SOUTH ASIA HYDROMET FORUM (SAHF)

EVALUATION OF THE AERONAUTICAL METEOROLOGICAL SERVICES AND RECOMMENDATIONS

MARCH 2026

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List of Acronyms

AMET	Aeronautical Meteorological
AMSP	Aeronautical Meteorological Service Provider
ANS	Air Navigation Services (including AMET services)
ANSP	Air Navigation Services Provider (including AMSP)
APANPIRG	Asia/Pacific Planning and Implementation Regional Group (of ICAO)
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
CAA	Civil Aviation Authority/Administration
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
INFCOM	Commission for Observation, Infrastructure and Information Systems (of WMO)
ISO	International Organization for Standardization
MA	Meteorological Authority (as defined in ICAO Annex 3, para. 2.1.4)
METAR	METeorologicAl Report (format for reporting weather information, primarily used in aviation by pilots and meteorologists)
NMHS	National Meteorological or Hydrometeorological Service
QMS	Quality Management System
RA	Regional Association (WMO)
RIMES	Regional Integrated Multi-Hazard Early Warning System for Africa and Asia
RTC	Regional Training Centre (WMO)
SAHF	South Asia Hydromet Forum
SIGMET	Significant Meteorological Information
SPECI	Special Aviation Weather Report
SWIM	System-Wide Information Management
TAF	Terminal Aerodrome Forecasts
WMO	World Meteorological Organization

Introduction

Civil aviation safety, efficiency and regularity is highly dependent on weather conditions through all phases of a flight, thus the sustainable provision of requisite meteorological information and services is a critical element of a national aviation enterprise. The improvement of the Aeronautical METeorological (AMET) services is highly desirable since it brings benefits for both the providers and the users of the services through improved safety and efficiency of the aviation operations, on the one hand, and through a stable business area for the AMET service providers, on the other. It also brings a significant societal impact as the end user of the aviation business sector is the society as a whole.

The aim of this study is to assess AMET services currently provided by the National Meteorological or Hydrometeorological Services (NMHSs) in Member Countries of the South Asia Hydromet Forum (SAHF)[1], identify common challenges and provide recommendations for strengthening of AMET services at the regional level.

The focus of the assessment is on the ability of the national AMET providers to fulfil the international requirements for the delivery of the services regulated by the International Civil Aviation Organization (ICAO) and the World Meteorological Organization (WMO). In all SAHF Member Countries, the AMET provider by default is the NMHS, therefore, the assessment has been conducted through the gathering of information on the NMHSs' institutional and technical capacity for the generation and delivery of aviation-specific information and services, taking into consideration the respective national civil aviation landscape. One of the main aspects of the study is related to the business model of the AMET service, including the implementation of the ICAO policy and guidance on the cost-recovery for the provision of such services through the air navigation service charges. It is well known that, due to various reasons, not all ICAO Contracting States have implemented a cost-recovery mechanism for the AMET service, which poses challenges for their sustainable delivery at the required quality level. Through this study, we assess the current cost-recovery situation in the SAHF Member Countries and respective impacts on the ability of the NMHSs to comply with applicable international requirements and meet the aviation sector's current and future demands.

Core Concept

Cost-recovery is a concept adopted by ICAO from its inception in the first half of the 20th century. It is based on the principle that the end-user should pay for the air navigation services provided by the ICAO Contracting States to ensure the safety and efficiency of international air navigation. The ICAO Convention specifies the obligation of the States to provide such standardized services while the ICAO Global and Regional Air Navigation Plans contain specific requirements for services and facilities to be made available by each State. In most cases, the cost-recovery is realized in practice through a system of air navigation service charges applied by each State;

[1] SAHF Member Countries: Afghanistan, Bangladesh, Bhutan, India, Nepal, Maldives, Myanmar, Pakistan and Sri Lanka. SAHF was formed in 2018 to serve as a platform for cooperation in hydrometeorology at sub-regional level. Its membership presents a subset of WMO's Regional Association II (Asia) (RA II).

these charges should be set in a fair and transparent manner in consultation with the users (airline operators), following the ICAO policies and guidance (e.g., ICAO Doc 9082: *ICAO's Policies on Charges for Airports and Air Navigation Services*, and ICAO Doc 9161: *Manual on Air Navigation Services Economics*). It should be well understood that cost-recovery is a non-profit mechanism allowing countries to recover the actual cost for the provision of services and facilities to the end-users. The AMET services are a part of the Air Navigation Services (ANS), thus their cost could be recovered through the charging system; however, in many countries the process of establishing, collecting and redistributing the AMET service charges is not fully coherent and transparent. It is in the interest of the NMHSs as the main national AMET service providers, to improve their cost-recovery practices; the WMO Doc No.904, *Guide to Aeronautical Meteorological Services Cost Recovery: Principles and Guidance*, provides essential guidance in this regard.

Scope and structure of the study

The study includes the following elements of AMET services for each SAHF Member Country:

a) Institutional arrangements – designation of AMET Authority and AMET provider(s);
b) Scope and volume of the aeronautical meteorological services – regulated (as per the ICAO Regional Air Navigation Plan for Asia and Pacific), and additional (e.g., general aviation, domestic flights, etc.);
c) Capacity for service delivery – technological and human resources aspects;
d) Compliance with ICAO and WMO requirements for Quality Management System (QMS) and competency of AMET personnel;
e) Financing – utilization of government budget, cost-recovery, commercial activities.

In assessing national capacities for AMET services, we distinguish between two demand areas: the ICAO requirements, specified in the Annex 3 to the ICAO Convention, covering international air navigation, i.e., regulated services for international flights to/from the country; and additional national requirements for domestic civil aviation operations, if any.

Methodology

The assessment was conducted through three main complementing methods: a desk-top review of existing previous assessments/studies, an on-line questionnaire (see Annex II for the questionnaire and III for the responses per country), and on-line interviews with AMET experts selected as national focal points.

The online questionnaire was shared with the operational units providing AMET services in each of the nine SAHF Member Countries. With the help of the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES), serving as the secretariat of SAHF, ten responses were received covering all nine SAHF Member Countries, including input from two different respondents from Afghanistan. The overall quality and relevance of the information collected is satisfactory and serves to deriving specific recommendations at regional and national level for the enhancement of the AMET services. In addition, the responders to the questionnaire participated in the follow-up online interviews which allowed for collecting more details and clarifications and

contributed to the overall consistency of the baseline information collected. Such interviews were conducted with all SAHF Member Countries except India.

The demand for AMET services in each SAHF Member Country is based on the state of the national aviation sector in terms of current and projected volumes of international and national operations for passenger and freight flights. There are substantial differences in this regard between the nine countries participating in the study, e.g., number of international and domestic airports, number of operating airlines, number of passengers (international/domestic) per calendar year, volume of cargo operations, etc.. The knowledge of such basic statistics is important to assess the potential for cost-recovery, which is based on the volume of the overall collection of air navigation service charges by the country. However, the collection of exact financial statistics for each country is outside the scope of this study and should be considered for countries interested in going into more depth. The goal here is to understand and assess both enabling and impeding factors for effective AMET service provision, and to highlight elements which are typical for the region and could be addressed through regional capacity development actions.

Findings and recommendations

The following sections present key findings and recommendations across the following aspects of AMET service provision: institutional frameworks (1), funding and cost-recovery (2), organizational matters (3), technical matters (4), and service delivery (5).

1) Institutional frameworks

A fundamental ICAO requirement in its Annex 3 to the Chicago Convention is that each country shall designate an entity as a Meteorological Authority "to provide or to arrange for the provision of meteorological service for international air navigation on its behalf" and an entity (or entities) as Meteorological Service Provider "to provide meteorological service for international air navigation on behalf of the Contracting State."[2]. The Meteorological Authority (MA) is the organization which carries responsibility for the provision of the required AMET services, but not necessarily to be the actual provider of the service. Thus, for each country we consider two functions and their assignment by the government to concrete organizations – the MA, which carries regulatory function, and the AMET service provider (AMSP); the case may be that the two functions are assigned to one organization (usually to two separate departments of the same organization), or to two separate organizations.

Finding 1.1: In six of the SAHF Member Countries (India, Maldives, Myanmar, Nepal, Pakistan, Sri Lanka) the designated MA is the NMHS, while in the remaining three countries it is the Civil Aviation Authority (CAA) (Bangladesh, Bhutan) or another organization (Afghanistan, Ministry of Transport). In almost all SAHF Member Countries the NMHS is the exclusive AMSP, with the exception of India, where some services are provided by the military.

[2] ICAO Annex 3, Chapter 1. Definitions, para. 2.1.4 and 2.1.5.

Recommendation 1.1: While ICAO Annex 3 allows for the combination of MA and AMSP functions in one organization, such situation should be carefully considered from the perspective of quality management and safety oversight, due to potential conflict of interest. If the NMHS is the designated MA, the Director General (DG) (also Permanent Representative (PR) of the country with WMO) is loaded with regulatory function and respective accountability. It is therefore recommended to consider whether separating the function of MA from the NMHS **is** appropriate and the feasibility **of** assigning it to the CAA (or similar) with respective amendments to the national legal framework. Such an arrangement will allow the NMHS to focus on AMET service delivery, which is its adequate function in the national aviation enterprise.

Finding 1.2: Most of the SAHF Member Countries have relatively satisfactory basic legal framework defining roles and responsibilities for the provision of AMET services. In four of the countries (Afghanistan, Bhutan, Maldives, Nepal) these are defined at the top level in either the civil aviation act/law or the respective meteorological act/law (or both). In the other SAHF Member Countries, the services are provided on the basis of agreements between the NMHS and related civil aviation authorities. Governing laws for meteorology, to include also AMET services, are under development in at least two countries (Pakistan, Sri Lanka).

Recommendation 1.2: The availability of a clear definition of roles and responsibility for the provision of AMET services at national level is a key factor for sustainable service delivery. The best practice in this regard is to use national laws such as the Civil Aviation Act, the Meteorological Act, or similar as the main reference point for those roles and responsibilities. If this is not the case, an appropriate agreement should exist between the CAA and the NMHS defining in detail the scope of services and the means for their provision. Since the existence of such basic arrangements is subject to ICAO safety audits, the AMET providers, i.e., the NMHS, should maintain a record of those agreements and ensure their periodic updates (it is desirable to conduct annual reviews and consider any changes based on the dynamics of the aviation sector in the country).

2) Funding and Cost-recovery

Finding 2.1: All but one of the SAHF Member Countries informed that the financing of the AMET services provided by the NMHS comes from the regular budget provided by the government. India is the only country where the financing is a mixture of government budget and cost-recovery, but there was no clarity regarding how the cost-recovery has been applied. There was a general agreement that the current form of financing through government funding was a limiting factor for the quantity and quality of the services being delivered, and that cost-recovery should be considered to enable the improvement needed to meet the growing aviation sector demands for AMET services. A general problem was the lack of sufficient knowledge of the ICAO policies and guidance on the application of air navigation services charges, including those for AMET services.

Recommendation 2.1: Implementation of cost-recovery for AMET services is a lengthy process engaging all relevant aviation stakeholders at national levels: ANS providers (including Air Traffic Control (ATC)), airport authorities and operators, airline organizations (such as the International Air Transport Association (IATA)), relevant ministries (e.g., the ministry responsible for the aviation transport, the ministry to which the NMHS reports, ministry of finance, etc.). The best practice is to establish a working group at the national level to prepare a proposal clearing all the details and disputes between the stakeholders. The multidisciplinary nature of such work usually requires support from competent international consultants with knowledge of the relevant ICAO policies, guidance, and good applicable national practices. ICAO should be approached (e.g.,

through the respective regional offices) to identify suitable international experts to assist countries in establishing cost-recovering arrangements with the support of WMO; the approach could by piloted in one or several SAHF Member Countries and could include having recourse to consultancy and/or South-South and North-South collaboration.

Finding 2.2: There is currently no exact knowledge of the actual cost of the AMET services provided by the NMHSs in South Asia. Also, there is a general lack of knowledge of what costs are eligible for cost-recovery through air navigation service charges (e.g., the cost for services exclusively for aviation users, and the percentage of the core costs for general weather monitoring and forecasting). The current staffing levels of the AMET units in the NMHS, which are hardly sufficient to cover the operational duties, do not allow them to dedicate time to study all applicable ICAO and WMO policies and guidance to conduct the needed cost estimates.

Recommendation 2.2: A fair and transparent estimate of the actual costs incurred by the AMSPs (i.e., NMHSs in most SAHF Members Countries) should be assisted by appropriate consultancy by expert(s) familiar with ICAO and WMO air navigation service charges policies and guidance. Such consultancy could be provided on a country-by-country basis and by developing focused guidelines for use by SAHF Member Countries taking the path towards cost-recovery. Regional and national trainings for SAHF Member Countries on the methodology of cost-recovery should also be considered (assisted by ICAO and potentially WMO).

Finding 2.3: Lack of adequate cost-recovery is a problem that goes beyond SAHF Member Countries in WMO Region II and it is not unique for the AMET services, but a more general problem for the air navigation services provided by the SAHF Member Countries. The IATA Annual Review 2024 states that a common problem for the whole Asia/Pacific region is that charges are often increased by ANS providers and implemented unilaterally, without consultation. “Also, ANSPs typically do not adhere to ICAO Document 9082 and its recommendations concerning charges. IATA advocates for greater transparency, consultations, and the creation of economic regulations where absent. In India and Pakistan, navigating ANSP billing poses unique challenges”[3].

Recommendation 2.3: It is a great opportunity for the SAHF Member Countries to take the lead in addressing the ANS charging issues by making the AMET services cost-recovery an example of good practice. NMHSs can hold consultations with all relevant users, in particular with the main airlines operating to/from the international airports of the SAHF Member Country. Additionally, it should be clarified, in coordination with relevant government actors and with the support of ICAO, whether the charges collected by the CAAs from the airlines already include a certain percentage for the AMET services. This percentage might be "hidden" within the overall air navigation services and not allocated back to the AMET Service Providers (AMSPs), i.e. the NMHSs in most SAHF Member Countries.

