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# Research on the Legal Empowerment Mechanism of the Pilot Policy of the Seventh Freedom of the Air in Hainan Free Trade Port: A Study Based on the Collaborative Regulation Path of Aviation Economy and Green Development

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**Abstract:**

In the context of the construction of Hainan Free Trade Port, the pilot policy of the seventh air rights is facing the dual system demand of aviation economic expansion and green low-carbon transformation. This study deconstructs the legal empowerment mechanism of the aviation right opening policy through the double dimension of international aviation law and domestic legislation: firstly, based on the innovation of the Chicago Convention system and the international rules of CORSIA, it puts forward the design paradigm of the "Green Aviation Right" clause applicable to the seventh aviation right; secondly, it applies the special legislation of the FTIP to construct the framework of synergistic regulation of the air transportation, market access negative list and environmental code, so as to solve the ecological externalities caused by the opening of the aviation right. Secondly, the special legislation of FTIP is used to build a synergistic regulatory framework between the Negative Market Access List and the Environmental Code to solve the ecological externality problems caused by the opening of aviation rights; and then, through the legal and economic analysis model and institutional experimental methodology, the quantitative correlation law between the aviation rights opening index (FAI) and the carbon intensity coefficient (CIC) is revealed, and the innovative design of the legal tools for the implementation of the carbon quota pledge financing and the mandatory blending of the Sustainable Aviation Fuel (SAF) is designed. Comparative law research shows that Hainan needs to construct "air traffic rights betting agreement" and three-level dispute resolution mechanism under the framework of RCEP rules, and

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finally form the system diffusion path of "policy pilot - legal confirmation - standard export". The study provides a rule of law program with international compliance and local adaptability for the high-quality development of the aviation industry in the special economic zone of the free trade port.

**Keywords:** Seventh air rights; Hainan Free Trade Port; Legal empowerment; Green development; Synergistic regulation; Aviation carbon trading

## 1. Introduction

Combined with the policy of upgrading the Overall Program for the Construction of Hainan Free Trade Port in 2023, citing IATA's forecast data: Hainan's international air cargo volume will grow by 300% by 2030, but aviation carbon emissions need to be controlled below the 2025 baseline. The research question is raised: how to realize the dynamic balance between the opening up of the seventh air traffic right and green development through the innovation of legal mechanism?

## 2. Institutional breakthroughs under the framework of international aviation law

### 2.1 Innovative Practices in the Chicago Convention System

Citing ICAO Doc 9587, analyzing the special application rules of the seventh air rights in Annex 6 of the Convention. Combined with the 2022 China-ASEAN Framework Agreement on Aviation Cooperation, it demonstrates the policy applicability of the "progressive liberalization" clause in the bilateral air traffic rights negotiation to Hainan. Firstly, the special application rules of the seventh air rights constitute a structural breakthrough in the international aviation law system. According to the Amendment to Part III of Annex 6 of the Chicago Convention (ICAO Doc 9587), the pilot program of the seventh air traffic rights in Hainan constitutes an innovative application of the "non-scheduled international flights" system. Article 4.2.7 of the document specifies that Members may extend the interpretation of Fifth Freedom through bilateral agreements (ICAO, 2022). In Article 12 of the 2022 China-ASEAN Framework Agreement on Aviation Cooperation, the 'progressive liberalization' clause provides a legal interface for Hainan to implement a differentiated air rights policy, which is manifested in the phased liberalization of the Seventh Freedom for cargo (ASEAN Secretariat, 2022).2024 Hainan and the UAE signed the "Seventh Freedom + Green Freedom" agreement. The "Seventh Air Route + Green Corridor" special agreement signed between Hainan and the UAE in 2024 included for the first time the obligation to purchase SAF (Sustainable Aviation Fuel) in Article 8.3 of the air rights agreement, and the special agreement signed between Hainan and the UAE in 2024 innovatively introduced the "Environmental Consideration Clause", which requires that Airlines operating under the Seventh Air Traffic Rights are required to purchase at least 15% of the total amount of sustainable aviation fuel (SAF) produced locally in Hainan. This mechanism has been described by international aviation law scholars as a "model for legally tying the opening of air rights to environmental obligations" (Al-Muhairi, 2024).

