

Strategies and Recommendations for Guangxi to Leverage the "Blue Ocean" Market of the Low-Altitude Economy in ASEAN

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Abstract: This paper focuses on the development opportunities and challenges for Guangxi within the ASEAN low-altitude economy market. It first delineates Guangxi's locational advantages under national policy support and the objectives of the Guangxi Low-Altitude Economy High-Quality Development Action Plan (2024–2026). While Guangxi has achieved progress in policy synergy and trade, several bottlenecks remain, including insufficient cross-border service network coverage, weak localization of products, a lack of mutual standard recognition, and simplistic international marketing channels. Finally, the paper proposes four strategic countermeasures: constructing a cross-border logistics service system, driving localized product innovation, promoting mutual certification and standards synergy, and building an international marketing ecosystem. These strategies aim to facilitate high-quality industrial development and help Guangxi tap into the emerging ASEAN market.

I. Introduction

In the national strategic layout, the low-altitude economy has become a key development field. The 2024 Government Work Report positioned it as a strategic emerging industry, with documents like the National Airspace Basic Classification Method and the 14th Five-Year Plan for Civil Aviation Development further clarifying its status. As the only province in China connected to ASEAN by both land and sea, Guangxi released the Guangxi Low-Altitude Economy High-Quality Development Action Plan (2024–2026) in September 2024. The province aims to become a "provider of low-altitude scenario solutions and a R&D/manufacturing base for low-altitude equipment for ASEAN," targeting a 50-billion-yuan industry scale within three years.

II. Current Status of Low-Altitude Economy Cooperation between Guangxi and ASEAN

2.1 Achievements in Cooperation

Guangxi has leveraged its unique geographic location to gain a "first-mover" advantage in the ASEAN market. In 2024, Guangxi co-hosted three policy seminars and pushed for framework consultations on the China-ASEAN Cross-border Low-altitude Flight Management Memorandum. Cities like Nanning and Liuzhou established "1+1" cooperation pilot mechanisms with Bangkok and Kuala Lumpur, driving cross-border investment in this sector up by 62% to 1.87 billion yuan.

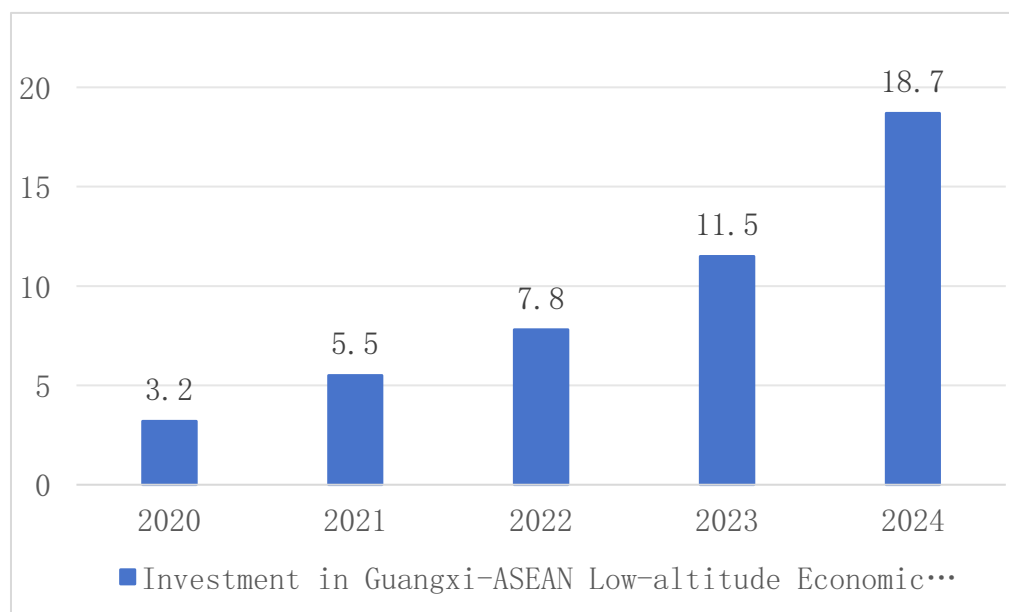


Figure 2-1: Investment in Guangxi-ASEAN Low-Altitude Economy Cooperation Projects Unit: 100 million yuan (Data source: Public records from Dove Group, estimates from Nanning Investment Promotion Bureau, etc.)

In trade and technical applications, Guangxi's exports of low-altitude equipment to ASEAN have seen explosive growth. In 2024, the export of drones and components reached \$230 million (+89% YoY). Specifically, plant protection drones occupied 35% of the market share in Vietnam and Thailand. Furthermore, the China-Malaysia Qinzhou Industrial Park opened three cross-border drone routes, enabling 72-hour delivery for medical cold chains to Singapore and Malaysia, reducing costs by 28%.