Finding 2.4: There is a general understanding that the introduction of cost-recovery could support continuous improvements in AMET service delivery. Some capital investments in AMET-related equipment, specialized training activities, etc., could be included in the cost-recovery. It should be clearly understood that cost-recovery is a non-profit mechanism, and the funds received

[3] https://www.iata.org/contentassets/c81222d96c9a4e0bb4ff6ced0126f0bb/iata-annual-review-2024.pdf

through cost-recovery for ICAO-regulated services are to be used entirely for covering actual eligible expenditure. However, some AMET providers may enter into contractual agreements with aviation users for additional services outside of the scope of the ICAO Annex 3. It should be clarified in coordination with the MA and/or the CAA or ANSP whether these such arrangements are part or not of the cost-recovery system. Such services may be provided on a commercial or other basis, in accordance with relevant national regulations.

Recommendation 2.4: SAHF AMET providers should be assisted to prepare a five-year plan for their AMET services based on current and forecast aviation operations, in coordination with relevant national aviation stakeholders (airlines, airport operators, ATC), to assess the possibility for expanding their services and generate revenue through all possible means (increased government budget, cost-recovery, commercial).

3) Organizational matters

Finding 3.1: Quality management. Implementation of QMS for the provision of AMET services is a standard requirement by ICAO (Annex 3 Para. 2.2.2) with guidance provided by WMO (WMO-No. 1100, especially Annex 1). On a global scale, more than 80% of the national AMET providers have achieved compliance[4] with this requirement and obtained ISO 9000 certification. In the SAHF Member Countries the level of compliance is lower than the global average: five countries reported full implementation of QMS (Afghanistan, Bangladesh, India, Maldives and Pakistan), while the other countries are at different stages of preparation for implementation.

Recommendation 3.1: Implementation (and maintenance) of QMS for AMET services should become a high priority for the NMHSs; lack of QMS (non-compliance with international standards of ICAO) carries reputational risk and is an organizational weakness in a possibly competitive environment. DGs should seek regional/international assistance to enable QMS implementation, e.g., twinning and coaching by AMET providers in other countries with advanced knowledge of QMS. An appropriate format for assistance could be peer exchange with the SAHF Member Countries where QMS for AMET services has been successfully implemented. The matter should also be raised at national level with the CAAs to advocate for targeted funding to resolve ICAO-related air navigation deficiency.

Finding 3.2: Most of the SAHF Member Countries experience difficulties with human resources engaged in the provision of AMET services. In some countries, the lack of sufficiently qualified and competent personnel is the most severe barrier to the quality and sustainability of the current and future operations of the AMET providers.

Recommendation 3.2: DGs should analyze the current and future needs for specialized AMET personnel in relation to Recommendation 2.4 above. In case of severe shortages, preventing the provision of basic requisite services (e.g., the current situation in Bhutan), interim measures, such as hiring temporary staff from other countries including on the basis of bilateral agreements between NMHSs, might be considered.

[4] See Outcomes of the 2016-2017 Global Survey on Aeronautical Meteorological Service Provision

Finding 3.3: Almost all SAHF Member Countries expressed an urgent need for training of AMET personnel, in particular AMET forecasters, both for foundational and refresher trainings. There is a lack of opportunities for participation in international training activities mostly for financial reasons, but there is limited number of international training events on aviation meteorology in the region. The general feeling is that, due to that reason, the qualification and competence of AMET staff in SAHF Member Countries is lagging contemporary levels.

Recommendation 3.3a: The training needs of SAHF Member Countries could best be addressed through regional efforts by creating opportunities for short- and long-term training modalities. Such opportunities should be discussed with WMO regional offices and relevant RA II working groups and expert teams. The WMO Regional Training Centres (RTCs) should also be consulted, and the support of ICAO regional offices should be sought. The funding of training activities should be discussed in the relevant regional frameworks, including SAHF. Opportunities for distant learning provided through the WMO Education and Training Programme (ETR) should be considered as a cost-effective approach.

Recommendation 3.3b: In relation to cost-recovery discussions, the cost of specialized AMET training is an eligible cost that could be part of the cost-recovery bill. Where cost-recovery is discussed with other aviation stakeholders, this argument could be used by AMET negotiators to stress the benefits of training to ensure qualified and competent personnel.

Finding 3.4: AMET experts from almost all SAHF Member Countries lack travel budget to attend relevant ICAO meetings (e.g., the regular meetings of the MET group(s) of the ICAO Asia/Pacific Planning and Implementation Regional Group (APANPIRG), held annually in Bangkok). Such disconnect from the ICAO developments prevents participation in regional initiatives, knowledge-sharing and planning for future AMET services (e.g., the migration to System-Wide Information Management (SWIM), or new services for Air Traffic Flow Management (ATFM)).

Recommendation 3.4: SAHF Member Countries to undertake coordinated action to secure funding for international travel of AMET experts to attend relevant ICAO meetings; this should include engagement with the national CAAs and with regional bodies, such as the ICAO Asia/Pacific Regional Office and the Asia/Pacific Conference of civil aviation DGs.

4) Technical matters

Note: *Findings in this section are only based on the online survey and interviews, thus not exhaustive due to the lack of direct observations of the status through onsite inspections.*

Finding 4.1: In general, the technology used for the requisite aerodrome observations (those needed for METAR, SPECI and other local reports) is a mixture of automated sensors and human observers. It seems that, for the main international airports, the basic needs for those reports are met; there is insufficient information about the existing domestic airports or airfields, where the weather conditions may pose significant safety risk, due to the complex terrain or other factors. In some countries, the airport AMET observing systems and sensors are owned by entities other than the NMHS. In general, concerns exist regarding the level of maintenance and calibration of the sensors which is crucial for the accuracy of the reported data (and part of the QMS in this regard).

Recommendation 4.1: AMET providers (i.e., NMHSs) should maintain a clear record of the status of all observing systems at the aerodromes/airfields served (regardless the actual ownership). Any discrepancies and malfunctions should be documented and addressed in due course. The capacity for calibration of equipment to meet WMO requirements should be considered at the SAHF level to find economic solution for regular inspections and testing. The Observation Networks Strategy and Roadmap 2030, endorsed by SAHF EC in May 2025, includes the establishment of calibration facilities in the region to overcome this problem. Support from appropriate bodies of WMO such as the Commission for Observation, Infrastructure and Information Systems (INFCOM), the WMO RA II Working Group on Infrastructure, and/or the Department of Earth Systems Data and Predictions of the WMO Secretariat would also be beneficial and should be sought.

Finding 4.2: Almost all SAHF Member Countries (with a notable exception of India) reported a lack of weather radar data which impedes the provision of important AMET services, such as aerodrome warnings and aerodrome observation/nowcast services such as METAR, SPECI, TREND.

Recommendation 4.2: It cannot be expected that the limited availability of weather radar information in the SAHF Member Countries would improve quickly due to the significant cost factor. Thus, such data gap could be (at least partially) filled with better use of the available satellite and NWP information. The Observation Networks Strategy and Roadmap 2030 Target 3 relates to "Optimizing the use of satellite and radar data in the region", with clear activities and milestones, including on capacity development. Similarly, the NWP Strategy and Roadmap 2030 (also endorsed by SAHF EC in May 2025) Target 1 relates to "making use of well-tested methodologies and tools in the region with the support of development partners", which would support the use of NWP in aviation services. In addition, the WMO Unified Data Policy invites/recommends for more data sharing at least between WMO Members. Preparing operational guidance and training on such methods and tools are part of these activities; the SAHF Working Groups on numerical weather prediction and observation networks are instrumental in defining the activity programs and support implementation.

5) Service delivery

Note: *Findings in this section are only based on the online survey and interviews, thus not exhaustive due to the lack of direct observations of the status through onsite inspections.*

Finding 5.1: There are several SAHF Member Countries lacking the capacity to provide basic AMET services such as Terminal Aerodrome Forecasts (TAF), aerodrome warnings, and SIGMET information (for the country's flight information region(s)). Notably, such deficiencies are reported for Afghanistan and Bhutan. Lack of such products is considered a serious aviation safety issue.

Recommendation 5.1: Resolving the safety-related deficiencies mentioned above should be considered a top priority, which requires proper national planning with international financial and expert help. Focused projects and implementation plans should be in place with clear target dates for achieving compliance with international requirements.

6) Coordination of AMET issues among SAHF Member Countries

Finding 6.1: Many of the findings for the individual SAHF Member Countries in this Assessment are similar and would be better addressed if discussed at regional level. Leveraging resources and sharing knowledge and experience would help the NMHSs to compensate for some national resources gaps and investigate solutions based on regional cooperation.

Recommendation 6.1: It is proposed to establish a SAHF Working Group on Aeronautical Meteorological Services (AMET WG) composed by aviation experts to ensure a follow-up on the findings and recommendations in this Assessment and to discuss any other relevant AMET issues in the SAHF Member Countries. The WG should work in coordination with the RA II Expert Team on Services for Aviation (ET-AVI) under the RA II Working Group on Weather, Climate, Hydrological, Marine and Related Environmental Services and Applications (WG-S). The SAHF AMET WG would identify and propose to SAHF governing bodies concrete actions and projects aimed at resolving gaps and deficiencies through regional cooperation. The WG may also help improve the representation of the SAHF Member Countries at relevant ICAO and WMO meetings and forums.

Conclusions

The current Assessment of the AMET service provision in SAHF Member Countries is aimed at establishing a baseline to assist decision-makers undertake informed actions to address identified needs and resolve existing deficiencies. AMET services are well regulated and guided at an international level by relevant ICAO and WMO frameworks. Nevertheless, the implementation of the required services and facilities and the level of compliance with the international standards and recommended practices differ from country to country. The analysis and recommendations provided in this Assessment could help the SAHF Member Countries to raise the level of AMET services delivery at both national and sub-regional level by applying common approaches and mutual assistance in addressing identified deficiencies and capacity gaps.

Regardless of national specifics, the existence of a suitable **legal framework and institutional arrangements** is a paramount for the relevance, quality and sustainability of the AMET services provided in each country. Aviation is a multi-disciplinary and multi-stakeholder business in which the roles and responsibilities of each stakeholder, as well as all cross-agency interfaces need to be clearly defined and supported by a set of national legal and regulatory acts. Thus, the Assessment provides recommendations to the SAHF Member Countries to assess and strengthen their national institutional arrangements impacting the provision of AMET service.

A main focus of the Assessment was on the ability to apply **the mechanism of cost-recovery** as a business model for the delivery of the AMET services by the SAHF Member Countries. While ICAO and WMO have provided international policy and guidance on the cost-recovery for air navigation services, the establishment and continuous operation of this model at national level requires substantial effort and coordination between several institutions with essential commitment and support by the government. The Assessment identified almost unanimous agreement by the NMHSs as AMSPs that the cost-recovery would improve the AMET service delivery. The realization of this approach will require scheduled actions and acquiring of specific expert knowledge. Furthermore, the implementation of cost-recovery is intricately linked to the

existing national, and sometimes regional, legal framework, which may need to be amended in order to allow the providers (i.e., NMHSs) to generate revenue from the AMET services. The Assessment recommendations on cost-recovery will help SAHF Member Countries to initiate respective relevant actions at national and regional level.

Satisfactory provision of AMET services is highly dependent on existing and future **technological and human resources** allocated by the NMHSs and supported by the governments. The Assessment identifies gaps and deficiencies in both resource areas in most of the SAHF Member Countries. It is therefore important that the specific AMET needs are adequately described in SAHF assessment reports prepared by SAHF Working Groups and/or Country Hydromet Diagnostics (CHD) prepared by Peer Advisors in the context of the Systematic Observations Financing Facility (SOFF). Then, relevant SAHF policies and strategies, such as the Observation Networks Strategy and Roadmap 2030 and the NWP Strategy and Roadmap 2023, can address regional mechanisms to address these needs.

Noting that this Assessment provides 14 concrete recommendations for the attention of the SAHF Executive Council, it is highly desirable to establish **a mechanism to support follow-up actions** on these recommendations and monitor progress. The proposed SAHF AMET WG would be instrumental as such an expert body, eventually complemented by a broader community of practice of aeronautical meteorologists in the SAHF Member Countries. Such a group would be beneficial as an interface to relevant ICAO and WMO bodies at regional and global levels providing two-way communication on AMET issues including emerging new requirements for services and technology advancements; and to interact with other SAHF WGs such as Observation Networks and NWP.

ANNEX I: Country-by-country findings and recommendations

In the following, key findings are presented for each of the SAHF Member Countries, as well as some initial recommendations. Neither the findings nor the recommendations are exhaustive, since the level of depth of the analysis was limited due to the regional scope of this study, but they can serve as starting point for further, more detailed, national-level analyses.

<table>
<tr><th colspan="3">Afghanistan</th></tr>
<tr><td rowspan="2">Desktop review</td><td>National requirements</td><td>The basic national requirements for aeronautical meteorological services are set in the Aeronautical Information Publication (AIP) of Afghanistan, part GEN 3.5 Meteorological Services (version available online is dated 28 Jan 2021).

The document states that “Limited meteorological services are available”.

The following airports/aerodromes for which meteorological information could eventually be provided are as follows:

Kabul OAKB
Kandahar OAKN
Bagram OAIX
Herat OAHR
Mazar-E-Sharif OAMS
Jalalabad OAJL
Dwyer OADY

No other requirements have been included in the current AIP.</td></tr>
<tr><td>Regional requirements</td><td>The basic regional requirements for aeronautical meteorological services are set in the ASIA/PACIFIC Regional Air Navigation Plan, Volume II, Part V – Meteorology (MET).

Listed requirements include a meteorological watch office (MWO) for the Kabul FIR/SRR (OAKX) to issue SIGMET (WS) and SIGMET for volcanic ash (WV).

