



ICAO

International Civil Aviation Organization

The Tenth Meeting of the Aerodromes Operations and
Planning Sub-Group (AOP/SG/10)

Bangkok, Thailand, 10 to 14 August 2026

**Agenda Item 4: Provision of AOP in the Asia/Pacific Region
– Certification and Operations of Aerodromes**

**VELANA INTERNATIONAL AIRPORT WATER AERODROME
– ROADMAP FOR CERTIFICATION**

(Presented by MALDIVES)

SUMMARY

This paper presents Maldives's progresses towards the certification of the Velana International Airport (VIA) Water Aerodrome through a structured roadmap developed under the Maldives Civil Aviation Regulations (MCAR 138A – Water Aerodrome Rules and MCAR 138B – Water Aerodrome Standards), aligned with ICAO Asia Pacific Regional Guidance on Requirements for the Design and Operations of Water Aerodromes for Seaplane Operations. As the world's busiest commercial water aerodrome, VIA has experienced significant growth in seaplane operations and increasing operational complexity, reinforcing the need for a comprehensive certification framework to ensure the continued safe and efficient conduct of operations.

This paper outlines the background to the initiative, the evolution of commercial seaplane operations, the development of the regulatory framework, the certification roadmap, implementation progress, key certification considerations and other operational challenges.

1. INTRODUCTION

1.1 The Republic of Maldives is an archipelagic State comprising approximately 1,190 islands dispersed over an area of nearly 90,000 km². Owing to the country's geography, aviation plays a critical role in providing rapid connectivity between the capital, international gateways, domestic airports and tourism destinations.

1.2 Commercial seaplane operations form an integral component of the national transport network, providing direct access between Velana International Airport (VIA) and resort islands throughout the country. Over the past three decades, the Maldives has developed one of the world's largest and most sophisticated commercial seaplane systems.

1.3 The VIA Water Aerodrome currently supports:

- a) approximately 500 seaplane movements daily during normal operations; and 900 movements daily during peak season
- b) a fleet of more than 100 seaplanes operated by Four commercial operators; Trans Maldivian Airways (TMA), Island Aviation Service Ltd, Manta Air and Villa Air and
- c) 100 docking facilities for parking, embarkation & disembarkation purpose

1.4 The continued expansion of the tourism industry has resulted in sustained growth in aircraft movements, passenger throughput and supporting infrastructure. In response, the water aerodrome has undergone progressive development, including additional water runway configurations, expanded taxi routes, additional docking facilities and the commissioning of the dedicated Seaplane Terminal (Noovilu Seaplane Terminal).

1.5 Operational procedures have also evolved, with runway orientations and flight paths refined over time to optimise capacity, improve operational efficiency, accommodate airport expansion, respond to surrounding urban development and minimise interaction with the adjacent land runway.

1.6 Collectively, these developments have transformed VIA into a highly integrated operating environment where aircraft, marine traffic, air traffic services and airport operations must be managed in a coordinated manner while maintaining an acceptable level of safety.

2. DISCUSSION

Evolution of Water Aerodrome Operations

2.1 Commercial seaplane operations in the Maldives have evolved from a relatively small transport service into one of the largest and most complex commercial floatplane networks worldwide. The increasing demand generated by tourism development has resulted in:

- a) expansion of the commercial seaplane fleet;
- b) increased aircraft movements;
- c) higher passenger volumes;
- d) construction of additional resort destinations;
- e) expansion of water aerodrome infrastructure; and
- f) increasing interaction between aviation and marine activities.

2.2 Unlike conventional aerodromes, the VIA Water Aerodrome operates within a shared maritime environment where aircraft movements must coexist with harbour activities, commercial vessels, Coast Guard operations and other marine users. At the same time, seaplane operations are integrated within the controlled airspace of Velana International Airport, where they operate alongside scheduled international and domestic aircraft operations.

2.3 The scale and complexity of these operations highlighted the need for a structured certification framework that provides assurance that infrastructure, operational procedures, emergency arrangements and safety management systems continue to meet nationally prescribed standards and internationally recognised best practices.

Benefits of Certification

2.4 Certification will provide numerous operational and regulatory benefits, including:

- a) enhancement of operational safety through compliance with prescribed standards;
- b) standardisation of operational procedures;
- c) strengthened regulatory oversight and surveillance;
- d) improved emergency preparedness and response capability;
- e) systematic safety management and continuous safety assurance;
- f) greater confidence for operators, passengers and international stakeholders; and
- g) support for the sustainable growth of commercial seaplane operations.

Development of the National Regulatory Framework

2.5 Although ICAO Annexes establish comprehensive standards for conventional aerodromes, dedicated international guidance specifically addressing water aerodromes has been limited. Recognising the increasing importance of commercial seaplane operations, ICAO established the Asia/Pacific Water Aerodrome Working Group (later the Water Aerodrome Study Group) under the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) to develop a harmonised regional guidance.