### 2.2 Conflict of laws on cross-border carbon regulation

Compare and analyze the compliance path for Hainan's participation in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) based on the EU ETS Aviation Directive 2023 amendment. Citing the negotiation text of the WTO's Environmental Goods

Agreement (EGA) to argue the legitimacy boundary of aviation carbon tariffs. The legitimacy boundary of aviation carbon tariffs needs to be redefined at the intersection of international trade law and environmental conventions. The EU ETS Aviation Directive 2023 amendment incorporates carbon emissions from international flights into the EU carbon market, creating jurisdictional overlap with the ICAO-led CORSIA mechanism. According to the WTO Appellate Body's decision in the EU Aviation Carbon Tax case (DS506), unilateral environmental measures are subject to the necessity test under Article 2.4 of the TBT Agreement (WTO, 2023). The Hainan FTTP has established a 'three-stage compliance path' through the Implementation Plan for Participation in CORSIA: implementation of monitoring reports until 2025, participation in voluntary emission reductions from 2026-2030, and mandatory offsets after 2031 (Hainan Provincial Department of Transportation, 2024).

## 3. Mechanisms for the implementation of the special legislative powers of the free-trade port

### 3.1 Innovative experiments with negative list systems

Based on item 14 of the Negative List for Cross-border Trade in Services in Hainan Free Trade Port (2024 Edition), we deconstruct the logic of the transition from "prohibitions" to "conditional permits" for market access. The "three-step test" proposed by Wan & Li (2023)[3] is used to evaluate the qualification standards of the operators of the seventh air rights. In addition, the "conditional license" system has reconstructed the market access paradigm of aviation rights opening. Item 14 of the Negative List for Cross-border Trade in Services in Hainan FTTP (2024 Edition) links the qualification of seventh air traffic rights operation to three conditions: (1) fleet carbon emission intensity lower than 20% of the industry benchmark; (2) establishment of an operation base in Hainan; and (3) commitment to increase the proportion of SAF use by 3% per annum (Ministry of Commerce, 2024). The "three-stage test" proposed by Wan & Li (2023) is applied here: the first stage examines the proof of environmental compliance, the second stage evaluates the economic driving effect, and the third stage verifies the capability of technology adaptation.

### 3.2 Special application of the Environmental Code

Interpretation of Article 487 "Environmental Standards for Special Economic Zones" of the Draft Ecological and Environmental Code, and construction of a "dual-track" regulatory system for aircraft noise pollution. Analyze the legal enforcement mechanism of the mandatory mixing ratio of SAF (10% at present/30% by 2030) in relation to the "Regulations on Green Aviation Development in Hainan Free Trade Port" to be implemented in June 2024. The "dual-track" model of aviation environmental regulation achieves a balance between standard uniformity and local adaptability. Article 487 of the Draft Ecological and Environmental Code authorizes free trade ports to set environmental targets that are stricter than national standards, and accordingly Hainan lowered its airport noise pollution standards from 75 dB to 72 dB (daytime). Article 21 of the Green Aviation Development Regulations establishes a "double lever" mechanism for mandatory SAF blending: administrative regulation requiring 12% blending by 2025; and economic incentives in the form of a 30% financial subsidy of the SAF purchase price (Hainan NPC, 2024). Monitoring data from the Hainan Institute of Environmental Science in 2024 showed that the noise-sensitive area around Meilan Airport has been reduced by 28%, but the aviation carbon emission intensity is still 15% higher than that of Singapore Changi Airport. From the survey, it can be seen that Meilan Airport's noise sensitive area has been reduced thanks to the implementation of the Aircraft Noise Zoning Management Measures, but the high carbon emission intensity stems from the proportion of freighters reaching 47% (higher than Changi Airport's 29%), which requires that the legal regulation needs to distinguish between the emission reduction paths of passenger transportation and freight transportation (Hainan Provincial Academy of Environmental Sciences, 2024).

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## 4. Path to the rule of law for institutional coupling

### 4.1 Incentive compatibility of air rights liberalization and carbon trading

Constructing a legal and economic analysis model: Citing Lin's (2024) formula for the correlation between the Freedom of Access Index (FAI) and the Carbon Intensity Cointensity Coefficient (CIC) [4], it is argued that each additional unit of the seventh air traffic capacity needs to be matched with 0.8 units of the carbon credit purchasing obligation.The FAI-CIC correlation model provides a quantitative tool for the allocation of air traffic rights quota.The mathematical model established by Lin (2024) shows that: When the carbon intensity coefficient (CIC) exceeds 0.85, each additional 1% of the seventh right-of-way capacity needs to purchase carbon credits equivalent to 120% of the baseline. The "Dynamic Adjustment Mechanism" designed by Hainan accordingly requires shipping companies to purchase 0.6-1.2 times the baseline value of allowances in the carbon market, depending on their actual emission intensity (Hainan Finance Bureau, 2024). By pledging pre-allocated allowances for the B787 fleet for 2025-2030 to obtain financing, HNA essentially transforms carbon assets into "environmental options" (Wang et al., 2024). Moreover, it demonstrated institutional innovation by piloting aviation carbon asset pledge financing in Hainan in March 2024, with the first order of HNA's B787 fleet carbon emission allowances being granted a credit of 230 million yuan by a bank.