Terminal Aerodrome Forecasts (TAF) are required for Kabul International (OAKB) and Kandahar (OAKN).

These two airports are also listed in the APAC Table AOP I-1, International Aerodromes Required in the Asia/Pacific Regions.</td></tr>
</table>

	Website	**https://amd.gov.af/aviation/** The website provides access to METAR and TAF for international airports: OAKN, OAKB, OAHR, OAMS, OAKS *Note: OAKS – Khost International Airport is listed on the website but information not currently not available* *METAR and TAF for local airports – Kunduz (OAUZ), Bamyan (OABN), Jalalabad (OAJL) – listed on the website, but information not available*
	Previous studies	Country Hydromet Diagnostics – 2021 peer review (peer reviewer TSMS, Turkey) SAHF evaluation: *"No income is generated from aeronautical meteorological services for AMD, and although AMD has put the question to the Ministry regarding any costs recovered from these services, no response has been provided to them so far."*
Online interview - Key Findings	Institutional	AMD has been designated as the AMET service provider, however, specifics are missing. Ongoing work on a new Meteorology Act.
	Budget and Cost-recovery	Budget – entirely by government (through Ministry of Transport). There is no cost-recovery for AMET services. Some attempts to monetize the service by assigning a fixed price per METAR or TAF have been discussed.
	Major operational deficiencies	• Lack of SIGMET information for Kabul FIR – a safety-related issue. • Lack of QMS for the AMET services – non-compliance with ICAO requirements • Insufficient or out-of-date equipment
	HR situation	• Lack of trained AMET staff – insufficient number of forecasters to ensure regular service for all international and domestic aerodromes • Lack of training possibilities for existing staff • Disconnection from international developments at ICAO and WMO levels
Key recommendations	• Urgent need for rehabilitation and renewal of meteorological systems at airports; other technical systems also need modernization. Ensure regular technical checks, maintenance and calibration of critical MET equipment at airports. • Human resources – identify needs for training; make a forward-looking HR plan to meet the current and future needs for the provision of AMET services. Look for partnerships with WMO RTCs, suitable development projects, possible twinning with more developed NMSs.	

	• Prioritize resolving non-compliance and safety deficiencies – implementation of QMS, issuance of SIGMET. • Investigate opportunities to improve the budget situation, including through elements of cost-recovery for the provided AMET services. As a start, work to establish the cost incurred for the provision of the current services and then work with the CAA, Treasury, airlines to reach agreement on the cost allocation for AMET service to be included in the air navigation service charges. • Negotiate with CAA to secure some travel budget to attend relevant ICAO and WMO meetings in order to stay informed of international development and forthcoming AMET-specific requirements.

Bangladesh		
Desktop review	National requirements	The basic national requirements for aeronautical meteorological services are set in the Aeronautical Information Publication (AIP) of Bangladesh, part GEN 3.5 Meteorological Service (available online version dated 17 April 2025). The information is provided in detail. The Meteorological Services for Civil Aviation is provided by the Bangladesh Meteorological Department, Ministry of Defense. Area meteorological watch is provided for the Dhaka FIR. METAR and SPECI are provided for seven airports: Dhaka/HSIA VGHS Chattogram/ Shah Amanat Intl. VGEG Cox's Bazar VGCB Rajshahi VGRJ Jashore VGJR Saidpur VGSD Osmani, Sylhet VGSY TAF and warnings provided for the two main airports: Dhaka/HSIA VGHS Chattogram/ Shah Amanat Intl. VGEG SIGMET for Dhaka FIR (VGFR) is provided by the MWO at HSIA (Dhaka) Climatological Summaries for Chattogram and Dhaka are available.
	Regional requirements	The basic regional requirements for aeronautical meteorological services are set in the ASIA/PACIFIC Regional Air Navigation Plan, Volume II, Part V – Meteorology (MET). Requirements for METAR and TAF for VGHS and VGEG. Requirement for SIGMET for Dhaka FIR/SRR (VGFR) to be provided by the MWO Dhaka HSIA (VFHS).
	Website	https://live6.bmd.gov.bd/p/TAF-100

		There is a menu item “Aviation Forecast” on the BMD website which seems to provide some AMET products for Dhaka HSIA Airport.
	Previous studies	Country Hydromet Diagnostics – 2024 peer reviewed (peer reviewer FMI, Finland). The report contains little references to AMET services, with general recommendations for the need of their improvement including compliance with ICAO requirements and implementing QMS. There is an ongoing project on QMS with international assistance (JICA, WB).
Online interview - Key Findings	Institutional	The provision of AMET services by the BMD is based on a LoA with the CAA of Bangladesh.
	Budget and Cost-recovery	Budget is provided entirely by the government (through Ministry of Defense). There is no cost-recovery for AMET services. Some talks have been initiated but there is no willingness and strategy to move into that direction. BMD understands the importance of the cost-recovery for the sustainability and improvement of the AMET services, but they have no capacity to initiate the process on their own.
	Major operational deficiencies	• Difficulties with maintenance and calibration of AMET OBS equipment • Five weather radars have been installed but it seems that only one is working at present due to maintenance problems • Lack of methodology for monitoring and forecasting some important AMET phenomena (e.g., low visibility conditions, tropical storms, wind shear, turbulence) • QMS status not clear – seems that there is ongoing project to implement ISO 9001:2015
	HR situation	• Lack of training possibilities for existing staff • Disconnection from international developments at ICAO and WMO levels
Key recommendations	• Need for rehabilitation and renewal of meteorological systems at domestic airports; other technical systems also need modernization. Ensure regular technical checks, maintenance and calibration of critical MET equipment at airports. • Human resources – identify needs for training; make a forward-looking HR plan to meet the current and future needs for the provision of AMET services. Look for partnerships with WMO RTCs, suitable development projects, possible twinning with more developed NMSs. • Investigate opportunities to improve the budget situation, including through elements of cost-recovery for the provided AMET services. As a start, work to establish the cost incurred for the provision of the current services and then work with the CAA, Treasury, airlines to reach agreement on the cost allocation for AMET service to be included in the air navigation service charges.	

	• Negotiate with CAA to secure some travel budget to attend relevant ICAO and WMO meetings in order to stay informed of international development and forthcoming AMET-specific requirements.

Bhutan		
Desktop review	National requirements	The basic national requirements for aeronautical meteorological services are set in the Aeronautical Information Publication (AIP) of Bhutan, part GEN 3.5 Meteorological Service (available online edition 29 Dec 2022). The National Centre for Hydrology and Meteorology (NCHM) provides Meteorological Service for civil aviation in Bhutan. Meteorological Service is provided for the entire airspace over the territory of Bhutan. METAR and SPECI are required for PARO/Paro Intl VQPR. There are no stated requirements for the provision of TAF. A SIGMET service is planned for Bhutan but not implemented Note from the AIP: A small Meteorological Unit presently exist to provide current weather and significant weather observation to arriving and departing aircraft, data are derived from the Automated Weather Observation System (AWOS). Information like surface wind direction and speed, temperature, dew point and pressure are derived from the AWOS. The website of the Department of Air Transport (doat.gov.bt) provides information for other airports in Bhutan: Gelephu International Airport – VQGP; and two domestic airports – Bumthang Domestic Airport – VQBT and Yongphula Domestic Airport – VQTY. However, the current version of the AIP of Bhutan does not include requirement for meteorological service for these additional airports.
	Regional requirements	The basic regional requirements for aeronautical meteorological services are set in the ASIA/PACIFIC Regional Air Navigation Plan, Volume II, Part V – Meteorology (MET). Current requirements do not include a meteorological watch office (MWO) for Bhutan and there is no FIR assigned to Bhutan. This means that, at present, there is no regional requirement for the issuance of SIGMET for the airspace of Bhutan, however, there is an intention to develop such a capability. Terminal Aerodrome Forecasts (TAF) are not

		issued. There is one airport listed in the APAC Table AOP I-1, International Aerodromes Required in the Asia/Pacific Regions, PARO/Paro Intl VQPR.
	Website	https://www.nchm.gov.bt/ The site has a menu item "Aviation Services" which describes the current situation as: *"Within the NCHM, Aviation Met Section (AMS) is a section under Weather and Climate Services Division (WCSD) with the mandate to provide operational meteorological information for safe, regular and efficient air navigation within Bhutan. It provide information to the Paro International Airport (PIA) and the three domestic airports in Gelephu, Bumthang and Yongphula. The center issue aeronautical meteorological observation information and has plan to provide aeronautical meteorological forecast and warning, as well as the SIGnificant METeorological Information (SIGMET) in future."*
	Previous studies	Country Hydromet Diagnostics – 2024 peer review (peer reviewer FMI, Finland). The report contains little references to AMET services, with general recommendations for the need of their improvement including compliance with ICAO requirements and implementing QMS. There is an ongoing project on QMS with international assistance (JICA, WB).
Online interview – Key Findings	Institutional	The NCHM has been designated as the AMET service provider. However, the current capacity of NHCM to provide the required aviation services is very limited.
	Budget and Cost-recovery	Budget is entirely by government. There is no cost-recovery at present. An existing Hydromet Policy mentions cost-recovery as a future mechanism.
	Major operational deficiencies	• The AMET services provided by NCHM are limited to aerodrome reports (METAR and SPECI) only. There is no capacity for the issuance of TAF and SIGMET, which poses serious safety issues. • AWOS is installed at Paro Intl, but not at the other airports. • QMS is not implemented; there is an ongoing effort to prepare for QMS and ISO 9001:2015. • A number of projects are ongoing and infrastructural improvements expected,

		however it is not clear how they will impact the provision of AMET services.
	HR Situation	• There is a severe shortage of AMET trained personnel; currently there are only two forecasters. There is a plan for adding more forecasters by 2027. • No competency assessment framework. • Need for guidance from international experts.
Key recommendations	• The lack of basic forecasting services, such as TAF, SIGMET and aerodrome warnings represent a serious deficiency and need to be addressed as a matter of urgency. There should be a clear timebound plan how these deficiencies will be resolved. • International assistance through secondments of trained forecasters could be pursued, which will also provide capacity development for the local staff. • An estimate of the cost for the full suite of AMET services, compliant with the ICAO requirements need to be made. This will provide a basis for the development of a proposal for a cost-recovery mechanism to the government. • The need for training and guidance has to be addressed urgently. An experienced AMET expert may be assigned to NCHM for a suitable time period (3 to 6 months) in contrast to previous short missions and visits.	

India		
Desktop review	National requirements	The basic national requirements for aeronautical meteorological services are set in the Aeronautical Information Publication (AIP) of India, part GEN 3.5 Meteorological Service. The Meteorological Services for civil aviation are provided by the India Meteorological Department, Ministry of Earth Sciences (MoES), Government of India. Meteorological service is provided within the Chennai, Delhi, Kolkata, and Mumbai Flight Information Regions (FIRs). METAR and SPECI are provided for 105 airports. TAF, aerodrome warnings, wind shear warnings, forecasts for take off/landing are provided for more than 20 airports. SIGMET: Significant Meteorological Information pertaining to the FIRs are issued by the Meteorological Watch Office (MWO) functioning at Chennai, Delhi, Kolkata & Mumbai as SIGMET. These are supplied to the ATS units at the Flight Information Center (FIC) and Area Control Center (ACC) for the transmission to aircraft in flight. VOLMET BROADCASTS: Current Weather Reports and Aerodrome Forecasts and SIGMETs of certain stations are broadcast on HF from Kolkata and Mumbai at half hourly intervals. ATIS BROADCAST: Latest Weather Report of the airport, together with trend forecast valid for the next 2 hours, is included in the Automatic Terminal Information Service (ATIS) broadcast from Chennai, Delhi, Kolkata & Mumbai. Online Aviation Meteorological Briefing System (OLBS) is functioning from MWO Chennai and Delhi. It provides through username / password access to the registered users of airlines to avail all types of briefing material, including current weather reports, SIGMET warnings, tropical cyclone and volcanic ash advisory bulletin issued by the designated centres (of ICAO) for international /domestic flight planning purposes. (Details on the various products available through the OLBS are provided in the AIP).

		Climatological summaries are available for all international airports.
	Regional requirements	The basic regional requirements for aeronautical meteorological services are set in the ASIA/PACIFIC Regional Air Navigation Plan, Volume II, Part V – Meteorology (MET). The Regional Plan includes requirements for METAR and TAF for 21 international airports in India: AHMEDABAD VAAH AMRITSAR VIAR BANGALORE INTL. AIRPORT VOBL CALICUT VOCL CHENNAI VOMM COCHIN INTL. VOCI COIMBATORE VOCB DELHI (IGI) VIDP GAYA VEGY GUWAHATI VEGT HYDERABAD INTL. AIRPORT VOHS JAIPUR VIJP JAIPUR VIJP KOLKATA VECC LUCKNOW VILK MANGALORE VOML MUMBAI VABB NAGPUR VANP PATNA VEPT THIRUVANANTHAPURAM VOTV TIRUCHIRAPPALLI VOTR VARANASI VIBN SIGMET is required for four FIRs served by India: CHENNAI FIR/SRR (VOMF) served by MWO Chennai VOMM; DELHI FIR/SRR served by MWO Delhi (VIDP); KOLKATA FIR/SRR (VECF) served by MWO Kolkata (VECC); MUMBAI FIR/SRR served by MWO Mumbai (VABB). Requirement for VOLMET broadcast service to be provided by Kolkata and Mumbai. India is also responsible for one of the ICAO's Tropical Cyclone Advisory Centres (TCAC): TCAC New Delhi (VIDP) is responsible for issuing tropical cyclone advisories for the Bay of Bengal and the Arabian Sea.
	Website	https://camd.imd.gov.in/index.php

		Central Aviation Meteorological Division (CAMD) at DGM, New Delhi is the nodal office for the aviation services in the country. It also maintains liaison with ICAO, WMO, DGCA, AAI and Airlines on technical aspects of aviation. The website of CAMD provides information on airports and services provided. Access to the actual products (e.g., METAR, TAF, SIGMET) requires login credentials.
	Previous studies	NIL
General comments	It was not possible during the project time to conduct an online interview, thus, some general comments are provided here based on the desktop study and the questionnaire inputs from IMD. It is clear that in the SAHF context India presents a different case with regard to AMET service capacity and delivery. The aviation industry in the country has been growing steadily over the past two decades (with the exception of the COVID period) and the demand for the AMET services has also been growing. The IMD has developed an adequate organizational and technological structure to support these demands and it could be seen that services have been provided in compliance with the international and national requirements. Moreover, the IMD has been preparing to meet the future needs based on the projected growth of air traffic in India (see e.g., *Evolution of Aviation Meteorological services in India https://www.researchgate.net/publication/388426026_Evolution_of_aviation_meteorological_services_in_India)* The most interesting part for further study seems to be the institutional framework and the business model for the AMET services. While the IMD stated that there is no cost-recovery arrangement established in accordance with the ICAO policy and guidance, information was made available that the IMD has generated revenue through the provision of AMET services to the Airports Authority of India (see media coverage: https://timesofindia.indiatimes.com/india/with-rs-226-crore-income-since-2022-23-imd-now-a-money-spinner/articleshow/119728653.cms). The reported revenue generation of about 26 million USD presents a significant amount but it is not clear how it relates to a “classical” cost-recovery approach. It is worth investing further with the IMD whether their approach and business model could help other SAHF Member Countries to generate revenue for the provision of AMET service.	

