed to neutralise remain unabated. The system assumes legal validity at the point of purchase, yet provides no assurance that environmental value will be delivered- effectively rendering compliance illusory.

This accountability gap widens in cases of airline insolvency. If an operator declares bankruptcy mid-cycle, there is no mechanism under CORSIA to preserve or reassign emissions obligations. Past emissions may remain unaccounted for, and future obligations may dissolve without replacement. The absence of continuity provisions enables emissions to disappear from the compliance ledger without recourse- a legal vacuum in which atmospheric harm is divorced from institutional liability.

Compounding these gaps is ICAO's institutional limitation. As a technical body operating through SARPs and consensus-based Assembly Resolutions, ICAO has no adjudicatory authority, no compliance committee, and no binding dispute resolution mechanism.[43] Unlike the WTO or even the *Paris Agreement*'s Enhanced Transparency Framework, CORSIA contains no procedural apparatus through which injured parties may seek redress, challenge offset validity, or appeal credit-related loss. The regime lacks even a notional fault structure.

At the contractual level, airlines are not party to the underlying agreements that generate offsets. Credits are often bought through intermediaries or exchanges, with no privity of contract between the airline and the project host. As a result, buyers have limited ability to invoke legal protections such as rescission, restitution, or damages. When projects fail or registries collapse- as seen in recent scandals involving prominent verification bodies- legal standing evaporates alongside credit value.

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[41] ICAO, CORSIA Emissions Unit Eligibility Criteria (Mar. 2022), https://www.icao.int/environmental-protection/CORSIA/Documents/ICAO%20document%20-%20CORSIA%20Emissions%20Unit%20Eligibility%20Criteria_March2022.pdf

[42] World Bank, State and Trends of Carbon Pricing 2024, at 62 (2024).

[43] David M. Ong, Aviation Emissions, ICAO, and the EU ETS, 20 J. Int'l Econ. L. 951, 963 (2017).

This absence of enforceability has broader consequences for market trust and regulatory stability. Without clarity on liability, default, or dispute resolution, participants operate in a system where legal risk is unpriced, enforcement is theoretical, and compliance is performative. The regime's opacity corrodes confidence not only among regulated entities, but also among investors, insurers, and credit-generating entities. In this landscape, what passes for climate compliance is little more than a legal fiction- a structure that simulates control while institutionalising impunity.

VIII. TOWARDS AN INTERNATIONAL FRAMEWORK AGREEMENT ON AVIATION EMISSIONS

The preceding sections have shown that the existing architecture of aviation emissions governance- built around voluntary offsets, fragmented enforcement, and jurisdictional overlap- is no longer tenable. CORSIA's legal fragility, coupled with its incompatibility with regional regimes and its distributive failures, demands not mere reform but replacement.[44] To that end, this paper proposes a new international instrument: the International Framework Agreement on Aviation Emissions [**"IFAAE"**].

IFAAE would be a binding, multilateral agreement adopted under the auspices of ICAO or through an independent treaty mechanism complementary to the *Paris Agreement*. Its core purpose would be to replace the voluntary offset-based model with enforceable obligations, grounded in real emissions reduction and institutional accountability.[45]

The first pillar of IFAAE would be the adoption of sector-specific emissions caps, calibrated according to historical emissions and capacity. These caps would be allocated across operators or states based on principles of equity and responsibility, with offsets permitted only as a supplementary measure subject to strict additionality and permanence requirements. Unlike CORSIA, where the entire compliance obligation is externalised through credit purchase, IFAAE would prioritise in-sector decarbonisation.

Second, IFAAE would establish a centralised ICAO-administered registry of credits and allowances. This registry would treat carbon assets as non-fungible instruments, classified by quality tiers- distinguishing between removals and reductions, and between short- and long-term permanence. This would eliminate the market fiction of equivalence that currently permits low-

[44] Int'l Civil Aviation Org., Assembly Res. A40-18, ¶ 16(o), ICAO Doc. 10180 (2020).
[45] Paris Agreement, Dec. 12, 2015, art. 2(1)(a), T.I.A.S. No. 16-1104.

integrity credits to satisfy high-emission liabilities. Credits would be traceable from origin to retirement, with mandatory disclosure of verification, methodology, and issuer.[46]

Third, IFAAE would include a uniform MRV protocol, harmonised across jurisdictions and enforced through a dedicated compliance mechanism. This protocol would standardise reporting formats, verification intervals, and public disclosure obligations- allowing for transparent comparison and reducing the risk of regulatory arbitrage. Airlines and states would be subject to independent audit and cross-verification, with penalties for material misreporting.

To align the framework with international environmental law principles, IFAAE would incorporate differentiated obligations under the doctrine of common but differentiated responsibilities. States with limited technical capacity or historically low emissions would be subject to less stringent compliance thresholds, longer adjustment periods, and structured access to financial and technological support. This would ensure that legal equality does not replicate structural inequality.

Finally, IFAAE would provide for legal interoperability with regional schemes such as the EU ETS and ReFuelEU.[47] Rather than supplanting domestic instruments, it would set a common floor for transparency, credit integrity, and emissions tracking.[48] A mutual recognition system, embedded within the treaty text, would allow for cross-compliance where regional standards meet or exceed IFAAE benchmarks.