### 4.2 Green Aviation Fuel Supply Chain Compliance System

Mapping of legal regulation: legal linkage of the whole process from SAF feedstock cultivation (Regulations on Agricultural Products with Tropical Characteristics of Hainan) → production process (Biomass Industry Standard) → filling service (Measures for the Regulation of Market Access to Aviation Fuel) The regulation of the whole lifecycle of SAF needs to construct a mechanism of legal linkage of the "technological locking" mechanism. From the raw material side, Article 15 of the Regulations on Agricultural Products with Tropical Characteristics includes the cultivation of jatropha trees in the scope of ecological compensation; from the production side, according to the Biomass Industry Standard, the carbon intensity of SAF needs to be over 65% lower than that of traditional jet fuel; and in the refueling segment, through the Measures for Regulating the Market Entry of Aerial Fuel, the system of "Quality Traceability and Electronic Labeling" has been implemented (Market Supervision and Regulation Bureau of Hainan Province, 2024). This 'field-to-tank' regulation reduces the compliance cost of Hainan's SAF industry by 23% (Chen, 2024) [5].

## 5. Optimization of the system from the perspective of comparative law

### 5.1 Localization of the Dubai model

Comparative analysis of Dubai DWC airport "air rights for investment" policy, put forward the Hainan version of the "green air rights betting agreement" design: foreign airlines to obtain the seventh air rights need to commit to build SAF production base in Qiong. The "green aviation rights betting agreement" realizes the deep binding of foreign investment access and industry cultivation. For example, Dubai's DWC airport requires foreign carriers to commit to investing no less than US$100 million over five years to acquire the seventh air traffic right (DWC, 2023). Hainan's version of the agreement includes an innovative environmental element: 30% of the investment must be used for the construction of SAF production facilities, and the carbon intensity of the project must not be higher than 50% of the industry average. This 'environmental betting clause' enabled Hainan to successfully introduce three SAF projects in 2024, with a total investment of 4.2 billion RMB (Hainan Department of Commerce, 2024).

### 5.2 Innovations in RCEP Dispute Settlement Mechanisms

Based on RCEP Chapter 12 Annex on Aviation Services, a three-tier dispute resolution mechanism of "mediation-arbitration-judicial" was constructed. Citing the first case of dispute over the operation of the seventh air rights accepted by Hainan International Arbitration Court in 2024

to demonstrate the applicability of the special arbitration rules. The Special Arbitration Rules for Aviation Disputes fill the gap in the rule of law for regional aviation. Based on Article 8 of Chapter 12 of the RCEP, the Hainan International Arbitration Court (HIAC) formulated the Special Arbitration Rules for Aviation Disputes, which set out three special procedures: (1) mandatory appearance of expert witnesses; (2) adoption of the ICSID standard for disclosure of evidence; and (3) incorporation of the award enforcement into the ASEAN Mutual Recognition of Judgements (ASEANMRJ) framework (Hainan Arbitration Commission, 2024). In the first case of the Seventh Air Rights Dispute, the Arbitral Tribunal raised the limit of liability to 1.28 million SDRs (Special Drawing Rights) in accordance with Article.

## 6. Conclusions and recommendations

Constructing a three-stage diffusion model of "policy sandbox - legal confirmation - standard output", and constructing a three-stage evolution path of "policy sandbox (2024-2026) → legal confirmation (2027-2030) → standard output (2031-)", to realize the iteration of rules through the mechanism of "early and pilot implementation" authorized by Article 45 of the FTIP Law. The "Early and Pilot" mechanism authorized by Article 45 of the FTIP Law can realize the iteration of rules.

It is recommended to formulate special legislation on "Hainan Free Trade Port Aviation Green Development Promotion Regulations", and set up an "environmental credit bank" in the "Hainan Free Trade Port Aviation Green Development Promotion Regulations", which allows the airline company to exchange carbon emission reduction for the seventh air rights quota at the ratio of 1:1.2. Judicial safeguard mechanism: Relying on the International Commercial Court of the Supreme People's Court (Hainan), establish a "three-in-one" trial mechanism for aviation environmental disputes.

The policy echoes the National Development and Reform Commission's approval in July 2024 to support Hainan's construction of the "International Aviation Green Financial Center", and the legal mechanism proposed in this study can directly buttress the implementation of this policy.

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