Maldives		
Desktop review	National requirements	The basic national requirements for aeronautical meteorological services are set in the Aeronautical Information Publication (AIP) of Maldives, part GEN 3.5 Meteorological Service. The information is provided in detail. The meteorological services for civil aviation are provided by National Meteorological Centre of the Maldives Meteorological Service. Meteorological service is provided within the terminal control area of Velana International Airport, Gan International Airport and the control zones of Gan, Kadhdhoo, Kaadedhdhoo and Hanimaadhoo Airports. METAR and SPECI are provided for five airports: VELANA INTL AIRPORT (MALE) VRMM GAN INTL AIRPORT VRMG KADHDHOO AIRPORT VRMK KAADEDHDHOO AIRPORT VRMT HANIMAADHOO (INTL) AIRPORT VRMH TAF, En-route weather Forecast for Take-off, Met Folder, SIGMET and Aerodrome Warnings for Velana International Airport and domestic airports are provided by the National Meteorological Centre at Velana International Airport. Personal briefing and consultation for flight crew members are provided only at Velana International. For all other aerodromes, consultation is available by telephone. Flight documentation provided to operators comprise of take-off and landing forecast, a significant weather chart, an upper wind / temperature chart, latest available aerodrome forecasts for destination and alternate aerodromes and a copy of the latest satellite picture (satellite picture provided as an add on per request basis).
	Regional requirements	The basic regional requirements for aeronautical meteorological services are set in the ASIA/PACIFIC Regional Air Navigation Plan, Volume II, Part V – Meteorology (MET). MWO for Male FIR/SRR is required served by Male/Intl - VRMM. Terminal Aerodrome Forecasts (TAF) are required for VRMG, VRMH and VRMM.

	Website	https://www.meteorology.gov.mv/aviation METAR and TAF for the five aerodromes are provided. SIGMETs for Male FIR are also provided.
	Previous studies	Country Hydromet Diagnostics – 2023 peer review (peer reviewer FMI, Finland). Relevant paragraph from this study: *"Currently the MMS does not have cost recovery mechanism in place for any services, including aviation services. The new Meteorological Act, under preparation, would enable cost recovered activities. This is strongly encouraged to ensure that the MMS has financial flexibility to independently support and sustain operations, including meteorological observations. The flexibility brought by the cost recovered income would also support the planned investments to remain GBON compliant. It is recommended that the cost recovery mechanism would be included in the next strategy of the MMS."* SAHF Assessment Maldives – recognizes relatively well developed AMET services and compliance with the ICAO requirements for QMS.
Online interview Main findings	Institutional	The MMS is well established as the AMET service provider for Maldives. A new Meteorological Act has been prepared and is in the pipeline for approval. Relevant agreements with the other aviation stakeholders in Maldives are in place..
	Budget and Cost-recovery	Currently the MMS budget comes entirely from the government (through Ministry of Tourism and Environment). There is no cost-recovery for AMET services. There hasn't been an assessment of the cost involved in the provision of AMET services as a basis for establishing a cost-recovery mechanism. There is, though, a political will to work in this direction.
	Major operational deficiencies	• There are no critical deficiencies in the provision of AMT services in Maldives. Gradual improvements of various monitoring and forecasting systems is in place. MMS will benefit from the SOFF funding which may help modernize the AMET systems and services. • Maintenance and calibration of instruments is an important topic. MMS does not have its own calibration equipment and there is a high cost for doing the calibration abroad.
	HR situation	• Most of staff have basic degree and they are compliant to WMO competency standards. However, There is a need for refreshing type

		of training for all staff on regular basis, particularly on reporting formats. • Exposure to new advancements in technical reporting formats should be performed. (e.g. ICAO meeting), so that is also an important topic to be included in an eventual cost-recovery mechanism.
Key Recommendations	• The situation in Maldives seems to be in favour of initiating a project on establishing a cost-recovery mechanism. The MMS has been providing the full set of AMET services as per the international and national requirements which is a pre-condition for successful negotiations with the stakeholders concerned. • The MMS should be supported by experienced international expert(s) to develop the methodology, conduct the cost-analysis and develop a proposal for consideration by the CAA and other institutions in Maldives.	

Myanmar		
Desktop review	National requirements	The basic national requirements for aeronautical meteorological services are set in the Aeronautical Information Publication (AIP) of Myanmar, part GEN 3.5 Meteorological Service. The meteorological services for civil aviation are provided by the Department of Meteorology and Hydrology of the Republic of the Union of Myanmar acting under the authority of Ministry of Transport. Meteorological service is provided within the Yangon Flight Information Region (FIR). METAR and SPECI are provided for five airports: YANGON INTL AIRPORT VYYY MANDALAY INTL. AIRPORT VYMD NAY PYI TAW INTL AIRPORT VYNT SITTWE AIRPORT VYSW BAGAN AIRPORT VYBG TAF and Aerodrome Warnings are provided for VYYY, VYMD, VYNT. Personal briefing and consultation for flight crew members is provided at the main Meteorological Office, Yangon International Airport. For international flights the flight documentation comprises: Significant weather chart; An upper wind and temperature charts for standard levels: and the latest available aerodrome forecasts for the destination and its designated alternates. Climatological summaries are available for VYYY.
	Regional requirements	The basic regional requirements for aeronautical meteorological services are set in the ASIA/PACIFIC Regional Air Navigation Plan, Volume II, Part V – Meteorology (MET). Only VYYY is listed with a requirement for meteorological service, including TAF. Requirement for MWO VYYY to provide SIGMET for Yangon FIR/SRR.
	Website	https://www.moezala.gov.mm/aviation-meteorology There is no English language version; no aeronautical MET information on the website. To note: information from four weather radars is provided on the website.

	Previous studies	SAHF Assessment Myanmar – only basic information about the role of the DMH as the provider of AMET services.
Online interview Main findings	Institutional	The DMH has been designated as the AMET service provider. There is little information about other institutional arrangements on the provision of AMET service.
	Budget and Cost-recovery	AMET service is funded entirely by government (through Ministry of Transport and Communications). There is no cost-recovery for AMET services.
	Major operational deficiencies	• Lack of integrated and automated weather observing systems (AWOS) at the airports. • Lack of equipment to monitor and report wind shear at airports. • Calibration and maintenance is an issue. • Status of QMS is unclear – maybe implemented. • Need for improved methodologies for forecasting SIG weather, e.g., those related to monsoons and tropical cyclones.
	HR situation	• Sufficient staff numbers for the AMET division, but need for training for all staff.
Key Recommendations	There is a need to raise awareness and understanding of the cost-recovery business model and its advantages. Some initial steps on determining the cost of the AMET service may be undertaken.	

Nepal		
Desktop review	National requirements	The basic national requirements for aeronautical meteorological services are set in the Aeronautical Information Publication (AIP) of Nepal, part GEN 3.5 Meteorological Service. The meteorological services for Civil Aviation Authority of Nepal are provided by the Department of Hydrology and Meteorology by which meteorological watch is provided within Kathmandu FIR. METAR and SPECI are provided for eight airports: TRIBHUVAN INTL AIRPORT VNKT GAUTAM BUDHA INTL AIRPORT VNBW POKHARA IL AIRPORT VNPR NEPALGUNJ AIRPORT VNNG SIMARA AIRPORT VNSI BIRATNAGAR AIRPORT VNVT JANAKPUR AIRPORT VNJP CHANDRAGADHI AIRPORT VNCG TAF and Take off/Landing forecasts are provided for the three international airports VNKT, VNBW and VNPR. SIGMET is provided for the Kathmandu FIR by the MWO VNKT. Routine and selected special reports on current weather, terminal aerodrome and landing/ take off forecasts with trend for Tribhuwan International Airport, Gautam Buddha International Airport and Pokhara International Airport are provided from TIA Met Office, GBIA Met Office and PRIA Met Office respectively. For every domestic flight from TIA, latest weather observation, TAF, three days weather bulletin, high altitude forecast and wind-temp chart from FL050 to FL180 is provided. Oral briefing for current flight operation and for advance operational planning of international flights as well as for domestic flights is provided in person using displayed weather charts and satellite cloud pictures and other meteorological aids to the pilot-in-command or his representative prior to departure (in the TIA, GBIA, PRIA Met offices).

		Flight documentation is provided for domestic flights and international flights from TIA, GBIA and PRIA Met offices. The flight documentation comprises significant weather charts, upper wind & air temperature charts and the latest available observation reports and aerodrome forecasts for the destination / alternative and enroute aerodromes. Whenever possible the pilot-in-command or his representative is given personal briefing by a forecaster at the Aerodrome Meteorological Office, otherwise briefing may be carried out by telephone; Climatological summaries are available for the three international airports VNKT, VNBW and VNPR.
	Regional requirements	The basic regional requirements for aeronautical meteorological services are set in the ASIA/PACIFIC Regional Air Navigation Plan, Volume II, Part V – Meteorology (MET). Currently, only VNKT is listed with a requirement for meteorological service, including TAF. Requirement for MWO VNKT to provide SIGMET for Kathmandu FIR/SRR.
	Website	https://dhm.gov.np/mfd/#/weather/aviation There is a good visualization of the METAR, TAF and SIGMET for the three international airports VNKT, VNBW and VNPR.
	Previous studies	SAHF Assessment Nepal – only basic information about the role of the DHM as the provider of AMET services. To note: lack of compliance with ICAO requirement for QMS for AMET services – QMS not yet implemented. The function of AMET forecaster is combined with the function of PWS forecaster.
Online interview Main findings	Institutional	The Hydromet Policy sets the aviation requirements and the DHM is the designated AMET provider. There is also a formal agreement with the CAA.
	Budget and Cost-recovery	Entirely by government (through Ministry of Energy, Water Resources and Irrigation). There is no cost-recovery for AMET services.
	Major operational issues and deficiencies	• The lack of SIGMET service is a major deficiency. DHM is in a process to start issuing SIGMET for thunderstorms (TS SIGMET). • Lack of lightning data with high resolution. • The three existing radars are out of service. • Need for improved methods for forecasting for low-level flights and for domestic airports – the complex orography is a major factor. • There are RVR systems and ceilometers but they are not used properly at some places

		(RVR reported by ATC based on their own evaluation). • QMS not yet implemented. SOPs are being developed and there is a plan to obtain ISO 9001:2015 in 2026.
	HR situation	• There are no dedicated AMET forecasters – the functions are combined with PWS. • There is a need for training on how to use better existing systems from different vendors and sources. • Lack of funds to attend ICAO meetings – lack of awareness of forthcoming requirements.
Key Recommendations	• The lack of SIGMET service and aerodrome warnings represent a serious deficiency and need to be addressed as a matter of urgency. There should be a clear timebound plan how these deficiencies will be resolved. • An estimate of the cost for the full suite of AMET services, compliant with the ICAO requirements need to be made. This will provide a basis for the development of a proposal for a cost-recovery mechanism to the government. • The need for training and guidance need to be addressed urgently. • Negotiate with CAA to secure some travel budget to attend relevant ICAO and WMO meetings in order to stay informed of international development and forthcoming AMET-specific requirements.	

