Cost Recovery of Meteorological Services

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Overview

- Cost Recovery Principles
- Cost Recovery Case Studies

Cost Recovery Principles

(With reference to WMO-No. 904 Guide to Aeronautical Meteorological Services Cost Recovery: Principles and Guidance)

National Charging Policy

- Meteorological authority to take appropriate cost recovery measures for services rendered, including aeronautical meteorological service

- Finance arrangements include financing of all or part of the service provision:

  a) by tax payers through the general State budget;
  b) through specific taxes, part of which is directly allocated to service provider;
  c) through user charges (en-route charges or landing fees);
  d) purely under market conditions whilst still adhering to the Standards and recommended practices (SARPs) in ICAO Annex 3; or
  e) a combination of above options

Benefits of Cost Recovery

- Accountability
  - Service Users – specify what is required to meet requirements and within budget
  - Service Providers – invest the required resources to provide what is needed
- Transparency
- Certainty in resourcing
- Uplifting service delivery standards and stay abreast of latest developments

Cost Elements

- **Three** cost elements required to be derived for cost recovery of aeronautical meteorological service provision:

  a) **Direct costs** of the aeronautical **meteorological** services provided as part of a State's responsibility to meet ICAO Annex 3, along with the costs of any services agreed to be provided nationally;

  b) **Cost allocations** associated with the share of the meteorological infrastructure (known as '**core costs**') for aeronautical meteorological service provision; and

  c) **Overhead costs** associated with running the aeronautical meteorological service (administration, depreciation, maintenance etc)

Direct vs Core Costs

Direct Costs/Services	Core costs/services
• Meteorological services provided solely for aviation, full costs of providing these services can be recovered from the users • Usually achieved through agreement between the users and service provider. • Precise arrangements for cost recovery varies depending on the size of the operations, the range of services provided and the legislative arrangements in place.	• Meteorological services that are provided to a number of different users (and sectors) in addition to those in aviation • It is necessary to consider an equitable apportionment of the costs of the shared facilities and services (core services) • By equitably apportioning the costs of these core services amongst all users, the total costs to be recovered from each user are reduced. Hence, it is advisable to clearly define and agree on the core services after consultation with all user groups.

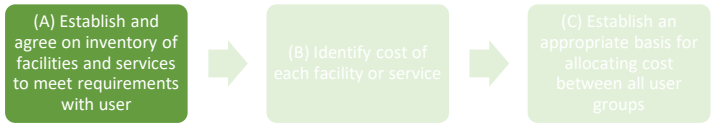
Allocation of Core Costs

(A) Establish and agree on inventory of facilities and services to meet requirements with user

(B) Identify cost of each facility or service

(C) Establish an appropriate basis for allocating cost between all user groups

Inventory of facilities and services



- Inventory be divided into:
  a) facilities and services needed to serve **exclusively aeronautical requirements**;
  b) facilities and services needed to serve **both aeronautical and non-aeronautical requirements.**

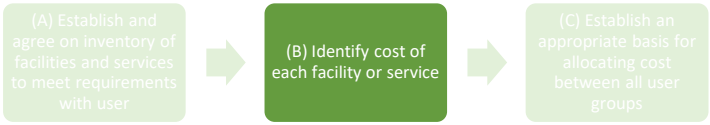
- Inventory may include various supporting (core) facilities and services that also serve meteorological requirements in general.

- Additional services may be specified and agreed upon. Such additional services could include forecasts to support generation aviation activities and forecasts for optimizing ATS operations

- Any additional facilities or services beyond the scope of the aforementioned cost recovery arrangements, such as customised forecasts should be direct-charged to the aviation user(s) concerned

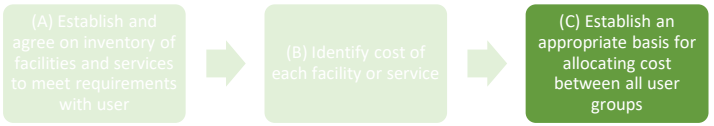
- ❖ forecast guidance issued centrally;
- ❖ running of computer models that provide numerical weather prediction forecasts;
- ❖ surface and upper-air observing networks;
- ❖ meteorological communication systems;
- ❖ data-processing centres;
- ❖ supporting research and development;
- ❖ IT support;
- ❖ quality control;
- ❖ training; and
- ❖ management and administration