2.6 The Working Group comprised technical experts from Indonesia, the Maldives, New Zealand, Sri Lanka and the United States, bringing together operational and regulatory experience from States with established seaplane operations.

2.7 The collaborative work of the Working Group culminated in the development of regional guidance that subsequently assisted in the establishment of the Maldives Civil Aviation Regulations governing water aerodromes:

- a) MCAR 138A – Water Aerodrome Rules, prescribing the regulatory requirements applicable to the development, operation and maintenance of certified water aerodromes;
- b) MCAR 138B – Water Aerodrome Standards, prescribing technical standards relating to physical characteristics, obstacle limitation surfaces, visual aids, operational procedures and safety requirements; and
- c) MCAR 138C – Seaplane Platform Requirements, establishing minimum standards for site selection, platform construction, resort facilities and rescue equipment associated with licensed seaplane platforms.

2.8 Together, these regulations establish a comprehensive certification framework encompassing infrastructure, operational procedures, safety management, emergency planning, competency requirements and continued regulatory oversight.

Roadmap to Certification

2.9 The certification of the VIA Water Aerodrome is being implemented through a structured and risk-based certification programme jointly undertaken by the Maldives Civil Aviation Authority (MCAA) and Maldives Airports Company Limited (MACL).

2.10 The programme consists of seven sequential phases:

- 1) Formal application and establishment of the certification programme;
- 2) Submission of compliance documentation and supporting evidence;
- 3) Regulatory review of submitted documentation;
- 4) Technical assessment of infrastructure, aeronautical surveys, obstacle environment and operational procedures;
- 5) Operational assessment, including on-site inspections and certification audit;
- 6) Closure of findings through implementation of corrective action plans; and
- 7) Final recommendation and issuance of the Water Aerodrome Certificate.

Current Status

2.11 Progress to date includes:

Certification Activity	Status
Formal application	Completed
Compliance documentation	Completed
Water Aerodrome Manual	Completed
Aerodrome Emergency Plan	Completed
Bathymetric Survey	Completed
Aerodrome Data Survey	Completed
Documentation Review	Completed
Technical Assessment	Completed
Certification Audit	Planned – September 2026
CAP submission & Closure of Findings	September – October 2026
Issuance of Certificate	Target – October 2026

Key Certification Considerations

2.12 Certification extends beyond the assessment of physical infrastructure and encompasses the verification of operational, technical and organisational arrangements necessary to safely manage the water aerodrome.

2.13 Key areas assessed include:

- a) protection of operational safety areas;
- b) Obstacle Limitation Surfaces (OLS);
- c) provision of clearways and water operating areas;
- d) foreign object and floating debris management;
- e) emergency planning;
- f) rescue and firefighting capability;
- g) marine traffic management;
- h) competency and training;
- i) safety management systems; and
- j) continued operational oversight.

2.14 Particular attention has been given to the protection of operational areas extending into navigable waters, requiring close coordination with maritime authorities, Coast Guard operations, liveaboard safari vessels and other marine stakeholders to ensure that protected areas remain available during aircraft operations.

Other Operational Challenges

Optimising Seaplane Operations within a Constrained Operating Environment

2.15 Since the VIA Water Aerodrome accommodates a high density of aircraft movements within a geographically constrained operating area, efficient management of aircraft arrivals, departures, taxiing and docking is essential to maintaining operational capacity while ensuring safety.

2.16 To maximise efficiency, four operational water runway configurations have been designed and established enabling runway selection to be optimized according to prevailing wind conditions, traffic demand and operational requirements.

2.17 Given the close proximity of the water movement area to the adjacent land runway, aircraft movements require continuous coordination between flight crews and Air Traffic Control to ensure safe separation between water and land operations.

Airspace and Air Traffic Management

2.18 One of the most complex aspects of VIA operations is the integration of seaplane operations with IFR within the controlled airspace of MLE.

2.19 To safely accommodate the volume of traffic, several operational enhancements have been implemented, including:

- a) dedicated Standard Instrument Departures (SIDs) and Standard Arrival Routes (STARs);
- b) mandatory transponder carriage to improve surveillance capability;
- c) airspace sectorisation to address frequency congestion
- d) dedicated operational waypoints separating water and land runway operations; and
- e) enhanced Air Traffic Control procedures with dedicated control positions to reduce controller workload and safely manage the heavy VFR traffic.

2.20 These measures have significantly improved airspace capacity, enhanced situational awareness and enabled the continued safe integration of water and land aircraft operations.

Conclusion

2.21 The certification of the Velana International Airport Water Aerodrome represents a significant milestone in the evolution of aviation safety oversight in the Maldives. It establishes a foundation for safe, efficient, and sustainable seaplane operations, strengthens international confidence, and provides a model for future water aerodrome certification initiatives.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information presented in this paper;
- b) recognise the progress made by the Maldives towards the certification of the Velana International Airport Water Aerodrome; and
- c) encourage continued collaboration and exchange of experiences among States developing regulatory frameworks and certification programmes for water aerodromes.

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