Pakistan		
Desktop review	National requirements	The basic national requirements for aeronautical meteorological services are set in the Aeronautical Information Publication (AIP) of Pakistan, part GEN 3.5 Meteorological Service. No public version of the Pakistan AIP could be found. The AIP web space is password protected.
	Regional requirements	The basic regional requirements for aeronautical meteorological services are set in the ASIA/PACIFIC Regional Air Navigation Plan, Volume II, Part V – Meteorology (MET). Currently, there is a discrepancy between the information in the Regional Plan and the information in the national AIP. The Regional Plan includes requirements for METAR and TAF for six international airports: GWADAR/INTL. OPGD ISLAMABAD/BENAZIR BHUTTO INT'L OPRN KARACHI/JINNAH INT'L OPKC LAHORE/ALLAMA IQBAL INT'L OPLA NAWABSHAH OPNH PESHAWAR/INTL. OPPS Requirement for the provision of SIGMET for Karachi FIR/SRR (OPKR) by the MWO Karachi OPKC, and for the Lahore FIR/SRR (OPLR) by the MWO Lahore OPLA. Requirement for VOLMET broadcast service to be provided by Karachi.
	Website	https://www.pmd.gov.pk/en/ PMD operates a highly informative website with many types of factual and forecast information. The aviation services sub-site (indicated as "new") https://aviation.pmd.gov.pk/new/ provides access to aviation charts (SIG WX and wind/temp), however no METARs, TAFs or SIGMETs.
	Previous studies	SAHF Assessment Pakistan – contains useful information about the aviation services provided by the PMD.
Online interview – Main findings	Institutional	The AMET service provided by the PMD is well established, though there is no Law on Meteorology. LoAs with stakeholders are in place, but need updates

		and revisions from time to time. There is ongoing work on a new Meteorology Act.
	Budget and Cost-recovery	Budget is entirely from government. PMD does not collect any fee from the Civil Aviation Authority for the AMET services provided.
	Major operational deficiencies	• There are no major operational issues reported. Services from the main international and domestic airports are provided in accordance with the requirements. • For areal services for the two Pakistani FIRs, the MWOs prov ide the required SIGMET service; there is sufficient satellite information, but only two radars (two more in the pipeline through a JICA project). • PMD is trying to improve the reception and utilization of aircraft reports through AMDAR and through AIREP (voice communication). These are needed for producing better vertical profiles. • QMS has been implemented and ISO certified for all AMET services (not clear if the transition from 9001:2008 tom 9001:2015 has been completed, but seems that there is no issue).
	HR situation	• No issues with the number of trained AMET forecasters reported needed for 24-hr shift work at main airports. • In-house on-the-job training is provided.
Key Recommendations	• The PMD is well positioned to provide the whole set of AMET services required nationally and internationally. Under this condition, it would be appropriate to initiate work on the business model with a view to generate revenue through cost-recovery for the services provided. • This will require setting up an appropriate consultation mechanism with the CAA, the airport authorities and the airlines. • As a start, PMD could initiate a task on an assessment of the current cost of the AMET service as per the ICAOI and WMO guidelines. International assistance by experienced experts may help to expedite this process. • Furthermore, the cost-recovery mechanism should be supported by the top management and discussed at the Ministry level.	

Sri Lanka		
Desktop review	National requirements	The basic national requirements for aeronautical meteorological services are set in the Aeronautical Information Publication (AIP) of Sri Lanka, part GEN 3.5 Meteorological Service. The meteorological services for civil aviation are provided by the Department of Meteorology under the Ministry of Disaster Management and Human Rights. Area meteorological watch is provided for the Colombo FIR. METAR and SPECI are provided for two airports: KATUNAYAKE/BANDARANAIKE INTL. AIRPORT VCBI RATMALANA/ COLOMBO INTL. AIRPORT VCCC TAF is provided for VCBI. SIGMET is provided for the Colombo FIR by the MWO VCBI. The Meteorological Office and Meteorological Watch Office at KATUNAYAKE/Bandaranaike Intl. Airport Colombo operates throughout the twenty-four hours (H24) and provides following services for Civil Aviation: services for preflight/current operational planning for all flights operating out of KATUNAYAKE / Bandaranaike Intl. Airport Colombo; • supply hourly weather reports with trend-type landing forecasts; • information for ATIS and VOLMET; • a Meteorologist is always available at the Meteorological Office at KATUNAYAKE / Bandaranaike Intl. Airport Colombo either on telephone or in person; • In addition, self-briefing display facility is always available for the crew members at the MET Briefing Office located in terminal building. Climatological summaries are available for the two international airports VCBI and VCCC. *Note: Sri Lanka AIP contains also details on the type and siting of the meteorological equipment at the airports.*

	Regional requirements	The basic regional requirements for aeronautical meteorological services are set in the ASIA/PACIFIC Regional Air Navigation Plan, Volume II, Part V – Meteorology (MET). Currently, there is a discrepancy between the information in the Regional Plan and the information in the national AIP. The Regional Plan includes requirements for METAR for three airports: Hingurakgoda/Minneriya VCCH Katunayake/Bandaranaike Intl. Airport Colombo VCBI Mattala Rajapaksa International Airport VCRI TAF is required for VCBI and VCRI. *Note: There is a discrepancy in the requirements stated in the national AIP and in the ICAO regional Plan. CAA need to take action to resolve it, e.g., send an update to the ICAO Regional Office.* Requirement for MWO VCBI to provide SIGMET for Colombo FIR/SRR.
	Website	https://meteo.gov.lk/ The website does not provide aviation weather information.
	Previous studies	SAHF Assessment Sri Lanka – contains useful information about the services provided by the DoM at the airports.
Online interview – Main findings	Institutional	Currently, there is no law on Meteorology. The provision of AMET services is based on a 3-party MoU with CAA Sri Lanka and the Airports of Sri Lanka Ltd. AWOS is provided by the aviation side, while DoM provides other facilities and staff.
	Budget and Cost-recovery	Budget is entirely from government. Insufficient budget in the last years due to financial crisis. No cost-recovery.
	Major operational deficiencies	• Maintenance and calibration of existing equipment; need for modernizing observing systems at the airports • Lack of SOPs and methodology to provide reliable forecasts and warnings for hazardous weather (e.g., low visibility conditions affecting air traffic); criteria for warnings not developed • Lack of radar information for aerial watch (maybe one radar coming in 2027)

		• QMS – ongoing process, maybe in final phase
	HR situation	• Insufficient number of trained AMET forecasters • The financial situation prevents new recruitment • Lack of training for existing staff • Disconnection from ICAO an WMO developments due to lack of travel budget
Key Recommendations	• Clarify the requirements stated in the national AIP and the ICAO Regional Plan (names and locations of airports for which AMET service id required). • Rehabilitation and renewal of meteorological systems at airports; other technical systems also need modernization. Ensure regular technical checks, maintenance and calibration of critical MET equipment at airports. • Human resources – identify needs for training; make a forward-looking HR plan to meet the current and future needs for the provision of AMET services. Look for partnerships with WMO RTCs, suitable development projects, possible twinning with more developed NMSs. • Ensure implementation of QMS as soon as possible. • Investigate opportunities to improve the budget situation, including through elements of cost-recovery for the provided AMET services. As a start, work to establish the cost incurred for the provision of the current services and then work with the CAA, Treasury, airlines to reach agreement on the cost allocation for AMET service to be included in the air navigation service charges. • Negotiate with CAA to secure some travel budget to attend relevant ICAO and WMO meetings in order to stay informed of international development and forthcoming AMET-specific requirements.	

ANNEX II: Questionnaire

for conducting a rapid assessment of the current status of the provision of Aeronautical Meteorological (AMET) Services by the SAHF States

Objective:

The objective of the Questionnaire is to collect updated information from the providers of the AMET Services (by default the NMHSs) concerning the existing institutional arrangements, funding, scope of services, technical capacity, and level of compliance with relevant international requirements. Through the collected information, to establish a baseline and to identify critical needs to be addressed as a priority, in order to enable advancements in the service provision as well as a potential for implementing a better business model, including cost-recovery.

Methodology:

The collection of information is to be conducted in two steps: 1) through written replies to the Questionnaire; and 2) through online interviews.

Targeted Responders:

It is expected that the Questionnaire will reach experts at NMHS responsible for the provision of AMET services. In addition, in case of engagement of the CAA of the State as a MET Authority, it would be useful to reach those at the CAA dealing with the AMT services. It will also be instrumental if the PRs are informed and eventually engaged in the process.

References:

- ICAO Annex 3 to the Convention on International Civil Aviation, Meteorological Service for International Air Navigation
- Guide to Aeronautical Meteorological Service Cost-recovery, (WMO-No.904)
- WMO Technical Regulations, Volume I (WMO-No.409)
- Compendium of WMO Competency Frameworks (WMO-Mo. 1209)
- Guide to the Quality Management System for the Provision of Meteorological Service for International Air Navigation (WMO-No. 1001)

Section 1: Information of the respondent

Q1.1: Please provide your name and surname

Q1.2: Agency you are representing

Q1.3: Role

Q1.4: Email address

Section 2: National regulatory and institutional framework on aeronautical meteorological (AMET) service provision

It is expected that each country (ICAO Contracting State or WMO Member State) has developed and promulgated a national legal and regulatory framework based on the international framework established by ICAO and WMO. This section of the survey is intended to collect information about the various national legal and regulatory frameworks, including existing deficiencies thereof (e.g. lack of or inadequate national legislation/regulation).

Q2.1: In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?

- Yes
- No
- Unknown

Q2.1a: If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.

Q 2.2: Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?

- The Civil Aviation Authority (CAA)
- The NMHS
- Other (e.g., Ministry of Transport, etc.)
- There is no formal designation of Meteorological Authority
- Unknown

Q2.3: Is the NMHS the main provider of AMET services in your country?

- Yes, for all services – international and domestic
- Yes, for part of the services
- No, there are other providers of aeronautical meteorological services

Q2.3a: In case there are other providers of AMET services in your country, please provide details:

Q2.4: If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?

- Yes
- No

Q2.4a: If your answer to the question above is "yes", please provide details:

Q2.5: Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.

Q2.6: What is the main funding mechanism for AMET service provision in your country?

- Fully covered by the government budget
- Fully covered by cost-recovery
- Combination of government budget and cost-recovery
- Combination of government budget, cost-recovery and commercial arrangements
- Unknown

Section 3: Cost-recovery (optional section)

If cost-recovery for the provision of AMET services has been implemented in your country, please provide details by answering the questions in this section.

Q3.2: What type of charges are included in the mechanism used to recover costs for the provision of AMET service?

- Terminal charges
- En-route charges
- Ticket tax charges or levies
- Specific national/regional charges
- Unknown

Q3.2b: If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?

Q3.3: Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?

"Core cost" refers to a fair share of the costs for infrastructure like e.g. Numerical Weather Prediction, weather radar, satellite. Detailed information about "core cost" is available in the Guide to Aeronautical Meteorological Service Cost-recovery (WMO-No.904)

- Yes
- No

Q3.3b: If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"

Q3.4: Please provide any other remark that may be of use for this survey concerning cost-recovery

Section 4: Details on organization and technical capacity in the provision of AMET service

This section is intended to collect information on the technical capacity of the AMET service providers. The information, while not exhaustive, would serve as a "baseline" in determining the need for technical assistance activities in the future.

Q4.1: Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country

Q4.2: Number of international aerodromes for which regular METAR reports are issued

Q4.3: Number of international aerodromes for which TAF forecasts are issued

Q4.4: Are there additional AMET services provided specifically for domestic aerodromes?

- Yes
- No

Q4.4a: If your answer to the question above is "yes", please specify details about the additional AMET services

Q4.5: Are international aerodromes equipped with automatic weather observing stations (AWOS)?

- Yes, all
- Yes, some (e.g. mixture of automatic sensors and manual input)
- No

Q4.6: Are the products of the World Area Forecast Centres (WAFS) available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?

- Fully utilized, no problems with telecom means
- Utilized, some telecom outages
- Utilized, frequent telecom outages
- Not utilized

Q4.6a: What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?

Q4.7: Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?

- Yes, all TAFs are verified on a routine regular basis
- Yes, periodically (quarterly, annually, etc.)
- Occasionally (e.g., case studies, or on demand)
- There is no regular verification of TAFs or other forecasts

Q4.8: Is SIGMET information issued for the flight information region(s) your country is responsible?

- Yes
- No

Q4.8a: Is there a cross-border coordination for SIGMET production with neighboring countries?

- Yes
- No

Q4.8b: If yes, with which countries?

Q4.9: Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?

Q4.10: Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)

Section 5: QMS, competency and qualification

During the recent years, Members have been putting a lot of effort in ensuring compliance with the ICAO and WMO requirements related to quality management, competency and qualification of the aeronautical meteorological personnel. This section will provide information on the attained compliance of SAHF States and of any significant deficiencies.

Q5.1: Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?
Note: It is assumed that the NMHSs are the main AMET service providers in the SAHF Member Countries, thus, the question is mostly directed to the NMHS of the country

- Yes
- No

Q5.1a: If the answer on the above question is "No", is there a plan to implement QMS in the near future? By when? Please provide more details

Q5.2: What is the current status of the competency assessment of AMET personnel (observers and forecasters) in your country in accordance with the competency standards of WMO (applicable since 1 December 2013)?

- Fully implemented
- Partially implemented
- Not implemented

Q5.2a: In case that competency assessment has not been implemented, what are the main reasons.

Q5.3: What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?

- Fully implemented
- Partly implemented
- Not implemented

Q5.3a: In case that the qualification standard has not been implemented, what are the main reasons?

Section 6: Additional feedback on challenges and needs for improvement of AMET services

Q6.1: Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:

- Quality of forecasts (TAF)
- Issuance of SIGMET
- QMS implementation
- Competency of staff
- Lack of qualified forecasters
- Cost-recovery
- Automation of aerodrome observations
- Improved communication with airlines and other users

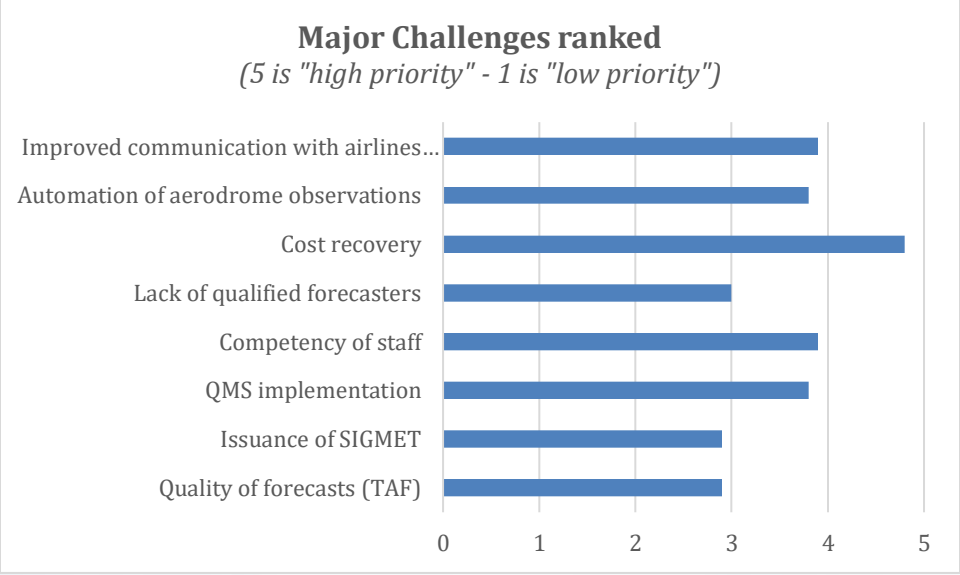
Q6.2: Any additional comments on the challenges and needs for improved AMET services in your country

ANNEX III: Survey responses of each SAHF Member Country

In the following, the survey results from all nine SAHF Member Countries are presented, including two responses from Afghanistan.