In short, IFAAE envisions a legal framework that corrects CORSIA's foundational errors: it replaces symbolic participation with enforceable duty, market abstraction with verifiable mitigation, and structural exclusion with equity by design.[49] It offers a path not merely to emissions reduction, but to a just and durable international aviation regime.

IX. RECOMMENDATIONS

To transition from the current regime of symbolic compliance and institutional fragmentation to one grounded in legal coherence and environmental credibility, this paper proposes a three-tiered

[46] Taskforce on Scaling Voluntary Carbon Markets, Final Report (Jan. 2021), https://www.iif.com/Portals/1/Files/TSVCM_Report.pdf.
[47] Rio Declaration on Environment and Development, U.N. Doc. A/CONF.151/26 (Vol. I), Principle 7 (1992).
[48] Int'l Civil Aviation Org., CORSIA MRV Requirements, ICAO Doc. 9501, Vol. IV, App. 4 (2019).
[49] UNFCCC, Biennial Transparency Reports under the Enhanced Transparency Framework, https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-paris-agreement/biennial-transparency-report.

reform agenda. These recommendations distinguish between measures that can be implemented within the existing framework and those that require systemic legal transformation.

A. Immediate Reforms

1. *Introduce binding caps on offset use-* ICAO should limit the proportion of emissions that airlines may neutralise using carbon credits. Capping offset usage will incentivise in-sector emissions reduction and mitigate dependence on volatile, low-integrity carbon markets.
2. *Remove non-compliant registries from ICAO eligibility-* Carbon registries with unresolved integrity failures or ongoing investigations- including those linked to over-crediting or unverifiable methodologies- should be disqualified from ICAO's approved list. This step would reintroduce legal risk to supply-side actors and protect operators from invalidated credits.
3. *Require public disclosure of MRV data-* All participating states and operators should publish MRV data in a harmonised, machine-readable format. Public transparency will enable third-party verification, academic scrutiny, and cross-jurisdictional accountability.

B. Medium-Term Reforms

1. *Transition from voluntary to regulated compliance markets-* ICAO must phase out reliance on voluntary crediting mechanisms in favour of regulated compliance markets. Only credits issued by registered, jurisdictionally supervised programs should be eligible for use under CORSIA or its successor framework.
2. *Establish a global fund for SAF deployment in the Global South-* A dedicated ICAO-administered fund- financed through a levy on international aviation- should subsidise infrastructure, research, and deployment of sustainable aviation fuels in developing regions. This would reduce structural barriers to compliance and operationalise principle of common but differentiated responsibilities.

C. Long-Term Reforms

1. *Negotiate a legally binding treaty on international aviation emissions-* States should initiate negotiations- whether within ICAO or under a *Paris Agreement*-linked protocol- to adopt a treaty that enshrines binding caps, quality standards for credits, and differentiated obligations for states. This instrument would serve as the legal foundation for a harmonised aviation regime.
2. *Empower ICAO with formal compliance and dispute resolution functions-* ICAO must evolve beyond technical standard-setting to include oversight authority. This requires the establishment of a

compliance committee, a registry audit mechanism, and a standing dispute settlement process- akin to the WTO's enforcement model.

These recommendations are not incremental adjustments, but structural realignments. They are designed to transform CORSIA from a placeholder into a legally coherent regime- one capable of delivering not just emissions reductions, but environmental legitimacy and global equity.

X. CONCLUSION

CORSIA was conceived as a pragmatic solution to a difficult regulatory void- a way to integrate international aviation into the global climate regime through market-based coordination. But as this paper has demonstrated, its legal architecture is defined more by avoidance than accountability. Built on voluntary compliance, fungible offsets, and institutional silence, the scheme lacks the basic elements of a credible legal framework: enforceability, transparency, and equity.[50]

Alongside CORSIA, regional regimes such as the EU ETS, ReFuelEU, and the UK's hybrid model have emerged, each advancing competing visions of climate governance. Yet rather than creating a polycentric model of pluralism, their coexistence has yielded jurisdictional confusion, compliance inefficiency, and deepened global disparities. Airlines in the Global South face regulatory obligations without the infrastructure to meet them, while market actors operate without the legal guardrails that ensure environmental value.

What is needed is not better patchwork, but foundational change. The proposed International Framework Agreement on Aviation Emissions offers a pathway toward legal coherence- one that replaces voluntary offsetting with enforceable caps, introduces traceable and non-fungible credits, and embeds differentiated responsibilities as a structural feature, not a footnote. It reflects the principle that global decarbonisation cannot succeed through abstraction or asymmetry, but must be built on institutional clarity and distributive justice.

The future of aviation must be not only carbon-neutral, but legally durable, ethically grounded, and globally just. The altitude gap we must close is not only between emissions and mitigation, but between law and legitimacy. Doing so will require not just institutional reform, but legal imagination- and the courage to write a different flight path forward.

[50] World Bank & ICAO, State and Trends of Carbon Pricing 2023, at 82–83 (2023)

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