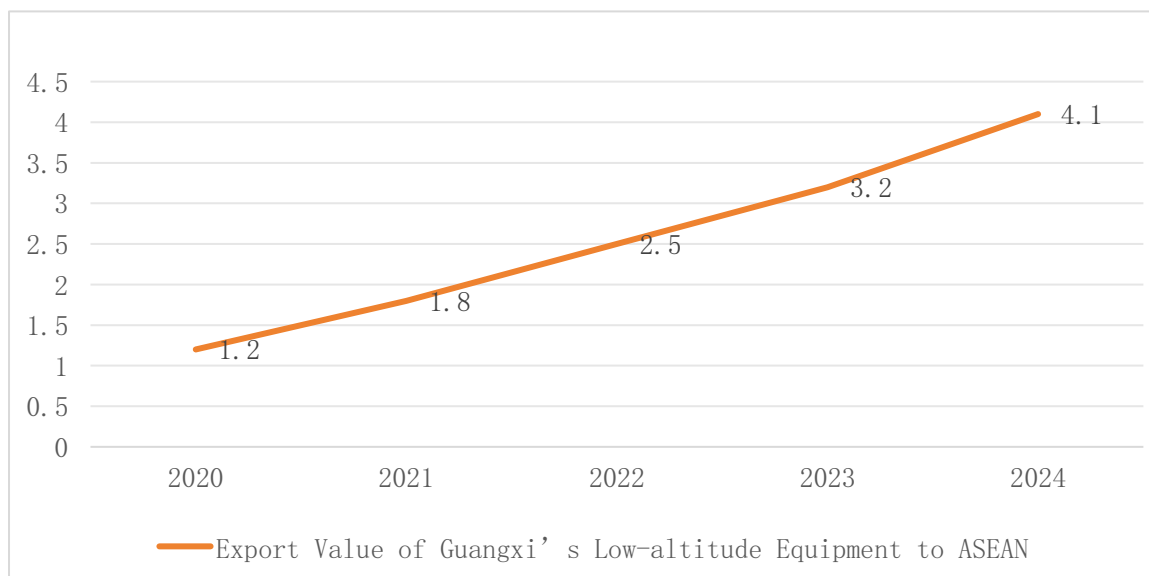


Figure 2-2: Export Value of Guangxi's Low-Altitude Equipment to ASEAN Unit: 100 million US dollars
(Data source: CAEXPO official statistics, business data estimates from participating enterprises)

2.2 Existing Problems

Despite significant achievements, several bottlenecks remain:

Insufficient Cross-border Service Network Coverage: Only three cross-border low-altitude logistics routes are currently operational, accounting for just 8% of total China-ASEAN air cargo routes. These are concentrated in developed economies like Singapore and Thailand, leaving potential markets like Laos uncovered. Logistics time averages 72 hours (24 hours longer than the SE Asian average), and costs are 35% higher.

Weak Product Localization: ASEAN countries have diverse climates and environments, yet only 20% of Guangxi's existing equipment has undergone targeted adaptation. In 2024, the return rate for drones exported to ASEAN due to environmental incompatibility reached 15%, 8 percentage points higher than the national average.

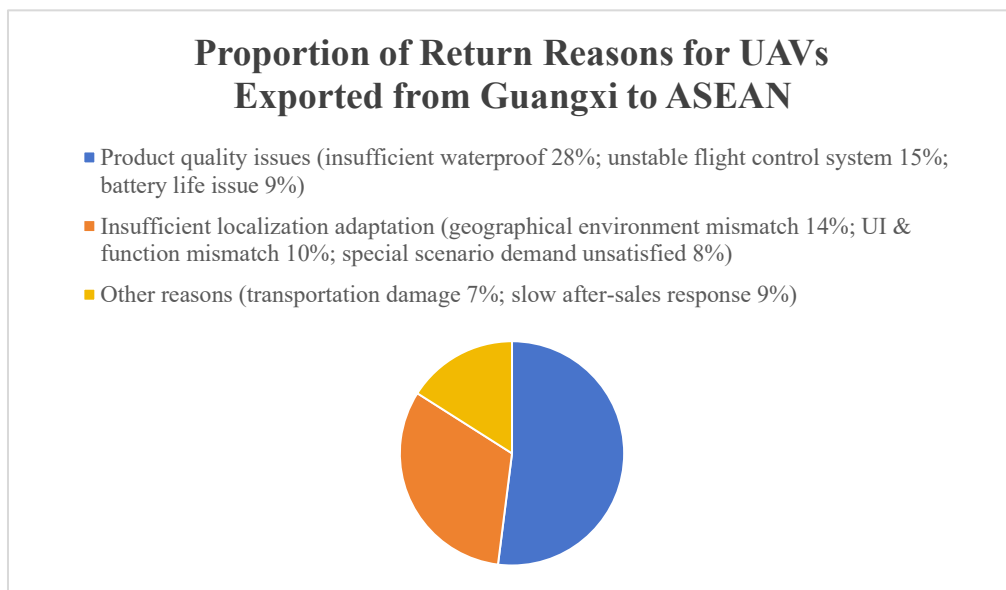


Figure 2-3 Proportion of Return Reasons for UAVs Exported from Guangxi to ASEAN

Absence of Mutual Standard Recognition: Standards for airworthiness and airspace management vary across the 10 ASEAN nations. Guangxi enterprises face repetitive certifications, with average costs reaching 2 million yuan (accounting for 30-40% of R&D investment) and cycles lasting 6-8 months.