Some general findings could be mentioned, as follows:

- No country has implemented cost-recovery for the provision of AMET services. The service provision has been fully budgeted by the government.
- Several countries express the lack of cost-recovery as an obstacle for the development of better services. There is a general willingness to pursue the implementation, but the understanding is that the task is not in the hands of the NMHSs.
- The provision of the basic required services seems to be at an acceptable level. However, several countries express the need for more advanced services to be offered, providing that the appropriate equipment if made available (radar, wind shear, lightning detection, etc.).
- Half of the surveyed countries have implemented the QMS. The implementation of the related competency and qualification requirements is mostly "partly implemented". The need for further training has been mentioned in a couple of responses.
- Three responders report on the existence of coordination of SIGMET between neighbouring countries. It is a proven good practice that should be expanded among the rest of the countries in the region.
- SIGMET is an issue in several countries. Also, specific MET services for low-level aviation need to be developed and harmonized.
- The respondents were asked to rank eight major challenges for their respective AMET services. The average results for the region are shown in the graph below.



The table below contains the answers from the respondents in full.

AFGHANISTAN - 1			
Q1.1	Please provide your name and surname	[redacted]	
Q1.2	Agency you are representing	Afghanistan Meteorological Department	
Q1.3	Role	Aviation meteorology forecaster	
Q1.4	Email address	[redacted]	
Q2.1	In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?	Yes	
Q2.1a	If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.	Afghanistan Meteorological Department	
Q2.2	Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?	Other (e.g., Ministry of Transport, etc.)	
Q2.3	Is the NMHS the main provider of AMET services in your country?	Yes, for all services – international and domestic	
Q2.3a	In case there are other providers of AMET services in your country, please provide details:	NA	
Q2.4	If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?	Yes	
Q2.4a	If your answer to the question above is "yes", please provide details:	All the above work under supervision of Ministry of Transport and Aviation	
Q2.5	Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.	All of them work together under MOTA and they work together Airports	
Q2.6	What is the main funding mechanism for AMET service provision in your country?	Unknown	
Q3.2	What type of charges are included in the mechanism used to recover costs for the provision of AMET service?	Unknown	
Q3.2a	If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?	Nil	
Q3.3	Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?	No	
Q3.3b	If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"	NA	
Q3.4	Please provide any other remark that may be of use for this survey concerning cost-recovery	NA	
Q4.1	Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country	1	

Q4.2	Number of international aerodromes for which regular METAR reports are issued	4	
Q4.3	Number of international aerodromes for which TAF forecasts are issued	4	
Q4.4	Are there additional AMET services provided specifically for domestic aerodromes?	Yes	
Q4.4a	If your answer to the question above is "yes", please specify details about the additional AMET services	For all domestic airfield across country observer provide METAR in case of need	
Q4.5	Are international aerodromes equipped with automatic weather observing stations (AWOS)?	Yes, all	
Q4.6	Are the products of the WAFS available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?	Not utilized	
Q4.6a	What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?	Internet	
Q4.7	Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?	There is no regular verification of TAFs or other forecasts	
Q4.8	Is SIGMET information issued for the flight information region(s) your country is responsible?	No	
Q4.8a	Is there a cross-border coordination for SIGMET production with neighboring countries?	No	
Q4.8b	If yes, with which countries?	NA	
Q4.9	Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?	Yes	
Q4.10	Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)	We provide METAR, SPECI and TAF for airlines right now.	
Q5.1	Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?	Yes	
Q5.1a	If the answer on the above question is "No", is there a plan to implement QMS in the near future? By when? Please provide more details	I don’t have any information	
Q5.2	What is the current status of the competency assessment of AMET personnel (observers and forecasters) in your country in accordance with the competency standards of WMO (applicable since 1 December 2013)?	Partially implemented	
Q5.2a	In case that competency assessment has not been implemented, what are the main reasons.	NA	
Q5.3	What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?	NA	

Q5.3a	In case that the qualification standard has not been implemented, what are the main reasons?	NA	
Q6.1	Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:		
	Quality of forecasts (TAF)	3	
	Issuance of SIGMET	5	
	QMS implementation	5	
	Competency of staff	5	
	Lack of qualified forecasters	3	
	Cost-recovery	5	
	Automation of aerodrome observations	3	
	Improved communication with airlines and other users	3	
Q6.2	Any additional comments on the challenges and needs for improved AMET services in your country	Thanks for survey as after collapse of government, system of meteorology had been low because before all reports and predictions were done by ISAF AND NATO. With good equipments but after Afghans have taken itself and they really need some trainings and equipments for a quality reports.	

AFGHANISTAN - 2			
Q1.1	Please provide your name and surname	[redacted]	
Q1.2	Agency you are representing	AMD Afghanistan Meteorological Department	
Q1.3	Role	Director	
Q1.4	Email address	[redacted]	
Q2.1	In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?	Yes	
Q2.1a	If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.	Afghanistan Civil aviation law (Article 82)	
Q2.2	Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?	Other (e.g., Ministry of Transport, etc.)	
Q2.3	Is the NMHS the main provider of AMET services in your country?	Yes, for all services – international and domestic	
Q2.3a	In case there are other providers of AMET services in your country, please provide details:	No, Just AMD provide the weather reports	
Q2.4	If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?	Yes	
Q2.4a	If your answer to the question above is "yes", please provide details:	AMD provide the Aviation Weather reports such as TAF, METAR AND SPECI	
Q2.5	Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.	NA	

Q2.6	What is the main funding mechanism for AMET service provision in your country?	Fully covered by the government budget	
Q3.2	What type of charges are included in the mechanism used to recover costs for the provision of AMET service?	Specific national/regional charges	
Q3.2a	If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?	Not clear	
Q3.3	Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?	No	
Q3.3b	If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"	its depend to AMD demand	
Q3.4	Please provide any other remark that may be of use for this survey concerning cost-recovery	NA	
Q4.1	Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country	0	
Q4.2	Number of international aerodromes for which regular METAR reports are issued	8	
Q4.3	Number of international aerodromes for which TAF forecasts are issued	4	
Q4.4	Are there additional AMET services provided specifically for domestic aerodromes?	No	
Q4.4a	If your answer to the question above is "yes", please specify details about the additional AMET services	NA	
Q4.5	Are international aerodromes equipped with automatic weather observing stations (AWOS)?	Yes, some (e.g. mixture of automatic sensors and manual input)	
Q4.6	Are the products of the WAFS available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?	Utilized, some telecom outages	
Q4.6a	What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?	just for (4) international air AMD staff access to the internet.	
Q4.7	Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?	Yes, all TAFs are verified on a routine regular basis	
Q4.8	Is SIGMET information issued for the flight information region(s) your country is responsible?	No	
Q4.8a	Is there a cross-border coordination for SIGMET production with neighboring countries?	No	
Q4.8b	If yes, with which countries?	NA	

Q4.9	Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?	No	
Q4.10	Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)	METAR, SPECI and TAF Reports	
Q5.1	Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?	Yes	
Q5.1a	If the answer on the above question is "No", is there a plan to implement QMS in the near future? By when? Please provide more details	Not implemented	
Q5.2	What is the current status of the competency assessment of AMET personnel (observers and forecasters) in your country in accordance with the competency standards of WMO (applicable since 1 December 2013)?	Partially implemented	
Q5.2a	In case that competency assessment has not been implemented, what are the main reasons.	The AMD staff competency assessment implemented after 1 December 2013.	
Q5.3	What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?	Partially implemented	
Q5.3a	In case that the qualification standard has not been implemented, what are the main reasons?	NA	
Q6.1	Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:		
	Quality of forecasts (TAF)	3	
	Issuance of SIGMET	1	
	QMS implementation	4	
	Competency of staff	4	
	Lack of qualified forecasters	4	
	Cost-recovery	3	
	Automation of aerodrome observations	5	
	Improved communication with airlines and other users	5	
Q6.2	Any additional comments on the challenges and needs for improved AMET services in your country	AMD department needs more for support, we are not access to the high resolution models, and AMD Staff needs for forecast training and observation, also AMD department needs to access the RADAR data.	

BANGLADESH			
Q1.1	Please provide your name and surname	[redacted]	
Q1.2	Agency you are representing	Bangladesh Meteorological Department	
Q1.3	Role	Officer in charge & Meteorologist of MWO, Dhaka	
Q1.4	Email address	[redacted]	
Q2.1	In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?	No	
Q2.1a	If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.	Actually by a Letter of agreement between Civil Aviation Authority of Bangladesh and Bangladesh Meteorological Department.	
Q2.2	Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?	The Civil Aviation Authority (CAA)	
Q2.3	Is the NMHS the main provider of AMET services in your country?	Yes, for all services – international and domestic	
Q2.3a	In case there are other providers of AMET services in your country, please provide details:	N/A	
Q2.4	If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?	Yes	
Q2.4a	If your answer to the question above is "yes", please provide details:	There are Eight offices located in the different Airports in Bangladesh and having required number of manpower and equipment installed in those offices	
Q2.5	Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.	Effective AMET services establish close coordination with air traffic management authorities. This ensures that weather information is timely, accurate, and tailored to the needs of pilots, air traffic controllers, and airport operators. Bangladesh Meteorological Department collaborate with regional and international organizations to standardize aeronautical Meteorological services and share critical meteorological data.	
Q2.6	What is the main funding mechanism for AMET service provision in your country?	Fully covered by the government budget	
Q3.2	What type of charges are included in the mechanism used to recover costs for the provision of AMET service?	NA	
Q3.2a	If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?	NA	
Q3.3	Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?	NA	

Q3.3b	If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"	NA	
Q3.4	Please provide any other remark that may be of use for this survey concerning cost-recovery	Cost-recovery process is Under process. Bangladesh Meteorological Department wants cost-recovery for Aviation Meteorological Services but it is depending on civil Aviation authority decision.	
Q4.1	Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country	1	
Q4.2	Number of international aerodromes for which regular METAR reports are issued	3	
Q4.3	Number of international aerodromes for which TAF forecasts are issued	3	
Q4.4	Are there additional AMET services provided specifically for domestic aerodromes?	Yes	
Q4.4a	If your answer to the question above is "yes", please specify details about the additional AMET services	AMET services provided for 5 Domestic Airports (Specially METAR & SPECI)	
Q4.5	Are international aerodromes equipped with automatic weather observing stations (AWOS)?	Yes, all	
Q4.6	Are the products of the WAFS available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?	Fully utilized, no problems with telecom means	
Q4.6a	What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?	Internet	
Q4.7	Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?	Yes, all TAFs are verified on a routine regular basis	
Q4.8	Is SIGMET information issued for the flight information region(s) your country is responsible?	Yes	
Q4.8a	Is there a cross-border coordination for SIGMET production with neighboring countries?	Yes	
Q4.8b	If yes, with which countries?	India and Myanmar	
Q4.9	Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?	Yes	
Q4.10	Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)	Flight Documentation, Briefing to Airlines agency or Pilot (when necessary).	
Q5.1	Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?	Yes	
Q5.1a	If the answer on the above question is "No", is there a plan to implement	QMS 9001:2015 is under processing	

	QMS in the near future? By when? Please provide more details		
Q5.2	What is the current status of the competency assessment of AMET personnel (observers and forecasters) in your country in accordance with the competency standards of WMO (applicable since 1 December 2013)?	Partially implemented	
Q5.2a	In case that competency assessment has not been implemented, what are the main reasons.	Lack of International training	
Q5.3	What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?	Partially implemented	
Q5.3a	In case that the qualification standard has not been implemented, what are the main reasons?	Lack of International training	
Q6.1	Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:		
	Quality of forecasts (TAF)	4	
	Issuance of SIGMET	4	
	QMS implementation	4	
	Competency of staff	5	
	Lack of qualified forecasters	3	
	Cost-recovery	5	
	Automation of aerodrome observations	5	
	Improved communication with airlines and other users	5	
Q6.2	Any additional comments on the challenges and needs for improved AMET services in your country	Aviation services can be international standard through international collaboration and international training regarding Aviation Meteorology.	