Cost of facility or service



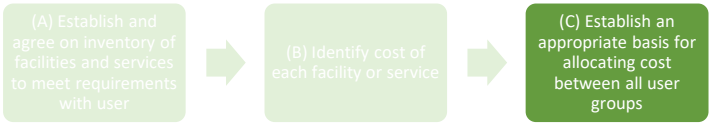
- **Operating/Maintenance Staff costs:** salaries, allowances, pension contributions, social insurance, overtime/on call payments
- **Operational Costs:** operational consumables, operating licences, equipment rental, operational staff transport, consultants, meteorological-related training, telecommunications
- **Maintenance Costs:** materials and spares, software maintenance, maintenance staff transport, contractors
- **Equipment Costs:** capital costs, renewal costs
- **Property Costs:** rent, maintenance, utilities, communications (telephone, internet)
- **Overheads:** management, administration, training (not meteorologically related), insurances, verification/quality control/quality management, international subscriptions, stakeholder engagement costs, and research and developments for aeronautical meteorological services
- **Capital asset register:** capital costs of capital acquisitions or depreciation, interests

Basis for Cost Allocation



- The allocation of costs should be determined in such a way that no users are burdened with costs not properly allocable to them.
- **Costs of facilities and services that are not exclusively used for aeronautical purposes** can be divided between aviation and other users by using any or a combination of the following methods:
  - In proportion to:
    a) estimated aeronautical and non-aeronautical use made of the products supplied or facilities used;
    b) estimated time used by computers;
    c) volume of information transmitted;
    d) number of personnel working;
- Costs should include the **depreciation and capital cost of items** such as equipment and buildings. Depreciation should not commence until a facility is put into service.

Basis for Cost Allocation



- In event any of the suggested methods are not applicable, **alternative methods should be agreed upon**, e.g. establishing a ratio between cost of facilities and services needed to serve exclusively aeronautical requirements and cost of those intended to serve exclusively non-aeronautical requirements.

- **Ratio could then be applied** to the costs of those core facilities that serve multiple user groups in order to estimate the aeronautical proportion of these costs.

Cost Recovery Case Studies

Meteorological Services

Meteorological Service Singapore ('MSS') provides aeronautical meteorological services to **Civil Aviation Authority of Singapore** ('CAAS') through a **bilateral Service Agreement** between CAAS and NEA/MSS.

SN	Key Services
1	Perform functions of a 24/7 Aeordrome Meteorological Office including: a) Preparation and forecasting of meteorological conditions for flights departing/landing at aerodromes; b) Maintaining surveillance and continuous observation of meteorological conditions over the aerodromes; and c) Preparation of flight documentation for flight crew/operations personnel
2	Perform functions of a 24/7 Meteorological Watch Office (MWO) to support aircraft in flight within the Singapore FIR, including: a) Maintain watch over meteorological conditions affecting flight operations within FIR b) Provision of SIGMET information
3	Provision of 24/7 aeronautical meteorological observations and reports including: a) METARs and Local routine reports; b) SPECIs and Local special reports; and c) Timely dissemination of aviation weather reports to local air traffic service units and internationally
4	Perform the functions of a regional OPMET databank, Inter-regional OPMET gateway and regional OPMET bulletin exchange centre

SN	Key Services
5	Preparation and issuance of: a) Aerodrome Forecasts (TAFs); b) Landing Forecasts (TREND); c) Windshear alerts and warnings; d) Aerodrome warnings; e) Forecasts for Take-off; f) Forecast of Area QNH; g) Low Level significant weather chart for Singapore h) Forecasts over holding stacks; and i) Daily briefings to air traffic controllers
6	Provision of meteorological information/conditions for pre-flight planning and use by flight crew prior to departure and aircraft in flight, including: a) Aerodrome reports, forecasts and warnings; b) En-route significant weather, wind and temperature forecasts (WAFs); and c) Advisories of volcanic ash and tropical cyclones
7	Provision of meteorological data and forecasts for Air Traffic Services and Search and Rescue operations
8	Perform national and international distribution of meteorological data and reports via the Air Traffic Management System

Meteorological Services

- MSS further supports air navigation services in its capacity as a regional **OPMET databank (RODB), a** regional **OPMET bulletin exchange (ROBEX) Centre, an Inter-regional OPMET Gateway (IROG), a TAF Collection Centre and a VOLMET Broadcast Centre**.