Table 2-1: Comparison of Certification Standards for Low-altitude Aircraft in Major ASEAN Countries

Country	Certification Body	Avg. Certification Cost	Avg. Certification Cycle
Singapore	CAAS	~2-3 million RMB	6-8 months
Malaysia	CAAM	~1.8-2.5 million RMB	5-7 months
Thailand	CAAT	~1.5-2.2 million RMB	5-6 months
Indonesia	DGCA	~2.2-3.2 million RMB	7-9 months

Single International Marketing Channels: Enterprises rely heavily on traditional exhibitions and agents. Only 12% have multi-language websites, and social media promotion is lacking. Cross-border e-commerce accounts for less than 5% of exports, far below the national average of 30%.

III. Strategies and Recommendations

To implement the *Guangxi Low-Altitude Economy High-Quality Development Action Plan (2024–2026)*, the following recommendations are proposed:

3.1 Constructing a Multi-level Cross-border Logistics Service System

Hub Expansion and Upgrading: Utilizing Nanning Wuxu International Airport as the core hub, implement a "core-radiation + node-interconnection" strategy. By 2025, prioritize opening routes to inland countries like Laos (Vientiane) and Cambodia (Phnom Penh). By 2026, achieve a 60% route coverage rate for major ASEAN cities. Establish strategic partnerships between ports in Nanning/Beihai and hubs like Changi Airport (Singapore) and Port Klang (Malaysia). Leverage the China-ASEAN Information Harbor to share real-time logistics data and compress delivery times from 72 hours to under 48 hours.

Facility and Technology Integration: Build intelligent low-altitude logistics warehouses in parks like the China-Malaysia Qinzhou Industrial Park. Equip them with automated sorting systems (efficiency >5,000 pieces/hour) and multi-temperature zones (-18°C to 25°C). Add 10+ drone takeoff/landing points at border ports (Vietnam, Myanmar) and introduce AI path planning and 5G remote monitoring to enhance operational intelligence.

3.2 Driving Localized Product Innovation Based on Demand

Specialized R&D Funds and Platforms: Establish an "ASEAN Market Low-Altitude Equipment Adaptation R&D Fund" with an annual investment of at least 50 million yuan. Focus on developing high-temperature batteries (maintaining 85% capacity at 50°C) and IP67-rated waterproof fuselages for tropical storm environments. Partner with the National University of Singapore and Chulalongkorn University to build "ASEAN Low-Altitude Equipment Environmental Testing Bases" in cities like Ho Chi Minh and Bangkok to shorten R&D-to-market cycles from 18 to 12 months.

Deepening Customized Production: Establish a "Survey-Design-Delivery-Feedback" model. Examples include anti-salt spray drones for Indonesian fisheries and heavy-payload (50kg+), long-endurance (90min+) plant protection drones for Vietnamese rice fields. In the maritime sector, collaborate with Malaysian authorities to develop drones equipped with wave-resistant landing gear. Establish 5-8 service outlets in major ASEAN countries to ensure 24-hour maintenance responses.

3.3 Promoting Regional Standard Recognition and Certification Synergy

Multi-lateral Policy Dialogue: Host the "China-ASEAN Low-Altitude Economy Standards Alignment Forum" semi-annually to create a "Standards Alignment Roadmap."

Joint Certification Service Platform: Attract international bodies like the FAA or EASA to set up a "China-ASEAN Low-Altitude Aircraft Joint Certification Center" in Nanning. This one-stop service aims to reduce costs

from 3 million to 2.1 million yuan and shorten cycles to 4-6 months. Support leading enterprises like DJI (Nanning) to promote their technical standards as regional China-ASEAN standards.

Information Sharing System: Build a "China-ASEAN Low-Altitude Economy Standards Information Database" and provide expert guidance to increase the certification pass rate from 60% to over 80%.

3.4 Building a Comprehensive International Marketing Ecosystem

Digital Marketing Matrix: Support multi-language websites (English, Malay, Thai) and optimize SEO for Google and Yahoo. Aim for a 50% entry rate into platforms like Shopee and Lazada by 2025. Leverage TikTok and Facebook for precision marketing, such as using Indonesian influencers for drone tutorials.

Brand Value Enhancement: Host the "China-ASEAN Low-Altitude Economy Brand Expo" and cultivate 3-5 influential local brands like "Guifei" and "Nanzhu." Partner with media like *Lianhe Zaobao* and GMM TV to tell the story of "Guangxi Smart Manufacturing." Transition to a "Technology + Service" export model, providing one-stop solutions including training and maintenance to increase customer stickiness.