BHUTAN			
Q1.1	Please provide your name and surname	[redacted]	
Q1.2	Agency you are representing	The National Centre for Hydrology and Meteorology	
Q1.3	Role	Section Head, Aviation Meteorology Section	
Q1.4	Email address	[redacted]	
Q2.1	In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?	Yes	
Q2.1a	If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.	Civil Aviation Act of Bhutan	
Q2.2	Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?	The Civil Aviation Authority (CAA)	
Q2.3	Is the NMHS the main provider of AMET services in your country?	Yes, for all services – international and domestic	
Q2.3a	In case there are other providers of AMET services in your country, please provide details:	NA	
Q2.4	If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?	Yes	
Q2.4a	If your answer to the question above is "yes", please provide details:	SLA with ATC, AIS and Aerodrome operators	
Q2.5	Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.	AVMET service provider certification by CAA	
Q2.6	What is the main funding mechanism for AMET service provision in your country?	Fully covered by the government budget	
Q3.2	What type of charges are included in the mechanism used to recover costs for the provision of AMET service?	Unknown	
Q3.2a	If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?	No MET charges as of now	
Q3.3	Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?	No	
Q3.3b	If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"	NA	
Q3.4	Please provide any other remark that may be of use for this survey concerning cost-recovery	Currently there is no cost-recovery in place for aviation meteorology services in Bhutan, all the funding is from the royal government of Bhutan	

		and therefore cannot procure expensive infrastructure and only can afford the basic minimum for all the services	
Q4.1	Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country	0	
Q4.2	Number of international aerodromes for which regular METAR reports are issued	1	
Q4.3	Number of international aerodromes for which TAF forecasts are issued	0	
Q4.4	Are there additional AMET services provided specifically for domestic aerodromes?	Yes	
Q4.4a	If your answer to the question above is "yes", please specify details about the additional AMET services	METAR/SPECI and MET Reports	
Q4.5	Are international aerodromes equipped with automatic weather observing stations (AWOS)?	Yes, all	
Q4.6	Are the products of the WAFS available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?	Utilized, frequent telecom outages	
Q4.6a	What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?	SADIS	
Q4.7	Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?	There is no regular verification of TAFs or other forecasts	
Q4.8	Is SIGMET information issued for the flight information region(s) your country is responsible?	Yes	
Q4.8a	Is there a cross-border coordination for SIGMET production with neighboring countries?	No	
Q4.8b	If yes, with which countries?	NA	
Q4.9	Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?	No	
Q4.10	Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)	Flight Documentation	
Q5.1	Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?	No	
Q5.1a	If the answer on the above question is "No", is there a plan to implement QMS in the near future? By when? Please provide more details	Yes, currently in the process of capacity development of QMS for aviation meteorology services	
Q5.2	What is the current status of the competency assessment of AMET personnel (observers and forecasters) in your country in	Not implemented	

	accordance with the competency standards of WMO (applicable since 1 December 2013)?		
Q5.2a	In case that competency assessment has not been implemented, what are the main reasons.	Not enough resources to implement the competency assessment	
Q5.3	What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?	Not implemented	
Q5.3a	In case that the qualification standard has not been implemented, what are the main reasons?	Not enough resources to implement the competency assessment	
Q6.1	Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:		
	Quality of forecasts (TAF)	5	
	Issuance of SIGMET	5	
	QMS implementation	5	
	Competency of staff	5	
	Lack of qualified forecasters	5	
	Cost-recovery	5	
	Automation of aerodrome observations	3	
	Improved communication with airlines and other users	5	
Q6.2		There is a pressing need to issue TAF and Trend forecast at the moment	

INDIA			
Q1.1	Please provide your name and surname	[redacted]	
Q1.2	Agency you are representing	India Meteorological Department	
Q1.3	Role	Scientist	
Q1.4	Email address	[redacted]	
Q2.1	In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?	Yes	
Q2.1a	If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.	The provision of AMET services is provided under the Standard Operating Procedure (SOP) of India Meteorological Department and Civil Aviation Acts under Ministry of Civil Aviation.	
Q2.2	Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?	The NMHS	
Q2.3	Is the NMHS the main provider of AMET services in your country?	No, there are other providers of aeronautical meteorological services	
Q2.3a	In case there are other providers of AMET services in your country, please provide details:	In India, the primary provider of aeronautical meteorological services (AMET) is the India Meteorological Department (IMD), which is responsible for providing weather-related services for aviation, including METAR, TAF, SIGMET, and other meteorological information. However, the Indian Air Force (IAF) also plays a significant role in the provision of AMET service for some Civil Defence airports.	
Q2.4	If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?	Yes	
Q2.4a	If your answer to the question above is "yes", please provide details:	The IMD has formal agreements with airport operators and AAI for the regular provision of weather data, forecasting, and advisories.	
Q2.5	Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.	The IMD regularly updates its technical and service protocols to ensure compliance with ICAO standards.	
Q2.6	What is the main funding mechanism for AMET service provision in your country?	Combination of government budget and cost-recovery	
Q3.2	What type of charges are included in the mechanism used to recover costs for the provision of AMET service?	-	
Q3.2a	If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?	N/A	
Q3.3	Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?	Yes	
Q3.3b	If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"	It was decided by a committee.	

Q3.4	Please provide any other remark that may be of use for this survey concerning cost-recovery	-	
Q4.1	Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country	4	
Q4.2	Number of international aerodromes for which regular METAR reports are issued	34	
Q4.3	Number of international aerodromes for which TAF forecasts are issued	34	
Q4.4	Are there additional AMET services provided specifically for domestic aerodromes?	No	
Q4.4a	If your answer to the question above is "yes", please specify details about the additional AMET services	NA	
Q4.5	Are international aerodromes equipped with automatic weather observing stations (AWOS)?	Yes, all	
Q4.6	Are the products of the WAFS available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?	Fully utilized, no problems with telecom means	
Q4.6a	What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?	SADIS and International GTS links	
Q4.7	Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?	Yes, all TAFs are verified on a routine regular basis	
Q4.8	Is SIGMET information issued for the flight information region(s) your country is responsible?	Yes	
Q4.8a	Is there a cross-border coordination for SIGMET production with neighboring countries?	Yes	
Q4.8b	If yes, with which countries?	It is through the SIGMET Coordination Platform of Hongkong. Cross-border coordination is with all the countries present in that Platform.	
Q4.9	Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?	Yes, T3 chart is used for low levels.	
Q4.10	Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)	Detailed weather briefings, METAR, TAF, Local Weather, Take off data, SIGMETs, Upper Air chart and flight documentation are provided for pilots and airlines.	
Q5.1	Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?	Yes	
Q5.1a	If the answer on the above question is "No", is there a plan to implement QMS in the near future? By when? Please provide more details	NA	
Q5.2	What is the current status of the competency assessment of AMET personnel (observers and forecasters) in	Fully implemented	

	your country in accordance with the competency standards of WMO (applicable since 1 December 2013)?		
Q5.2a	In case that competency assessment has not been implemented, what are the main reasons.	NA	
Q5.3	What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?	Fully implemented	
Q5.3a	In case that the qualification standard has not been implemented, what are the main reasons?	NA	
Q6.1	Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:		
	Quality of forecasts (TAF)	4	
	Issuance of SIGMET	3	
	QMS implementation	3	
	Competency of staff	2	
	Lack of qualified forecasters	3	
	Cost-recovery	4	
	Automation of aerodrome observations	4	
	Improved communication with airlines and other users	3	
Q6.2	Any additional comments on the challenges and needs for improved AMET services in your country	There is a growing need for improved forecasting models and improved satellite products to further enhance accuracy and service reliability.	

MALDIVES			
Q1.1	Please provide your name and surname	[redacted]	
Q1.2	Agency you are representing	Maldives Meteorological Service	
Q1.3	Role	Oversee the activities of Weather Service Division including Aeronautical Meteorological Watch Office	
Q1.4	Email address	[redacted]	
Q2.1	In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?	Yes	
Q2.1a	If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.	Civil Aviation Act	
Q2.2	Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?	The NMHS	
Q2.3	Is the NMHS the main provider of AMET services in your country?	Yes, for all services – international and domestic	
Q2.3a	In case there are other providers of AMET services in your country, please provide details:	None	
Q2.4	If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?	Yes	
Q2.4a	If your answer to the question above is "yes", please provide details:	Cooperation arrangement for provision of Met Service between AIS and MET.	
Q2.5	Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.	Meteorology Act is drafted and ready for submission to the Government for approval	
Q2.6	What is the main funding mechanism for AMET service provision in your country?	Fully covered by the government budget	
Q3.2	What type of charges are included in the mechanism used to recover costs for the provision of AMET service?	NA	
Q3.2a	If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?	N/A	
Q3.3	Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?	No	
Q3.3b	If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"	NA	
Q3.4	Please provide any other remark that may be of use for this survey concerning cost-recovery	There is political and management will to implement cost-recovery for aviation sector, however not yet materialized.	

Q4.1	Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country	1	
Q4.2	Number of international aerodromes for which regular METAR reports are issued	3	
Q4.3	Number of international aerodromes for which TAF forecasts are issued	3	
Q4.4	Are there additional AMET services provided specifically for domestic aerodromes?	Yes	
Q4.4a	If your answer to the question above is "yes", please specify details about the additional AMET services	In addition to international exchange, domestic airports VRMT and VRMK are covered.	
Q4.5	Are international aerodromes equipped with automatic weather observing stations (AWOS)?	Yes, some (e.g. mixture of automatic sensors and manual input)	
Q4.6	Are the products of the WAFS available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?	Utilized, some telecom outages	
Q4.6a	What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?	Internet based	
Q4.7	Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?	Occasionally (e.g., case studies, or on demand)	
Q4.8	Is SIGMET information issued for the flight information region(s) your country is responsible?	Yes	
Q4.8a	Is there a cross-border coordination for SIGMET production with neighboring countries?	Yes	
Q4.8b	If yes, with which countries?	India, Sri Lanka and Australia	
Q4.9	Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?	Yes for domestic flight operations.	
Q4.10	Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)	Flight documentation, provide Met Data for incident investigation and occasional pilot briefing.	
Q5.1	Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?	Yes	
Q5.1a	If the answer on the above question is "No", is there a plan to implement QMS in the near future? By when? Please provide more details	NA	
Q5.2	What is the current status of the competency assessment of AMET personnel (observers and forecasters) in your country in accordance with the competency standards of WMO (applicable since 1 December 2013)?	Partially implemented	
Q5.2a	In case that competency assessment has not been implemented, what are the main reasons.	Few staff need BIP-M and BIP-MT qualification or equivalent.	

Q5.3	What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?	Partially implemented	
Q5.3a	In case that the qualification standard has not been implemented, what are the main reasons?	Few staff need BIP-M qualification or equivalent. Training opportunity required to upgrade these staff.	
Q6.1	Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:		
	Quality of forecasts (TAF)	3	
	Issuance of SIGMET	1	
	QMS implementation	2	
	Competency of staff	3	
	Lack of qualified forecasters	2	
	Cost-recovery	5	
	Automation of aerodrome observations	4	
	Improved communication with airlines and other users	4	
Q6.2	Any additional comments on the challenges and needs for improved AMET services in your country	Passing of Meteorological Act and implementation of Cost-recovery from aviation sector is a priority need.	

MYANMAR			
Q1.1	Please provide your name and surname	[redacted]	
Q1.2	Agency you are representing	Aeronautical Meteorological Division, Department of Meteorology and Hydrology	
Q1.3	Role	Deputy Director	
Q1.4	Email address	[redacted]	
Q2.1	In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?	No	
Q2.1a	If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.	No, but LoA (Department of Meteorology and Hydrology vs Department of Civil Aviation)	
Q2.2	Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?	The NMHS	
Q2.3	Is the NMHS the main provider of AMET services in your country?	Yes, for all services – international and domestic	
Q2.3a	In case there are other providers of AMET services in your country, please provide details:	N/A	
Q2.4	If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?	Yes	
Q2.4a	If your answer to the question above is "yes", please provide details:	Myanmar Civil Aviation Requirements, LoA (Department of Meteorology and Hydrology vs Department of Civil Aviation)	
Q2.5	Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.	AMS and civil aviation authority are different departments, so funding and institutional arrangements also different.	
Q2.6	What is the main funding mechanism for AMET service provision in your country?	Fully covered by the government budget	
Q3.2	What type of charges are included in the mechanism used to recover costs for the provision of AMET service?	Unknown	
Q3.2a	If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?	Unknown	
Q3.3	Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?	No	
Q3.3b	If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"	NA	
Q3.4	Please provide any other remark that may be of use for this survey concerning cost-recovery	NA	

Q4.1	Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country	1	
Q4.2	Number of international aerodromes for which regular METAR reports are issued	3	
Q4.3	Number of international aerodromes for which TAF forecasts are issued	3	
Q4.4	Are there additional AMET services provided specifically for domestic aerodromes?	Yes	
Q4.4a	If your answer to the question above is "yes", please specify details about the additional AMET services	METAR & SPECI	
Q4.5	Are international aerodromes equipped with automatic weather observing stations (AWOS)?	Yes, some (e.g. mixture of automatic sensors and manual input)	
Q4.6	Are the products of the WAFS available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?	Utilized, some telecom outages	
Q4.6a	What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?	ftp, Internet	
Q4.7	Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?	Occasionally (e.g., case studies, or on demand)	
Q4.8	Is SIGMET information issued for the flight information region(s) your country is responsible?	Yes	
Q4.8a	Is there a cross-border coordination for SIGMET production with neighboring countries?	Yes	
Q4.8b	If yes, with which countries?	Bangkok(VTBD), India(Kolkata), Kuala Lumpur(WMKK)	
Q4.9	Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?	Wind Shear Sensor	
Q4.10	Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)	briefing, flight documents	
Q5.1	Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?	No	
Q5.1a	If the answer on the above question is "No", is there a plan to implement QMS in the near future? By when? Please provide more details	Implementing QMS for NMHS by AIRBM projects but currently uncertified. But AMS is certified.	
Q5.2	What is the current status of the competency assessment of AMET personnel (observers and forecasters) in your country in accordance with the competency standards of WMO (applicable since 1 December 2013)?	Partially implemented	
Q5.2a	In case that competency assessment has not been implemented, what are the main reasons.	NA	

Q5.3	What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?	Partially implemented	
Q5.3a	In case that the qualification standard has not been implemented, what are the main reasons?	NA	
Q6.1	Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:		
	Quality of forecasts (TAF)	2	
	Issuance of SIGMET	2	
	QMS implementation	2	
	Competency of staff	3	
	Lack of qualified forecasters	3	
	Cost-recovery	5	
	Automation of aerodrome observations	3	
	Improved communication with airlines and other users	2	
Q6.2	Any additional comments on the challenges and needs for improved AMET services in your country	AMS and civil aviation authority are different departments so funding and institutional arrangement are challenges because we have not yet cost-recovery system.	