- In addition to the key services, MSS also provides supplementary services through its **aviation weather services website** and through the provision of **flight documentation**.

- The cost for customised flight pre-flight planning documentation is recovered directly from the airline operators, while the cost of the aviation weather services website is recovered through the service agreement with CAAS.

Cost Recovery Principles

- Singapore government agencies are financially accountable for the costs of goods and services that they provide to the public.
- MSS' fees for customized services and contractual prices with key customers are reviewed every 3 years.
- "User Pays" principle / No cross-subsidy
- Charged on a cost recovery basis and not operate beyond cost recovery for the purpose of profit making

Allocation of Cost

- Costs are recovered for two types of services, namely:
  - (i) Direct services: include all meteorological services that support domestic and international air navigation in compliance with MOS-MET(IAN).
  - (ii) Value-added services: as required by CAAS such as lectures on aeronautical meteorology, and specific studies and reports.

- The costing of these services is broadly based on the following approach:
  - (i) Determining the cost items for delivering meteorological services
  - (ii) Establishing an appropriate basis for allocating costs among user groups

Determining Cost Items

Cost Items

Direct Manpower

Man-effort that goes into provision of services

Systems Cost

Depreciation and maintenance costs of equipment, telecommunications and IT infrastructure

Overheads

Office rentals, corporate support functions, etc.

Basis of Cost Allocation

- Methodology based on apportioning:
  a) the personnel working on aeronautical and non-aeronautical services, and
  b) the usage of facilities and infrastructure required to produce the service

- Cost allocation is expressed as apportionment ratios of manpower and facilities/infrastructure resources required to produce and deliver the service.

- For manpower and infrastructure resources that are solely dedicated to providing aeronautical meteorological services, the costs, e.g. system to generate VOLMET broadcasts, aviation weather services website, are 100% allocated to CAAS.

- Apportionment ratios are reviewed annually or when there are changes to users' service requirements.

Basis of Cost Allocation

Cost Item	Examples	Apportionment Ratio to Aviation Sector
Direct Manpower	Staff at Weather Observing Station	70%
	Corporate support staff	30%
System Costs	Volmet system	100%
	Satellite reception and processing system	25%
Overheads	Rental of weather station premises	70%
	Office consumables	30%

Pricing of Services

- Pricing of meteorological services under the Service Agreement is determined by summing the apportioned costs for direct manpower, system costs and overheads as well as taking into consideration new investment and projected increase in maintenance costs.

Pricing of Services

- Regular meetings are held with customers on service requirements, cost recovery, contractual and governance matters.
- The annual price includes annual budgetary growth factor provided by Finance Ministry.
- When new investments are required to build R&D capabilities or to produce additional services to meet new ICAO requirements, the price of the Service Agreement will be reviewed and adjusted accordingly.
- Governance arrangements include discussions with CAAS; conducting user engagement sessions, and formalising the agreed costing through a service agreement.

Cost recovery approaches vary from Country to Country…

Cost Recovery Approaches

Examples of Similarities and Differences

Country	Similarities: Approach to Cost Recovery	Differences: Categorisation of Costs
Singapore	Identifies and classifies costs into different categories before apportionment costs to the various user groups.	Costing takes into consideration the following items: a) **Direct Manpower**; (b) **Systems Cost** and (c) **Overheads**, before apportionment of costs, as well as projected increases in maintenance costs and new investment.
France		Cost items were ranked according to 2 main components: (a) **Primary Cost Categories** – these are the activities and costs related to providing meteorological services and (b) **Secondary Cost Categories** - these are activities and costs relating to logistics, administration support, etc.

Summary

- Cost recovery for meteorological services varies from country to country.
- Cost recovery of aeronautical meteorological services is appropriate and recognised under ICAO guidelines and supported by WMO (e.g. WMO-No. 904).
- Cost recovery has its benefits in terms of accountability, transparency, certainty in resourcing and uplifting service standards.
- Cost recovery framework adopted must be in full and on-going consultations with all stakeholders.
- Regular review must done to ensure cost items and the corresponding apportionments remain relevant to the respective user groups.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