NEPAL			
Q1.1	Please provide your name and surname	[redacted]	
Q1.2	Agency you are representing	Department of Hydrology and Meteorology, Nepal	
Q1.3	Role	Meteorologist	
Q1.4	Email address	[redacted]	
Q2.1	In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?	Yes	
Q2.1a	If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.	Civil Aviation Requirements For Meteorological Service for International Air Navigation (CAR-3), 2017, Hydromet Act 2024	
Q2.2	Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?	The NMHS	
Q2.3	Is the NMHS the main provider of AMET services in your country?	Yes, for all services – international and domestic	
Q2.3a	In case there are other providers of AMET services in your country, please provide details:	NA	
Q2.4	If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?	Yes	
Q2.4a	If your answer to the question above is "yes", please provide details:	We have formal agreement with civil aviation authority of Nepal based on which we are providing the regular services.	
Q2.5	Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.	In Nepal, under Meteorological Foracasting Division (MFD) of Department of Hydrology and Meteorology (DHM), there is a dedicated Aviation Meteorological Section. In this section, 3 senior divisional meteorologists and 4 meteorologists are provisioned based on organizational structure.	
Q2.6	What is the main funding mechanism for AMET service provision in your country?	Fully covered by the government budget	
Q3.2	What type of charges are included in the mechanism used to recover costs for the provision of AMET service?	Unknown	
Q3.2a	If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?	We are not charging and providing free of cost aviation met services.	
Q3.3	Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?	No	
Q3.3b	If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"	NA	
Q3.4	Please provide any other remark that may be of use for this survey concerning cost-recovery	Till now here are no cost-recovery mechanisms. But as we are now working on	

		quality management system in aviation met service, this can be discussed.	
Q4.1	Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country	1	
Q4.2	Number of international aerodromes for which regular METAR reports are issued	3	
Q4.3	Number of international aerodromes for which TAF forecasts are issued	3	
Q4.4	Are there additional AMET services provided specifically for domestic aerodromes?	Yes	
Q4.4a	If your answer to the question above is "yes", please specify details about the additional AMET services	We are providing virtual/physical briefing for pilots or flight dispatchers or other aviation related persons every day. Also before each domestic flight, we use to provide flight folder including latest METAR/TAF, SIGMET (if any), windtemp chart, mountaineering forecast (with wind speed, direction and temperature) along with possible weather for the flight time. But still we could not provide low level sigwx charts, detail enroute forecast, turbulance forecast etc from Kathmandu office.	
Q4.5	Are international aerodromes equipped with automatic weather observing stations (AWOS)?	Yes, all	
Q4.6	Are the products of the WAFS available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?	Utilized, some telecom outages	
Q4.6a	What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?	We receive these forecasts from SADIS, ftp and internet. We are using Synergie workstation including aerometweb procured from MeteoFrance International. Due to recurring VPN problem, we are facing problems to access the products. Even though we have internet backup, sometimes slow internet also causes problems. We are also facing problem to send data through GTS because of which no stations' data from Nepal are trasmitting to the globe and no observed weather from Nepal is utilized in the global and regional model.	
Q4.7	Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?	There is no regular verification of TAFs or other forecasts	
Q4.8	Is SIGMET information issued for the flight information region(s) your country is responsible?	Yes	
Q4.8a	Is there a cross-border coordination for SIGMET production with neighboring countries?	No	
Q4.8b	If yes, with which countries?	Formally there is not such practice till the date but we have been using Regional SIGMET Coordination Platform from last few years in which regional countries including Nepal are coordinating and communicating.	

Q4.9	Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?	Yes we are lacking low level route forecasts and hence we need low level windshear, turbulence, visibility/fog forecasts. We also lack proper nowcasting mechanism.	
Q4.10	Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)	Weather briefing, international and domestic flight folder (with limited information), takeoff data, TAF, observation based thunderstorm SIGMET, METAR, SPECI	
Q5.1	Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?	No	
Q5.1a	If the answer on the above question is "No", is there a plan to implement QMS in the near future? By when? Please provide more details	We have already made a framework for QMS but implementation is still ongoing. We are working on QMS documentation to guide aviation met service as a multiyear (three years) program and this is the second year of this program.	
Q5.2	What is the current status of the competency assessment of AMET personnel (observers and forecasters) in your country in accordance with the competency standards of WMO (applicable since 1 December 2013)?	Not implemented	
Q5.2a	In case that competency assessment has not been implemented, what are the main reasons.	In Nepal, we do not have proper SOP for the assessment. Even though we have separate aviation met section, all sections of forecasting division are working together because of limited human resources.	
Q5.3	What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?	Partially implemented	
Q5.3a	In case that the qualification standard has not been implemented, what are the main reasons?	As we can see analyze and monitor continually the weather situation, forecast aeronautical meteorological phenomena and parameters, warn of hazardous phenomena, ensure the quality of meteorological information and services and Communicate meteorological information to internal and external users are the basic qualification; fog, wind shear and turbulence forecasting are main challenges in Nepal due to limited research and development work.	
Q6.1	Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:		
	Quality of forecasts (TAF)	3	
	Issuance of SIGMET	3	
	QMS implementation	5	
	Competency of staff	4	
	Lack of qualified forecasters	3	
	Cost-recovery	5	
	Automation of aerodrome observations	3	
	Improved communication with airlines and other users	4	

Q6.2	Any additional comments on the challenges and needs for improved AMET services in your country	Because of most of the hilly regions, deep valleys, adverse weather associated with them, less Research and Development, Case studies, limited modeling skill and computing capability, lack of QMS etc., AMET services in our country is highly challenging which should be improved as much as we can.	

PAKISTAN			
Q1.1	Please provide your name and surname	[redacted]	
Q1.2	Agency you are representing	Pakistan Meteorological Department	
Q1.3	Role	Director, National Weather Forecasting Center	
Q1.4	Email address	[redacted]	
Q2.1	In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?	No	
Q2.1a	If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.	NA	
Q2.2	Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?	The NMHS	
Q2.3	Is the NMHS the main provider of AMET services in your country?	Yes, for all services – international and domestic	
Q2.3a	In case there are other providers of AMET services in your country, please provide details:	NA	
Q2.4	If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?	Yes	
Q2.4a	If your answer to the question above is "yes", please provide details:	PMD has agreement with Pakistan Civil Aviation Authority (PCAA) for provision of AMET but now after formation of Pakistan Airport Authority (PAA) the agreement needs to revise. Also need agreements on Aerodrome/airports basis.	
Q2.5	Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.	NA	
Q2.6	What is the main funding mechanism for AMET service provision in your country?	Fully covered by the government budget	
Q3.2	What type of charges are included in the mechanism used to recover costs for the provision of AMET service?	Unknown	
Q3.2a	If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?	N/A	
Q3.3	Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?	No	
Q3.3b	If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"	NA	
Q3.4	Please provide any other remark that may be of use for this survey concerning cost-recovery	NA	

Q4.1	Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country	2	
Q4.2	Number of international aerodromes for which regular METAR reports are issued	15	
Q4.3	Number of international aerodromes for which TAF forecasts are issued	12	
Q4.4	Are there additional AMET services provided specifically for domestic aerodromes?	No	
Q4.4a	If your answer to the question above is "yes", please specify details about the additional AMET services	NA	
Q4.5	Are international aerodromes equipped with automatic weather observing stations (AWOS)?	Yes, some (e.g. mixture of automatic sensors and manual input)	
Q4.6	Are the products of the WAFS available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?	Fully utilized, no problems with telecom means	
Q4.6a	What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?	SADIS	
Q4.7	Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?	Yes, all TAFs are verified on a routine regular basis	
Q4.8	Is SIGMET information issued for the flight information region(s) your country is responsible?	Yes	
Q4.8a	Is there a cross-border coordination for SIGMET production with neighboring countries?	No	
Q4.8b	If yes, with which countries?	NA.	
Q4.9	Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?	Yes	
Q4.10	Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)	• Flight Folder Complete including Route Forecast • Destination & Alternate Aerodromes TAF, METAR • SigMet if Applicable • Briefing • Radar Product • Satellite Imagery • Any other related Document on requirement	
Q5.1	Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?	Yes	
Q5.1a	If the answer on the above question is "No", is there a plan to implement QMS in the near future? By when? Please provide more details	NA	
Q5.2	What is the current status of the competency assessment of AMET personnel (observers and forecasters) in your country in accordance with the	Fully implemented	

	competency standards of WMO (applicable since 1 December 2013)?		
Q5.2a	In case that competency assessment has not been implemented, what are the main reasons.	NA	
Q5.3	What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?	NA	
Q5.3a	In case that the qualification standard has not been implemented, what are the main reasons?	NA	
Q6.1	Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:		
	Quality of forecasts (TAF)	2	
	Issuance of SIGMET	4	
	QMS implementation	2	
	Competency of staff	2	
	Lack of qualified forecasters	3	
	Cost-recovery	5	
	Automation of aerodrome observations	5	
	Improved communication with airlines and other users	4	
Q6.2	Any additional comments on the challenges and needs for improved AMET services in your country	• Implementation of AMDAR • AIREP Reports not received at Met Offices • En-Route experience by the Pilot (if not mention in forecast) not reported by Pilot through ATC for Aviation Safety	

SRI LANKA			
Q1.1	Please provide your name and surname	[redacted]	
Q1.2	Agency you are representing	Department of Meteorology	
Q1.3	Role	Meteorologist In-Charge, Meteorological Watch Office, Katunayake	
Q1.4	Email address	[redacted]	
Q2.1	In your country, is the provision of the aeronautical meteorological (AMET) services covered by any legal act(s)?	Unknown	
Q2.1a	If your answer to the question above is "yes", please provide detail (e.g., the Civil Aviation Act, Meteorology Act, etc.); if possible provide the exact name of the respective legal act.	NA	
Q2.2	Which entity/organization has been designated as the Meteorological Authority in your State in accordance with the ICAO Annex 3, p. 2.1.4?	The NMHS	
Q2.3	Is the NMHS the main provider of AMET services in your country?	Yes, for all services – international and domestic	
Q2.3a	In case there are other providers of AMET services in your country, please provide details:	No	
Q2.4	If the NMHS is the main provider of, are there any formal arrangements with the aviation users – airports, air traffic services providers, airlines, etc.?	Yes	
Q2.4a	If your answer to the question above is "yes", please provide details:	MoU between Civil Aviation Authority Sri Lanka and Airport and Aviation Sri Lanka (PVT Ltd)	
Q2.5	Please provide any other remark relevant to the institutional arrangements for AMET services provision in your country.	NA	
Q2.6	What is the main funding mechanism for AMET service provision in your country?	Fully covered by the government budget	
Q3.2	What type of charges are included in the mechanism used to recover costs for the provision of AMET service?	NA	
Q3.2a	If available and allowed to be disclosed, what is the percentage of the MET charges as part of the overall air navigation service charges in your country?	NA	
Q3.3	Does your State include a portion of the cost of "core meteorological facilities" or services (core cost) in the cost-recovery arrangements for AMET service provision?	NA	
Q3.3b	If your answer to the question above is "yes", please specify details, including the portion (as percentage) of the "core cost"	NA	
Q3.4	Please provide any other remark that may be of use for this survey concerning cost-recovery	NA	

Q4.1	Number of Meteorological Watch Offices (MWO) responsible for issuance of SIGMET in your country	1	
Q4.2	Number of international aerodromes for which regular METAR reports are issued	4	
Q4.3	Number of international aerodromes for which TAF forecasts are issued	2	
Q4.4	Are there additional AMET services provided specifically for domestic aerodromes?	Yes	
Q4.4a	If your answer to the question above is "yes", please specify details about the additional AMET services	Route forecast for domestic flights for requested routes	
Q4.5	Are international aerodromes equipped with automatic weather observing stations (AWOS)?	Yes, some (e.g. mixture of automatic sensors and manual input)	
Q4.6	Are the products of the WAFS available and used by the AMOs (please include also an estimate of the reliability of the telecommunication means used to receive these products)?	Fully utilized, no problems with telecom means	
Q4.6a	What are the main telecom means to receive the WAFS products (e.g., SADIS, ftp, internet, etc.)?	Internet	
Q4.7	Are aeronautical forecasts (e.g., TAF, "trend" or any other forecasts for aeronautical users) regularly verified?	Yes, periodically (quarterly, annually, etc.)	
Q4.8	Is SIGMET information issued for the flight information region(s) your country is responsible?	Yes	
Q4.8a	Is there a cross-border coordination for SIGMET production with neighboring countries?	Yes	
Q4.8b	If yes, with which countries?	We are part of a SSEA SIGMET coordination platform and we cope with Indonesia, India and Maldives	
Q4.9	Is there a special requirement for issuing information for low-level flights (e.g., AIRMET)?	No	
Q4.10	Please provide information about products and services provided to pilots and airlines (i.e., briefing, flight documentation, etc.)	Takeoff forecast, Briefing, flight documentation, Landing forecast, TAF, METAR, SPECI, Aerodrome Warning, Lightning Alert, SIGMET	
Q5.1	Has the AMET services provider(s) in your country established a properly organized Quality Management System (QMS), including an ISO 9001:2015 certification?	No	
Q5.1a	If the answer on the above question is "No", is there a plan to implement QMS in the near future? By when? Please provide more details	Yes, by 2026	
Q5.2	What is the current status of the competency assessment of AMET personnel (observers and forecasters) in your country in accordance with the competency standards of WMO (applicable since 1 December 2013)?	Partially implemented	

Q5.2a	In case that competency assessment has not been implemented, what are the main reasons.	Lack of employees	
Q5.3	What is the current status of compliance with the WMO qualification standard for AMET forecasters (applicable since 1 December 2016)?	Fully implemented	
Q5.3a	In case that the qualification standard has not been implemented, what are the main reasons?	NA	
Q6.1	Please mark the major challenges/needs faced by the AMSP(s) in your country by assigning ranks from "5 - most important/urgent" to "1 - least important at present" to the following service elements:		
	Quality of forecasts (TAF)	1	
	Issuance of SIGMET	1	
	QMS implementation	5	
	Competency of staff	4	
	Lack of qualified forecasters	1	
	Cost-recovery	5	
	Automation of aerodrome observations	3	
	Improved communication with airlines and other users	3	
Q6.2	Any additional comments on the challenges and needs for improved AMET services in your country	NA	